Dairy cows at the Sunset Valley Dairy

The Peter French Round barn built in the 1870s.

The Pueblo Mountain Range

Mule Deer can be found all over Harney County

Mann Lake Ranch at the foot of the Steens Mountain in southeastern Harney County

Harney County Comprehensive Plan

Harney County, Oregon

A Comprehensive review of the goals and policies related to Land Use and other characteristics throughout Harney County.

The Malheur National Wildlife Refuge in central Harney County

Desert springs provide the needed water in a very dry climate.

Photos provided by Mark Armstrong

HARNEY COUNTY PLANNING DEPARTMENT

Harney County Comprehensive Plan

Harney County Planning Department
450 N. Buena Vista • Burns OR 97720
Phone 541-573-6655 • Fax 541-573-8387

HARNEY COUNTY
PLANNING DEPARTMENT
Carol J. Smith, Planning Director

MORGAN, RYAN
& ASSOCIATES
280 Court Street NE
Salem, Oregon

PROJECT STAFF
John N. Morgan, President
John R. Ryan, Vice President
Thomas A. Shaw
Leslie K. Elkins
Jane Myers
Martha Onasch
V. Candace Benner

Those persons who contributed to the formulation of this plan deserve the County's thanks and gratitude for participating in the development of the "Harney County Comprehensive Plan" and the implementing ordinances. The Goals and Polices in this Plan will help guide the growth and preservation of Harney County in the years to come.

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Acknowledgements

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COUNTY COURT

Judge Dale White
Dr. Frank White
George Purdy
Earl Tiller

PLANNING COMMISSION

Pat Wheeler, Chairman
Henry Blair
Carol Hudkins
Dorman Otley
George Glerup
Jim Bentz
Gary Marshall

Charles Macomber, Past Chairman
Art Heerwagon, Past Chairman
Henry Ausmus, Past Member
Sam Burt, Past Member
Gerald Miller, Past Member

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Robert Cargill
Dick Corbet
Cliff Fine
Paul Friedricksen, Extension Agent
Jim Hurlburt
Chuck Macomber
Mark Mayo
Carl Mayo
Walt McEwen
Joe Mazzoni, U. S. Dept. of Fish & Wildlife
George McGee
Delmar McLean
Bill Moser
Darrel Northrup
Carla Orlando
Harold Otley
David Reed
Wendy Schouviller
Vern Seaman
Dale Starbuck
Bill Swisher
Lila Snyder
Rex Taylor
Jerry Temple
Marvin Wharton
Jim Torland, State Dept. of Fish & Wildlife
Dr. Frank White
Keith Wadman, Soil Conservation Service
Verna White
Pat O'Toole
Marie Baker

FORESTRY ADVISORY COMMITTEE

Keith Wadman, Soil Conservation Service
Joe F. Hayes
Robert Popham
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Marge McRae
Junior Hurd
Ken Colpitts
Dave L-Hommedieu, Malheur National Forest
Betty Erwin
Edna Hiibel
Mary Ann Hawley
Al Hart
Gene Chouinard, BLM
Brian Nelson, State Dept. of Forestry

GOALS 5 & 8 ADVISORY COMMITTEE

Harold Otley
John Campbell
Joe Mazzoni, U. S. Dept. of Fish & Wildlife
Craddock Blackburn
Keith Wadman, Soil Conservation Service
Jack Bauer
Al Touche' Clark
George Heinz
Jim Torland, State Dept. of Fish & Wildlife
Larry Otley
Marcus Haines
Cork Palmer
Joe Hardwick
Larry Carlon
Rex Taylor
Al Hart

HODGEPODGE COMMITTEE

Connie Dempsey
Steve Grasty
Sally Hendry
Earl Tiller
Phil Hiibel
Kerry Landers
Jeff Walker
Richard Pierce
Dorothey Peterson
Cork Palmer
Avel Diaz

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Chapter

1

1 Introduction

This chapter meets the requirements of Goal 1 "Citizen Involvement" of the Oregon Statewide Planning Goals.

1.1 Introduction

roundbarn

In 1973, the 57th Legislative Assembly adopted Senate Bill 100 (ORS 197), known as the 1973 Land Use Act, which among other things created the Land Conservation and Development Commission (LCDC). LCDC was charged with the responsibility to develop statewide planning goals
and guidelines to guide local comprehensive planning. Extensive work sessions and public hearings resulted in the adoption of 14 Statewide Goals and Guidelines to be used by state agencies, cities, counties and special service districts in preparing, adopting, revising and implementing comprehensive plans.

The Harney County Comprehensive Plan was developed for the purpose of providing a guide for the conservation of Harney County's land resources. It is a generalized long-range policy guide and decision-making tool, which will affect economic, social and physical development of Harney County. It represents a public statement of the most desirable land uses projected for the years to come. These policies and statements are based on inventories, physical and governmental limitations on development, projected needs and public attitudes.

The Plan coordinates significant factors, which will influence the future development of Harney County while at the same time conserving those elements of the county's natural resources that are unique to the area.

Partly in response to the state mandate, Harney County embarked on a planning program to develop an updated Comprehensive Plan. In early 1978, the firm of

Rodney R. Stubbs & Associates, Inc., was retained to assist the County in its planning efforts and to develop a document that fulfills the intent and purpose of the statewide goals and guidelines established by LCDC. In October 1978, the planning division of Stubbs & Associates was purchased by Morgan, Ryan & Associates, Inc., which performed a majority of the work and completed the project.

The Comprehensive Plan should be considered an official statement of Harney County. The document sets forth goals, objective and policies to guide the future physical development of Harney County.

1.2 Historical Perspective

The history of Harney County dates from the early 1800's when the first white man appeared. These fur trappers and traders, among them Peter Skene Ogden, traveled Harney County around 1826. Wagon trains on their way to the Willamette Valley traversed the area during the 1840's and 50's, but most of the permanent settlers or homesteaders did not arrive until after 1860. Until that time, the Great Basin was the domain of the Paiute tribes, a sub tribe of the Shoshone.

Pioneers settled Harney County during the 1860's as they traversed the land in covered wagons pulled by horses and oxen.

A series of floods in California during the mid-1860s and the passage of "No Fence Laws" which made owners of livestock responsible for the damage done by their animals unless enclosed by a fence, forced many stockmen into northern Nevada and southeastern Oregon. Sporadic raids by Indians, however, discouraged a mass migration of ranchers into the area. In response for protection of white settlers, Fort Harney, named for General William S. Harney, was established in 1867 to offer protection from Indian raids.

John S. Devine became the first prominent landowner when he established the White Horse Ranch on the east side fo the Steens Mountain.

In 1869, John S. Devine, became the first permanent landowner when he established the White Horse Ranch on the east side of Steens Mountain.

In 1872, Peter French, the "cattle king", established one of the largest organized cattle outfits known to the county.

In 1873, Frank McCleod, moved 250 head of cattle from California to an area that is now located within the Burns city limits. In 1877, Peter French and Dr. Hugh Glenn purchased land 16 miles north of the "P" Ranch, now the site of the "Round Barn." In 1879, the treaty between the Paiute Indian Tribe and the U. S. Government was concluded removing the final deterrent to full-scale settlement of Harney Basin by homesteaders.


Peter French's Round Barn, constructed in 1870s

During the late 1870's and early 1880's, the community of "Burns", in then united Grant County, continued to grow. On January 22, 1884, "Burns", named after the Scottish poet Robert Burns, was officially recognized.

By the end of 1888, Burns had a population of 250 and several businesses including two mercantile stores, blacksmith shop, meat market, drug store, harness & saddle shop, livery stable, barber, land office, school, church, jeweler, two newspapers, two hotels, three saloons, three physicians, two carpenters, a race track, two lawyers, a sawmill, surveyor, furniture store, mortician, hardware store, and a brewery.

Those years saw more settlers move into southeastern Grant County. The population reached 3,000. The difficulties experienced in travel and personal safety from this part of the county to the county seat of Canyon City during the two to four day trip was one of the factors responsible for the convention at Harney City in November, 1888, to offer instructions to an Oregon State legislator for the division of Grant County. On January 6, 1889, state legislator G. W. Gilham introduced a bill in the Oregon State Legislature entitled "A Bill for an Act to Create the County of Harney." The bill passed and Harney County was born on February 25, 1889.


The cattle ranching industry in Harney County employed many buckaroos, as they would move the cattle to market and around the large rangeland areas.

Harney City was designated as the temporary county seat pending the outcome of an election to establish a permanent site. Burns became the county seat in 1890, winning the election by six votes over Harney City. Harney City didn't give up the fight easily, though. The election was appealed to the Supreme Court. The Burns townspeople raided Harney City shortly thereafter and stole the county records and established them in Burns. In 1892, the Supreme Court ruled that Burns was indeed the winner of the election.

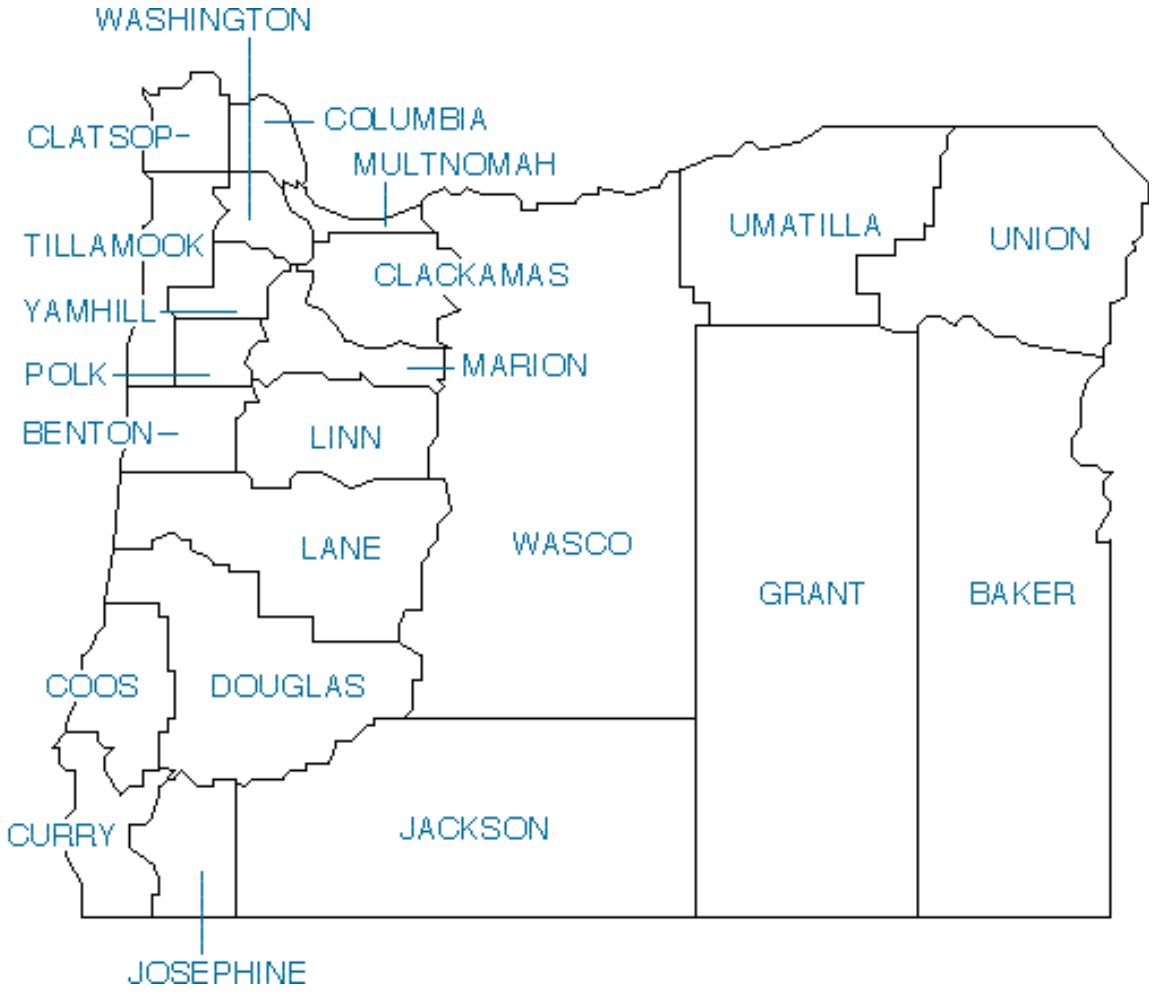
This period saw growth in Harney County influenced by the Homestead Act, the Desert Land Act, and the Stock raising Homestead Act. Homesteading reached its peak in the early 1900's when land speculators brought people from the Midwest to take advantage of the Homestead Act. Many who tried to "dry-farm" on some of the

arid unclaimed land of the Harney Basin and the windswept expanses of the High-desert country met with little success. By 1920, many had left discouraged and disappointed. Some, however, managed to obtain land with water suitable for grazing, and by working for established ranchers until their herds reached a size that could support a family, were able to establish a permanent home in the high country.

A reflection of the success or failure of homesteaders in the establishment of rural communities in Harney County is beneficial. A townsite with a post office and merchandise store, sometimes a saloon and livery stable sprang up around pockets of population. Many like The Narrows, Berduge, Albritton, Harriman, Evergreen, Harney City and Wellington are only names on a map today. Others like Riley, Fields, Frenchglen, Drewsey, Lawen, Princeton, and Crane continue to support a post office, gas pump, and sometimes a general merchandise store. But the events and circumstances channeled growth into one area of the County - Burns, and into the adjoining mill town of later years, Hines.

The lumber mill, established by the Edward Hines Lumber Company of Chicago assured the Burns/Hines area of the most concentrated population in Harney County. While the Burns/Hines area was afforded the conveniences of modern America in the early 1900's, the rest of Rural-Harney County did not receive electricity until 1957.

Today, as in years past, agriculture and timber production make up the mainstay of the Harney County economy, and barring any significant changes, they will continue to remain prominent in the future.



The State of Oregon's County boundaries as they existed in 1865. At this time, Harney County was the southern part of Grant County with the County Seat being located in Canyon City.

1.3 Citizen Involvement

Harney County has had an extensive system and program for Citizen Involvement in this Planning Process. The County Planning Commission was approved by LCDC to serve as the Committee for Citizen Involvement on June 27, 1975. A Citizen Involvement Program was adopted in December 1975. It was approved by LCDC on January 23, 1976, with suggestions for expanding the program.

The County has developed and used an extensive agency involvement program. Interagency meetings have been held to discuss planning for the Steens Mountain Area and several joint work sessions with the cities of Burns and Hines to work out planning work programs. Representatives of numerous agencies have been active members of the various advisory bodies to the Planning Commission.

The major thrust of the Citizen Involvement Program has been the creation of four advisory committees to the Planning Commission. These committees included: The Agricultural Advisory Committee, dealing with Goal 3; the Forestry Advisory Committee, dealing with Goal 4; the Goals 5 & 8 Committee; and the Hodgepodge Committee, dealing with all of the remaining LCDC Goals. The members of these committees are listed in the acknowledgement page at the beginning of this document. For all committees, however, involvement of many people other than the official members was always extensive.

Public meetings by the Agricultural Advisory Committee and the Planning Commission were held in August 1978 to present to the Citizens the background material then prepared and to gather their opinions about the County's future.

The Citizens of Harney County have had an extensive role in developing this Comprehensive Plan, and it is the County's policy to continue the opportunity for this involvement into the future.

Chapter

2

2 Physical Characteristics

This chapter meets the requirements of Goal 5 "Open Spaces, Scenic and Historic Areas, and Natural Resources", Goal 6 "Air, Water and Land Resources Quality" and Goal 7 "Areas Subject to Natural Disasters and Hazards" of the Oregon Statewide Planning Goals.

2.1 Location

Harney County is the largest county in Oregon and encompasses 10,132 square miles (6,506,240 acres). It is situated in the southeastern portion of the state and is bordered on the east by Malheur County, to the north by Grant County, to the northwest by Crook County, on the west by Deschutes and Lake Counties, and on the south by the State of Nevada.

Harney County is largely rural in nature with the largest urban area being the towns of Burns, the County seat, and Hines, immediately south of Burns. There are other "rural" communities throughout the county accounting for smaller concentrations of the population.

Public lands (federal, state, and county) account for about 77 percent of the land area in Harney County. The remaining 23 percent is in private ownership, consisting

mainly of farms and forests. Approximately 73 percent of the County is in federal ownership, 84 percent of which is administered by the Bureau of Land Management, 10 percent by the U. S. Forest Service, and about 2 percent managed by the Department of Fish and Wildlife.

About 4 percent of the County is owned by the State of Oregon; about 96 percent of the state-owned land is administered by the Land Board and 2 percent by the Highway Commission. The State of Oregon Fish and Wildlife Department administer the remaining land owned by the state.

Approximately 1 percent of the County is owned by the County, Burns, and Hines and consists of County and City Parks, municipalities, and road rights-of-way.

2.2 Climate

The climate of Harney County is semi-arid with long, rather severe winters and short summers, which have a high proportion of clear, sunny days. Temperatures at Burns for January, which are typical of the open valleys, averages 25 degrees Fahrenheit (F.), in July it is 70 degrees F., and for the year it averages 47 degrees F. In the north central part of the Malheur Basin (elevation 4,666 feet), the January average is 22 degrees F., in July it is 60 degrees F., and for the year averages 40 degrees F. At P-Ranch Refuge, near Frenchglen, the January average is 30 degrees F., in July it is 66 degrees F. and for the year it averages 48 degrees F. The frost-free period extends from the last day in the spring with a minimum temperature of 32 degrees F. or below to the first day in the fall with a minimum temperature of 32 degrees F. or below.

The average annual precipitation ranges from under 10 inches for the lower areas to more than 40 inches in the headwater areas (higher elevations). It is about 11.0 inches at Burns and 12.0 inches at the P-Ranch within the Refuge. At all the stations, the low precipitation months are July, August and September.

2.2.1 Climates of Selected Drainage Basins

1. Silvies River Basin

The Silvies River Watershed's climate is characteristic of high plateau regions (Map __). The average growing season is about 72 days. The mean temperature is 43 degrees F. Frost is expected any month of the year. Outward from the Burns area the temperature decreases and the elevation and precipitation increases.

2. Silver Creek Basin

The climate of the Silver Creek Basin Watershed is generally the same as the rest of Harney County. In this area, the Squaw Butte Experimental Station compiles the only comprehensive precipitation records. The forest area in the Ochoco National Forest has considerably higher annual precipitation than other areas in this zone. It is estimated that this area should have an average annual precipitation of 20 inches.

The humidity in this area is generally low. It fluctuates between nighttime and daytime. The mean temperature is about 44 degrees F. and ranges from 100 degrees F. in the summer to 0 to -30 degrees F. in the winter.

3. Alvord Basin

The precipitation in the Alvord Basin Watershed ranges from 7.46 inches at Andrews, to 18 inches or more in the Steens Mountain. Minor precipitation is

provided in the spring and summer through rains and thunderstorms. The majority is in the form of snow during
the winter months.

The mean temperature at Andrews, Oregon is 48.9 degrees F. It ranges from sub-zero temperatures in the Steens Mountain to temperatures over 100 degrees F. on the valley floor. Again, the humidity is low in this area with occasionally high winds. The high temperatures, high winds and low humidity provide 60 or more inches of evaporation each year.

The Alvord Desert in southeastern Harney County

4. Catlow Valley Basin

Catlow Basin Watershed has a precipitation record similar to that of the Alvord Basin. Precipitation ranges from 8.68 inches at Blitzen to 18 or more inches in the Steens Mountain, with the majority in the winter months.

The mean temperature is 44.6 degrees F. at Blitzen, with extremes from -50 degrees to -60 degrees F. at higher elevations. The high temperatures range from 100 to 105 degrees F. in the valleys. Evaporation is 60 inches or more, caused by high winds, low humidity and warm temperatures.

5. Blitzen River Basin

P-Ranch and Malheur Refuge weather stations provide the best records of precipitation in the Blitzen River Basin Watershed. The climate of this area is generally pleasant.

Extremes in temperatures range from -35 degrees F. at the higher elevations into the 100's on the valley floor. In 1964, killing frosts were recorded every month except June and July. The humidity is quite low in this area, with high winds. The evaporation ranges up to four feet annually.

Map 1 –Harney County, Sub-basins

The Donner und Blitzen River near Page Springs just east of Frenchglen

The Donner und Blitzen River runs through the south-central area of Harney County.

2.3 Geography and Geology

The Malheur Lake drainage basin lies in the southeastern part of Oregon, and encompasses most of Harney County. It is bounded on the south by the State of Nevada, on the west by the Goose and Summer Lake drainage basins and the Deschutes drainage basin, on the north by the John Day drainage basin, and on the east by the Malheur drainage basin and the Owyhee drainage basin. The drainage basin area is 9,965 square miles. An additional 1,613.5 square miles of Harney County lies within the Malheur River Basin to the east. The area consists of a number of independent but contiguous watersheds, of which the most important are the Silvies, Silver, Donner und Blitzen, Guano-Catlow, and Alvord drainages, mentioned earlier. Also, a small area, drained by Rincon Creek, slopes toward Nevada. The basin measures about 160 miles from north to south and 100 miles from east to west. About 81 percent of the basin lies in Harney County, nine percent in Lake County, with smaller areas lying in Malheur, Grant and Crook Counties.

Elevation within the basin varies from a minimum of 4,025 feet in the Alvord Desert to a maximum of 9,670 feet on Steens Mountain. The lower elevation lies adjacent to and east of Steens Mountain.

The Malheur Lake basin is fed by three separate stream systems - the Silvies River, Silver Creek, and the Donner und Blitzen River - and by a number of smaller creeks that usually are intermittent. The Silvies River is the longest with a length of about 180 miles from its headwaters in the Strawberry Range. Emigrant Creek is the largest tributary, joining the Silvies River at river mile 29. Silver Creek drains the northwestern part of the Malheur Lake drainage basin. It has a length of almost 80 miles from its headwaters on Big Mowich Mountain. The Donner und Blitzen River and its major tributary, the Little Blitzen River, have a total length of about 72 miles, draining the western slope of Steens Mountain. All of the streams have steep slopes in the upper elevations and flatten out to rather gentle slopes from approximately 50 miles above their mouths. The Silvies River and the Donner und Blitzen River are tributaries to the Malheur Lake while Silver Creek is a tributary to Harney Lake. The Guano-Catlow area and the Alvord Desert constitute closed basins within the larger Malheur Lake "Closed Basin." Drainage is internal except for the small area draining into Nevada.

Rocks forming the Malheur Lake drainage basin are principally volcanic lava flows, associated airborne materials, and sedimentary deposits mixed with volcanic.

Older metamorphic slate-like rocks and granites intrusive form the extreme northern portion of the basin. The larger valleys all have thick unconsolidated alluvial and lake bed deposits.

Lava flows more than 4,000 feet thick are exposed along the east side of the Steens Mountain, a tilted fault-block land mass with its steepest slopes along the east side. The Steens form the largest single mountain mass in the basin.

Three physiographic divisions make up the Malheur Lake drainage basin; the Blue Mountains north of Burns, the High Lava Plains in the central portion, and the Basin-Range south of Diamond. Elevations are between 4,000 and 4,600 feet in valleys and range to 9,670 feet on the Steens Mountain.

Mann Lake is located on the east side of the Steens Mountain. The east side of the Steens represent the steepest slopes found in this area. The Steens form the largest single mountain mass in the basin.

2.3.1 Basins and Valley Lands

The major "closed basins" are the Harney, Catlow and Alvord Basins. These basins are between 4,000 and 4,600 feet elevation.

Pluvial lakes occupied these basins during the Pleistocene period, and lacustrine sediments underlie the basin floors. An outlet near Princeton drained the Harney basin until it was blocked by a Pleistocene lava flow. The highest-level lake subsequently drained to the east over this lava and down the Malheur River. Post-glacial climate changes resulted in the recession of lake levels to the present day, fluctuating remnant, Malheur and Harney Lakes. Characteristics of the valley floor soils are related to older lake terraces and lakeshore deposits, recent lakebeds, and alluvium deposited by the streams traversing the valley floor. A high proportion of the Harney Basin is wetlands, due to water spreading for irrigation and fluctuating lake levels. Soluble salts have concentrated in sediments of the evaporating lakes, resulting in the excessive alkali on main soils. Lakes also once occupied Catlow, Alvord and many of the smaller basins. Catlow Valley has conspicuous shoreline traces high on the escarpment that forms the east side of the basin. The lake was much deeper than in the Harney Basin and it apparently disappeared much earlier. The soils are generally well drained and not saline.

The Buena Vista Field Station is part of the Malheur National Wildlife Refuge and is located in south-central Harney County near Highway 205.

2.3.2 Lava Plains and Plateaus

The major part of the basin is underlain by Miocene to Recent Age Lava flows and interbedded tufaceous sediments. The northern part of the basin has smoother terrain with less relief than the southern part. Fault block basins are present throughout the lava plains, and steep escarpments mark fault traces. To the south, greater structural deformation and displacement along major faults has occurred, resulting in typical basin and range topography. Older crystalline and metamorphic rocks are exposed along the east-facing scrap of the Pueblo Mountains.

2.3.3 Sagebrush-Covered High Elevation Plateaus and Mountains

The main areas of high elevations shrub-grasslands are the Hart Mountain highlands Beatty Butte, the Steens Mountain uplift and Trout Creek Mountains. Similar soil areas are found in grassland-shrub area marginal to the forestlands in the Blue Mountains. These higher elevations have soils with darker, slightly acid surface layers, reflecting some increase in the effective moisture.

The effects of glacial activity are apparent on Steens Mountain and to some extent on Hart Mountain. Cirque basins and the U-shaped Kiger Gorge dominate the crest and east escarpment of Steens Mountain. Glacial deposits are present on the upper slopes of these highlands and on some plateau surfaces about 6,000 feet.

2.3.4 Forested Uplands

The forested uplands are located in the north end of the basin and are a part of the Blue Mountains. The forest is predominately open stands of Ponderosa Pine with some Douglas Fir and White Fir. Thickets of Juniper and Mountain Mahogany occupy exposed ridges. The forested areas are not mapped, but most of the soils appear similar to Klicker, Hall Ranch, Laycock, and related series as mapped in the John Day Basin.

This area is used for summer grazing, timber production, and big-game habitat. This watershed is the major source of runoff used for meadow irrigation and for maintaining waterfowl habitat in the water deficient Harney Basin.

2.3.5 The Steens Mountain

The summit of the Steens Mountain is 9,733 feet above sea level - the highest point in Oregon, which can be reached by car. The mountain is a giant fault block that raises abruptly almost 5,000 feet above the surrounding desert lands of southeastern Oregon. This elevation change occurs within a horizontal distance of approximately three miles. The mountain was shaped by glaciers more than a million years ago and contains some of the most striking examples of glacial action found on the North American continent.

The area displays numerous unusual topographic features, as a result of volcanism, faulting, glaciations, and wind and water erosion. Topography varies from flat deserts, rolling foothills and deep canyons to steep rugged escarpments. The varying topography is one of the main attractions offered the sightseer, naturalist, and photographer.

Kiger Gorge is one of the most dramatic landscapes of the Steens Mountain.

Big Indian Gorge is another very dramatic feature found in the Steens Mountain.

2.4 Natural Hazards-Limitations

2.4.1 Floodplain

Harney County has been mapped with relation to specific location of floodplains on a flood hazard boundary map prepared by the Federal Emergency Management Agency (FEMA). The Burns/Hines flood hazard area has been mapped. The Silvies River flood hazard area and those associated with the accompanying drainage channels to the west are the most prevalent hazard in the Burns/Hines vicinity. Flooding problems along the drainage channels are greatest when heavy runoff of the Silvies River coincides with heavy drainage from the hills to the west of the urban area. Some of the significant problems can be reduced by improvements to the drainage channels, as was reported in a study conducted by the State Water Resources Board in 1968. The ability to reduce flood peaks on the Silvies River is dependent upon upstream flood control storage, something likely to occur only with the assistance of the Flood Control program administered by the U. S. Army Corps of Engineers.

Due to the lack of complete information on specific locations of flood hazard areas in Harney County, future revisions and updates of the Comprehensive Plan should incorporate that information as it becomes available. Local knowledge of known flood prone areas should provide interim guidance until mapping is completed. In these flood hazard areas, construction should be discouraged, or if allowed, subject to special standards designed to protect structures. Floodplains should be reserved, for the most part, for open space and agricultural uses. It is recognized that there has been some urban development within the Burns City Limits in the Silvies River flood hazard area. Any future urban development should take into account potential problems that may pose danger to life and property.

Map 2 – Harney County Flood Hazard

2.4.2 Steep Slopes

Those areas of Harney County that have slopes in excess of 30 percent are numerous due to the land formations that created the landscape that is somewhat unique to Harney County. Those areas that directly affect the greatest concentration of population are west of the Burns/Hines urban area. These areas are somewhat limited in development potential because of the topography, by the relatively low strength of the soils, and by the frequent volcanic outcroppings. If development is to occur in these areas, the City and/or County should require careful engineering before building permits are issued. Extensive disruption of these slopes by cut-and-fill and added weight of structures may cause serious slippage and erosion problems. These areas should be treated very carefully.

Although this information is of use mainly in the Burns/Hines area, because of the population concentration, this situation is not unique to the urban area. Many areas of the county face the same problems, especially in the mountainous areas and those areas that were subjected to violent land actions that formed much of the topography of Harney County.

2.4.3 Earthquake Hazard

The history of earthquakes in Oregon is reliable only back to the mid-1800's, as there is an insufficient length of record to allow a determination of either the largest magnitude earthquake that could be expected or the frequency of lesser shocks. Earlier reports extend from 1833 but these reports are dependent on the size of population in Oregon.

From 1833 to 1962 most earthquakes were located by reports from observers near epicenters. Some of the larger earthquakes, which occurred from the late 1920's to 1962, were recorded on seismographs located at the University of Washington, University of California and Oregon State University. However, because of the distance involved, instrument limitations and other uncertainties, these instrumentally located epicenters are probably as inaccurate as those located by reports from observers.

In 1962, the U. S. Coast and Geodetic Survey established a worldwide standard seismograph station at Corvallis. Also, in 1962, a recording station was established 38 miles east of Baker, Oregon. Later stations included Klamath Falls and Portland. A fifth station was established at Pine Mountain in 1969 as a cooperative project of the University of Oregon and the National Aeronautics and Space Administration. Since 1963, most earthquakes in Oregon have been located with seismograph stations located in Oregon and the Pacific Northwest.

In Harney County, few if any earthquakes have been reported by the U. S. Coast and Geodetic Survey.

Based upon past occurrences, land formations, and present state of knowledge, a generalized map showing Seismic Risk Zones has been drawn up as part of the Hazard Study (1978) prepared by the Disaster Preparedness Planning Section of the Executive Department, State of Oregon. Harney County is classified as being in Zone 1, which indicates that, a major earthquake may produce minor damage.[1]

[1] Hazard Study, Disaster Preparedness Planning Section – Executive Branch State of Oregon, 1971., p. 208.

Natural Hazards and Limitations Policies

1. The County shall recognize the development limitations imposed by the carrying capacities of natural resources; i.e. surface and ground water capabilities, soils geology, etc.

2. Natural resource physical limitations shall be one of the primary evaluation factors for development approval. The carrying capacity thereof shall not be exceeded.

3. It shall be recognized that problem areas or hazards do not necessitate disapproval of development, but that higher development standards can be expected in order to minimize problems or hazards.

4. To maintain development costs at a minimum and to encourage the most efficient use of resources by guiding development to low hazard or low physical limitation areas.

5. High density development, when allowed, shall be encouraged to locate in areas having high carrying capacities and low physical limitations, and discouraged in areas having low carrying capacities and high or severe physical limitations. Therefore, the following criteria shall be considered:

    a. Slopes greater than 30% or between 5-30%.

    b. Safe distance from rim rock scraps, talus debris and fractures.

    c. Sufficient quality and quantity of water.

    d. Location relative to floodplain channels, high ground water, unstable soils or geology, etc.

6. It shall be the developer/builder's burden of proof for determining the degree of hazard or physical resource carrying capacity.

7. Development within the identified floodway shall be discouraged. Development in the floodway fringe shall be permitted to the extent the hazard is correctable without adversely affecting other properties.

8. Where base floodplain elevation data has not been provided, Harney County shall obtain, review, and reasonably utilize any base flood elevation data available from a federal, state or other source.

2.5 Natural Resources

Harney County is a county of many natural resources. It also has the distinction of being the largest county in the State of Oregon, and larger than several states in the United States. Approximately 76% of the county is in the public ownership.

Public/Private Land Ownership in Harney County		
	Acres	% Of Total County
Acres in private ownership	1,536,927	33.7%
Acreage in public land	4,947,553	76.3%
Total Acreage in Harney County	6,484,480	100.0%

Table 1 – Public/Private Land Ownership

Map 3 – Land Ownership in Harney County

As such there are many opportunities for multiple uses and the preservation of the natural resources in Harney County.

2.5.1 Noise Quality

Noise in Harney County outside of the Burns and Hines area is not a major problem. Highway noise is the major noise source in the County. The Burns Municipal Airport is not used by commercial airlines and the property surrounding the airport is zoned for agricultural use with a 20-acre minimum lot size.

2.5.2 Air Quality

Generally, air quality in the County is considered very good. The Oregon Department of Environmental Quality indicates that slash burning, agricultural tillage and upset conditions at the Hines Lumber Mill (those temporary equipment malfunctions that may increase certain pollutants for a short period of time) result in short-term localized impacts on air quality. Ambient air quality and noise data are not available at this time. Table 2 lists the pollutants as cited by the Oregon Department of Environmental Quality.

HARNEY COUNTY AIR POLLUTANT EMISSIONS
By S.I.C.* Coding - 1978
(*Standard Industrial Classification Manual - 1972)

Estimated Annual Emission Rates
Tons Per Year

S.I.C. Class	Total Particulates	Sulfur Oxides	Nitrogen Oxides	Carbon Monoxides	Total Organics
Agriculture	715.00				
Lumber & Wood Products	3,136.01		565.00	113.00	143.10
Petroleum Refining	2.75				
& Related Industries					
Stone, Clay, Glass	0.83				
& Concrete					
Non-classifiable:					
- Surface Coating					18.87
- Dry Cleaning					9.77
- Slash Burning	683.53		151.90	4,860.67	911.38
- Forest Fires	23.44		5.21	166.72	31.26
- Motor Vehicles (Light Duty)	48.32	12.67	417.56	6,883.69	777.74
- Motor Vehicles (Heavy Duty)	15.55	16.70	177.30	497.22	72.72
- Gas Marketing					63.53
- Off-Highway Fuel Use	9.05	6.71	79.85	1,166.97	58.91
- Residential Space Heating	2.11	34.01	15.18	4.22	0.84
- Commercial & Industrial Space Heating	7.98	68.41	20.82	1.39	1.39
- Industrial Fuel Combustion	0.20	2.68	0.66	0.05	0.01
- Railroads	0.63	1.45	9.40	3.30	2.71
Total Annual Emission Rates	**4,645.40**	**142.63**	**1,442.88**	**13,697.23**	**2,092.23**

Table 2 – Harney County Air Pollutant Emissions

2.5.3 Mineral and Aggregate Resources

Harney County is physically divided basically between two geomorphic areas known as the High Lava Plains in the northern portion of the county and Basin and Range Area in the southern portion with a small portion of the northeastern county in the Owyhee Upland and small portion on the north county in the Blue Mountains.

Most of the natural resources in the Harney County area are nonmetallic in nature, with few exceptions.

1. Coppers, Lead and Zinc

Harney County has an area in the southern most part of the county in the Pueblo Mountains that has been identified as an area of significant base metal occurrence of copper, lead and zinc with little or no production. An ever-increasing copper demand can be attributed to the development of electric power and expansion of the brass and bronze industries.

Lead and zinc follow copper in production and consumption in the United States. Lead is particularly vital to the transportation industry where it is used in storage batteries, bearing metals and tetraethyl gasoline. Smaller amounts are used as type metal, solder and in the glass and chemical industry. Zinc's main use is in galvanizing, followed by diecastings, photoengraving plates, and dry-cell battery cases.

2. Mercury

Mercury has a multitude of uses. It is liquid at ordinary temperatures, becomes a malleable solid at -40 degrees C., and boils to a colorless vapor at 358 degrees C. It is an excellent conductor of heat and electricity. Mercury is used in a wide variety of control instruments and electrical apparatus such as thermometers, barometers, pressure gauges, batteries, switches and fuses, rectifiers, oscillators, and various vapor lamps. Mercury amalgams are used for dental applications, bearings, solders and type. [2]

Many small mercury deposits occur in southern Harney County in a narrow belt extending about 40 miles northward from the Nevada state line along the lower eastern flanks of the Steens and Pueblo Mountains. Total production from these deposits has been only about 75 flasks.

3. Diatomite

Diatomite, kieselguhr, or diatomaceous earth are names commonly used to designate an exceptional light-weight, porous, chemically inert sedimentary material

[2] USGS, Mineral and Water Resources of Oregon, 1969, Bulletin 64, pp. 152-157.

composed principally of the shells of minute aquatic organisms known as diatoms. Diatomite finds its greatest use as a filtration medium.

There are two locations in Harney County "of largest best-known exposures of diatomite and associated elements". [3] These are in the Otis Valley and Trout Creek areas. "Smaller, less well-exposed deposits" have been located near Burns. [4]

4. Pumice, Pumicite, and Cinders

There is a known deposit of scoria or cinders west of Burns and a pumice deposit southwest of Hines. There is an "area of widely scattered deposits of pumice or pumicite in the northeastern part of the county [5] near the Diamond Craters, in the Blitzen Valley and in an area west of Crane.

Pumice, pumicite and cinders are all types of volcanic rocks derived from material that was once molten. They differ from common dense stony lavas in that they are primarily glasses - the natural end of lavas that have cooled.

Pumice and pumicite range in color from white to various tones of gray and tan. Cinders are almost always dark red to black. They are also commonly more stony than glassy. Pumice and pumicite are used as abrasives for cleaning and fine polishing.

Cinders and pumice are both used as aggregate in the manufacture of light-weight precast concrete blocks and bulk pours in applications where insulation, fire-proofing, and weight saving are important factors.

There are areas of aggregate extractions in the Hines Urban Growth Boundary and in the surrounding Rural Residential area. The pits within the boundary are not active while those in the Rural Residential area are. There is the potential for conflict between the resource and residential uses. The County bears the responsibility for monitoring these potential conflicts and balancing the need for preserving the resource and protecting the residential environment. The Urban Growth Joint Management Agreement,(*See Appendix 9.6*) jointly adopted by the City and County, provides the means whereby the two jurisdictions can work together in dealing with applications for both extractions and residential development. Additional policies and code provisions are provided within the Plan to help guide the County in dealing with these issues.

There are adequate supplies of pumice, pumicite and cinders throughout Harney County to supply the County's expected needs throughout the planning period.

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[3] Ibid., p. 208.
[4] Ibid., p. 208.
[5] Ibid., p. 226.

5. Feldspar

Feldspar is the general name for a group of anhydrous aluminosilicates that contain varying amounts of potassium, sodium and calcium. Both potassium and sodium feldspars are used by the glass and ceramic industries. High-grade deposits of potassium feldspar occur near Harney Lake.

6. Saline Water

Saline waters in Oregon occurs in sedimentary, metamorphic, and volcanic rocks of all ages. In Oregon, saline springs and lakes are found east of the Cascade Mountains, mainly in the southern part of Lake County and in Harney Lake basin and Alvord Desert in southeastern Harney County. Oregon has no known significant deposits of rock salt so that any salt produced would have to come from evaporate deposits or brines, such as those located in Harney Lake basin. Some marine brine often contains high concentrations of sodium chloride but they are seldom considered as a commercial source of salt since there are ample reserves of primary deposits in the U.S.

7. Zeolite

Zeolites are crystalline hydrated aluminosilicates of the alkalies and alkaline earths. The porous character of the zeolite enable them to act as molecular sieves for the separation of molecular mixtures based on the size and shape of the molecular compounds or for the selective absorption of bases. [6]

These unique properties of the Zeolites lead to the diverse industrial uses in processes such as the purification and drying of liquids and gasses, chemical separations, catalysis, use in reflective devices, and the decontamination of radioactive wastes.

High-grade deposits of zeolite occur east of Harney Lake and on the east face of the Steens Mountain.

8. Geothermal Energy

Oregon, along with the other western states, is within the zone of volcanic activity, which surrounds the Pacific Ocean. Volcanic activity in Oregon should not be considered extinct, but dormant. The High Lava Plains, the Basin Range and the Owyhee Upland, where Harney County is situated, contains (along with the Cascade Mountains) almost 80 percent of the thermal springs known in Oregon.

[6] Ibid., p. 268.

9. Uranium

Uranium, the basic raw material of atomic energy, is a dense, hard, nickel-white, metallic element. It is highly reactive and combines readily with other elements to form a great number of primary and secondary minerals. Uranium has the property of radioactivity, i.e., the spontaneous emission of radiation (energy).

Total Oregon production has been about 200 tons of uranium from 120,000 tons of ore, with the bulk of the production from the White King Mine in Lake County. Prospects and known occurrences in Harney County are near Pike Creek (Kiska) and Timber Beast. [7]

Natural Resources Goal

To identify, protect and, where appropriate develop mineral and aggregate resources.

Natural Resources Policies

1. The location, quality and quantity of mineral and aggregate resources of existing sites have been identified so far as is known. New sites shall be identified for the conservation and/or development of such resources as appropriate to meet future needs, and by additional information on existing sites gathered when such new information becomes available, proceeding through the process set forth in OAR 660-16-000. Development plans shall provide for the rehabilitation of mined areas.

2. The aggregate resources adjacent to the Hines Urban Growth Boundary are important to the County and should be protected from encroachment of residential use that will hamper future extraction.

3. The County has determined that aggregate and mineral extractions at identified 2-A sites have no conflicts. Those of these sites that do not constitute conflicts for geothermal development will be preserved for mineral and aggregate use. Conflicts with the geothermal resource will be resolved through the conditional use procedure.

[7] Ibid., pp. 180-184.

2.6 Water Resources - Analysis

The following material dealing with Water Resources - Analysis is a technical report prepared by the Harney County Planning Department as part of Harney County's Periodic Review of its Comprehensive Plan pursuant to ORS 197.633. Prepared in cooperation with the Harney County Water Resources Committee and funded in part by a Department of Land Conservation and Development Technical Assistance Grant. Harney County adopted this amendment to the Harney County Comprehensive Plan on August 23, 1996.

2.6.1 Introduction


Wild horse Lake located in the Steens Mountain

Pursuant to ORS 197.633, local governments with planning responsibilities are required to undertake a periodic review of their comprehensive plans and land use regulations. As part of this review, Harney County evaluated its comprehensive plan and regulations to determine whether they were achieving the goals, objectives and policies outlined in the comprehensive plan and statewide planning goal. During this evaluation the county identified water resource management as an issue of local concern and elected to incorporate this issue into its periodic review.

To fully evaluate the water resources issues within the county, Harney County formed a water resources committee to review the issues surrounding water and to assist in developing policy statements for incorporation into the plan. As part of this evaluation the county and the water resources committee developed this summary and evaluation of the water resource issues.

2.6.2 Water Management Responsibilities

Management responsibilities over the water resources of Harney County are divided among a variety of state and local agencies. Among the state agencies with water management responsibilities are the Water Resources Commission, Fish and Wildlife

Commission, Environmental Quality Commission, State Board of Forestry, State Parks and Recreation Department, Health Division, Division of State Lands, and the Department of Agriculture. In addition local governments such as the county, cities, and special districts have a role in water management. The federal land management agencies also have a role in water management either through direct management responsibilities or through federal loan programs.

The primary water management authority is vested in the Water Resources Commission which has been delegated the responsibility to formulate and implement an integrated, coordinated state water resources policy. (ORS 536.220 & ORS 536.300).

The programs and plans of the Water Resources Commission must reflect all laws that relate to or affect the use and control of the water resources of the state. Once adopted, every state agency and public corporation is required to conform to the water resources policy of the Water Resources Commission (ORS 536.360).

In fulfillment of its programs and policies, the Water Resources Department has issued water rights to 4,446.61 cubic feet per second (cfs) and 80,274.63 acre feet of water (aft) within Harney County. These water rights cover irrigation, agriculture, municipal, domestic, industrial, recreational, and miscellaneous uses (Table 3).

Harney County Water Rights Summary						
	Primary GW	Supp. GW	Primary Surface	Supp. Surface	Primary Reservoir AFT	Supp. Reservoir AFT
Harney Lake						
Irrigation	78.64	17.75	139.56	27.28	7576.00	349.00
Fish & Wildlife	0.15	0	0	0	0	0
Agriculture	0	0	0.32	0	470.35	0
Municipal	0	0	0	0	0	0
Domestic	0.02	0	0.04	0	0	0
Recreation	0	0	37.02	0		0
Misc.	0	0	0.01	0	9710.00	0
TOTAL	**78.81**	**17.75**	**176.95**	**27.28**	**1756.35**	**349.00**
Willow Creek						
Irrigation	0	18.42	51.45	0	0	0
Fish & Wildlife	0	0	1.50	0	0	0
Agriculture	0	0	0.02	0	6.73	0
Municipal	0	0	0	0	0	0
Domestic	0	0	0	0	0	0
Recreation	0	0	0	0	0	0
Misc.	0	0	0	0	0	0
TOTAL	**0**	**18.42**	**52.97**	**0**	**6.7.**	**0**
Whitehorse To Alvord Desert						
Irrigation	4.0	4.32	238.55	0	0	0
Fish & Wildlife	0	0	0	0	0	0
Agriculture	0	0	0	0	0	0
Municipal	0	0	0	0	0	0
Domestic	0	0	0	0	0	0
Recreation	0	0	0	0	0	0
Misc.	0	0	0	0	0	5
TOTAL	**4.0**	**4.32**	**238.55**	**0**	**0**	**0**
Trout Creek To Alvord Lake						
Irrigation	36.77	10.68	150.03 3.50 apt	0	48.00	0
Fish & Wildlife	0.66	0	0	0	0	0
Agriculture	0	0	0	0	74.83 0.10 cfs	0
Municipal	0	0	0.30	0	0	0
Domestic	0	0	0	0	0	0
Recreation	0	0	0	0	0	0
Misc.	0	0	0	0	0	0
TOTAL	**37.43**	**10.68**	**150.33 3.50 aft**	**0**	**554.88 aft 010 cfs**	**0**

Malheur River						
Irrigation	35.18	1.68	197.65 76.81 aft	8.88 cfs 2342.0 aft	16185.68 aft	1353.71 aft
Fish & Wildlife	0	0	0	0	0	0
Agriculture	0	0	1.15	0	1000.30 aft	0
Municipal	0	0	0	0	0	0
Industrial	0.22	0	0	0	0	0
Domestic	0	0	0.17	0	0	0
Recreation	0	0	0	0	0	0
Misc.	0	0	4.0	0	0	0
TOTAL	**35.40**	**1.68**	**202.97 cfs 766.81 aft**	**8.88 cfs 2342.0 aft**	**17185.98 aft**	**1353.71 aft**
Malheur Lake						
Irrigation	398.61	101.86	2224.47 cfs 4072.48 aft	41.68 cfs 3179.0 aft	13593.30	3489.0 aft
Fish & Wildlife	0	0	218.19 cfs	0	250.0	0
Agriculture	4.51	0	5.18	0	402.06	0
Municipal	16.47	0	0	0	0	0
Industrial	8.94	0	29.00	0	0	0
Domestic	0.75	0	0.35	0	0	0
Recreation	0	0	7.09	0	1173.80	0
Misc.	0.20	0	9.00	0	0	0
TOTAL	**429.48**	**101.86**	**2493.28 cfs 4072.48 aft**	**41.68 cfs 3179.0 aft**	**17659.16 aft**	**3489.0 aft**
Catlow Valley						
Irrigation	51.44	2.85	37.23 cfs 476 aft	41.29	7546.00	0
Fish & Wildlife	0	0	0	0	376.08	0
Agriculture	0	0	0.96 cfs 17 aft	0	0	0
Municipal	5.12	0	0	0	0	0
Industrial	0	0	0	0	0	0
Domestic	0	0	0.11	0	0	0
Recreation	0	0	0	0	0	0
Misc.	0	0	0	0	0	0
TOTAL	**56.56**	**2.85**	**37.23 cfs 493 aft**	**41.29**	**7922.08**	**0**
Wildhorse						
Irrigation	26.89	1.81	0.25	46.76	0	0
Fish & Wildlife	0	0	0	0	0	0
Agriculture	0	0	0	0	0	0
Municipal	0	0	0	0	0	0
Domestic	0	0	0	0	0	0
Recreation	0	0	0	0	0	0
Misc.	0	0	0	0	0	0
TOTAL	**26.89**	**1.81**	**0.25**	**46.76**	**0**	**0**

Table 3 – Harney County Water Rights Summary

Another primary agency involved in water resource management is the Oregon Fish and Wildlife Commission, which is charged with managing the fish and wildlife populations of the State. ("Riparian Classification and Protection Goals to Maintain Fish and Wildlife Populations on State and Private Forest Lands in Oregon" ODF&W, 1992, p.1)

The Fish and Wildlife Commission is charged with managing wildlife to prevent serious depletion of indigenous species and to provide the optimum recreational and aesthetic benefits. In furtherance of this policy the Commission is to implement a number of coequal goals among which are the goals: a) to develop and manage the lands and waters of this state in a manner that will enhance the production and public enjoyment; and b) to regulate wildlife populations and the public enjoyment of wildlife in a manner that is compatible with primary uses of the lands and waters of the state. (ORS 496.012)

This responsibility is implemented through monitoring and assessing the fishery resource, habitat restoration, fisheries management, and the listing of species under the State of Oregon's endangered species program.

Other than on lands held in fee ownership or by lease, the Fish and Wildlife Commission does not directly manage wildlife habitat. The Commission does however have the ability to influence habitat through the development of hunting and fishing limits as well as through partnerships with land management agencies.

Authority over habitat on forestlands is vested with the Board of Forestry, which has the authority to regulate habitat altering forest practices on private lands that may affect water, and water related resources. ("Riparian Classification and Protection Goals to Maintain Fish and Wildlife Populations on State and Private Forest Lands in Oregon" ODF&W 1992, p. 1) Under the State Forest Practices Act, the Department of Forestry regulates forestry activities that may occur within riparian areas, wetlands, ecologically and scientifically significant biological sites and sensitive bird nesting, roosting and watering sites (ORS 527.710).

While the State Forest Practices Act regulates some activities affecting water quality, the Environmental Quality Commission is the designated authority with responsibility for water pollution control efforts and is the state agency with primary responsibility to implement the federal Clean Water Act (ORS 468B.010 & ORS 468B.035).

The Commission, acting through the Department of Environmental Quality, implements the provisions of the Clean Water Act including both the point source and nonpoint source pollution control program. The Department of Environmental Quality and the State Department of Forestry cooperate in the management of nonpoint sources of pollution resulting from forest practices (See ORS 468B.110).

In addition to the water quality control vested in the Environmental Quality Commission, the Oregon Health Division shares in some aspects of water quality

control. The Division is charged with assisting community water suppliers and local health departments in meeting federal safe drinking water standards. It also coordinates the development of water system master plans, vulnerability assessments, wellhead protection programs, and system expansions.

The Oregon Department of Agriculture is also charged with water quality control and management responsibilities. The Department is the management authority for regulating confined animal feeding operations in cooperation with the Department of Environmental Quality (ORS 468B.217). In addition the Department of Agriculture is responsible for listing of plants under the state endangered plants program (ORS 564.100) and provides assistance to local Soil and Water Conservation Districts (ORS 568.225).

The Oregon Division of State Lands issues permits relative to the removal and fill of material within wetlands and other water bodies (ORS 274.210). In addition the Division of State Lands also manages the beds and banks of navigable lakes and rivers (ORS 274.025) and the common school fund lands on behalf of the State of Oregon (ORS 273.051).

The State Parks and Recreation Department is responsible for the state parks system and management of the State Scenic Rivers Program (ORS 390.845). Under this program the State Parks and Recreation Department regulates land management activities within and above scenic waterways to protect and enhance the values, which caused the river to be included in the system. The State Parks and Recreation Department develops rules for managing the scenic values after consulting with the affected counties.

In addition to the various state agencies, local governments and special districts also have management responsibilities relative to water resources. The Soil and Water Conservation Districts are the local authority on conservation programs and provide technical assistance to land owners in implementing conservation programs (ORS 568.225). In addition the counties and cities have the responsibility for developing a coordinated land use program that incorporates water resources management (ORS 197.175) and, where appropriate, developing wellhead protection programs and conservation plans.

While management authority over the waters of the State of Oregon is spread over several agencies, when these agencies exercise their planning duties, powers and responsibilities, or take an action that affects land use, the agencies are to act in compliance with the land use goals, and act in a manner compatible with the local comprehensive plans and land use regulations (ORS 197.180). However, local governments are prohibited from taking any action that prohibits, limits, regulates, or affects forest practices (ORS 527.722).

Likewise federal agencies are to follow local comprehensive plan provisions that are of an environmental regulatory nature, to the extent such regulations do not conflict with

federally mandated duties (See California Coastal Com'n v. Granite Rock Co. 107 S.Ct. 1419 (1987)). A number of federal statutes and regulations impose a duty upon federal agencies to integrate local plans (40 CFR 1506.2(d)) and to coordinate planning with the local governments (See the Federal Land Management and Policy Act and the Forest and Rangeland Renewable Resources Planning Act).

Among the land use goals that must be considered in the comprehensive plans of local governments and programs of state and federal agencies are a number of issues that relate to water management in Harney County, including marshes and wetlands, lakes and lakeshores, recreational and outstanding scenic areas, wild and scenic rivers, flood plains, unique wildlife habitats, and agricultural lands (ORS 197.230).

As part of its comprehensive plan, Harney County evaluated and discussed the various water related goals. At the onset of the periodic review process the county established a citizens advisory group to aid identifying state and local issues to be addressed. In its assessment of activities that needed updating or reexamining during the periodic review, the county elected to revisit a number of water issues and to incorporate an updated analysis into the comprehensive plan. As part of this update, the county reviewed the physical environment and water demand for the county and reexamined its policies relative to water resources.

2.6.3 Physical Environment

Harney County is the largest county in Oregon and encompasses 10,132 square miles (6,506,240 acres). Of this land area, over 77% is managed by public agencies (Federal, State, Tribal and County). (Comprehensive Plan Harney County, Oregon, Table 1)

1. Climate

The climate is semiarid with long, rather severe winters and short summers, which have a high proportion of clear, sunny days. The average monthly temperatures range from an average of 25° F in January and 70° F in July at Burns; 22° F in January and 60° F in the north central part of the Malheur Basin; and 30° F in January and 66° F at the P-Ranch near Frenchglen. (id p 8) Recorded extremes are 112° F at Beulah and -54° F at Seneca. (Survey Report on Silvies River and Tributaries Oregon, Nov. 8, 1957, p. 18)

The average annual precipitation varies from under 10 inches in the lower elevations to 40 inches in the higher elevations areas. The low precipitation months are July, August, and September.

Over time there have been long periods of drought intermixed with equally long periods of above normal precipitation (Table 4).

Harney County Watershed Precipitation Summaries 1885-1995
Watershed (See graphs)
South Malheur Lake Basin
Malheur Lake Basin
Malheur River Basin
North Malheur Lake Basin
Goose and Summer Lakes Basin
Source: Larry L. Walker, Range Conservationist, and Oregon State Office of the Bureau of Land Management.

Table 4 – Harney County Watershed Precipitation Summaries

Farming operations are generally limited by the short growing season and the limited annual precipitation. However, with close attention to irrigation practices and cropping patterns, agriculture has established itself as one of the basic economic elements of the county.[2]

To provide the information necessary to monitor the wide seasonal and annual fluctuations in precipitation, the Water Resources Department and other agencies maintain stream flow and groundwater monitoring stations throughout the county (See Water Resources Department map entitled "Water Supply - Related Information, Harney County). Surface water discharge or stage only gauging stations are located at the Silvies River (Gauge #10393500), Donner und Blitzen River (Gauge #10396000), Malheur River (Gauge #13214000), and on Trout Creek (Gauge #10406500). The nearest gauge for the John Day River system is located at Picture Gorge near Dayville (Gauge #14040500).

In addition to these gauging stations, gauge information is available from 33 discontinued gauging stations, and a number of gauging stations maintained by agencies other than the Oregon Water Resources Department (i.e. Malheur National Wildlife Refuge). Information on precipitation and temperature are maintained by the weather service and the Boise Interagency Regional Fire Center.

[2]. Recently Oregon State University conducted an economic analysis of the Grant County economy and found that agriculture was a primary economic force in the county. ("The Structure of a Resource Based Economy: Grant County, Oregon" Dr. Frederick Obermiller et al, 1993). The economic setting of Grant County is very similar to Harney County and the findings of the OSU study are applicable in Harney County as well.

2. Drainage Basins

The county exhibits hydrologic cycles that are characteristic of both a closed basin as well as the more classic runoff situation wherein the streams flow into the ocean. With the wide range of hydrologic conditions encountered throughout the county, water management practices and priorities vary widely within the county. As a reflection of these regional differences, the Water Resources Commission has divided the county into four water basins for management purposes: the John Day Basin, Malheur-Owyhee Basin, Malheur Lake Basin, and Goose and Summer Lakes Basin. For each basin the Water Resources Commission has developed water policies and basin management plans.

The basin plans are designed to serve as an integrated coordinated program for the use and control of all the water resources within the basin (ORS 536.300). Once the plans and policies are established, all water development and management are subject to these plans and policies (ORS 536.360). [3]

As part of the basin program the waters within each basin were classified as to their highest and best use. Classification is a foundation of the basin management program and serves to restrict the use and quantities of water to only those specified in the basin program plan (ORS 536.340). The only exceptions are those uses, which fall within one of the statutory exemptions (ORS 536.295). In addition, some basin programs reserved water through the classification process (i.e. John Day Basin Program Plan (OAR 690-80-060)).

The Malheur-Owyhee Basin Program (OAR 690-510-001) classified the waters within the basin for domestic, livestock, municipal, irrigation, power development, industrial, mining, recreation, wildlife and fish life uses. Subsequently the Water Resources Commission modified its definitions to include alkali abatement as an irrigation use OAR 690-11-010(26). In addition, as part of the classification process, 1,454,000 acre feet of the natural flows of the Snake River was classified for domestic, livestock, municipal and irrigation uses only within the Malheur-Owyhee Basin (OAR 690-510-001).

In contrast to the Malheur-Owyhee Basin Program, the Malheur Lake Basin Program (OAR 690-512-001) does not make specific classifications for water usage other than to adopt minimum perennial stream flows for Trout Creek and Willow Creek. While the waters of this basin are available for any of the various uses authorized by law (See ORS 536.300(1)), the basin is essentially closed to new surface water appropriations

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[3]. The basin plans are of a prospective nature for neither the Water Resources Commission nor the Water Resources Department has the power to modify, set aside or alter any existing water right or priority (ORS 536.320). While some early water right certificates issued prior to June 14, 1939, contained provisions for the recapture of the water rights by the State of Oregon, these provisions are of no force and effec. (ORS 57.390(4))

or groundwater applications that have the potential to substantially interfere with surface water.

The only exceptions to this rule are: a) when the applicant demonstrates by a preponderance of evidence that unappropriated water is available to supply the proposed use at the times and in the amounts requested; b) when the application is for storage of water between March 1 and May 31; c) an application to use water that is legally stored under another permit; and 4) when the application is for instream water rights.

To satisfy the preponderance of evidence test, the applicant must submit data from a qualified hydrologist or water resources specialist that includes: a) streamflow measurements or gauge records from the source or, for use of groundwater, the stream that is in hydraulic connection with the surface water; and b) an estimate of water availability. OAR 690-512-001.

The Malheur Lake Basin also differs from the other basins in that there are still areas wherein the water rights have not been adjudicated and are subject to pre-1909 vested right claims (ORS 539.010). Among these are the streams situated on the eastside of the Steens Mountain and Riddle Creek near Diamond Valley. Anyone holding these vested claims was to have filed their claim by December 31, 1992 under the provisions of ORS 539.240. However, the 1995 Legislature amended this process to allow the processing of late filed claims that were submitted prior to December 31, 1994 (See SB 510).

The Goose and Summer Lakes Basin Program (OAR 690-513-010) is similar to the Malheur-Owyhee Basin Program in that it classified the surface and groundwater in the Warner Lakes Subbasin [4] for agriculture, domestic, fish life, groundwater recharge, industrial, instream, irrigation, mining, municipal, pollution abatement, power, recreation and stockwater uses (OAR 690-513-010).

Likewise, the John Day Basin Program classified the various surface and groundwater sources within the South Fork Subbasin[5] for irrigation, domestic livestock, groundwater recharge, fire protection, fish life, wildlife, pollution abatement and recreation (OAR 690-80-060).

While the John Day Basin Program establishes the foundation for managing the waters within the basin, a 1988 Oregon Supreme Court decision has interpreted the State Scenic Waterways Act as requiring any water right issued above any waterway that is included within the State Scenic Waterways Act must be accompanied by a finding by

[4]. The Warner Lakes Subbasin covers that portion of the Goose and Summer Lakes Basin, which lies within Harney County.

[5]. Only a limited portion of the John Day River system, the headwaters of the South Fork John Day River, is within Harney County.

the Water Resources Commission that streamflows for recreation, fish and wildlife will not be impaired. (See Diack v. City of Portland 306 Or. 287 (1988)) In this case, since part of the South Fork John Day Scenic Waterway is within Harney County, all water rights issued on the South Fork subsequent to the Act are subject to the "Diack" flows.

While these four basins reflect the majority of the county's drainage basins, a small segment of the county is drained by Rincon Creek into Nevada.

Of the various basins, the Malheur Lake Basin represents the largest land area[6] and covers the majority of the agricultural lands within the county. While this basin is currently land-locked, during prehistoric times the basin was drained by the Malheur River and exited the valley through an outlet near Princeton. This outlet was eventually blocked by a Pleistocene lava flow.

As is characteristic of closed basins, the lake level has the potential to fluctuate widely. From 1903 to 1982, Malheur Lake's peak lake level fluctuated within a band of four feet, however commencing in 1982 the lake level started to rise and expanded to include Harney and Mud Lakes. By 1986, the lake level reached 4102.56 feet, a deviation of approximately 7.5 feet above the normal range. (Malheur Lake Flood Damage Reduction Study, U.S. Army Corps of Engineers, April 1987, p. 2-4) The high water approached levels sufficient for the lake to drain through the prehistoric outlet[7] into the Malheur River.[8] (Harney County Comprehensive Plan p. 12) During the high water period the lake covered approximately 172,900 acres as compared to 67,000 at the 4093-foot elevation. (id. at 2-4) As a result of this flooding, numerous roads, utilities, and agricultural operations were disrupted.

The Malheur Lake Basin includes Silver Creek, Donner und Blitzen River, and the Silvies River drainages, all of which eventually discharge into Harney Lake or Malheur Lake.

The Silvies River drains approximately 1,200 square miles and represents one-fourth of the Harney Basin. The river originates in the Blue Mountains in the north and flows southward approximately 180 miles to Malheur Lake ("Survey Report on Silvies River and Tributaries" 1957 at p.4). The channel slope of the basin averages 6 feet per mile but it is no more than 2 feet per mile in the lower valley. ("Hydrology of Malheur Lake,

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[6]. The Malheur Lake Basin covers approximately 9,965 sq. miles of which 8,122 are within Harney County. The basin drains 6,377,000 acres in five counties and represents 10% of the State of Oregon's land mass. ("Malheur Lake Basin", State Water Resources Board, June 1967, p. 1)

[7]. It is estimated that the last time the outflow through Virginia Valley occurred was 3,200 to 3800 years ago. Malheur Lake Flood Damage Reduction Study, U.S. Army Corps of Engineers, April 1987, p. 2-3)

[8]. A surface level elevation of 4115 would be necessary before the ancient outlet would be reached. id. 2-3

Harney County, Southeastern Oregon": Water Res. Investigations 1972, No. 21-75). The average discharge for the Silvies River at the gauging station near Burns is 128,000-acre feet/year or 177 cfs. The maximum discharge was 4,960 cfs on April 6, 1952 and the minimum discharge was no flow on July 19th to Sept. 22nd, 1934. (OWRD Gauge Records, gauge #10393500).

Silver Creek originates in the northwest corner of the county and drains through Warm Springs Valley into Harney Lake. The drainage area is about 45 miles long and 20 miles wide covering approximately 900 square miles. ("Survey Report on Silvies River and Tributaries id. at p.5).

The Donner und Blitzen River system originates in the Steens Mountains flows northward for 50 miles and discharges into Malheur Lake. This river system drains approximately 1,000 square miles ("Survey Report on Silvies River and Tributaries" id at p. 5). The channel slope ranges from 100 feet per mile in the Steens Mountain to 2 feet per mile just south of Malheur Lake ("Hydrology of Malheur Lake, Harney County, southeastern Oregon" id at p. 15).

The average discharge for the Donner und Blitzen River at the gauge near Frenchglen is 91,290-acre feet/year or 126 cfs. The maximum discharge was 4,270 cfs on April 26, 1978 and the minimum was 4.2 cfs on December 9, 1972. (OWRD Gauge Records, gauge #10396000).

While the Alvord Desert and Guano-Catlow areas are considered part of the Malheur Lake Basin for management purposes, they are essentially closed basins and do not discharge into Malheur Lake or out of their immediate drainage basins. A gauging station on the Trout Creek near Denio, Nevada, provides information relative to this drainage. These records reveal that this part of the Alvord Lake Basin has an average discharge of 11,810-acre feet/year or 16.3 cfs. The maximum discharge rate was 470 cfs on Aug. 1, 1993, and a minimum of 0.10 cfs on Aug. 1, 1934 and Sept. 12, 1934. However no flow probably occurred at times between September 1-19, 1931 (OWRD Gauge Records, gauge #10406500).

The other major drainage within the county is the Malheur River, which originates in the Strawberry Mountains, drains easterly and eventually reaches the Columbia River. Within the county, this river system drains 1,613 square miles.

Based upon information collected by the Water Resources Department at the gauging station near Drewsey (Gauge #13214000), the average discharge of the Malheur River at this point is 189 cfs or 136,900 acre feet/year. The maximum discharge of 12,000 cfs was recorded on December 23, 1964, while the minimum discharge of zero flow has been reported on more than one occasion.

Small parts of the South Fork John Day River, Deschutes and the Goose and Summer Lakes Basins are included within Harney County. The Deschutes River basin drains a small portion of the northwest corner of the county. The South Fork John Day River

Basin originates in the northwestern region of the county and drains north into the John Day River. The Warner Lake Subbasin of the Goose and Summer Lakes Basin is located in the southwestern corner of the county. Closed basin lakes and ephemeral ponds represent most of this basin.

Notwithstanding the closed nature of much of Harney County, the discharges into these closed basins play a significant role in the hydrologic conditions of the basin. These discharges are essential in replenishing the aquifers within the basin and providing early season irrigation. Furthermore, due to the closed basin nature, a significant proportion of the basin has wetland characteristics resulting largely from spring runoff, irrigation practices, and fluctuating lake levels.

The geologic structure of the Harney Basin is such that the rocks bordering the central alluvial plain dip inward from all sides with the drainage flowing into Harney and Malheur lakes. The valley is made of up alluvium fill, which has been washed into the valley over time. This alluvium constitutes a ground-water reservoir from which a considerable quantity of water can be recovered perennially for irrigation and other purposes. However the water yielding capacity varies due to the discontinuous and irregular distribution of the water bearing beds. ("Malheur Lake Basin", State Water Resources Board, June 1967, p.36).

3. Groundwater

The ground water resources have been subject to a number of studies, which have attempted to delineate the quantity and quality of the water. Among the earliest of these studies, was the U.S. Geological Survey water supply report "Geology and Ground-Water Resources of the Harney Basin, Oregon (Water Supply Paper 841, 1939). This report is the most comprehensive technical data available on the basin's groundwater resources. Subsequently the USGS conducted a ground water study in the Harney Basin and the Catlow and Alvord areas, which was designed to identify areas with potential for groundwater use. (Figure 1) ("Malheur Lake Basin", State Water Resources Board, June 1967, p.37). In addition the U.S.G.S. examined the Drewsey Resource Area (Figure 2) and noted the ability to produce large volumes of water from the consolidated rock aquifers beneath the valley-fill deposits ("Groundwater Data for the Drewsey Resource Area, Harney and Malheur Counties, Oregon" USGS Open-File Report 77-741, Sept. 1977). All three reports indicated a high potential for groundwater development from both deep wells and the shallower alluvium deposits.

In addition to these studies, extensive well logs are on file with the Water Resources Department and a number of studies focusing on specific areas have been published. (See Ground Water Resources in Harney Valley, Harney County, Oregon, by A. R. Leonard, U.S.G.S., November 1970; Ground Water Levels 1967-1968" Bartholomew and Debow, Ground Water Report No. 15, May 1970).

The Water Resources Department has issued primary groundwater rights for 668.71 cfs and 159.37 cfs as supplementary groundwater rights (Table 3). In addition there are a number of wells that are exempt from obtaining a water right. (See ORS 537.545)

The water quality of the ground water resources was studied as part of the 1988 Oregon Statewide Assessment of Nonpoint Sources of Water Pollution ("1988 Statewide Assessment") and the USGS in its 1977 review of groundwater in the Drewsey Resource Area ("Groundwater Data for the Drewsey Resource Area, Harney and Malheur Counties, Oregon, U.S. Geological Survey Open File Report 77-741).

While the 1988 Statewide Assessment identified the Harney Lake and Malheur Lake regions as having moderate groundwater problem ratings,[9] subsequent analysis concluded that the groundwater resource was not a high priority water impaired by nonpoint source pollution.

Recognizing the need to protect the water quality of their water supply system, the City of Burns and the City of Hines have adopted wellhead protection programs. (Personal Communications with H. Barnes (City of Burns) & P. Mather (City of Hines).

The 1988 Statewide Assessment also identified parts of the Donner und Blitzen River, Silvies River, Silver Creek, and Malheur River as having surface water quality impairment due to agricultural land use. In addition, the Silvies River, Malheur River, and Silver Creek were identified as having surface water quality impairment due to forestry related land uses.

Grazing and range management activities were found to have impaired the water quality of surface waters in the Donner und Blitzen, Malheur River, Silvies River, and Silver Creek drainages. Of the surface water quality problems most identified, the majority are related to land management activities or natural conditions.

The 1988 Statewide Assessment was designed as an aid in establishing priorities for monitoring and rehabilitation projects as well as to identify areas where extra caution should be exercised in land use activities to protect water quality.

Since much of the information relied upon in the assessment was not verified by the DEQ prior to issuing the assessment, the DEQ determined that additional detailed analysis was necessary before a definitive description of NPS-related water quality problems within the county could be developed.

Subsequent to the 1988 Assessment, the DEQ developed additional information and determined that none of the surface waters within the county were "high priority

[9]. The 1988 Statewide Assessment notes that these reports of water quality problems were challenged and that further study may be necessary.

surface waters impaired by NPS pollution in Oregon". (Nonpoint Source Statewide Management Program for Oregon, April 1, 1991)

However the 1991 Nonpoint Source Statewide Management Program for Oregon ("Statewide Management Program") did report that in the Malheur Lake Basin of the 1,905 miles assessed for water quality, 1,038 were found to have no reported problems however 566 were found to have severe problems and 353 to have moderate water quality problems. Similar findings were observed in the other basins as well. (id. at p. 1-6).

The Bureau of Land Management in its "Three Rivers Resource Management Plan" (September 1992) also noted water quality and stream habitat problems associated with temperature, siltation, grazing, logging and road runoff. Depending on the specific site the trends varied from improving to declining.

With site-specific goals and objectives, the productivity of these lands and water quality can in most cases be improved. Improvement may however be slow and will require close monitoring and adapting management practices as necessary (See "Livestock Grazing on Western Riparian Areas" August 1993; "Managing Change-Livestock Grazing on Western Riparian Areas" July 1993; "EPA Riparian Policy Summary and Analysis" February 1991; "Oregon Water Management Program - Protection of Water Resources on Public Riparian Lands" Dec. 1990; & "Nonpoint Source Pollution Control Guidebook for Local Government" June 1994).

Livestock grazing and healthy riparian systems can and often do coexist in Harney County. The main riparian grazing problems encountered in the county are related to season of use and intensity of use (concentrating in a small area for too many days). The low gradient on several streams also creates natural water quality problems. With the season of use and intensity managed properly, experience in eastern Oregon is beginning to show that the number of available AUM's in many riparian areas can increase as recovery occurs (see "Riparian Areas: Perceptions in Management" W. Elmore & R. Beschta, Rangelands Vol. 9, No. 6, December, 1987; "The Importance of Rancher Input in Solving Riparian Problems" H.S. Thomas, Rangelands vol. 13(2) April, 1991).

4. Streams and Rivers (Wild and Scenic Rivers)

The streams within the county are recognized for their outstanding and remarkable recreational, scenic and fisheries values. The 1988 Omnibus Oregon Wild and Scenic Rivers Act included parts of the Malheur River and the Donner und Blitzen River within the wild and scenic rivers system and designated a segment of the North Fork Malheur River as a study river.

Under the Act, the Malheur River was designated as a "scenic" river due to its outstandingly remarkable values and unique scenic character. This river segment extends from river mile 13.7 at Bosenberg Creek to the Malheur National Forest

boundary. The first seven-mile segment from Bosenberg Creek to Malheur Ford is designated as a "scenic" river while the 6-7 mile segment from Malheur Ford to the Malheur National Forest boundary is designated as a "wild" river.

The Donner und Blitzen River was also designated as a "wild" river due to its wild trout fisheries, scenery and geology features. Included were the 16.75 mile segment of the Donner und Blitzen River from its confluence with the South Fork Blitzen and Little Blitzen; the 12.5 mile segment of the Little Blitzen from its headwaters to its confluence with the South Fork Blitzen; the 16.5 mile segment of the South Fork Blitzen from its headwaters to its confluence with the Little Blitzen; the 10 mile segment of Big Indian Creek from its headwaters to its confluence with the South Fork Blitzen; the 3.7 mile segment of Little Indian Creek from its headwaters to its confluence with Big Indian Creek; and the 13.25 mile segment of Fish Creek from its headwaters to its confluence with the Donner und Blitzen. (Sen Committee Report No. 100-570; Congressional Record. S 15248 Oct. 7, 1988).

While the designation of these river segments, as wild and scenic rivers did not affect existing water rights within these river corridors, it did place restrictions on new uses within the corridor area. The Act was intended to preserve the status quo with respect to water rights and was not intended to affect or impair any prior valid water right (See Committee Report No. 100-570); & the comments of Sen. Hatfield in Congressional Record S 15243, Oct. 7, 1988)

The Bureau of Land Management has completed its eligibility Study Report for the North Fork Malheur River (BLM September 1993) and found that the study river is free flowing and that its scenery, recreational, fish and wildlife values were outstandingly remarkable. Further evaluation as to the merits of including this river segment into the wild and scenic river system will be conducted during the Malheur/Jordan Resource Management Plan.[10]

Not only are several rivers recognized for their unique nature, Harney County is also widely recognized for the unique wildlife resources associated with the wetlands within the county. The county has long been identified with the migratory and breeding populations of waterfowl associated with the Harney Basin and other wetland areas.

As a result of the closed basin character, the county has several wetland areas with marsh-like characteristics. Notable among these is Malheur Lake, one of the largest freshwater marshes in the United States and the site of the Malheur National Wildlife Refuge ("Hydrology of Malheur Lake, Harney County, southeastern Oregon" id at p.2; & "Blitzen Valley Management Plan, Malheur National Wildlife Refuge, Oregon" December 1990). The refuge was established in 1908 to protect colonial nesting birds from plum hunters. Its mission was subsequently expanded to include management

[10]. This planning effort is expected to begin in 1995 and be completed in approximately two years. During this planning period, interim management of the public lands within the river corridor will be designed to protect the river's free-flowing condition and its outstandingly remarkable values.

for production and maintenance of migratory birds and threatened and endangered species. Currently the refuge consists of 180,000 acres ("Effects of Flood Control Alternatives on the Hydrology, Vegetation, and Wildlife Resources of the Malheur-Harney Lakes Basin", U.S. Dept. of Interior, Sept. 1986, p.1).

While Harney County has a wide diversity of wildlife and wildlife habitat, it also has a number of fish and other water related wildlife species that are unique or are included on the federal and state threatened and endangered species lists. Among the species classified as threatened and endangered are the Bald Eagle, Borax Lake Chub, and the Lahontan Cutthroat Trout aka Willow-Whitehorse Cutthroat Trout. In addition, the following water related candidate species are found within Harney County: Western Snowy Plover (interior subspecies), White Faced Ibis, Spotted Frog, Malheur Mottled Sculpin, Alvord Chub, Catlow Tui Chub, Catlow Valley Redband Trout, Interior Redband Trout, and the Bull Trout (See "Federally Listed Threatened, Endangered, Proposed and Candidate Species Which May Occur Within Oregon" USF&W).

In recognition of the value of fisheries to the county, the Oregon Department of Fish and Wildlife has conducted a series of basin investigations to identify the instream water needs within the Malheur River Basin (N. Fork Malheur River, Middle Fork Malheur River, main stem Malheur River and the S. Fork Malheur River) and the Malheur Lake Basin (Donner und Blitzen River, Silvies River, Silver Creek, Delintment Lake, Fish Lake, and Chickahominy, Krumbo, Miller, Moon and Rock Creek Reservoirs). (See "Basin Investigations Malheur Lake Basin" March 1968, & "Basin Investigations Malheur River Basin" September 1967) Currently minimum stream flows or instream rights have been granted or are pending for all of the streams listed in these reports.

While a number of streams have instream water rights pending, the ODF&W may seek additional instream water rights in the future. The Department of Environmental Quality and the State Parks & Recreation Department are also authorized to request instream water rights. (ORS 537.336)

In addition, any state agency may request a reservation of unappropriated water for future economic development (ORS 537.356). When granted the reservation sets aside a quantity of water for specified uses which, when developed, have a priority over all other subsequently filed water rights (OAR 690-79-030). Under rules established by the Water Resources Commission the reservation of water terminates after 20 years if the water is not placed into beneficial use by that time (OAR 690-79-050).

5. Lakes

There are about 45 lakes (Map 4) and reservoirs in the Malheur Lake drainage basin, which encompasses much of Harney County. The areas are quite variable depending upon the amount of rainfall occurring each year. Malheur Lake has an area of about 64,000 maximum surface acres when it is near its maximum

elevations, and Harney Lake has an area of 33,000 maximum surface acres; both of these lakes have been known to be dry in years of severe drought. Table 5 lists the "Inventory of Lakes and Impounds."

Water flows out of Malheur Lake only when its elevation exceeds 4,093 feet (approximately) and its outflows are discharged into Harney Lake. The frequency with which high flows to Malheur Lake have occurred has been such that it has waters that are not highly saline. Harney Lake, however, has no consistent outflow, losing water only by evaporation with the result that its waters are highly saline; there is no fish life in this lake. In addition, Silver Lake and Alvord Lake seasonally go dry due to evaporation.

Borax Lake is located on the east side of the Steens Mountain and receives a large amount of water during the spring runoffs.

INVENTORY OF LAKES AND IMPOUNDMENTS IN HARNEY COUNTY						
Name	**Location**			**Approximate Maximum Size (surface acres)**	**Species**	**Ownership**
	TWP	**RNG**	**SEC**			
Burns Pond	23S	31E	16	4.5	Rb, LB	Public
Chickahominy Reservoir	23S	26E	28	529	Rb	Public
Cottonwood Cr. Reservoir	19S	36E	9	118	Rb	Public
Delintment Lake	19S	26E	29	52	Rb	Public
Fish Lake	32S	33E	29	20	Rb	Public
Harney Lake	27S	30E		33,000	--	Private & Public
Hot Lake	37S	33E	15	9	AC	Public
Juniper Lake	31S	35E	36	245	Rb	Public
Krumbo Reservoir	39S	32E	36	158	Rb, LB	Public
Malheur Lake	26S	32-1/2E		64,000	Bg, WC, YP	Public
Mann Lake	32S	35E	7	275	Rb, Ct	Public
Moon Reservoir	25S	28E	28	619	CC, LB, SB	Public
Rock Creek Reservoir	33S	29E	28	383	WC, Rb	Private
Warm Springs Reservoir	23S	37E	17	4,420	CC, LB, SB, BrB, Rb, YP	Public
Wildhorse Lake	33S	33E	35	16	CT	Public
Yellowjacket Reservoir	19S	29E	32	34	Rb	Public

Rb - Rainbow Trout, CT - Cutthroat, LB - Largemouth Bass, SB - Smallmouth Bass, Bg - Bluegill, WC - White, Crappie, BrB - Brown Bullhead, CC - Channel Catfish, YP - Yellow Perch, AC - Alvord Chub

Table 5 – Inventory of Lakes and Impoundments In Harney County

Map 4 – Harney County, Lakes

2.6.4 Harney County Water Resources Management Study

1. Introduction

This report reviews the current, historical and predicted population in Harney County, Oregon, over the 1970-2010 period, and makes water demand projections for the first part of the next century. An integral part of this study is the water demand analysis for each municipal water system including the two municipal suppliers and several independent group water systems. The intent was to include all major water users that are privately or publicly supplied, and to make long-term water demand projections that can be used as a guide for infrastructure planning. A primary assumption of this analysis is that water is available and does not constrain growth. In addition to municipal water supply, the study examines the agricultural and industrial water supplies and issues that may be limiting development.

Long-term forecasting is inherently risky because the future is never certain. In an area undergoing the type of change that has been experienced in Harney County for the last 10 years, great care must be taken to avoid erroneous assumptions. Obviously Harney County in 2010 may be significantly different from Harney County as it exists in 1995. Recognizing the risky nature of long- range forecasting, this study attempts to recognize and account for the changes in structure that may occur in the 1995-2010 period.

2. Municipal Water Supply

The municipal water supply in the county was examined based upon information provided by the City of Hines and the City of Burns. Water use in the unincorporated portion of the county was estimated by extrapolation from the municipal systems, and by reference to data from other communities and water utilities in Oregon.

Harney County Water Demand Municipal Water Systems							
	No. of Households	No. of Industrial	No. of Commercial	Peak Day	Average Day	Avg. Per Day Per Capita Consumption	Avg. Day Per Act. Consumption
Hines	583	1	25	1.8 mgd	.856 mgd	589	1405
Burns	1622	----	----	3.7 mgd	.800 mgd	274	493

Table 6 – Harney County Water Demand: Municipal Water Systems

Data for each of the two municipal water systems are listed in Table 6. The data was collected through surveys of the municipalities. The data varied considerably due to the level of records maintained.

In addition to these municipal suppliers, there are a number of small group water systems in the county (Crane Community, Drewsey Community and Frenchglen), and two subdivisions that are on a group water system (Highland Ranch Estate, and Garland Acres).

All of the municipal and subdivision suppliers derive their water supplies from groundwater resources. During this review, neither the City of Burns nor the City of Hines reported problems with their wells.

The City of Hines has three wells that have a combined pumping rate capacity of 2,525 gallons per minute or 3,636,000 gallons per day. The actual use averages 856,644 gallons per day. The peak day usage was 1,827,900 gallons. The City of Hines also has a 250,000 gallon storage tank. While some of the households and commercial establishments are currently metered, the majority of accounts are not. As new accounts are added, meters are being required. (personal communication P. Mather, City of Hines Recorder).

In the past the City of Hines has had water pressure problems due to the small size of the lines in the older parts of town. To resolve these infrastructure problems the city has undertaken a program to update the lines.

The City of Burns obtains its water from five wells that have the capacity to pump 5,300 gallons per minute or 7,632,000 gallons per day. Currently the average daily use is 800,000 gallons per day. The peak day usage was 3,700,000 gallons per day. In contrast to the City of Hines, the City of Burns has a metered system (personal communication H. Barnes, past City of Burns Administrator).

Both municipalities recognize the need for wellhead protection and have programs to address all or part of these requirements. Neither system has a conservation program in effect other than the metering systems.

Also within Harney County are two subdivisions that are served by group water systems. These subdivisions, Garland Acres and Highland Ranch Estate, are situated adjacent to the Urban Growth Boundary of the City of Hines.

Garland Acres is currently served by two wells that were drilled in 1965 (State Well No. 23/30-14Q) and 1967 (State Well No. 23/30-14G). These wells are situated in the SW quarter of Section 14, Township 23 South, Range 30 East W.M. The first well is a six-inch diameter well that was completed to a depth of 260 feet. This well was initially tested at 30 gpm. The second well is a fourteen-inch diameter well that was completed to a depth of 305 feet. This well was initially tested at 1000 gpm.

Highland Estates is currently served by a well situated in the SWNE of Section 35, Township 23 South, Range 30 East, W.M. This well was drilled in 1977 and is filed under State Well No. 23S/30/35. The well is a six-inch diameter well that was completed at a depth of 64 feet. Initial well tests yielded 125 gallons per minute.

While the subdivision wells were registered as part of the well drilling, they do not have water rights from the State of Oregon. However, pursuant to ORS 537.545, these wells may be exempt uses that are not required to obtain a permit, certificate or groundwater right certificate under ORS 537.505 to 537.795 and 537.992. As exempt uses the wells may be used to water lawns and noncommercial gardens not exceeding one-half acre in area, and to use the water for single or group domestic purposes in an amount not exceeding 15,000 gallons per day.

To assess whether the existing wells are adequate to supply the needs of the municipalities we examined the local communities average consumption rate and compared it to the pumping capabilities of the existing wells. As noted in Table 6, the average per capita municipal water usage in Harney County ranges between 274 gpcd ("Gallons Per Capita Day") to 589 gpcd.

For comparison we examined the consumption of other areas in the state. The Douglas County Water Resources Management Program (1989) reported a municipal water range between 205-230 gpcd for Douglas County. In contrast the CH2M Hill study of Coos County ("Coos County Water Needs Analysis") reported that residential consumption in the Portland area was approximately 40 gpcd, and 60 gpcd in the Coos Bay-North Bend Service area. The City of Bend's per capita consumption ranges from a domestic average of 90 gpd, citywide average of 150 gpd, in the winter to 600 gpd in the summer. (personal communication T. Gilner)

The City of Burns' average per capita demand is similar to that found during the Douglas County study. By contrast the City of Hines' higher per capita demand may be a reflection of the lack of metering data and the inability to distinguish between types of users. The City of Hines' demand is most likely skewed by the inclusion of the commercial and light industrial use within the per capita calculation as opposed to the City of Burns where these users are treated separately.

Sufficient data was not available to compute the peak-day factor for the unincorporated water systems. For these areas, we assumed that the average day demand was equal to that found for rural communities in the Douglas County Comprehensive Plan (275 gpd/rural household).

3. Population Projections

Preparation of population projections is an inherently risky process. While the degree of reliability is generally good in the short term, it becomes more and more unreliable the farther into the future the projection reaches. Because of the inherent uncertainty in population projections, they are rarely made for more than 10 to 20 years ahead.

While it is generally wise to make water supply projections farther into the future (ie. 50 years), we are reluctant to project much farther than the next 10-20 years due to the uncertainties in the local economy.

To take into account the unreliability inherent in population projections we have prepared two projections. The first projection is that the population will remain stable or decrease and is intended to be a conservatively optimistic projection upon which to predict future water needs. The second projection is a high projection and is intended to embody the highest sustained growth rate predicted to occur in Harney County.

We believe it is wise public policy to plan the water system and reserve the sources for this high projection in order to ensure that supply can be available for future needs. Planning for and reserving water now for this high projection does not mean, of course, that the complete storage, diversion, or distribution system would be built, or built at one time.

To prepare the projections, we first analyzed the historical growth in the county. As a general rule, the communities in Harney County have become smaller because of the loss of industrial base in the forest products industry since the 1970s. This loss was originally observed in the Harney County Comprehensive Plan, however the public agency land management policies that were anticipated to result in a sustained yield of timber, grazing, and wildlife from public lands and, in turn, expected to be a stabilizing influence on the county's growth, did not materialize. (See Harney County Comprehensive Plan p. 166; & See generally "Timber For Oregon's Tomorrow, the 1989 Update" May 1990).

Rather than provide the stabilizing influence as predicted in the Harney County Comprehensive Plan, the public land management practices have created a severe cloud on the county's growth and employment.

The recent closure announcement by Snow Mountain Pine Ltd. is expected to have severe impacts upon the local community. The Oregon State Division of Employment predicts there will be 240 plus jobs affected resulting in an unemployment rate increase from 6.5% to 18%, a prediction that does not incorporate the ripple effect on other businesses in the area.

Furthermore, the recently proposed changes in rangeland management (Rangeland Reform 94) are expected to reduce forage availability by 12% over the next five years and by 21% over the next 20 years (Rangeland Reform Draft EIS 4-55). Rangeland Reform 94 will have the largest impact upon those operations that have a large number of livestock and a large dependency upon federal forage -- essentially the type of operation prevailing in Harney County. (Rangeland Reform Final EIS p. 32) In addition to the impacts associated with Rangeland Reform, several other recently adopted programs are expected to further reduce grazing levels on the public lands. Among these are PACFISH and the Inland Native Fish Strategy. The uncertainty associated with the federal land management agencies planning efforts and the failure

to implement the existing land and resource management plans make it extremely difficult to predict population trends.

As a result of federal land management policies, the county is facing a transition from an economy based on resource extraction to some other as of yet undefined economy. This transition complicates the long-term population projections since such projections depend heavily on whether a new economic structure develops and the form of this new economy.

Prior to the Snow Mountain Pine closure and the adoption of Rangeland Reform 94, the Oregon State University Extension Service ("OSU") developed information on the demographic characteristics of the county's population growth patterns for the 1980 to 1990 time period (Table 7)

1980-1990 Growth Patterns In Harney County			
	1980	1990	% Change
Burns	3,579	2,913	-18.6%
Hines	1,682	, 1,452	-11.0%
Source: "Demographic and Economic Characteristics of Oregon's Timber-Dependent Communities", Karen Seidel, June 1993, p.5.			

Table 7 – 1980-1990 Growth Patterns In Harney County

OSU also examined the historical population and made projections for the County (Table 8).

Harney County Historical and Projected Population					
	1970	1980	1990	1992	2000
Harney County	7,215	8,314	7,060	6,950	8,20
Source: "Oregon's Population - Past, Present, and Future", Karen Seidel, June 1993, p.6.					

Table 8 – Harney County Historical and Projected Population

The OSU forecast predicts that by the year 2000, the Harney County population will increase by 16% over the 1990 levels.

Contrary to the OSU report, the Center for Population Research at Portland State University (PSU) estimates that Harney County's population will in fact decrease from the 1990 levels (Table 9).

Harney County Projected Population				
	1995	2000	2005	2010
Harney County	6,880	6,642	6,417	6,185
Source: "Oregon's Population - Past, Present, and Future", Karen Seidel, June 1993, p.6.				

Table 9 – Harney County Projected Population

The PSU study estimates that there will be a 6% decrease by the year 2000 and a 12% decrease by the year 2010. We also examined the Extension Service forecasts for the entire state of Oregon over the 1990-2000 time period (17.5%) and at projections for Eastern Oregon for the same time period (20.9%). We also examined the actual population change for these regions over the 1980-1990 period. The actual change was a 7.9% and 3.1% increase respectively.

These studies indicate that Harney County can expect a population shift by the year 2000 ranging from a 16% increase to a 6% decrease. The wide-ranging estimates, fluctuation in the average growth rate in the county for the last 20 years, and the declining growth rate experienced in recent years, indicates that the county is in a state of transition -- a transition that is exacerbated by the recent closure of Snow Mountain Pine. This transition will continue until a new economic base is established.

Based upon the changing economic conditions within the county, we have selected both a zero growth and the 16% growth rate as the average projections for use in this study. The low growth rate projected by Portland State based on 20 years of history is pessimistic but not unlikely given the instability in the natural resource economy resulting from federal land management. On the other hand, the 16% population increase projected by the Oregon Extension Service seems overly optimistic. While the projected growth rate of 16% appears to be too high, for this analysis it does provide a useful high end projection. Our judgment is that the population of Harney County will continue to decrease over the next ten years and that a decrease or stable population will be the most reasonable rate. Therefore, for our low end analysis we will utilize a stable population.

As mentioned earlier, water supply planners generally prefer to use high population forecasts. It is risky public policy to base future infrastructure plans on the average expected water demand when there is a wide natural variation around the average.

Even if the forecast is on average correct, facilities based on the average projected value would not have sufficient capacity in approximately half the years.

The large difference between the two population estimates can be used to point out the difficulty of making long-range population estimates. Changing economic conditions, employment outlook, and short-term trends can all affect population projections. The more optimistic projections are made with the assumption that new employers and residents will be attracted to Harney County, and that adequate resources, including water, will be available for the new population and employment base. The more conservative projections are consistent with the past history and recent downturn in the resource based economy. In the conservative scenario, population and the need for new water resources were assumed to remain stable, neither growing nor decreasing. In the long run, growth in Harney County will probably fall between the population values predicted.

2.6.5 Municipal Demand Projections

This report includes water demand projections for the average-growth and high-growth population projections. Water needed for residential, commercial, and industrial consumption was estimated from the historical relationships developed in a survey of county water suppliers. Water needs were projected on a per capita basis. While the per account relationship lumped commercial and industrial accounts with the residential accounts, the nonresidential usage was viewed as light and generally equal to the residential usage.

At existing capacity the City of Burns and City of Hines' wells are capable of serving a population of 19,130 to 41,124 at the current average per capita consumption rates. At peak demand levels the current wells can support a population of 9,385 to 20,171. However with conservation, or development of additional wells, the systems are capable of serving an even higher population growth.

Our analysis reveals that the existing systems for the City of Hines and City of Burns are capable of meeting both the average growth and the high growth population projects. Under the low growth scenario, the City of Burns and the City of Hines' existing installed capacity can meet the projected demand. Likewise, under the high growth rate of 16.1% by the year 2000, both cities' existing installed capacity can meet the demand. These projects do not however, incorporate any new commercial or industrial uses that may have large water demands.

2.6.6 Agricultural Demand

Harney County has a large agricultural sector that is heavily dependent upon water for irrigation purposes. To meet the irrigation and agricultural demands, the Water Resources Department has issued primary groundwater and surface water rights for

3729.22 cfs and 5352.79 acre feet of water for irrigation and agricultural use. Due to variations in annual water flows, not all of these water rights are fulfilled each year.

Very little nonirrigated cropland exists within the county due to the low annual precipitation and the short growing season. There are, however, approximately 8,000 acres of dry cropland scattered throughout the county in small fields. The majority of these croplands are situated within the Harney Basin intermingled with irrigated hay and pasturelands.

It is assumed that the dependence upon irrigated agriculture will be continued throughout the planning period. While a significant amount of Harney County's agricultural land is not irrigated, the rural economy is either directly or indirectly tied to irrigation.

In addition to the areas flood irrigated, several areas within the county are dependent upon early spring floods to recharge the groundwater and in turn to provide sufficient water for rangeland forage growth.

Recently, a demand has grown for water to be used in the control of salinity and alkalinity associated with the soils within the Harney Basin, the southern Catlow Valley, and the Pueblo Valley.

Opportunities in management efficiencies are available through new and innovative farming practices such as early season irrigation which serve to recharge groundwater, provide on site storage, and provide return flows to augment late season flows. Some of these innovative programs may require administrative changes in irrigation seasons and basin plans.

Currently the use of water is generally limited to a specific irrigation season and, by the rate and duty, all of which are established by court order or administrative rule.

In Harney County the irrigation season has been set by both adjudications and by administrative rule. For the Silvies River, Whitehorse Creek, Willow Creek, and Poison Creek the season is from March 1st to September 1st, or when it can be used beneficially.[11] On Silver Creek the season is from March 1st to October 1st. The irrigation season for the Trout Creek and Blitzen River drainages extends from March 15th to October 1st. For the Malheur River, Wildhorse Creek, Rattlesnake Creek, Coffee Pot Creek, Mill Creek, Soldier Creek, Prather Creek, Cougar Creek, Cow

[11]. The Water Resources Department's "Findings of Fact and Order of Determination" for the Whitehorse and Willow Creeks and their tributaries fixed the irrigation season as "commencing on March 1 and ending September 1 of each year; provided, however, that as irrigation depends upon climatic conditions and changes in the season, the season hereby fixed shall not prevent water users awarded a right herein to use the water of Whitehorse and Willow Creeks and their tributaries for the purpose of irrigation according to their relative rights of priority, and its quantities as fixed herein, at other times when such will be a beneficial use to the crop grown when the ground is not frozen and the same can be used without needless waste." May 1, 1989.

Creek, Crane Creek, Rock Creek, and Catlow Valley streams the adjudication did not set specific irrigation dates, rather, the degrees simply stated that the season was when water could be used beneficially.

With respect to those permits or certificates where the irrigation season is not specified either in a decree, permit, certificate, order or basin program, then the irrigation season will be the same as other permits if the irrigated acres are within an adjudicated stream basin or, in those cases where the stream has not been adjudicated, then the irrigation season is from March 1st to October 31st (OAR 690-2509-070). The irrigation season may be modified during the basin planning process (OAR 690-250-070(2) or when the State Department of Agriculture makes a request for an extended irrigation season (See H.B. 2917 68th Oregon Legislative Assembly).

As with the irrigation season, the authorized rate of water application[12] varies with the respective adjudication. The Silvies River, Poison Creek, Soldier Creek, Prather Creek and Cougar Creeks are all set at 1/80th cfs/acre while the remaining streams vary from 1/20th cfs/acre to 1/80th cfs/acre. The maximum duty[13] is uniform at 3 acre-feet.

The ability to increase the amount of land irrigated by surface water resources is greatly limited. Water availability analysis conducted by the Water Resources Department indicates that the Silvies River system has no water available from May to October, and that the Donner und Blitzen River system has only 1-10 cfs available from July to September (Figure 3).[14]

With the limitations on surface water availability, any growth in irrigated lands is dependent upon the availability of stored water or the potential for developing groundwater resources. With respect to groundwater, the lands described in Figures 1-2 provide the greatest potential.

While several studies have documented the potential for groundwater development from both the unconfined shallow pervious beds and the confined water in the deep pervious beds, the water beds are discontinuous and irregularly distributed. Not only are the beds irregular, the water yielding capacity also varies from place to place ("Geology and Ground-Water Resources of the Harney Basin, Oregon" Geological Survey Water Supply Paper 841, 1939; "Malheur Lake Basin" State Water Resources

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[12]. The rate is defined as the maximum quantity of water in cubic feet per second that may be applied to a field at any one time. (OAR 690-250-010(12).

[13]. The "duty" is the total quantity of water in acre-feet per acre per year that may be diverted for irrigation. (OAR 690-250-010(12).

[14]. The water availability tables were prepared by the Water Resources Department as a preliminary tool in ascertaining whether water is available for appropriation. Any one seeking a water right in the county should conduct their own investigation with the Water Resources Department and should only use these tables as an approximation.

Board" June 1967; "Groundwater Data for the Drewsey Resource Area, Harney and Malheur Counties, Oregon" U.S.G.S. Survey Open File Report 77-741).

Notwithstanding the unpredictability of the groundwater resource, the ground-water reservoirs in the area can sustain additional development. ("Groundwater Resources in Harney Valley, Harney County, Oregon" USGS, Nov. 1970) However, a number of factors unrelated to water quantity, may limit this development. Some of the high volume wells have experienced problems associated with pumping sand, which contains magnetite, an abrasive substance that causes rapid wear on pumps. In addition, the quality of available ground water is a limitation in some areas. (id. at 52-58)

While water is the primarily limiting factor to the growth of irrigated agriculture, soil conditions also greatly influence the ability to irrigate additional lands. The Soil Conservation Service has classified the soils in the region based on land capability classes which considered such characteristics as depth, texture, wetness, slope, erosion hazard, overflow hazard, permeability, structure, water-holding capacity, fertility and climatic conditions. (See. "USDA Report on Water and Related Land Resources Malheur Lake Drainage Basin, Oregon" April 1967). The primary soil factors limiting the increase of irrigated lands are the shallowness of soils, drainage, and alkalinity (USDA id. at Table 3). Notwithstanding these problems, the Harney Basin has large tracts of land, which are composed of soils suitable for cropland and irrigated farmlands. (id. at 101).

In addition to developing additional storage or groundwater supplies, opportunities for increasing agricultural production also may be present through conservation, increased efficiency, and changes in the irrigation season.

2.6.7 New Source Options

Since the majority of the surface waters within Harney County are already at or near full appropriation during the summer months, any new or expanded activities that depend upon water will require the development of groundwater or new water storage. The degree to which these new sources are developed is dependent upon a number of factors including economics, environmental restrictions, geology, and the actual demand.

While it is anticipated that water demand will grow throughout the next 50 years, it is also anticipated that there will be additional demands for water to satisfy water quality, fish, wildlife, and recreation issues.

This increasing water demand can be met in a number of ways, among which are the development of stock watering impoundments, groundwater development, multipurpose storage impoundments, groundwater recharge, riparian management, and conservation.

In developing any new water development, close attention must be given to environmental regulations, and any project will be subject to restrictions imposed through the State of Oregon's water policy as well as the respective basin programs adopted by the Water Resources Commission.

While most basin programs allow for development, there are numerous restrictions. For example the Malheur-Owyhee Basin Program prohibited any structure or works for the utilization of the waters that are not consistent with the state water policy as set forth in ORS 536.310. Furthermore, all projects are to be cognizant of the multiple purpose concepts (OAR 690-510-001).

Likewise the Malheur Lake Basin Program prohibits the issuance of any permit for any use of surface water or groundwater, the use of which has the potential to substantially interfere with surface water unless the applicant shows by a preponderance of evidence that unappropriated water is available to supply the purposed use at the times and in the amounts requested. The rule does not apply to permits for storage of water between March 1 and May 31 that are not detrimental to the public interest (OAR 690-512-040).

The Goose Lake and Summer Lake Basin program classified the waters for agriculture, domestic, fish life, groundwater recharge, industrial, instream, irrigation, mining, municipal, pollution abatement, power, recreation and stockwater uses (OAR 690-513-010).

The following table briefly outlines storage options that were identified from a review of previous water resource studies and by the Harney County Water Resources Committee.

Stream Storage Options In Harney County			
Name	**Source**	**Watercourse**	**Location**
Emigrant Creek	1	Silvies River	T21S,R29E, S2
Poison Creek	1	Silvies Valley	T21S,R31E, S29
Silvies River	1	Upper Silvies	T19S,R31E, S14
Bear Canyon Creek	1	Upper Silvies	T20S,R27E, S3 & 10
Dry Creek	1	Lower Silvies	T20S,R30E, S35
Poison Creek	1	Lower Silvies	T21S,R31E, S18
Prater Creek	1	Lower Silvies	T22S,R31E, S24
Coffeepot Creek	1	Lower Silvies	T22S,R32E, S14
Rattlesnake Creek	1	Lower Silvies	T22S,R32.5E, S8 & 18
Silver Creek	1	Silver Creek	T20S,R26E, S31
	1	Silver Creek	T22S,R26E, S6
Claw Creek	1	Silver Creek	T21S,R26E, S22
Trout Creek	1	Alvord	T39S,R36E
	2	Stinkingwater	T22S,R35E, S32
	2	Stinkingwater	T20S,R35E, S32
	2	Calamity Creek	T18S,R33E, S27
	2	Tributary of Pine Creek	T20S,R33.5, S5 & 8
	2	Pine Creek	T19S,R33.5, S25
Source No. 1: Malheur Lake Basin *Source No. 2: Advisory Committee*			

Table 10 – Stream Storage Options

These sites were developed either by the Water Advisory or by reference to previous studies (i.e. "Malheur Lake Basin", State Water Resources Board, June 1967; U.S. Corp of Engineers, 1957). The projects have not been examined with respect to engineering, cost, wildlife and fisheries conflicts or other impediments. It is recommended that these sites be protected and preserved for future water development until further study is completed. In addition the sites identified in the "Burns & Hines Flood Plain Study (State Water Resources Board, 1968) should be protected and preserved for future flood control structures.

2.6.8 Industrial Demand

With the recent closure of Snow Mountain Pine, Ltd. there are no longer any large industrial water users within Harney County (1996). The lack of any large industrial water users makes projecting future industrial water supply requirements for the next 10 to 20 years merely an academic exercise. Therefore, we base our industrial demand projections on the amount of water supply currently available on the Snow Mountain Pine, Ltd. site.

The Snow Mountain Pine, Ltd. industrial site is an extremely attractive site from a water supply perspective. It currently has four wells that produce a total 5,000 gpm of potable water. In addition the site has a spring fed log pond that provides water for fire protection purposes as well as log storage.

For comparison, we note that in the CH2M Hill Water Needs Analysis for Coos County, large industrial users were defined as industries that use at least 200,000 gallons per day. As part of its study, CH2M Hill examined the proposed expansion of the Weyerhaeuser containerboard facility, a large industrial user, and noted that the doubling of the product line would require an additional 3.5 mgd of water. By comparison the Snow Mountain Pine Ltd. site currently has the ability to provide 7.2 mgd of water - approximately the same amount as the expanded Weyerhaeuser facility.

The Snow Mountain Pine Ltd. industrial site's current water supplies are considered adequate for the past activities and provide the potential to attract new industries or renewed saw milling opportunities.

In addition to the traditional industrial uses within Harney County, there is a growing interest in geothermal development for the production of energy. The Department of Geology and Mineral Industries has examined the Harney Basin for geothermal potential and has defined four areas in the basin as having geothermal potential (the area near Soldier Creek, the area around Burns, around Crane and the area immediately surrounding Harney Lake ("Preliminary Geology and Geothermal Resource Potential of the Northern Harney Basin, Oregon", 1980; "Preliminary Geology and Geothermal Resource Potential of the Southern Harney Basin, Oregon", 1980). The Alvord Desert and other areas in the southern part of the County have also long been recognized for their geothermal potential. Development projects are currently under consideration.

2.6.9 Conservation

The State of Oregon’s water conservation policy is designed to aggressively promote conservation; encourage the highest and best use of water by allowing the sale or lease of the right to the use of conserved water; and to encourage local cooperation

and coordination in development of conservation proposals to provide incentives for increased efficiency and to improve streamflows (ORS 537.460(2).

While it is the policy of the State to encourage conservation, at the present time water conservation is not required of municipal or agricultural water users in Harney County.

One exception to this general policy is the drought emergency statute, which requires state agencies, and political subdivisions to implement a water conservation or curtailment plan during a declared drought (ORS 536.720).

Currently water conservation is encouraged in Harney County through educational and financial incentives. For example, the City of Burns meters its water usage and charges according to water usage. The City of Hines is requiring meters on new installations and is adding meters as the lines are upgraded. It is anticipated that as metering is uniformly applied, the per capita consumption will decline.

Likewise, irrigated agriculture has undertaken conservation practices through more efficient water delivery systems, land preparation, and close monitoring of soil moisture levels. Financial incentives for conservation are also found in lower electric utility costs and more efficient crop production.

The state and federal soil and water conservation programs have provided educational programs on conservation and various strategies for efficient water utilization.

Notable among these programs are the Natural Resource Conservation Service programs to assist local landowners in developing systems to efficiently apply water for native grass hay production. As part of this program the agricultural interests have developed and installed structures, head gates and measuring devices which are designed to measure water utilization and the timing of water applications.

Another conservation measure is the incorporation of grated irrigation pipe systems to provide efficient irrigation on native grass hay and alfalfa. The Natural Resource Conservation Service has made the use of grated pipe a priority project within the county and has provided cost sharing programs to assist in implementing this program.

In addition to the programs designed to improve the efficiency of irrigation water applications, opportunities for water conservation are also being explored through the control of juniper and early season irrigation. Recent studies have demonstrated that the removal of juniper will increase forage production and allow for greater infiltration of water (personal communication Dr. R. Miller)(See "Understory Plant Succession Following Cutting of Western Juniper (Juniperus occidentalis) Woodland on Steens Mountain, Oregon"). Likewise, studies indicate that early irrigation results in cooler temperatures and higher late season flows in the stream. (See "John Day Basin Return Flow Study Report" March 1986; & "Malheur Irrigation Return Flow Study" Nov. 1988)

Recently a series of stream enhancement projects to restore riparian vegetation and off-site development of springs with troughs for livestock and wildlife water have been developed that are providing significant conservation benefits and opportunities for increased forage utilization.

The use of upstream dams for multi-purpose storage of water provides not only water conservation benefits, but also sedimentation collection, late season water irrigation, and fisheries.

A down side to conservation is the potential reduction in groundwater recharge and cold water return flows resulting from flood irrigation practices. Flood irrigation has also created desirable habitat for numerous birds and other wildlife species that are unique to Harney County.

While conservation is a complex issue, it is an attractive alternative for resolving agricultural and municipal water supplies demands.

2.6.10 Water Quality

Several streams and water bodies within Harney County have been identified as having water quality problems. Among the most frequently identified problems are low dissolved oxygen, elevated water temperatures, and the presence of minerals such as boron, and salinity problems. (1988 Statewide Assessment)

Stream temperature problems occur in a number of streams and are correlated to the withdrawal of water for consumptive uses, natural low flows, high ambient temperatures, removal of stream bank vegetation, and lack of groundwater recharge.

Overall water erosion is not a significant problem in Harney County due to the low average precipitation and nearly level slopes that are farmed. However it can be locally significant in areas of high runoff and steep gradients. It is also aggravated by high intensity storm events.

Irrigation induced erosion is also not a significant problem due to the irrigated lands being predominately flat lands used for hay and pasture which provide permanent cover that minimizes erosion.

Livestock grazing has induced streambank erosion in some areas of the county. When the riparian areas are degraded, significant sediment loads are transported during spring runoff and flood events.

In the southern part of the Harney Basin, water quality from deep wells may be of poor quality. This is particularly true for Malheur and Harney Lakes where boron and salinity create water quality problems. ("USDA Report on Water and Related Land Resources Malheur Lake Drainage Basin, Oregon" April 1967, p. 21.)

The implementation of management practices that address non-point sources of pollution and erosion will help in reducing water quality problems in the county.

2.6.11 Instream & Future Economic Water Reservations

In recognition that there are public benefits that result from the maintenance of a minimum level of water flow in the streams, the State of Oregon legislatively adopted minimum stream flows under ORS 536.235. To provide a technical basis upon which to establish minimum stream flows, between 1961 and 1972 the Oregon Department of Fish and Wildlife conducted minimum flow requirement surveys throughout Oregon including the Malheur River Basin (Basin Investigations - Malheur River Basin 1967), and the Malheur Lake Basin (Basin Investigations - Malheur Lake Basin 1968).

As part of these basin investigations the ODF&W calculated the flows necessary for both the minimum desirable level of natural production and for the optimum desirable level of production. These recommendations were in turn submitted to the Water Policy Review Board for adoption as minimum stream flows. In most cases the Water Policy Review Board adopted the recommended flows necessary to support the minimum desirable level of natural production.

Subsequently, the State of Oregon expanded the minimum stream flow concept to authorize the issuance of an instream water right (ORS 537.336). Under the instream water right law, the instream water rights are held in trust by the Water Resources Department for the benefit of the people to maintain water in-stream for public use. The legislature specifically identified the public uses for which instream water rights could be acquired as recreation, pollution abatement, navigation and conservation, maintenance and enhancement of aquatic and fish life, wildlife, fish and wildlife habitat and other ecological values (ORS 537.332).

Concurrent with the adoption of the instream water right provision, the legislature also directed that all of the minimum perennial streamflows established prior to the adoption of the Instream Water Right Act were to be converted to instream water rights (ORS 537.346).

To acquire the instream water rights, the legislation authorized the ODF&W to request instream water rights on the waters of the state in which there are public uses relating to the conservation, maintenance and enhancement of aquatic and fish life, wildlife and fish and wildlife habitat.

The 1995 Legislature amended the provisions of ORS 537.332 to limit the instream flow to the "minimum quantity of water necessary to support the public use requested by an agency." (See SB 674).

In addition to ODF&W, the instream water right law authorizes the Oregon Department of Environmental Quality to request instream water rights on the waters of the state, and to protect and maintain water quality standards established by the Environmental Quality Commission and the State Parks. The Recreation Division was authorized to request instream water rights on the waters of the state in which there are public uses relating to recreation and scenic attraction.

The legislature also recognized that there may be situations wherein the public interest would require other uses to take precedence over the instream water rights. Therefore the legislature authorized that multipurpose storage or municipal uses or a municipal hydroelectric project could take precedence over the instream water right if the Commission finds the proposed project is in the public interest under ORS 537.170.

Concurrent with the adoption of the instream water right provisions, the legislature adopted provisions that allow state agencies to reserve water for future economic development (ORS 537.356). Under this provision any state agency may request the Water Resources Commission to reserve unappropriated water for future economic development.

A reservation of unappropriated water for future economic development sets aside a specific quantity of water for a specified use which when developed has priority over all other water rights, including instream water rights, from the same source that are filed subsequent to the date the request is filed (OAR 690-79-030). Requests for future economic development reservations must include information as to the purpose of the reservation, source and amount of water, evidence that a storage facility can be developed and that water is available, season of use, location of use, economic benefits, and alternatives, among others (OAR 690-79-60).

Of the various agencies, only the ODF&W has requested instream water rights in Harney County. As of January 1, 1995, ODF&W has requested 55 instream water rights and 2 minimum stream flow conversions within the county. Of these, the two minimum stream flows have been converted to instream water rights, and 4 instream water rights have been certificated. The remaining 51 applications are still pending. These instream rights are designed to support aquatic life and recreation, anadromous and resident fish. Among the fish species represented are Bull Trout, Rainbow Trout, Brook Trout, Red Band Trout, Small Mouth Bass, Catlow Valley Chub, Malheur Mottled Sculpin, and Borax Lake Chub (Table 11).

INSTREAM WATER RIGHT PROGRAM DATABASE SUMMARY REPORT						
Stream-Parent Stream	Upstream Limit	Downstream Limit	Species	App #	Cert #	Date
***Basin 10**						
Big Cr-Lake Cr	Headwaters	USFS RD 16 Crossing	But, Rb	070352		05/11/90
Bosonberg Cr– Malheur R	Untrib	Mouth	Bt, Rt	071450		03/28/91
Bully Cr-Malheur R	RM 25	Bully Creek Reservoir	Rt	071451		03/28/91
Calamity Cr–Wolf Cr	Beaverdam Creek	Mouth	Rt	071452		03/28/91
Calf Cr – Malheur R	Beulah Creek	Mouth	Rt	071453		03/28/91
Crane Cr- N. Fork Malheur R	L. Crane Creek	Mouth	But, Rb	070306		04/19/90
Elk Cr-N. Fork Malheur R	Headwaters	Mouth	But, Rb	070308		04/19/90
Lake Cr-Malheur R	Headwaters	USFS RD 16 Crossing	But, Rb	070351		05/11/90
Little Crane Cr-Crane Cr.	Headwaters	Mouth	But, Rb	070307		04/19/90
Little Malheur R-N Fork Malheur R	Headwaters	USFS Rd 16 Crossing	Rb	070305		04/19/90
Little Malheur R-N Fork Malheur R	USFS RD 16 Crossing	Mouth	Rt, Rb	071454		03/28/91
Malheur R (M Fork)/ Malheur R	Upper Drewsey Div.	Hwy 20 Crossing	Rb, Sm	070350		05/11/90
Malheur R (M Fork)/ Malheur R	Logan Valley	Upper Drewsey Div	Rb	070349		05/11/90
Malheur R (M Fork)/ Malheur R	Hwy 20 Crossing	Warm Springs Reservoir	Rb, Sb	070325		04/27/90
McCoy C-/Lake Cr	Untrib	Mouth	Rt, Bt	071455		03/28/91
N Fork Malheur R-Malheur R	Crane Cr	L Malheur R	But, Rb	070304		04/19/90
N Fork Malheur R-Malheur R	SFS Rd 16 Crossing	Crane Cr	But, Rb	070303		04/19/90
N Fork Malheur R-Malheur R	L Malheur R	Beulah Res	Rt, But, Rb	071456		03/28/91
Pine Cr-Malheur R	L Pine Cr	Mouth	Rt	071457		03/28/91
Pole C-/Malheur R	Untrib	Mouth	Rt	071458		03/28/91
S Fork Malheur R-Malheur R	S Fork Res (Dam)	Swamp Cr	Rt, Rb	071459		03/28/91

S Fork Malheur R-Malheur R	Swamp Cr	Granite Cr	Rt, Rb, Smb	071460		03/28/91
S Fork Malheur R-Malheur R	Granite Cr	Mouth	Rt, Rb, Smb	071461		03/28/91
S Willow Cr-Willow Cr	Dutch John Cr	Mouth	Rt	071462		03/28/91
Summit Cr-Malheur R	Summit Prairie	Mouth	Rt, Bt	071463		03/28/91
Summit Cr-Malheur R	RM 14	Summit Prairie	Rt, Bt	071464		03/28/91
Swamp Cr-N Fork Malheur R	Headwaters	Mouth	But, Rb	070309		04/19/90
Swamp Cr-S Fok Malheur R	E Swamp Cr	Mouth	Rt	071465		03/28/91
Wolf Cr-Malheur R	Calamity Cr	Mouth	Rt	071466		03/28/91
****BASIN 12**						
Bear Cr-Silvies R	Antelope Cr	Mouth	Rt	071467		03/28/91
Bear Cr-Silvies R	Headwaters	Antelope Cr	Rt, Bt	071468		03/28/91
Big Trout Cr-Trout Cr	Headwaters	Trout Cr Rd	Rb	070028		08/08/89
Big Trout Cr-Trout Cr	Trout Cr Rd	L Trout Cr	Rb	070026		08/08/89
Borax Lake			Borax Lk Chub	071814		08/29/91
E Fk Trout Cr-Big Trout Cr	Headwaters	Mouth	Rb	070020		08/08/89
Emigrant Cr-Silvies R	L Emigrant Cr	Criket Cr	Rb	70293	64747	04/16/90
Krumbo Cr-Donner Und Blitzen R	W Fork Krumbo Cr	Krumbo Res	Rb	70074	64195	09/20/89
Little Trout Cr-Trout Cr	Headwaters	Defenbaugh Prop	Rb	70027		08/08/89
Ltl Wthorse Cr-Wthorse Cr	Headwaters	Whitehorse Ranc	Ct	70022		08/08/89
Nicoll Cr-Silver Cr	Jacks Cr	Mouth	Rt, Mms	71475		03/28/91
Rattlesnake Cr-Malheur Lake	East Fork	Bain Ditch	Rt	071469		03/28/91
Sawmill Cr-Silver Cr	Untrib	Mouth	Rt, Mms	071473		03/28/91
Sawtooth Cr-Emigrant Cr	Untrib	Mouth	Rb	072023		11/19/91
Silver Cr-Harney Lake	Stone Corral Cr	Claw Cr	Rt, Mms	071470		03/28/91
Silver C-/Harney Lake	Claw Cr	Hwy 20	Rb, Mms	071471		03/28/91
Silvies R-Malheur Lake	Wikiup Cr	Trout Cr	Rt	071472		03/28/91
Trout Cr-Alvord Lake	L Trout Cr	USGS Gage	Rb	070029		08/08/89

Trout Cr-Alvord Lake	0.0	0.0	Mps	59977		11/03/83
Trout Cr-Silvies R	North Fork	Mouth	Rt	071474		03/28/91
W Fork Krumbo Cr-Krumbo Cr	Krumbo Sp	Mouth	Rb	70073	64194	09/20/89
Whitehorse Cr-Alvord Desert	Headwaters	Whitehorse Ranch	Ct	070023		08/08/89
Willow Cr-Alvord Desert	Upper Blm Rd	County Rd	Ct	070025	64741	08/08/89
Willow Cr-Alvord Desert	Headwaters	Upper BLM Rd	Ct	070024		08/08/89
Willow Cr-Alvord Desert	0.0	0.0	Mps	59979		11/03/83

Table 11 – Instream Water Right Program: Database Summary Report

None of the other authorized agencies have elected to request instream water rights nor has any of the state agencies requested water be reserved for future economic development. The storage sites cited earlier are examples of projects, which are eligible for reservation under this statute.

2.6.12 Summary

As part of its obligations to address the Statewide Planning Goals, the county has reviewed the existing water supply situation and assessed the future needs.

The water resources of Harney County are a vital part of its economy and lifestyle. Today the demands on these water resources are increasing and management practices are changing with these demands.

While the economic structure of Harney County is in a state of uncertainty, water will continue to be a primary driving force in the economy. Water is available for municipal and industrial growth, however without the development of new sources or conservation, the opportunities for increased agricultural production are limited.

2.6.13 Policy Statements

Under ORS 197.010, the comprehensive plans for counties are expressions of public policy in the form of policy statements, generalized maps, and standards and guidelines. The comprehensive plans serve as the basis for more specific rules and land use regulations, which implement the policies. It is intended however that all public actions are to be consistent with the policies as expressed therein (ORS 197.010).

The State of Oregon has adopted goals and guidelines for use by the local governments in preparing; adopting, amending and implementing comprehensive

plans (ORS 197.225). All local plans are to be in compliance with the goals (ORS 197.250). The goals, while wide-ranging, are to be given equal weight in the planning process (ORS 197.340(1)).

While the local comprehensive plans are the mechanism for addressing public policy issues on a local level, the goals and rules established in the comprehensive plans do not apply to programs, rules, procedures, decisions, determinations or activities carried out under the Oregon Forest Practices Act. Under the provisions of ORS 527.722(1), no goal or rule shall be adopted, construed or administered in a manner to require or allow local governments to take any action that prohibits, limits, regulates, subjects to approval or in any other way affect forest practices on forestlands located outside an acknowledged urban growth boundary.

The local government does however retain the ability to adopt, and apply a comprehensive plan or land use regulations to forestland when the regulations allow, prohibit or regulate: a) the establishment or alternation of structures which are auxiliary to and used during the term of a particular forest operation; and, b) physical alternations of the land, including but not limited to those made for purposes of exploration, mining, commercial gravel extraction and processing, landfills, dams, reservoirs, road construction or recreational facilities, when such uses are not auxiliary to forest practices (ORS 527.722(2)).

One of the objectives of the Harney County periodic review process was to develop policy statements that reflected the local issues and concerns. Among these were to maintain the economic base of the county, recognition of private property rights, and establish a mechanism that would provide nonpoint pollution control measures.

To meet these objectives, the Water Committee met several times to familiarize itself with and to develop an overview of the water resources and regulatory framework relative to water issues within the county. Upon completion of this "overview", the Water Committee formulated a list of policy statements.15

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[15]. The Committee reviewed the existing policies as set forth in Harney County Comprehensive Plan, and developed additional policies based upon the local conditions and through reference to the documents referred to in the water report and additional sources including:

"Nonpoint Source Pollution Control Guidebook for Local Government" DEQ 1994

"Department of Forestry Forest Practice Rules"

"General Water Quality Best Management Practices"

"Memorandum of Agreement between U.S. Forest Service and Oregon DEQ" Forest Service Manual 15671.5"

"Best Management Practices for Range and Grazing Activities on Federal Lands"

"Protecting the Riparian Area, a Handbook for Planners, ODF&W"

These policy statements are designed to be applied to all parties who seek land use approval for projects, as well as to all state and federal agencies to the extent that they are required to be consistent with the local plans and policies.

All of the policies are statements of policy that must be incorporated into the planning process at the appropriate stage however discretion as to how they are to be applied is left to the planning commission. In addition, some of the policy statements are mandatory requirements.[16]

1. It is the policy of Harney to consider all of the land use goals in any land use decision affecting water rights.

2. It is the policy of Harney County to encourage public participation in the planning for land use activities that involve water.

3. It is the policy of Harney County to seek ways to increase efficient water utilization and conservation.

4. Water allocation and transfer are land use decisions subject to review by Harney County.

5. It is the policy of Harney County that the State of Oregon as an element of its sovereignty has control over the waters of the state and that Federal and state agencies shall comply with all State of Oregon law or adjudications relative to permits, certificates, or licenses.

6. It is the policy of Harney County that all federal, state and local governments inventory their developed water sources and acquire permits from OWRD unless otherwise exempt from the permit requirements by the laws of the State of Oregon.[17]

7. It is the policy of Harney County to encourage cost effective metering and measurement of water.

8. It is the policy of Harney County to encourage multiple use land management that incorporates all aspects of the hydrologic cycle.

9. It is the policy of Harney County to protect water quality by limiting the potential discharge and disposal of pollutants in all land use decisions.

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[16]. The policy statements that are of a regulatory nature contain wording that includes the term "shall".

[17]. The Committee notes that the BLM has submitted a complete listing of its ponds and reservoirs to the county.

10. The County shall recognize the development limitations imposed by the carrying capacities of natural resources; ie. surface and ground water capabilities, soils geology, etc.

11. Natural resource physical limitations shall be one of the primary evaluation factors for development approval. The carrying capacity thereof shall not be exceeded.

12. In all land use actions, Harney County shall recognize and strive to protect private property rights.

13. It is the policy of Harney County that private property rights, including existing water rights, shall not be taken for a government purpose without compensation.

14. It is the policy of Harney County that any transfer of water be consistent with the land use goals.

15. It is the policy of Harney County that prior to any water right transfer out of the basin of origin in excess of 0.5cfs, that the following findings be made:

    a. The amount of water in the basin of origin available for future appropriation exceeds the projected future needs;
    b. The benefits presently and prospectively derived from the return flow of water used within the basin of origin will not be eliminated;
    c. The water to be transferred is not connected to surface water or ground water to such a degree that the transfer will be harmful to the supply of the other;
    d. There is no injury to existing water rights of other appropriators or interference with planned uses or developments within the basin of origin for which a permit has been issued or for which an application is pending;
    e. The proposed transfer will not adversely affect the quantity or quality of water available within the basin of origin.
    f. The proposed use will not adversely affect instream uses for which a permit has been issued or an application is pending;
    g. There are no alternative sources of water for the proposed use that would not rely on transfer of water out of the basin of origin.

16. In making land use decisions or other decisions affecting land use, it is the policy of Harney County that the preservation, protection, and encouragement of agricultural use shall have one of the highest priorities.

17. It is the policy of Harney County that agricultural lands, (SC I-VI soils and other lands suitable for or needed to permit adjacent agriculture) shall be preserved and maintained for agricultural use through designation of EFRU zones.

18. It is the policy of Harney County that non-farm uses on pre-existing lots, including single-family residential dwelling or manufactured homes, not provided in conjunction with a farm or forestry use may be established, subject to the county governing body making a finding that each such proposed use:

    a. Is treated as a conditional use in the EFRU zones;
    b. Is consistent with the intent and purpose of the EFRU zones;
    c. Is compatible with farm uses described above on adjacent land devoted to farm use; and is consistent with the intent and purposes set forth in ORS 215.243;
    d. Does not interfere seriously with accepted farm practices on adjacent lands devoted to farm uses;
    e. Does not materially alter the stability of the overall land use pattern of the area;
    f. Is situated upon generally unsuitable land for the production of farm crops and livestock , considering the terrain, adverse soil or land conditions, drainage and flooding, vegetation, location; and size of the tract; and
    g. If appropriate, is justified as an exception to LCDC Goal 3 using the exception criteria of LCDC Goal 2.

19. It is the policy of Harney County to coordinate decisions concerning economic base resources in the county and to maintain an economic-environmental balance in all resource management and allocation decisions.

20. Secondary impacts associated with water usage, such as but not limited to return flows, wetlands, and fish and wildlife, are public interest considerations that must be considered in the transfer of water rights.

21. It is the policy of Harney County to promote the study and development of current and potential water sources.

22. It is the policy of Harney County to support multi-purpose water storage projects.

23. It is the policy of Harney County to consider the development potential of the following reservoir sites (Table 12) in all land use activities that may affect these sites.

Harney County Resevoir Sites		
Name	**Watercourse**	**Location**
Emigrant Creek	Silvies River	T21S,R29E, S2
Poison Creek	Silvies Valley	T21S,R31E,S29 & 18
Jack Creek	Upper Silvies Valley	T16S,R30E, S14
Bear Canyon Creek	Upper Silvies	T19S,R31E, S14
Silvies River	Upper Silvies	T20S,R27E, S3 & 10
Dry Creek	Lower Silvies	T20S,R30E, S35
Poison Creek	Lower Silvies	T21S,R31E,S18 & 29
Prater Creek	wer Silvies	T22S,R31E,S24
Coffeepot Creek	Lower Silvies	T22S,R32E,S14
Rattlesnake Creek	Lower Silvies	T22S,R32.5E,S8 & 18
Silver Creek	Silver Creek	T20S,R26E, S31
	Silver Creek	T22S,R26E, S6
Claw Creek	Silver Creek	T21S,R26E, S22
Trout Creek	Alvord	T39S,R36E S24/25
	Stinkingwater	T22S,R35E, S32
	Stinkingwater	T20S,R35E, S32
	Calamity Creek	T18S,R33E, S27
	o. of Pine Ck	T20S,R33.5,S5 & 8
	e Ck	T19S,R33.5, S25

Table 12 – Harney County Reservoir Sites

24. It is the policy of Harney Count to protect and preserve the sites identified in the "Burns & Hines Flood Plain Study (State Water Resources Board, 1968) for future flood control structures.

25. It is the policy of Harney County that all federal, state and local governments as part of their land use planning programs shall identify potential water resource sites that have high potential for development and consider whether these sites should be protected from conflicting uses.

26. It is the policy of Harney County that riparian areas should be managed to prevent undue degradation and that in all actions affecting land use the County shall seek to preserve and protect riparian functions in a reasonable and cost effective manner.

27. It is the policy of Harney County to encourage development of alternative stock watering facilities and ponds outside the riparian areas.

28. It is the policy of Harney County to recognize the benefits that flood irrigation provides for water quality, wetland, fisheries, and wildlife benefits in all land use activities.

29. It is the policy of Harney County to recognize the impacts of irrigation return flows on fish and wildlife, stream temperature, and groundwater recharge.

30. Harney County recognizes that Juniper and sagebrush have had a significant impact upon the water resources within the County. Therefore it is the policy of Harney County to encourage all landowners to control Juniper and sagebrush.

31. It is the policy of Harney County to encourage natural impoundment of water and the restoration of large woody debris & stream structure.

32. It is the policy of Harney County to limit development in flood prone areas.

33. It is the policy of Harney County to encourage public and private landowners to use land resource management techniques, which help to preserve fish and wildlife resources. Techniques should include buffers around sensitive fish and wildlife habitat areas and individual residential sites, preservation of diverse habitat types, and minimal road construction in sensitive critical areas. Land managers and owners are urged to consult the Oregon Department of Fish and Wildlife when developing management plans. It is the policy of Harney County to assist private landowners in fish and wildlife management and enhancement to the extent reasonable and cost effective.

34. It is the policy of Harney County to encourage the study and development of water supplies for fish habitat.

35. It is the policy of Harney County that wherever threatened and endangered species are present, the effects of the proposed development upon the habitat of the threatened or endangered species shall be considered.

36. It is the policy of Harney County to encourage efforts that strive to prevent the listing of sensitive and candidate species under the Oregon and Federal endangered species programs.

37. It is the policy of Harney County to encourage the management and recovery of endangered and threatened species in a manner that is based upon scientifically established standards and is cost effective. Any recovery plan must incorporate a monitoring program and establish clear and scientifically verifiable goals.

38. Borax Lake, the site of the endangered Borax Chub, shall be preserved and protected from all conflicting uses in accordance with its 3A designation.

39. Attempts shall be made to require a minimum pool for game fish survival as a condition for construction of any new reservoir, where applicable.

40. Road building in riparian areas shall be discouraged in areas with threatened or endangered species. All new roads shall be located to avoid watershed damage and sensitive wildlife uses areas where possible.

41. Lakes, streams, ponds and rivers shall be protected by structural setbacks and by restoring natural vegetative cover.

42. It is the policy of Harney County to maintain large woody debris in all first and second-order streams to facilitate the trapping of suspended sediments and to reduce the rate of downstream transport to critical fish habitats. The artificial placement of woody debris should be preceded by habitat analysis and any additions secured in place to insure proper function and reduce erosion affects.

43. It is the policy of Harney County that all operations on forestlands shall be consistent with the State Forest Practices Act.

44. It is the policy of Harney County that all land use activities meet water quality standards as established by the Oregon Department of Environmental Quality.

45. It is the policy of Harney County to cooperate with the Environmental Quality Commission on the establishment and implementation of BMP's and other rules to address nonpoint source pollution.

46. It is the policy of Harney County to cooperate with the Soil and Water Conservation Districts on the establishment and implementation of BMP's and other actions to address nonpoint source pollution.

47. Harney County recognizes that livestock grazing is a valuable management tool in land use planning and in achieving the land use goals.

48. It is the policy of Harney County to maintain riparian zone vegetation along streams to reduce sediment input from streamside erosion, and to filter and trap sediments from upland and suspended sources.

49. It is the policy of Harney County to maintain and protect soil and water resources through management of livestock and wildlife stocking rates, distribution, and season of use. Field checks are recommended to identify needed adjustments in season and numbers based upon range readiness, forage utilization and periodic assessment of rangeland to verify soil and vegetative condition and trend.

50. It is the policy of Harney County to discourage the concentration of wildlife, wild horses, stock, and recreational activities in areas that are sensitive to concentrated use.

51. It is the policy of Harney County to maintain and improve water quality through structural and non-structural range improvements.

52. It is the policy of Harney County that grazing management systems be tailored to meet site conditions, site potential, and be cost effective.

53. It is the policy of Harney County to recognize that problem areas or hazards do not necessitate disapproval of development, but that higher development standards can be expected in order to minimize problems or hazards.

54. Harney County shall develop a final floodplain map and regulating ordinances when final floodplain information is available from FEMA.

55. It is the policy of Harney County to revise the inventory and identification of the flood plain hazard areas within Harney County when the final flood plain mapping is received from FEMA.

56. Development within the identified floodway shall be discouraged. Development in the floodway fringe shall be permitted to the extent the hazard is correctable without adversely affecting other properties.

57. Developments that incorporate impervious parking surfaces shall be discouraged in groundwater recharge areas.

58. Where base floodplain elevation data has not been provided, Harney County shall obtain, review, and reasonably utilize any base flood elevation data available from federal, state or other source.

59. The land use zone classification most compatible with lake and reservoir fish production is Exclusive Farm and Range Use (EFRU).

60. Residential, commercial, or industrial development on lakes and reservoirs shall be identified as Conditional Uses.

61. Residential or recreational developments that incorporate construction of an artificial lake as a major attraction shall be identified as a conditional use only if an exception can be justified for such use.

62. Encroachment on or destruction of shoreline fringe vegetation, particularly terrestrial or semi aquatic shall be discouraged.

63. Where development is appropriate, regulations should provide for cluster-type units rather than continuous water-abutting perimeter development.

64. Docks and other surface water developments, which preclude permanent use of public water, should be minimal. Cluster-type docks rather than individual docks are preferred.

65. Access should be maintained or secured on public lakes and reservoirs where applicable.

66. It is the policy of Harney County to encourage compatible recreational uses within the flood plain.

67. Development of access (roads or trails) should be discouraged in these specific watershed areas (along the streams):

Kiger Creek	McCoy Creek	Willow Creek
Little Fish Creek	Ankle Creek	Trout Creek
Big Indian Creek	Blitzen River (above	Fish Creek
Little Blitzen River	Page Springs)	

68. It is the policy of Harney County to protect groundwater water quality.

69. It is the policy of Harney County to encourage groundwater recharge.

70. When additional information becomes available on the County's groundwater resources, the County shall proceed through the steps of the Goal 5 rule.

71. The land use zone classification most compatible with river and creek resources is Exclusive Farm and Range Use (EFRU) and Forestry Use (FU).

72. It is the policy of Harney County to encourage agricultural or forest practices, which by their nature encourage good vegetative cover on the land. Those practices that leave the soil exposed for potential erosion shall be discouraged.

73. Developments that require surface water appropriation or diversion should be located where streamflows are not reduced below the established minimums or instream rights.

74. It is the policy of Harney County that the designation and management of wild and scenic rivers and state scenic rivers are land use decisions.

75. It is the policy of Harney County to protect the outstandingly remarkable values of the Donner Und Blitzen River Wild and Scenic River by prohibiting new commercial or industrial uses that are inconsistent with the Wild and Scenic Rivers Act.

76. It is the policy of Harney County to ensure that development or land alteration does not create downstream sedimentation, water quality, flooding, or drainage

problems; and provides adequate drainage systems and soil protection for the site being developed.

77. It is the policy of Harney County that all paving and storm water management systems be installed at the earliest possible and most effective time, before, during and after grading.

78. It is the policy of Harney County that natural streams, lakes, and drainage ways shall be bioengineered, ripraped or otherwise stabilized below drainage and culvert discharge points for a distance sufficient to convey the discharge without channel erosion.

79. Runoff from areas of concentrated impervious cover (e.g. roofs, driveways, roads) shall be collected and transported to an acceptable discharge point in a conveyance system that has sufficient capacity to accept the discharge without accelerated erosion.

80. It is the policy of Harney County to require temporary and permanent erosion control measures for all construction projects to lessen the adverse effects of construction on the environment.

81. It is the policy of Harney County that land use actions that change natural fish bearing stream courses by filling, removal, or by relocation of the channel, shall not be made except upon approval of the appropriate state agencies and obtaining of appropriate land use approvals.

82. It is the policy of Harney County that all land use activities take adequate precautions to prevent leakage or accidental spillage of any petroleum products in any area that will allow entry into waters of the State.

83. The development and use of surface mining operations and the utilization of mined materials for roads or other supporting activities such as ripraping, bridge wing wall diversions, culvert bedding and other activities, shall be done in such a manner as to protect water quality, and to retain soil stability, both during the operation and after operations have ceased.

84. It is the policy of Harney County to limit development of roads in riparian area.

85. It is the policy of Harney County that roads should be cost effectively located to minimize the risk of material entering the waters of the state. Roads should be situated to avoid steep, narrow canyons, slide areas, steep headwalls, slumps, marshes, meadows, riparian areas, existing drainage channels or high risk sites. Where ever possible the number of stream crossings should be minimized.

86. It is the policy of Harney County that stream crossing structures be designed to a) allow migration of adult and juvenile fish during conditions when fish movement in that stream normally occurs, b) have a minimum impact on water quality and c) be able to meet the 50 year frequency storm event except in those situations were the stream crossing includes a wide flood plain (greater than 100 feet) and the crossing structure passes a peak flow of not less than the 110 year return interval storm event, and an overflow depression is constructed in the road fill at a location away from the culvert and at an elevation lower than the top of the culvert, and the road surface and downstream edge of the overflow depression is armored with rock of sufficient size and depth to protect the fill from eroding when a flood flow occurs.

87. It is the policy of Harney County that stream crossings are at right angles to the main channel when practical.

88. It is the policy of Harney County to avoid excessive sidehill cuts and fills near stream channels.

89. It is the policy of Harney County not to allow the location of roads parallel to any waters in areas where such roads are under the high water level of the waters, or in riparian areas unless no other reasonable alternative is available.

90. It is the policy of Harney County that all temporary roads provide dips, water bars, and cross drainage.

91. It is the policy of Harney County that culvert inlets and outlets and ditches be cleaned before runoff periods to diminish danger of clogging and the possibility of washout or the impairment of fish passage.

92. It is the policy of Harney County to assure that geothermal, oil & gas and mineral prospecting, exploration, removal and processing activities are conducted in a manner to minimize erosion and the discharge of pollutants.

93. It is the policy of Harney County that soil and water quality be protected as part of any prescribed fire program.

94. It is the policy of Harney County to minimize sedimentation and turbidity resulting from excavation or fill related to in-channel activities.

95. It is the policy of Harney County to minimize sediment production and erosion originating from sidecast material during road construction or maintenance.

96. It is the policy of Harney County to construct embankments and dams with materials and methods which minimize the possibility of failure and subsequent water quality degradation.

97. It is the policy of Harney County to minimize the erosive effect of water concentrated by road drainage features, to disperse runoff from or through the road, and to minimize the sediment generated from the road.

98. It is the policy of Harney County to minimize the possibilities of roadbed and cut or fill sloop failure and the subsequent production of sediment.

99. It is the policy of Harney County to minimize soil erosion from cut slopes, fill slopes, and waste site areas.

100. It is the policy of Harney County to encourage the control of noxious weeds.

Harney County Streams			
Stream	**Location**	***Low Flow (cfs) Minimum**	**Game Fish Species Present [1]**
N.F. Malheur R.	(at Harney Co. line, RM* 26)	25	Rb, WF, RT
N.F. Malheur R.	(above Warm Springs Res.)	10	Rb, BT, DV, WF, Brb, YP
N.F. Malheur R.	(at Acton Bridge)	15	Bg, CC, SB
S.F. Malheur R.	(mouth to RM 33)	5	Rb, RT, Bg, BrB, YP, CC, SB
Silvies River	(mouth to RM 40)	no concern	RT
Silvies River	(above RM 40)	5	RT
Emigrant Creek	(at mouth)	3	Rb, RT, Bg, BrB, YP, CC, SB
Silver Creek	(mouth to RM 50)	no concern	WC, SB, LB, BrB, YP, Rb
Silver Creek	(RM50 & above)	3	RT, Bg
Blitzen River	(mouth to RM 40)	no concern	Rb, RT, WF
Blitzen River	(RM 40 & above)	3	Rb, RT, WF
Kiger Creek	(at Diamond Rd)	5	RT, WF
McCoy Creek	(at Diamond Rd)	3	RT
Bridge Creek	(at Refuge Boundary)	3	RT
Trout Creek	(RM 0 - 20)	2	Rb, AC
Trout Creek [2]	(RM 20, Whitehorse Rd Crossing)	10	Rb, AC
Willow Creek	(at Whitehorse Rd Crossing)	3	CT

1 Abbreviations for game fish: RT - Redbanded Trout; BT - Brook Trout; Rb - Rainbow Trout; DV - Dolly Varden; SB - Small mouth Bass; Bg - Bluegill; BrB - Brown Bullhead; CC - Channel Catfish; LB - Large mouth Bass; WC - White Crappie; YP - Yellow Perch; AC - Alvord Chub (rare); WF - White Fish

2 South Harney County Trout Creek

* Minimum Flows are recommendations only from Dept. of Fish and Wildlife

Table 13 – Harney County Streams

2.7 Wildlife Protection Plan

2.7.1 Habitat and Resource Overview

Harney County has an abundance of varied and valuable wildlife. Its 10,132 square miles is larger than 11 states in the United States, but only has a population of about 8,000 inhabitants. The combination provides a great deal of open space necessary to many wildlife species. Habitat diversity is another key to both wildlife diversity and abundance (see Map 5). The sub-alpine communities of Steens Mountain, the desert environment of the Alvord Desert, the yellow pine forests of the northern part of the County, and the marshlands associated with the Malheur Wildlife Refuge are examples of this diversity. Different forms of wildlife are found associated with each type of area, with some unique to Harney County.

Map 5 – Harney County, Wildlife

In Table 14, a brief "Inventory of Game Animals" is presented in summary form. A general discussion of those and other species follows, containing comments, potential conflicts and policies.

2.7.2 Big Game

1. Mule Deer

a. General Comments

Mule deer are one of Harney County's greatest natural resources. They are distributed throughout the county, but the largest concentrations are found on or near the forest lands and on Steens Mountain. Mule deer are adaptive to different habitats, but must have food, cover, water and freedom from harassment to prosper.

Mule Deer

Management Objectives (M.O.) for population size within each Management Unit for Harney County are as follows:

UNIT	**M.O. ****

Silvies	11,800
Steens	11,000
Malheur River	13,700
Juniper	2,300
Beaty's Butte	2,300
Wagontire	1,400
Whitehorse	5,500
TOTAL	48,000

** Big game populations are measured as adult animals alive at the end of each winter (in March) and prior to the birth (usually in June) of new animals.

These are total unit values. It is estimated that at least 40,000 mule deer are found in Harney County when numbers reach M.O.

Additional production, harvest, critical migration routes, winter ranges and trend data is available upon request from the Hines office of the Oregon Department of Fish and Wildlife.

Because of the high demand for mule deer hunting in Oregon, it was necessary to limit hunter numbers by Management Unit in relation to the numbers of bucks available for harvest and still maintain adequate post-season buck ratios. These were set out in a Mule Deer Plan adopted December 5, 1990. This plan is on file at the Oregon Department of Fish and Wildlife in Hines.

Winter range maps that are used in decisions for land use actions are on file at the Harney County Courthouse.

b. Land Use Conflicts

Conflicts with agriculture often occur where deer are found near farmland. Deer feeding in alfalfa fields and on haystacks are the primary problems in Harney County.

Intensive road building in the forests has also created problems for the deer. Excessive roading results in habitat alteration and destruction. This leads to more intensive hunting pressure and exposes animals to harassment.

In some cases, competition by livestock for food and water is a problem. Wild horses, especially, are serious competitors for water in the desert areas. Wintering zones of shrublands dominated by bitterbrush need to be protected.

Losses to predation in fawning areas and winter ranges can be a major factor in poor survival in some areas.

INVENTORY OF GAME ANIMALS IN HARNEY COUNTY			
Species	**Relative Abundance**	**Management Potential**	**Distribution in County**
Elk	Medium	Good - responds to management measures and protection.	Forested areas in northern portion of county
Mule Deer	High	Excellent - responds to management measures and protection.	Throughout the county .
Antelope	High	Good - more difficult to manage. Some habitat elements not well understood.	Most open areas of county.
Black Bear	Low	Good - responds to protective measures. Habitat limited.	Forested areas in northern portion of county.
Mountain Sheep	Low	Fair - has responded to management measures. Formerly extinct and reintroduced.	Escarpments of Steens and Pueblo Mountains.
Ring-necked Pheasant	Low	Fair - responds to good habitat management in suitable areas.	Lower elevation agricultural lands of county.
Chukar Partridge	High	Excellent - very abundant in suitable habitat. Suffers from hard winters and extreme drought.	Lower elevation streams courses and adjoining hillsides and Escarpments.
Sage Grouse	Medium	Fair - difficult to manage. Populations fluctuate.	Most sagebrush, grassland areas of county with available water.
California Quail	Medium	Good - responds to good habitat but susceptible to severe winter weather.	Near perennial water – lower elevation stream courses and around agricultural land.
Mountain Quail	Low	Poor - habitat limited and difficult to manage.	Brushy foothill draws near perennial water.
Doves	Medium	Poor - habitat is very widespread and diversified. Migrates south in early fall.	Throughout the entire county except for very high elevations and forested areas.
Hungarian Partridge	Low	Fair - difficult to manage and subject to unstable populations.	Uplands and farm land edges near perennial water. Often seen with Chuckar Partridge.
Waterfowl	High	Excellent – production sometimes limited by low water years on Malheur and Harney Lakes. Many species.	All stream and marshy areas of county but especially on Malheur and Harney Lakes and stream system tributaries.
There are a great many species of non-game birds and animals, many of unusual importance and interest. The once rare trumpeter swan is a year-round resident along with the rare sandhill cranes. The large and spectacular white pelican is also present. For additional species, the Malheur National Wildlife Refuge "checklist" should be consulted.			

Table 14 – Inventory of Game Animals in Harney County

2. Antelope

a. General Comments


Antelope

This species of big game is found primarily in the desert habitat of the county. It needs large areas of open space with adequate supplies of food and water. Its primary food source is sagebrush and forbs.

Population trends have remained fairly static, with only slight increases in the last few years. The present county population is estimated at 5,000. Maps illustrating the major antelope winter ranges are in display in the Hines office of the Oregon State Department of Fish and Wildlife.

b. Land Use Conflicts

The major conflicts with antelope are agricultural crop damage, competition for food and water, and predator control. Competition for water with other animals can be serious in drought years. The wild horse is one of the biggest problems. Loss of antelope kids to predation can be serious to antelope survival in some areas. High-density human developments are not compatible with antelope use.

3. Rocky Mountain Elk

a. General Comments

Rocky Mountain Elk are found primarily in the forested, northern portion of the county and the juniper lands throughout the High Desert portion. Steens Mountain and Stinkingwater Mountains have good populations. Many of the elk move to fringes of the forests to winter and generally winter at higher elevations than deer.

b. Land Use Conflicts

Alfalfa development at the edge of elk habitat can lead to severe problems. Excessive roading can have a detrimental impact on elk herds. If elk are forced to winter near agricultural lands, they can cause damage to fences and haystacks. Management Objectives are as follows:

UNIT	M.O.
Silvies	2,200
N. Malheur R.	1,500
High Desert	1,000

4. Bighorn Sheep

a. General Comments

The California Bighorn sheep has been re-established to much of its native range in Harney County. There are over 3,000 bighorns now in Southeastern Oregon, of which over 700 are in Harney County.

b. Land Use Conflicts

Conflicts with this species occur where human activity keeps the animals from occupying suitable habitat, such as the upper drainages on the east side of the Steens. Domestic sheep and the diseases they carry are the greatest danger to bighorn sheep.

Bighorn Sheep

5. Black Bear

a. General Comments

Black bear are limited in range to the timbered portion of the county. The population is estimated at 50 and has remained fairly static, limited primarily by habitat.

b. Land Use Conflicts

Road building affects this species most. Some conflicts with livestock could occur in terms of bear depredations, campers, and possible damage to recreational structures.

6. Cougar

a. General Comments

Cougars are sparsely distributed throughout the county. Their numbers have increased dramatically during the 1990's. Food sources such as deer, elk and bighorn sheep are maintaining cougars at levels higher than ever recorded. Territoriality of adult males is pushing younger animals into human habitation areas.

b. Land Use Conflicts

Conflicts involve the alteration of habitat through road building and with livestock depredation. Human safety concerns are becoming the primary conflict with increasing cougar populations, mostly younger cats in search of easy prey (domestic pets) and avoiding territories of adult males.

2.7.3 Upland Game Birds

Upland game bird species found in Harney County include pheasants, chukars, valley quail, mountain quail, sage grouse, blue grouse, ruffed grouse, and mourning dove.

1. Pheasants

Pheasants are found in limited numbers, primarily in association with agricultural lands. The Harney Valley, Malheur Wildlife Refuge, Drewsey Valley and the east side of the Steens have most of the County's pheasants. This bird does not thrive well here, with the cold, wet springs and lack of grain crop for food partially responsible. Survival cover is necessary to get birds through the cold winters.

2. Chukars

Since the bird's introduction to Harney County in 1952, it has become one of the most important game birds in this area. The population is scattered throughout the sagebrush-rimrock areas of the southern part of the County. Numbers fluctuate widely, depending on severity of winter weather and weather during the nesting period. Eggs and chicks are susceptible to cold, wet conditions.

3. Valley Quail

Valley quail are found in many of the same areas where pheasants and Chukars are found. Estimated population is 20,000.

4. Sage Grouse


Sage Grouse

The sage grouse is the largest of the native upland game birds. Up until recent times, large numbers were found throughout the high desert. Critical areas for this bird are the strutting grounds and adjacent nesting areas. Estimated population is 8,000.

5. Ruffled Grouse, Blue Grouse, Mountain Quail

These three species of upland game birds all inhabit the forested portions of the County. Their requirements are similar, as are their population levels and value to hunting. Mountain quail are the least common and are not expected to increase significantly without an improvement in major amounts of riparian zones adjacent to the forests and in the rangelands.

6. Mourning Dove

This migratory species of upland game bird is common in every part of the County. It nests here and gathers in large numbers during the migration season. Unfortunately, cold weather initiates migration before much hunting is realized.

2.7.4 Furbearers

a. General Comments

Harney County has five principal furbearers: beaver, mink, muskrat, raccoon, and bobcat. All but the bobcats are closely associated with water and require brushy streams, wetlands or lakes. Thousands of muskrats are found in the county, primarily on the Malheur Wildlife Refuge. Bobcat harvest has been strictly regulated for a long time, and the population is robust and very productive. Red Fox and striped skunks have recently become established in Harney County. Both of these species are capable of high predation rates on indigenous wildlife species.

b. Land Use Conflicts

Beaver and muskrat can cause problems by damming water flows and tunneling through dikes, and cutting trees needed for shade or bank stabilization. Bobcats will kill young livestock and may need to be controlled where that problem arises.

2.7.5 Nongame Wildlife

a. General Comments

There are numerous forms of birds, mammals, reptiles and amphibians that are found in Harney County. They are too numerous to mention here, but lists of these species are available from the Oregon Department of Fish and Wildlife in Hines.

b. Land Use Conflicts

Build up of rodents can cause serious problems in agricultural areas. Control measures are often needed to reduce population when serious losses occur. Most rodents are classified as non-protected wildlife. Their populations can be legally controlled using licensed chemicals and methods.

2.7.6 Waterfowl, Marshbirds, Shorebirds

Malheur National Wildlife Refuge, the Silvies River and Silver Creek floodplains are important nesting areas for marshbirds, shorebirds and waterfowl. About 25 percent of the Central Valley population of greater sandhill cranes nest within the Basin, with highest densities on the Malheur Wildlife Refuge, the Silvies River floodplain and in Diamond Valley. The largest known nesting population of long-billed curlews remaining in North America find suitable habitat in the County. Formerly, this species bred from Ohio westward, with their center of abundance in the Great Plains states. Harney County has one of the largest, if not the largest, population in existence.

Marsh Lands are prominent in the central area of Harney County where the Malheur National Wildlife Refuge is located.

Alkali flats on Malheur National Wildlife Refuge, particularly Harney Lake, support a large population of snowy plovers. Destruction of this bird's nesting habitat by uncontrolled vehicular traffic levels in the east portion of the lake and high carp populations are a detriment to the quality of their feeding habitat.

A. Waterfowl

1. Whistling Swan

a. General Comments

Whistling Swans use the Malheur Refuge during both spring and fall migration. Ninety-six percent of the Basin's whistling swan use occurs on the Refuge, with minor use near Buchanan, in the Alvord Desert, on Moon and Chickahominy Reservoirs and on the Silvies River floodplain. An estimated 25-65 percent of the whistling swans on the Pacific Flyway use the Basin.

b. Land Use Conflicts

At the present time, most of the swan use areas are protected and no loss of swan habitat is expected.

2. Snow Goose

Eighty-three percent of the use is on the Malheur Refuge, with seventeen percent on the Silvies River floodplain. However, many of the birds that use Malheur Lake leave in the morning and again in the afternoon to feed in the meadows east and south of Burns.

In the spring, a favorable feeding habitat is the alkali bulrush stands in Malheur and Harney Lakes and the mowed meadows at Double-O and near Burns. In early spring (late February - early March), grain fields southeast of Burns Airport provide a food source before native meadow vegetation has begun to grow. From 100,000 to 200,000 snow geese use the Basin during the spring migration (50-60 percent of Flyway total).

Fall numbers are lower with most of the birds using Malheur Refuge. Malheur and Harney Lakes provide fall feeding and resting habitat, with little or no use occurring elsewhere in the County.

b. Land Use Conflicts

Snow Geese feed on native meadows and on fresh spring green-up of alfalfa fields. However, there is no evidence that serious damage is occurring to these fields.

3. Pintail

a. General Comments

Pintails are one of the most abundant species that use the County. Over one-quarter million have been in the Basin at one time, and one million probably use the area during spring migration. Maps showing location and migration habits are on display at the Oregon Department of Fish and Wildlife office in Hines.

Three areas in the County are extremely important to the Pintail species. The Silvies River floodplain supports over 43 percent of the migrants, while Malheur Lake has 27 percent and southeast of Buchanan over 18 percent. Double-O, Dry Lake, and Blitzen Valley are of less importance, but do support sizeable populations.

As mowed meadows are flooded, pintails find an abundance of food along the advancing margins of water. Their peak migration occurs in mid-March when the meadows have just begun to flood. Most migrants have left the County by late April. When Malheur Lake marsh is productive, a large number of pintails remain on the marsh (lake) to feed on the preceding years sago pondweed stands.

b. Land Use Conflicts

Few conflicts presently exist.

4. Other Waterfowl

a. General Comments

Pintails are one of the most abundant species that use the County. Over one-quarter million have been in the Basin at one time, and one million probably use the area during spring migration. Maps showing location and migration habits are on display at the Oregon Department of Fish and Wildlife office in Hines.

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Sandhill Crane

b. Land Use Conflicts

Land use conflicts are minor at this time.

B. <u>Marshbirds</u>

1. Sandhill Crane

a. General Comments

Two species of sandhill cranes migrate through the County. The meadows east and south of Burns are the center of abundance for lesser sandhill cranes while they are in the County. About 21,000 use this area in the spring. The greater sandhill crane subspecies arrives from their wintering area in February and remains in the county through November. This subspecies nests in considerable numbers in the flooded meadows and marshes. In the fall, over 90 percent of the entire Central Valley population of sandhill cranes concentrate in the grain fields on or near the Refuge before migrating south. In some years nearly 3,000 can be seen there.

b. Land Use Conflict

Loss of nesting habitat and predation on egg and young cranes has been the greatest detriment to greater sandhill cranes.

2. Other Marshbirds

a. General Comments

Twenty-six percent of marshbirds use the Basin and most remain to nest. The American coot is the most abundant marshbird along with the great and snowy egrets, great blue and black-crowned night herons, white-faced ibis, double-crested cormorants, Franklin's gulls and Forster's terns. Grebes, rails and bitterns also use the Basin during spring, summer and fall.

b. Land Use Conflicts

Few conflicts presently exist.

C. Shorebirds

Twenty species of shorebirds are known to use Malheur-Harney Lakes Basin. The long-billed curlew and snowy plover are the most important with killdeer and common snipe the only year-round residents. Others are Wilson's phalaropes (the most common nesting shorebird species), American avocets, black-necked stilts, willets, and spotted sandpiper also abundant. Other species in the Basin are migratory. Land use conflicts are minor.

Wildlife Preservation Policies

1. No lot size or dwellings on lots smaller than 80 acres shall be allowed in any big game winter range or sensitive wildlife habitat.

2. Structural setbacks and vegetative buffer provisions shall protect riparian habitats.

3. Harney County encourages public and private land owners to use land resource management techniques which help to preserve wildlife resources. Techniques should include buffers around sensitive wildlife habitat areas and individual residential sites, preservation of diverse habitat types, and minimal road construction in sensitive or critical areas. Land managers and owners are urged to consult the Oregon Department of Fish and Wildlife when developing

management plans. The County will offer any assistance possible to the end of wildlife management and enhancement.

4. Habitation and breeding sites of species listed by the U. S. Fish and Wildlife Service as endangered or important raptor areas shall be protected from conflicting uses by buffer areas and other measures appropriate to reasonably insure continued use of the site by the species. If the County becomes aware of disruption of an endangered species, the County shall contact the Oregon Department of Fish and Wildlife.

5. Rural Residential/Recreational development shall be avoided on winter ranges, fawning areas and species concentration areas.

6. All new roads shall be located to avoid watershed damage and sensitive wildlife use areas where possible.

    a. Seasonal roads shall be managed to reduce harassment of animals during winter months and spring stress periods (i.e., Steens Loop Road).
    b. Off-road vehicle use shall be controlled to avoid excessive erosion in areas of fragile soils and harassment in wintering and fawning areas.

7. Domestic animals (i.e., dogs and cats) in Rural Residential/Recreational developments shall be discouraged from running loose in sensitive big game areas, as designated by the Oregon State Department of Fish and Wildlife.

8. Subdivision or partitioning of large blocks of alkaline desert or meadow areas shall be evaluated for nongame wildlife habitat.

9. At the time of the first update of this Comprehensive Plan, Harney County will include newly developed inventory data and will adopt policies concerning this inventory as appropriate.

10. Harney County will provide notice and an opportunity to comment to DFW on proposed land divisions and dwellings between 80 and 160 acres in big game winter range in the EFRU Zone. The County will further notify DFW of all approvals of such applications. Should the DFW determine that an unacceptable build up is occurring, particularly in migration routes, the County will coordinate with DFW to resolve the conflict in a manner consistent with the Goal 5 Rule.

2.8 Historical and Scenic Resources

"Many historic sites and structures are being irretrievably lost through neglect, vandalism, deterioration, and lack of knowledge of the importance of the historic resources." Although "Harney County is rich in pre-historic and historical resources, no systematic approach exists for their proper protection."


Diamond Craters located a few miles north of Diamond

"Many sites," within Harney County, "are located on private lands and their protection has been dependent on the efforts of the owners...such as the Peter French Round Barn which was placed on the National Register of Historical Places as a result of the actions taken by local ranchers..." "Other important historic resources have been destroyed by disinterested individuals who viewed them as unimportant obstacles to progress."

Table 15 lists only some of the more significant historic and scenic sites in Harney County. Other historical sites include those below. The reader should refer to "*Harney County, An Historical Inventory*" for detail on these sites.

Alvord Ranch
Blitzen River Dredge Remains
Brenton Cabin
Brenton Willow Corral
Busse Dam Site
Call Meadow Grave
Camp Curry Site
Camp Wright
Canyon City-Burns Stage Road
Catlow Cave #1
Adams and Broadway Commercial Building – Burns
Drewsey Townsite
Fort Harney Road
William Hanley House
Harney Lake Sand Gap
Indian Petoglyph Sites
Kuney Corrals
Burns Paiute Indian Village
Malheur National Wildlife Refuge
Meek Cutoff
Narrows
Oregon Central Military Wagon Road
Peter French Murder Site
Roaring Springs 1 and 2
Rock Ford
Theodosia Elliot Grave Site
Willamette Valley Cascade Mountain Military
Wagon Road
Yerka-Canyon City Trail

INVENTORY OF NOTABLE NATURAL, SCENIC & HISTORICAL AREAS IN HARNEY COUNTY			
Name of Area	**Type of Area**	**Location**	**Remarks**
Malheur National Wildlife Refuge	Natural Scenic, Historic	30 miles south of Burns	Few areas can equal the refuge in the abundance and variety of wildlife that visits or lives in the area.
Steens Mountain	Natural Scenic, Historic	Approx. 50 miles south of Burns	A very scenic, rugged and spectacular 50-mile long fault block mountain rising to a height of 9,760 feet, a mile above the surrounding country.
P-Ranch Headquarters (National Registry of Historic Sites)	Scenic, Historic	Blitzen River Valley	Headquarters for the famous Pete French Cattle Empire.
Round Barn (On Oregon National Register of Historical Sites)	Scenic, Historic	12 miles south of Princeton	Famous "round barn" built by French for breaking horses.
Diamond Craters	Scenic, Historic	60 miles SE of Burns	An unusual and unique recent volcanic action area.
Fort Harney	Historic	10 miles W of Buchanan	Military fort established in 1867. Soldiers last used it in 1880.
Malheur Cave	Natural, Scenic	14 miles SE of Princeton	A 1/4-mile long lava tube with a lake inside covering about half the area.
Alvord Desert Borax Lakes	Natural, Scenic Historic	East of Steens Mountain Near Alvord Desert	Deposits of Alkali Borax mined during later part of the 19th and early 20th century.
Sod House	Historic	T26S, R31E, Section 35	One of the earliest structures in Harney County
Double "O" Ranch (Proposed addition to National Register of Historical Sites)	Historic	T26S, R28E, Section 36	One of the major ranches in Harney County history.
Frenchglen Hotel	Historic, Scenic	Highway 205, south end of Malheur Wildlife Refuge	State "Wayside" (scheduled for improvements over next 6 years.)

Table 15 – Inventory of Notable Natural, Scenic & Historical Areas in Harney County

2.8.1 Outstanding Scenic Views and Sites

Harney County, due to its large size and low population, has many natural scenic views that have not been altered by development. It is difficult to compile a list of scenic sites because one can see scenic views from nearly everywhere in the County.


Big Indian Gorge scenic viewpoint

The more notable sites are the Steens Mountain, the Pueblo Mountains, Trout Creek Mountains, Alvord Desert, Diamond Craters, and the Malheur Cave. All of the sites are large and any development allowed under Forest or EFRU Zoning would not harm the quality of the scenic view of these sites. While the quantities of the view sites are large, each site is unique to itself.

All of the major scenic view sites are located in Forest or EFRU Zoned areas and areas owned by the U. S. Forest Service or Bureau of Land Management. The 80 or 160-acre lot size will not allow any conflicts with the view. The only conflicts that could affect the view sites are agriculture or forest related activities. These types of activities have been allowed since the mid-1800's and in greater density than the proposed zoning.

Historic and Scenic Resources Goal

To identify and preserve those historical and scenic sites and structures that represents the history and progress of Harney County.

Historic and Scenic Resources Policies

1. A comprehensive approach to the protection of the County's historic, archaeological and scenic resources coordinating efforts on the Federal, State, County and Local level shall be applied.

2. The Harney County Historical Society and the "*Harney County, An Historical Inventory*", 1978, shall serve as the database from which further inventories and recommendations shall occur.

3. Completion of the Historic Sites inventory, based upon information gathered in the "*Harney County, An Historical Inventory*", (Appendix A) and evaluated by the Harney County Historical Society is encouraged.

4. Efforts should be made to identify sites for nomination to the "National Register of Historic Places".

5. Identify sites that relate to the various "themes" in Harney County history, including but not limited to:

    a. Cattlemen's Empire
    b. Agriculture
    c. Mining Frontier
    d. Religious
    e. Cultural Immigration
    f. Education
    g. Transportation
    h. Communication

6. The County encourages identification of historic and scenic sites within lands administered by public agencies, i.e., the National Forest lands in the northern part of the County.

7. Public education concerning the scenic and historic sites within Harney County is desirable and is encouraged.

8. Financial and technical support should be pursued in order to establish a program for preservation of Harney County cultural and historic resources.

9. Facilities within a state park or roadside rest area may receive rehabilitation, minor replacement, minor or betterment repair, and improvement.

10. The County will preserve the Frenchglen Hotel, Round Barn, and the Lawen School. Historic sites designated 1-A and 1-B shall be inventoried and further protection designation as necessary when the Harney County Historic Society or the County has funds to do site reports in accordance with OAR 660-16-000.

2.9 Natural Areas

Harney County, due to its size has many natural areas that could be considered important. The only study available to the County, for natural areas, is the one done by the Oregon Natural Heritage Program (ONHP) in 1978. A site that was done in a historic study has been included in this section because the natural value is considered more important than the historic value.

The following ONHP sites have been designated as 1B and a policy will be adopted addressing the future study of these areas: 2, 4. 22, 24, 32, 45, 47, 51, 57, 60-63, 66, 68, 71-74, 79, 85, 89, 92, 96, 103, 104, 115, 118, 120.

The following ONHP sites: 3, 5, 7, 8, 13, 18, 41, 42, 48, 50, 52, 53, 65, 97, 117, 122 - 125 and the site from the historic study had detailed study sheets compiled. The appropriate Goal 5 rule designation has been selected.

The Donner und Blitzen River

The following ONHP sites have been dropped from the natural area inventory as they are no longer considered a significant natural area: 6, 15, 17, 19, 23, 27, 31, 54, 55, 70, 75, 76, 88, 98, 99, 102, 112, 113, 116, & 121.

Natural Areas Goal

To identify and preserve those natural areas that represents the natural heritage of Harney County.

Natural Areas Policies

1. Natural areas designated 1B shall be inventoried and further protection designated as necessary when ONHP or the County has funds to do site reports in accordance with OAR 660-16-000.

2. Any natural area in addition to those now designated 1B shall be granted protection at the first update, if information is developed.

3. The County shall work with the property owner, public and private on sites designated 3C to ensure the resource is protected.

4. Borax Lake, the site of the endangered Borax Chub, shall be preserved and protected from all conflicting uses in accordance with its 3A designation.

Little Blitzen Gorge

Chapter

3

3 Public Facilities and Services

3.1 Public Facilities and Services

3.2 School Facilities

3.3 Transportation Facilities

This section meets Goal 11 "Public Facilities and Services" and Goal 12 "Transportation" of the Oregon Statewide Planning Goals.

3.1 Public Facilities and Services

3.1.1 Police Services

Three separate police agencies provide law enforcement services outside of the Burns and Hines city limits in Harney County. These are the Sheriff's Department, State Police and the Burns Paiute Indian Reservation Police Department.

1. Sheriff's Department

The Harney County Sheriff's Department has one sheriff, one deputy sheriff, four jailers, and one secretary. The department is housed in the Harney County Courthouse. There is a jail capable of handling 20 prisoners. The department has four vehicles; one automobile and three four-wheel drive vehicles.

The department provides services of civil papers, subpoenas, jury summons, criminal investigations, traffic enforcement, accident investigation and other items normally required of a law enforcement agency. Two and one-half shifts are provided, giving coverage from 8:00 a.m. to 9:00 p.m. The major problem facing the Harney County Sheriff's Department is the vast size of the county. With only three police officers on staff, and with a distance of over 150 miles to some parts of the county, it is almost impossible to provide adequate police services outside of the Burns and Hines area.

There are no regular patrols in many areas of the county, with services only being provided on specific case-by-case basis.

2. State Police

The Burns State Police office is staffed by a corporal, three troopers assigned primarily to traffic patrol, and two troopers with primary assignment to game patrol. This office is supervised from the State Police in Ontario.

These officers provide general police services in Harney County consistent with the department's statewide objectives.

3. Burns Paiute Indian Reservation Police Department

The Paiute Indian Reservation has its own law enforcement officials; one full-time and one part-time. They cooperate with other law enforcement agencies in the community, where and when appropriate.

3.1.2 Fire Services

Harney County does not have any type of organized rural fire protection for the county outside of the Burns/Hines area. Below is a summary of the type of services provided by the Burns and Hines Fire Departments.

1. Burns

The City of Burns maintains a volunteer fire department system consisting of 38 volunteers and two full time personnel. The Burns Fire Department equipment consists of:

a One 1,200 gallon per minute pumper truck;
b One 1,000 gallon per minute pumper truck;
c One 700 gallon per minute pumper truck;
d One "Jiffy Wagon" fire truck, which pumps 300 gallons per minute.

Ambulance equipment is also provided by the Burns Fire Department and includes a 1978 Dodge van ambulance, a 1977 Cadillac ambulance, a 1974 Modular ambulance and a 1969 Chevrolet ambulance. Support equipment necessary for the operation of the above equipment is also maintained.

The fire hall contains a sleeping room, showers, kitchen, storage facilities and parking bays for the equipment.

2. Hines

The Hines Fire Department consists of 20 volunteer firemen, of which there are the Fire Chief, Assistant Fire Chief, a Captain and two Lieutenants. There are never less than 18 men in the department and, at least 80 percent of the time, are at full strength with 20 volunteers.

The City of Hines has an insurance rating of "Class 6." The Hines fire dispatching is done through the Burns Police Department in Burns. The equipment consists of:

a One 1963 fire truck. It has a 1,000 gallon water tank and it is equipped with a 1,000 gallon per minute pump and a 250 gpm booster pump. It carries all fire hose and equipment that is required.

b One 1974 fire truck. It is equipped with a 750-gallon water tank. It has a 750-gpm pump and a 250-gpm-booster pump. It carries all fire equipment and hose that is required.

The fire station is a two-story wood frame building. It contains two bays for fire trucks, storage facilities and has one of the city wells (water) and a pump room. The availability of water at the pressure needed for service seems to be adequate in all but the most extreme cases.

There are occasions when there is a deficiency in manpower due to the nature of the volunteer fire department system. This occurs because most of the firemen are mill workers. Should a fire occur during mill working hours the department is short-handed until the workers arrive.

Unless there is a large unexpected increase in the population of Hines, the existing facilities and equipment, with proper maintenance, care, and periodic replacement should be adequate for many years.

There is a need to increase that available manpower over the next few years to keep up with expanding population. As Burns and Hines continue to grow, perhaps they could consolidate, or form a fire district, taking in the unprotected area surrounding both cities. They would then be able to support and maintain a partially paid department, perhaps to the extent of lowering the insurance rating.

The oldest fire truck is now 10 years old. A sum of money should be put in a reserve fund every year to go toward the purchase of a new fire truck in the future.

3.1.3 Medical and Health Facilities

All medical and health facilities for the Harney County area are located in the County Seat of Burns. Below is a summary of the services provided by those facilities.

1. Harney District Hospital

The Harney County Hospital is a 49 bed, short-term, general hospital which provides medical, surgical, and obstetrical care. It is a well-equipped facility with recently expanded laboratory capabilities. The medical staff consists of six resident physicians and an employee staff of 80. Two important features of the hospital are the Intensive Care and Coronary Units. Emergency air service (charted airplane and Air Force helicopter) is available to the hospital. It also contains a small pharmacy operating on a part-time basis.

2. Health Care Professionals

The following health care professionals serve the Burns/Hines/Harney County area:

a. Eight physicians
b. Four dentists
c. One optometrist
d. Two psychiatric social workers
e. One (part-time) psychiatric consultant
f. Two (part-time) chiropractors

3. Harney County Counseling and Guidance Service

Counseling and guidance services are available to residents of Harney County on an “ability to pay" basis.

4. Alcohol Treatment

Alanon, Alateen and Alcoholics Anonymous groups are located in the Burns/Hines area. Service is available to any person seeking help, 24 hours a day. An alcohol treatment unit is available at the Harney County Hospital.

5. Senior Citizens Center

There is a newly constructed Senior Citizens Center located in Burns. The center provides entertainment, trips, mini-clinics, health, legal advisory counseling, and various other services.

6. Nursing Home

The Burns Nursing Home has a 49 bed facility; 34 beds for nursing patients and 15 beds for the aged.

3.1.4 Library Services

The Harney County Library, built in 1969 and located in Burns, distributes books throughout the County. In 1978, it recorded a circulation of 32,210 books, a 2 percent decline from 1971. The number of books has increased, however, from 18,000 in 1971 to 22,000 in 1978, or an increase of 18 percent. Material is available from the Oregon State Library in Salem on a loan basis. The Harney County Library sponsors the annual Shakespearean Festival and also provides a Children's Story hour for pre-school age children. In addition, the library has a capability for art or craft displays, space permitting; availability of twenty art reproductions for check out; and historical data on Harney County.

3.1.5 Museum Facilities

The Harney County Museum is located next to the County Library and has a good display of pioneer materials, artifacts, etc.

3.1.6 Solid Waste Disposal

The largest amounts of solid waste are generated in the urban areas. Eighty-five percent of Harney County's solid waste is generated in the Burns/Hines urban area. Individuals in the vast rural areas of the county dispose of the remainder of the solid waste.

1. Location

The Burns/Hines solid waste disposal site is located about one mile west of Burns. It is owned and operated by a private individual who also has a franchise on waste collection in the Burns/Hines urban area.

2. Operations and Collection

The site is kept open to all who wish to dump there from dawn to dark for a small fee. The waste disposal site is closed on Thursdays. There are collections made by the franchise but not all individuals in the area use it.

3. General

This site is geologically suitable. Soils are tuffaceous, silty sediments of low, hydraulic conductivity and are unsaturated. Ample cover material, mostly from pit excavations, is available. Sufficient ground (160 acres) is available at the site for further excavation as necessary. With the amount of land at this site, it should last in excess of 25 years. With the anticipated facilities for recycling and recovery, the life of the waste disposal site, or the potential use time for the facility could be

lengthened beyond the estimated 25 years. The pit is served by all-weather paved access road. Drainage water is diverted away from the pit by berms constructed when the pit was excavated. A "blow fence," designed to prevent flying debris onto nearby properties has been constructed on a significant portion of the site. The pit is being covered about three times a week during the summer and once to twice a week during the winter months.

4. Units Served and Waste Received

This site receives the waste of the entire Burns/Hines urban area, or about 30.75 cubic yards of compacted waste daily. It serves over 125 commercial and public units and 1500+ residential units and urban units.

5. Additional Sites in Harney County

In addition to the larger solid waste disposal site west of Burns, there are seven rural sites located near small Rural Communities:

Andrews	Crane	Diamond
Drewsey	Fields	Frenchglen
Lawen	Narrows	Riley

According to the DFQ (1979), these sites are "operated satisfactorily" in conformance with the adopted Harney County Solid Waste Management Plan (adopted 8/l/74), hereby referenced.

6. Location and Conflicts

The solid waste disposal site is located within the Rural Residential zone. Therefore, there is the potential for future conflicts as this area develops. The County policy is that this site and operation is very important for the entire Burns/Hines area and should be protected until it is closed. Allowing residential use in the immediate vicinity will probably force a curtailment of the landfill operation because of complaints and potential health hazards. This can be avoided by not allowing this type of residential development pattern to occur.

A Sanitary Land Fill District is to be established for a distance of one-quarter mile from the boundary of the sanitary land fill site. Within this area, the Planning Commission shall not allow the creation of new residential development.

Public Facilities and Services Goal

To provide public facilities and services in the types and amounts adequate to meet the needs of the citizens of Harney County at the level of service that does not place an undue tax burden on these citizens.

Public Facilities and Services Policies

1 Solid waste disposal is a constant responsibility of the County. The County shall plan for new disposal sites well in advance of their need. The County shall also recognize the demand that new development will place on disposal sites and shall consider this in taking action on a development proposal.

2 The Solid Waste Disposal site west of Burns and in the Rural Residential area shall be protected from the encroachment of residential use by delaying residential development of the immediately adjacent areas until the site is closed. The County shall work with the owner to develop reuse plans for the property when the operation ceases.

3 The County shall carefully weigh the cost and benefits of new development on public facilities and services, including sheriff, transportation, and schools, as it considers development proposals.

4 The County shall strive to provide public facilities and services at levels adequate to meet the needs of existing county citizens, and the needs of the future citizens in areas appropriate for growth.

5 A Sanitary Land Fill District is hereby established for an area one quarter mile around the sanitary land fill site. Within this area, the Planning Commission shall not allow any new residential development.

3.2 School Facilities

Public education in Harney County is provided by ten (10) school districts. These are each distinct legal entities with their own board of directors, fiscal management, and independent administration, which may be provided by certified administrators or by head teachers. Because of the geographic diversity of Harney County, there are schools located in the population center of Burns/Hines and schools serving remote, rural regions of the county, some as far as 112 miles distant from this population center. Seven one- or two-room rural elementary schools are located throughout the remote regions of the county.

3.2.1 Harney County School Districts

1. Burns/Hines School District #3 is a consolidated district comprised of Slater Elementary (K-3), Hines Elementary (4-6), Lincoln Junior High School (7 & 8), Burns High School (9-12), and Monroe School (Eastern Oregon Youth Correctional Facility serving youth ages 12 - 18). The district is led by a superintendent and each building is represented by a principal. A five-person board is elected to serve the communities of Burns and Hines. The district provides employment for approximately 200 certified and classified employees. High School athletes participate in 3A/OSAA-approved sports.

2. Crane High School District #UH1J located 28 miles southeast of the Burns/Hines area is the only public boarding school in the country. Dormitory facilities provide food and lodging during the school week for students from remote ranches. These are typically students who have completed their elementary education in one of the seven rural elementary schools. Crane High School is an independent legal entity with a board of directors of five members. The high school shares a superintendent with Crane Elementary. Approximately ten teachers provide instruction in math, language arts, social studies, science, physical education, business, and various shop classes. Crane High School athletes participate in 1A/OSAA-approved sports.

3. Crane Elementary District #4 is located next to the Crane Union High School, but is an independent legal entity with separate funding and a five-member board of directors. Crane Elementary shares a superintendent with Crane High School. Approximately six teachers provide kindergarten through sixth grade instruction in a blended classroom environment.

4. Pine Creek Elementary District #5 is located 45 miles east of Burns/Hines and provides a two-teacher school for an average of 10 to 15 students K-8. Pine Creek Elementary does not have a library or gymnasium and the most recent building improvements were made in 1996.

5. Diamond Elementary District #7 is located 65 miles south of Burns/Hines and provides a two-classroom school for an average of 5 to 8 students K-8. Diamond Elementary provides a library and a gymnasium and the most recent building improvements were made in 2000.

6. Suntex Elementary District #10 is located 30 miles west of Burns/Hines and provides a two-teacher school for an average of 10 to 15 students K-8. Suntex Elementary provides a library and gymnasium and significant building improvements were made in 2000.

7. Drewsey Elementary District #13 is located 45 miles east of Burns/Hines and provides a two-teacher school for an average of 10 to 15 students K-8. Drewsey Elementary provides a library and gymnasium and the most recent building improvements were made in 2000.

8. Frenchglen Elementary District #16 is located 60 miles south of Burns/ Hines and provides a two-teacher school for an average of 15 to 20 student K-8. Frenchglen Elementary provides a library and gymnasium and the most recent building improvements were made in 198.

9. Double O Elementary District #28 is located 32 miles west of Burns/Hines and provides a one-teacher school for an average of 3 to 5 K-8 students. Double O Elementary provides library and gymnasium and the most recent building improvements were made in 2000.

10. South Harney Elementary District #33 is located 112 miles south of Burns/Hines and provides a two-teacher school for an average of 20 to 25 K-8 students. South Harney Elementary (formerly Fields and Andrews schools) has no library but does provide a gymnasium and the most recent building improvements were made in 1998.

3.2.2 Harney Education Service District (ESD) Region XVII

Harney ESD provides a multitude of specialized services for these school districts with the express purpose of assuring affordable mandated services for all children of the county as provided through the statutes included in ORS 334.003 through ORS 334.127. Administration for this countywide education support agency is delivered from the Harney County Courthouse and led by a seven-member board of directors who represent the various school districts throughout the county.

1. Harney Esd Regional Services Center

These programs are delivered from the Fairview Heights complex located at Units #24, #25, and #26 which includes professional offices, an extensive educators

library, and a public meeting room designed to serve the entire community. ESD programs include Technology, Speech & Language, Learning Resource Center, High School StRUT Instruction, Curriculum & Assessment, Printing/Policy/Group Purchase, Rural Elementary Music, Rural Clerk & Budget service, Rural Special Education, and Administrative consultation. Harney ESD also provides a countywide Prevention and Family program plus federally funded IDEA Special Education and Title Programs through consortium management.

2. Harney ESD Early Childhood Center

Located in the former Fillmore School (which was vacated due to declining enrollment in the Burns/Hines district), this center serves families with children age birth to five, or up to enrollment in public kindergarten. Individual programs, which comprise this family center, include Oregon Head Start, Federal Head Start (also known as Harney County Head Start), Great Start, Healthy Start, Early Intervention, and Early Childhood Special Education.

SCHOOL FACILITIES RECOMMENDATIONS:

1. There is a need for behavior modification specialists for students grades K-12 within the Burns/Hines and Crane school districts. Also, there are growing requests for family advocates to build healthy relationships with families and schools to continue the practice introduced at the preschool level through the Harney County Head Start program.

2. There is a need for alternative learning opportunities for traditional students, dropout students, and talented and gifted students. School-to-Work opportunities are lacking for high school students and there is an identified need for skills centers at Burns High School.

3. There is a need for improved facilities in the Burns/Hines school district. There has been no new construction since the early 1960's and a careful study reveals existing buildings are in need of extensive repair and remodel, with the recommendation to replace some of the older school buildings with new construction. Existing facilities do not provide opportunity for adding skills centers or alternative education opportunities. Food service and transportation services are negatively impacted with the current outdated and declining facilities. Crane Schools have experienced a need for space for recreation, and music and arts programs.

4. There is a need for professional development opportunities for educators in Harney County. Due to limited funding and extreme distances from training centers, cost and availability make continuing education difficult for professionals in Harney County.

5. Facility and program planning be done on a long-range rather than a year-to-year basis to better anticipate population growth throughout the County

6. Rural school districts seek additional funds, when appropriate, to ensure conformance with federal and state mandated educational programs.

7. A wide range of educational opportunities be provided, when possible, to assure quality education throughout the rural and urban school districts.

8. Adequate land be secured, where appropriate, for the expansion or development of educational facilities.

3.3 Transportation Facilities

Harney County is, and will continue to be, largely dependent on the road system for support for the major components of the economic picture. As such, the primary and secondary road systems are important and necessary to serve not only the economic needs of the Burns/Hines urban area but also the needs of the rural communities and individual landowners in remote areas of the county.

The Harney County Transportation System Plan provides a detailed analysis of the transportation facilities for the County in all is various features was adopted in and implemented in the spring of 2001 and is hereby referenced.

3.3.1 Roads

Harney County and other miscellaneous roads, many of which are unimproved, join with various state and federal highways. Some have been rebuilt with good alignment and grades, with various surface materials. Due to the immense area served and the low density of population, funds have been limited and very few miles have been oiled or paved except that done by the State and Federal agencies. The Bureau of Land Management and the U.S. Forest Service are responsible for the construction of many miles of roads for access to timber, grazing, and recreation areas. Due to the extensive area, most public travel will continue to be by private automobile and the major travel routes should continue to be improved to meet the transportation needs of the future.

There are several road improvements, recently completed, currently underway (1978-79), or scheduled for the next few years.

HARNEY COUNTY ROADS **By Jurisdiction (in miles)**	
County Roads	945.00
Public Roads	90.57
County Roads, Municipal Ext.	3.19
BLM	249.00
U.S. Forest Service	1,010.00
National Wildlife Refuge	58.00
U.S. Military	1.04
State Parks	0
State Highways	293.38
City Streets	36.31
Total	**2,686.49**

Table 16 – Harney County Roads in Miles

Map 6 – Harney County, Roads

Transportation Goal

To provide and encourage a safe, convenient and economic transportation system to serve the needs of Harney County.

Transportation Policies

1. Maintain and upgrade the overall transportation system within the county to meet present and future needs.

2. Develop and upgrade highway facilities in such a manner that valuable soil, timber, water, scenic, historic or cultural resources are not damaged or impaired.

3. Provide adequate signage along major and minor county roads for the purpose of easy identification.

4. Design of new roads and highways should preserve and enhance natural and scenic resources, i.e., new roads should not be constructed in areas identified as sensitive wildlife areas.

5. Commercial bus service to areas outside of Harney County should be retained.

6. At a minimum, rail freight service to Harney County should be retained.

7. A bikepath should be completed from central Hines to central Burns.

8. An "Airport Master Plan" has been developed to assure the Burns/Hines area of adequate air service in the future.

9. The County will actively encourage private freight companies and the public utility commissioner to provide freight service to all portions of the County.

10. The County shall develop an airport overlay zone applicable with state and federal standards.

11. The Municipal Airport shall be protected from the encroachment of incompatible land uses to ensure efficient aviation operations and to minimize the noise and safety problems for the general public.

12. The County shall comply with all applicable state and federal noise, air, water and land quality regulations.

13. The general policy of the Planning Commission will be not to create a traffic hazard in the granting of variances; conditional use permits, and zone amendments.

Chapter

4

4 Energy

This section meets Goal 13 "Energy" of the Oregon Statewide Planning Goals.

4.1 Energy

Harney County is Oregon's largest in land area, encompassing 10,132 square miles. The County had a 1980 population of approximately 8,300 persons. The local economy is based on agriculture, timber, and tourism. Despite the Pacific Northwest's current power surplus, and the difficulties in exporting power to better markets in the Southwest, one of the County's most promising long-term assets are its substantial renewable energy resources. If properly conserved and developed over time, these resources could make significant contributions to the County's economy.

Earlier economic assessments had concluded that, as major potential sources of electricity and thermal energy, the County's renewable resources represent one of its best opportunities for diversified economic growth (Allen, 1981).

In 1981, Harney County received a grant from the Bonneville Power Administration (BPA) to do a Renewable Energy Plan. Work began on the Harney County Renewable Energy Plan in June 1981. With the assistance from the Bonneville Power Administration, the County commissioned this Plan in order to: identify resource sites and preliminary values; identify further assessment needs and development constraints; and formulate policies and measures designed to protect the long-term availability and productivity of resource sites, and facilitate their timely and orderly development. The County has determined that its energy resources are sufficiently important to warrant continued assessment and development planning as the regional power situation evolves in the years ahead.

As a sparsely settled rural area, Harney County is not a major energy center by regional. standards. The electrical load is served by CP National (CPN) in the Burns and Hines urban area, and by the Harney Electric Cooperative (HECO) in the remainder of the County (except for a small portion surrounding Drewsey which is served by Idaho Power).

4.2 Potential Energy

4.2.1 Biomass Energy

The plant matter available for food, fiber, and chemical products provides one of mankind's oldest and most fundamental sources of renewable energy; biomass. Biomass in the form of wood has been one of the main energy sources for most countries of the world since earliest times. In the broadest of terms these resources also include plants, animals, animal and vegetable oils, and organic wastes.

Photosynthesis is the biological process by which plants convert sunlight, water, and carbon dioxide into carbohydrates and oxygen. These carbohydrates are then used as energy sources and raw materials for all other synthetic reactions in a plant. When the plants are harvested (or the organic wastes are processed) the solar energy they are storing can be converted to a variety of biomass fuels: solids such as wood and charcoal; liquids such as oils and alcohols; gases such as methane and hydrogen; or electricity. The use of these photosynthetic byproducts represents a long established technology for energy conversion and storage.

Biomass resources are considered in the Harney County Renewable Energy Resource Plan according to three resources types: commercial logging residues; lumber mill residues; and non-commercial timber and residue, e.g. juniper. Limited discussion is also given to the energy values of crop residues and sagebrush.

Map 7 – Harney County, Biomass Resources

4.2.2 Geothermal Energy

Geothermal energy is the heat of the earth. Of the earth's total volume, all but a relatively thin crust is very hot. It is believed that the sources of this tremendous heat are radioactivity and friction deep within the earth. In areas where the crust is particularly thin, the heat may be evidenced by hot springs, geysers, and volcanoes. This heat may be harnessed by man through wells, for use in power generation, direct heating, or heat pump applications.

Harney County is considered to have one of Oregon's greatest geothermal potentials, with known and inferred resources in various temperature ranges occurring throughout the County. The generalized locations of 12 known and inferred resource areas are shown in Map 8.

Map 8 – Harney County, Geothermal Resources

The County extends across two major physiographic provinces, the Basin and Range, and the High Lava Plains. The Basin and Range province, in the south and east, is characterized by generally north-trending ridges separated by variously

sized basins. Many of the ridges are steep on one side and gently sloped on the other as the result of block faulting and tilting. Most of the basin floors are covered with alluvial sediments and contain intermittent lakes and playas. The High Lava Plains, in the center and north, are characterized by a smooth surface plain of lava flows marked in places by cinder cones and other volcanic surface features. Elevation of the plain is moderately high but local relief is generally low.

The geothermal resources in Harney County are influenced by two main geologic phenomena: recent volcanic activity and faulting. The volcanic activity brings heat from depth and the faulting provides conduits for the circulation of fluids to bring the heat to or near the surface. High heat flows, up to three times the normal, have been mapped in several areas of the County. The recent volcanic activity is indicated by ash flows and flood basalts in the Harney Basin (Miocene in geologic age) and by impressive displays of Tertiary volcanic rock exposed on the eastern flanks of the Steens Mountain. Recent alluvium and ash provides an insulating layer in many parts of the area, preventing the subsurface heat from dissipating. Superimposed on this volcanic landscape are numerous eruptive centers such as Diamond Craters, Iron Mountain and Burns Butte. The Harney Basin was formed by loss of material through volcanic eruption of these extensive ash flow sheets and flood basalts.

Two main fault systems dominate the region with a third being formed by the intersection of these two. The first major faulting is the Basin and Range trend (approximately north-south) which occurs in the eastern and southern portions of the County. The Steens Mountains and Alvord Valley are prominent examples of the horst and graben structures common to the Basin and Range province. The second major faulting trend is the Brothers Fault zone (trending N25 0-35 0 W) which cuts through the central and western portion of the County and extends to Newberry Crater in Deschutes County. The intersection of these two fault systems occurs in the Diamond Craters area where extensive shattering and rotations have been identified.

4.2.3 Wind Energy

Wind is one of the oldest resources of power production known to man. Pumping water and mining grain were its two primary uses until the 1900's, when it began to be also used to produce electricity. In the 1930's there were approximately 6 million wind systems in the United States; but with the construction of large hydroelectric projects and the availability of inexpensive oil, the use of wind to produce electricity or pump water sharply decreased, such that there were less than 600,000 windmills in operation in 1970. However, the problems associated with conventional energies (scarce supplies, rising costs, environmental pollution) have resulted in a revitalized interest in wind power as a significant renewable energy source.

By its very nature wind is a variable energy source. The transient fluctuations of surges and lulls in the wind on a daily, seasonal, and annual basis, as well as spatial variations in the wind in the horizontal and vertical make its evaluation as a power source difficult.

The power in the wind is proportional to the cube of the wind speed; thus, if wind speed doubles, power increases by a factor of eight. Elevation changes can also affect power potentials, as air density decreases about 15% per 5,000 ft. of elevation increase; thus, a site at 10,000 ft. mean sea level (MSL) has about 30% less power per given wind speed than a site at sea level. Because of the cubic relationship, the wind speed would have to increase about 10% to compensate for the 30% power deficit.

Due to inefficiencies in windmills, only a fractional amount of the total available power can be extracted. Typically, the realizable power is only about 30-40% of the total potential power.

4.2.4 Solar Energy

On the average the earth is about 93 million miles from the sun. Consequently, the earth intercepts only a small fraction of the total radiation emitted by the sun. Nevertheless, the amount received per year is equivalent to tens of thousands times the present annual energy requirement for the world. In the United States the annual insolation received is about 700 times the energy utilized by our nation for all purposes. Clearly, solar energy has a great potential, but for many applications the incident energy density is insufficient. This is the case for most solar electric schemes, for example, so that concentrating devices must be used. To understand how these work, we must first understand how solar radiation can be separated into two general categories, direct and diffuse radiation. The first component includes the solar intensity coming directly from the sun while the latter comprises the solar radiation, which has been scattered before it reaches the viewer. There is some degree of arbitrariness about dividing all solar radiation into two different types, but

this breakdown into direct and an isotropic diffuse component is useful for discussion purposes.

The radiation from the sun, while approximating that from a black body, differs slightly due primarily to structure in the surface-emitting region and to absorption in gases at the surface. For most purposes it will be adequate to consider the sun as a hot object emitting heat at a temperature of about 11,000E F. The wavelength range of 300 to 4000 x 10G9m (10G9m is called a manometer) includes most of the energy of the solar radiation. The distribution of the energy emitted by the sun as a function of the wavelength (spectral distribution) is of particular importance to the useful collection of solar radiation because of the dependence of the reflective and absorptive properties of materials such as glass and various metals upon the wavelength of the radiation. About 85% of the total incident solar radiation lies in the wavelength region which is transmitted by ordinary glass.

Radiation from the sun can usefully be separated into three energy regions as follows:

1. The short wavelength radiation is called ultraviolet radiation (UV) and is not visible to the human eye. These are the rays that are primarily responsible for the suntan. Most of the UV radiation which enters the upper atmosphere is absorbed there and does not reach the earth's surface;

2. The middle wavelengths are referred to as the visible spectrum, since these are the wavelengths, which can be seen by the human eye. When this white light is passed through a specially constructed triangular piece of glass called a prism, the varying speeds at which these wavelengths travel cause it to be broken into colors that vary from violet through the blues and greens to the reds. The visible spectrum is an extremely narrow band when compared to the ultraviolet and the infrared bands; and

3. The long wavelength is referred to as infrared radiation (IR), or heat radiation, although the later term is not a good one since both ultraviolet and infrared will heat an object. All objects can be considered to be emitting infrared radiation; however, the amount of energy radiated depends on the temperature. Materials with a temperature below 800E F. emit only in the infrared, with no visible or ultraviolet radiation. Thus, the radiation emitted from the surface temperatures below 800E F. is quite different in quality from the radiation of the sun.

A solar collector absorbs energy in all three of the wavelength regions. However, the usual glass covers will not transmit the energy at very long wavelengths or envelopes used in most devices, and is consequently not captured as useful heat. Fortunately, this wavelength region comprises only a small fraction of the energy emitted by the sun.

The total solar energy, integrated over all wavelengths, received per unit area of surface oriented normally to the sun's rays at the top of the earth's atmosphere is called the solar constant. Since by definition this surface is always oriented perpendicular to the incoming solar radiation, the amount of energy received by a given area of surface should be independent of the time of the year. This is the reason for calling the energy received per unit area per unit time the color constant. The determination of this constant has been the object of a number of experimental measurements. The earliest determinations, made from high mountains, had to be corrected for the transmissions through the atmosphere of the different wavelength portions of the solar spectrum. Most recent measurements with high altitude aircraft, balloons and spacecraft have permitted direct determinations outside of most of the earth's atmosphere. The most recent value for the solar constant is 1.373 KWH/square meter (1.968 cal/cm2 min, or 435.6 Btu/ft2 _hr).

As radiation from the sun passes through the earth's atmosphere, the following processes, listed in order of their importance, modify it:

1. Scattering and absorption by cloud masses;

2. Selective absorption by atmospheric gases, particularly oxygen, ozone, carbon dioxide, and water vapor;

3. Scattering and diffuse reflection from particles, e.g. dust and smoke, of size comparable with or larger than the wavelength of light (Mie scattering); and

4. scattering by molecules of air and particles much smaller than the wavelength of light (Rayleigh scattering).

Thus, the solar radiation reaching the earth's surface consists of a beam coming directly from the sun and a certain amount of scattered radiation. The diffuse component originates from a number of different physical mechanisms. The most important is clear sky diffusion which is caused by scattering from air molecules and atmospheric moisture. Another important contribution comes when the direct beam is reflected by the ground into the clear sky, and then is reflected back to the ground again. The ground reflected direct beam can also be reflected from the sides and bottoms of clouds. Another significant contribution results from the suns direct radiation hitting the sides of clouds and being diffusely reflected towards the ground.

For solar energy applications one needs the absolute value of the direct and diffuse solar radiation upon arbitrarily oriented surfaces. It is usually easiest to first determine these quantities on a horizontal surface. In principle, one could start constant and obtain the solar radiation intensity at ground level by correcting for the attenuation of intensity due to the air mass and the cloud cover of the atmosphere. A large amount of effort has gone into studies of various solar radiation models. However, at present the most reliable way to determine the solar intensity on the ground is by direct measurement. Most commonly a measuring device called a

pyranometer, which measures the total (global) solar radiation incident upon it, is used. While this measurement of the total solar intensity is useful it does not give the separate direct and diffuse components, rather it only yields their sum. In order to obtain the direct solar radiation one must utilize a collimated solar measuring device, called a pyrheliometer.

For high quality focusing devices, a precise knowledge of the amount and variability of the direct beam intensity may be needed, in which case data obtained with a pyrheliometer is essential. However, the equipment needed to obtain reliable data is expensive and a considerable effort must be put into the analysis of this data. Often, less precise information about the direct and diffuse components will suffice. In this case it is possible to utilize an empirical procedure based entirely on knowledge of only the total solar radiation on a horizontal surface. This permits one to obtain daily and monthly averaged values of the direct and diffuse component in a very preliminary manner.

4.2.5 Hydro Energy

Harney County contains portions of three major drainage basins: Malheur River; Malheur Lake; and Goose and Silver Lakes. These and the subbasins of Malheur Lake are shown in Map 1, indicating that the Malheur Lake basin covers the majority of the County. The surface waters of these areas constitute the County's hydro resources; in addition to their limited quantities, these resources are already largely appropriated for competing uses, e.g. agriculture and wildlife habitat management. Hydro resources were initially prioritized by the County as the least favorable for power development because of these limitations. Thus, while the resource is not considered to be significantly valuable from a power standpoint, it was included in the planning process for the sake of comprehensiveness; to assure compliance with the Goal 5 Rule, and to acknowledge small scale or non-commercial potentials (for example, there has been some discussion of a proposed private developer dam near Drewsey during the course of this project).

4.2.6 Oil and Gas Resources

Oregon has undergone three periods of oil and gas exploration, from 1900 to 1940, from 1945 to 1962, and from 1978 to the present. The first period was characterized by small, speculative ventures, most of which based drilling locations on little, if any, geologic study. At the close of World War II, large oil firms began extensive geologic studies in the state and many of the companies drilled deep test holes in the course of their work between 1940 and 1962. In 1978, exploration efforts disclosed the probability of a gas field in Columbia County. Extensive drilling which confirmed the Mist Gas Field followed this. Since that time, leasing and exploration activity throughout the entire state has increased. In 1981 acreage leased in Oregon for oil and gas drilling far exceeded that of previous years. By the end of the year, over 4

million acres were estimated to be under lease. Leasing was particularly heavy in central and eastern counties, including Harney County.

Table 17 shows data for Harney County oil and gas wells since the turn of the century. Well records are available from the State Department of Geology & Mineral Industries for the most recent six wells noted. As the table indicates, however, no significant finds of oil or gas have been encountered in Harney County. As the wells shown are relatively shallow, these results could have been anticipated, due to the thick layers of volcanic rocks present throughout the County.

The new leasing interest in Harney County was sparked in part by a deep drilling program carried out by Shell Oil Company in central Washington. The stated goal of that program was to penetrate the layer of volcanic rock and explore for sedimentary strata bearing oil. Although no results of the Shell program have been released, leasing activity in geologically similar areas such as Harney County picked up dramatically.

Available information is not adequate to identify the location, quantity and quality of oil and gas resources in Harney County. Oil and gas resources therefore constitute 1B resources, for which the County of Harney will adopt a plan policy committing itself to address these resources through the Goal 5 process in the post-acknowledgement period.

HARNEY COUNTY OIL & GAS
WELL DATA

Company	Well Name	Location	Date	Depth (in feet)	Remarks
Michel T. Halbouty	Federal I-10	NE1/4 Sec. 10, T23S, R29E	1977	7,684	Rotary. No Shows
Oroco Oil & Gas Co.	Portland Co. No. 1	NW1/4 Sec 1 18, 24S, 33E 1287' S of N line & 1254' E of W line	1956	2,247	Rotary. No Shows
Love Drilling Co.	Volger No. 1	SE1/4 Sec 25, 24S, 31E	1949-1950	4,550	Rotary. No Shows
United Co. of Oregon	Weed & Poteet No. 1	NW1/4 Sec 9, 23S, 31E 2, 848' N of S line & 217' E of W line	1949	6,480	Rotary. No Shows
United Co. of Oregon	Fay No. 1	SE1/4 Sec 9, 24S, 33E	1945-1948	3,826	Rotary. No Shows
State Drilling Co. (Geo. Mefford)	Jones & Sullivan No. 1	SE1/4 Sec 6, 24S, 33E	1939-1959	1,513	Cable tools
Harney Valley Devel. Co. (Gt. Western Oil Co.)	Fay No. 1	NE1/4 Sec 8, 24S, 32E	1937	2,812	Cable tools. Hit a strong flow of hot (140deg F) sulfur water.
Oregon Western Coloniz. Co. (Davis Ranch)	Water Well	SW1/4 Sec 1, 23S, 30E, Elev. 4,240'	1930+	400	Paraffin reported in black sand at 175'.
Oregon Oil Co.	N/A	NW1/4 Sec 18, 25S, 32E	Before 1929	1,000 +	
Oregon Oil Co.	N/A	NW1/4 Sec 19, 25S, 32 1/2E	Before 1929	600	
Fidelity Oil & Gas Co.	N/A	Sec 5, 26S, 32E	1917	1,430	Small amount of gas reported.
Central Oregon Oil & Gas Co.	"Dog Mt. Well"	SE1/4 Sec 24, 25S, 30E	1912-1920	3,807	Cable tools. Gas reported and a trace of oil.
Leake, J.	Water Well	SW1/4 Sec 28, 25S, 32E	1909	347	Reported to have encountered strong gas flow with a trace of oil.
Harney Valley	11 prospect	Secs 20, 21, 27, 28, 29, 30; 26S, 30E	1909	74 - 252	Holes reported to have found small amounts of gas.

Source: DOGAMI Miscellaneous Papers 6 & 8

Table 17 – Harney County Oil & Gas Well Data

4.2.7 Conservation of Energy

The Harney County Renewable Energy Plan is a model for local government implementation of the Regional Act. The Harney County approach is unique to the extent that renewable energy development is treated as a higher priority than conservation (whereas the Regional Act ranks conservation first and renewables second). This is due to the County's relatively small population and non-industrial economy creating a situation where renewable resource development is perceived to have a greater long-term public benefit to the County and region. It should be emphasized, however, that CPN, HECO, and all local government bodies are already implementing energy conservation programs on individual bases; thus, while the primary objective of the Plan is to stimulate renewable resource development, Harney County is nonetheless strongly committed to conservation, as evidenced by the programs just mentioned.

Another feature of the Plan is its primary concern with commercial-scale, e.g. greater than 100 kw, power generation from renewable resources, because of the economic potential perceived in this type of power generation at the time the project was initiated. This focus on power generation is not intended to diminish the significant potential of County resources for direct thermal (non-electric) applications, such as space or water conditioning, industrial processing, and agricultural applications. Also, the focus on commercial-scale development is not intended to diminish the considerable potential for small-scale power generation for internal uses. The County intends on supporting such small-scale development through several of the implementation measures described in Section 7 of the Plan.

Detailed information regarding Inventories, Site Analyses, Assessment Needs, Development Constraints, Resource Conservation and Development are in the Harney County Renewable Energy Plan.

Energy Goal

To promote the conservation, development of alternative sources, and the efficient use of energy.

Energy Policies

1. The County recognizes its abundance and widespread renewable energy resources (hereinafter referred to biomass, geothermal, wind, solar, hydro); it recognizes their major economic development value, and shall support the protection and conservation of resource sites, so as to insure their continued availability and productivity.

2. The County shall support the development of resource sites, for purposes of power generation and/or direct application, in a timely, orderly and environmentally sound manner.

3. The County shall encourage state and federal land and resource management policies consistent with County energy policies.

Resource Site Protection

4. In order to identify and protect the undefined energy and economic value of renewable and nonrenewable energy resources ("1B" sites), the County shall support continued resource assessment and exploration activities. In this regard, the County shall seek additional resource inventory data from appropriate public and private organizations as part of its 5-year major revision procedure; additional inventory data, when available, will also be incorporated during annual minor revisions. When such additional data is added to the inventory the County shall proceed to complete the Goal 5 Rule process with respect to any "1C" site determinations.

5. The County's inventory of resources and site evaluations shall be maintained as a reference to be consulted during landuse plan amendments, zone changes, and subdividing (referred to hereinafter as major decisions).

6. Where the inventory identifies no conflicting uses at a resource site, the County shall preserve the continued availability and productivity of the site through appropriate zoning and land development regulations. These actions shall be documented in the inventory for each site so classified.

7. Where the inventory identifies conflicting uses at a resource site, the County shall determine the economic, social, environmental, and energy consequences through a documented analysis of impacts to both the resource and the

conflicting use, and consideration of other applicable Goals; and resolve the conflict by either: protecting the resource site, allowing the conflicting use fully, or limiting the conflicting use through appropriate policies and implementation measures. The County shall consider other applicable Statewide Planning Goals when limiting a conflicting use which is otherwise permitted by such Goals. There actions shall be documented in the inventory for each site so classified.

Energy Facility Siting

8. The County shall consider energy facilities requiring siting review to be only those proposing to generate electricity for public use by sale.

9. The County shall avoid, as much as practical, duplicating the siting work of other governmental agencies. In this regard the County may, during its siting deliberations, adopt by reference the siting reports and findings of other government agencies.

10. In cases where the U. S. Government or the Oregon Energy Facility Siting Council does not exercise jurisdiction, the County shall assume the role of a lead coordinative agency in siting the facility according to all applicable laws, ordinances, and regulations.

11. In applying siting standards through its zoning and land development ordinances, the County shall endeavor to be as consistent with the standards of government agencies as is practical. Such agencies shall be afforded full opportunity for review of, and comment on the County's plan, ordinances, and pending actions.

Chapter

5

5 Economy

This section meets Goal 9 "Economy of the State" of the Oregon Statewide Planning Goals.

5.1 Introduction

Through out its history, Harney County's economy has been based on a strong agricultural, lumber and forest products industry. Agriculture includes livestock production, range management and crop cultivation. The "economic" beginnings of Harney County date back to the cattle ranches of the late 1800's. Later, attempts were made at "dry land" farming, but the climate proved that dry land farming and small farm operations were not profitable and resulted in the further stimulation and development of the livestock industry which is now, and will continue to be, a major factor in the economy of the county. Livestock feed production, on both base and range areas, dominates the land use pattern and will continue to do so.

One major climatic factor may have some influence over the future of the livestock industry: the potential for a drought situation, as experienced in the mid-1970's. Numbers of cattle were reduced significantly, as much as 30 percent below normal (Fall 1977). Since this area is dependent upon the cattle industry for about 80 percent of its agricultural income, the reduced figure illustrates a major negative impact on the county's agricultural related employment and economic return.

According to an "Area Manpower Review" for the fall of 1977:

> "(D)espite a significant upturn in the number of national housing starts, wood products employment in Harney County is below that ofJuly 1976. Most of the contract loggers have been laid off for extended periods of time since the first of the year. Large log inventories at the (Hines) lumber mill are cited as

the major reasons for these layoffs. Jobs in the trade and services sector have been stable over the monthsand years, an indication of an unchanging level of economic activity. A depressed cattle industry and a stable wood products industry have given these sectors little reason to expand. Drought conditions are responsible for a slowdown in tourist activities with the threat of range fires and lack of water limiting recreational use.

High fire danger did account for some increased jobs as additional personnel was hired to fight fires. Special federal programs have also helped to expand public sector employment as local and state governments hire people through the use of CETA and other federal funds.

In this rather isolated, sparsely populated county of southeasternOregon, the population is very dependent upon the wood products,government and agricultural industries. With all of these industries seasonal in nature, the county experiences high rates of unemployment during certain times of the year. With this in mind, we find that the labor pool is made up of a number of people who are seasonally unemployed. Most are of an unskilled or semi-skilled nature and often they do not seek other work outside their primary occupation."*

Table 18 shows the work force and employment trends in the various industries in Harney County for the 1970 through (November) 1978 period. That table is graphically summarized in Chart 1. As can be seen from the data available, Harney County's economy is stable with the lumber and wood products industry being the single largest consistent employer followed by government, trade and service, and miscellaneous related employment.

There was a slow but steady increase in the total civilian labor force for the 1970 - 1977 period with a slight decline in 1978. Agriculture related employment showed the greatest gain during 1978 (through November) increasing by 8.5 percent and an overall gain for the nine-year period of +1.5 percent in employment. As can be seen from Chart 1, as the agricultural employment declines, the unemployment figures rise.

(Annual Ave.) HARNEY COUNTY RESIDENT LABOR FORCE, UNEMPLOYMENT AND EMPLOYMENT 1970-1978(A)						
	1970	1971	1972	1973	1974	1975
Civilian Labor Force	3210.0	3400.0	3520.0	3590.0	3610.0	3700.0
Unemployment Percent of Labor Force	5.9	5.3	5.4	6.1	8.3	10.5
TOTAL EMPLOYMENT	3020.0	3220.0	3330.0	3370.0	3310.0	3310.0
	1976	1977	1978			
Civilian Labor Force	3750.0	3840.0	3791.0			
Unemployment	360.0	320.0	248.0			
Percent of Labor Force	9.6	8.4	6.6			
TOTAL EMPLOYMENT	3390.0	3510.0	3543.0			
(A) Includes employed and unemployed individuals 16 years and old place of residence. Data is adjustable for multiple job-holding and commu Includes non-agriculture wage and salary, self-employed, unpaid family wo domestics, agriculture and labor disputants.						
(B) Through November 1978. Due to revised estimating proce between December 1977 and January 1978, data for 1978 and that of pre years are not strictly comparable. Shown here only as an indicat employment trends.						
* Source: State of Oregon, Employment Division, Department of Human Re-sources, "Area Manpower Review - Burns (Harney County) Labor Area, Fall						

Table 18 – Harney County Resident Labor Force, Unemployment and Employment 1970-1978

(Annual Ave.) HARNEY COUNTY RESIDENT LABOR FORCE, UNEMPLOYMENT, AND EMPLOYMENT 1970-1978(A)						
	1970(A)	**1971 (A)**	**1972**	**1973**	**1974**	**1975**
Total Wage & Salary	2150	2280	2320	2390	2460	2440
Manufacturing Total	700	800	780	850	850	850
Durable Goods	700	790	780	840	840	840
Lumber & Wood	700	790	780	840	840	840
Other Durable Goo	0	0	0	0	0	0
Non-Durable Good	0	10	0	10	10	10
Food Products	0	*	0	0	0	0
Other Non-Durable Goods	0	*	0	10	10	10
	1976	**1977**	**1978**			
Total wage & Salary	2550	2600	2556			
Manufacturing Tota	910	890	852			
Durable Goods	900	880	842			
Lumber & Wood	900	880	842			
Other Durable Goo	0	0	0			
Non-Durable Good	10	10	10			
Non-manufacturing	1450	1480	1540	1540	1610	1590
Contract Construct	50	50	40	60	80	50
Transp., Comm., U	100	80	80	90	80	80
Trade	390	390	410	430	430	430
Finance, Insurance & Real Estate	60	60	60	70	80	80
Service & Misc.	230	230	240	210	210	200
Government Agriculture Related	620	670	710	680	730	750
Employment (B)	870	840	1010	980	850	870
(A) This non-agricultural wage and salary employment series is based on the 1972 SIC code structure and supersedes previous tables based on the 1967 SIC codes. Therefore, the 1970 and 197 figures are not strictly comparable, but according to the Employment Department, State of Oregon, the change in SIC coding had little effect on Harney County.						
(B) Does not include unemployment.						
(C) Includes labor disputes - 890 subtracted from wood products average (during summer 1978).						
* Not separated.						

Table 19 – Population Estimates for Harney County

Major commercial and industrial activities are centralized in the Burns/Hines urban area. The Edward Hines Lumber Mill is the largest single employer in the urban area. Much of the economy in the Burns/Hines area is dependent upon the continued stability of that mill. The service related industries; trade, finance, real estate, etc., provide support and needed goods not only for the mill-related worker but to the large agriculture community as well.

5.2 Outlook

The Burns/Hines urban area and most of Harney County can expect little change in the economic outlook over the next few years. Based on historical trends, the overall civilian labor force in all of Harney County can be expected to increase by about 2 to 2.45 percent a year. Normal seasonal patterns will occur including differing employment levels in agriculture, trade, con-struction, and government. Livestock production, timber harvesting, and weed products are the present major industries of Harney County. There appears to be various opportunities to develop certain types of recreational and tourist facilities within the county. Due to the lack of all modes of transportation, the distance to large markets, and available labor supply, it has been diffi-cult to attract new industries to Harney County. Future socio-economic growth will depend on the expansion of the agricultural and timber industries and the further development of the recreation and tourist industry, which ranks third among the major economic segments of the communi-ty.

One indicator of the dependence of Harney County on the major industry of the timber and wood products can be illustrated in the amount of "National Forest Receipts Dollars Returned to County". The table below summarizes the dollar and percentage amounts for the 1973 through 1977 period.

National Forest Receipts Dollars Returned to County

Year	Amount	From Previous Year	Percentage Change
1973	$ 722	736.24	-----
1974	913	831.21	+26.4%
1975	535	284.69	-41.4%
1976	948	837.62	, +77.3%
1977	1,505	700.72	+58.7%

The significant reductions in dollar receipts for the period between 1974 and 1975 can be directly attributable to the severe drought experienced in eastern Oregon. This one illustration demonstrates that the overall economy, and more particularly the timber and wood products and other agriculture activities, namely livestock

production, is largely dependent upon an adequate water supply. There is basically no other major industries within Harney County that could absorb a significant amount of short term or long term unemployed.

5.3 Labor Force

The available adult male labor force in the Burns/Hines area is closely aligned with the local demand. The adult female labor supply greatly exceeds the demand, as indicated in Table 15, as does the supply of youth for part time work during the school year and full time work in the summer. This indicates there is an opportunity to utilize the female labor force for future indus-trial development.

The agricultural labor force is limited and is somewhat restricted by seasonal trends. The seasonal agricultural labor force is becoming more and more limiting, thus, automation is stimulated. There continues to be a need for qualified ranch and farm management personnel as increased absentee ownership is dependent upon this technical and professional labor force. It appears that there will be an increased demand for professional ranch management in the years to come. The agricultural sector is presently improving the quality of its vocational labor force through education, incentive opportunities, tenure, and future economic growth. This attitude by ranch ownership will have a material affect on stimulating this labor force in the future.

One element of a potential expansion in the overall county economy lies in the exploration, development and extraction of mineral, geothermal, oil and gas resources. Several leases have been secured for large portions of Harney County for the possible location and development of these natural resources. With the ever increasing demands for alternative sources of energy, the geothermal, gas, and oil potential in Harney County may prove a boost to the employment segment and provide added revenues to the county. The filing of several hundred "leases" in early 1979 may signal the beginnings of resource development in Harney County, which may encourage further diversification of economy which, at this time, is overly dependent upon a small number of major industry employers.

The Ida-Ore Economic Development District, of which Harney County is a part, has recently developed an Economic Development Plan. This plan may provide some assistance to the entire district, however, it does not appear to offer any specific assistance to Harney County.

The County has taken the major step to implement this Comprehensive Plan Element by forming an Economic Development Committee. This Committee, which is comprised of members representing the County, Burns and Hines, is charged with developing a very specific plan and program to foster and guide the future development of the County. This Committee's initial work should be completed in

the near future, with a very specific plan ready for inclusion in the next Comprehensive Plan update.

Due to the inter-dependence of Burns and Hines area on the same major economic activities the overall economic goals and policies are very similar.

5.4 Regional Strategy

The Regional Strategy is a joint strategy for Harney and Lake Counties.

The Regional Strategy for Harney and Lake Counties is to support and strength-en the Secondary Wood Products industry. Secondary wood products is the region's largest industry. Secondary wood products offers the region the opportunity to experience immediate and dramatic employment opportunities. Presently, 240,000,000** board feet of timber is processed by the primary wood products sector of the region. (** Statistical Yearbook of the Western Lumber Industry, August 1988. Western Wood Productions Association, Economic Service Dept. Production data for the yearbook is developed from annual surveys of all mills in the region.) Of that figure, only 80% is exported out of the region for further processing. Expanding the product and market base, along with restoration of rail service and improvements to Highway's 31, 140, 20, 395 and 78 and increased support services will positively contribute to the economic stability of the region. The short list projects included in the Regional Strategy for Harney and Lake Counties also will have an affect on neighboring counties, thus expanding the region's economic well-being.

Support and strengthening of the secondary wood products industry is the only strategy that can be enacted by the Two County Region, which will produce significant, and immediate employment opportunities. It is projected that the implementation of this strategy and its priority projects will help create jobs that provides "family wage income" and increases the employment level in the region. These jobs will be available to all population demographics (women, varying age levels, national origin, etc.).

Short List projects include:

1. Rail Service Restoration Fund
2. Market Evaluation
3. Secondary Wood Products Market Outreach Program
4. County Partnership Program
5. Labor Force Development Plan
6. County Health Strategies Proposal
7. Regional Housing Strategy Proposal
8. Secondary Wood Products Incubator
9. Repair and Restore Highway's 20, 140, 395, 78 and 31

Economy Goal

To maintain, stabilize, and strengthen existing important sectors of the overall economy; including, but not limited to, forestry, agriculture, government, and recreation.

Economy Policies

1. Coordinate decisions concerning economic base resources in the county and to maintain an economic-environmental balance in all resource management and allocation decisions.

2. Major economic development plans should be based on the best informa-tion available and to take into account areas suitable for economic develop-ment, effects on existing economy, available resources, labor market factors, transportation, energy availability, and community livability.

3. Encourage a diversity of labor and capital intensive economic develop-ment.

4. Encourage location of major economic developments where public facil-ities and urban services can be readily provided.

5. Provide adequate protection for all existing and potential economic development areas, including areas for expansion.

6. Develop a cultural and financial climate that will encourage diver-sified residential, commercial, and industrial growth and development.

7. Harney County will work closely with the Economic Development Commit-tee, assisting in providing a reasonable plan and program for the economic growth of the County.

Chapter

6

6 Recreation

6.1 Recreation

6.2 Desert Trail

This section meets Goal 8"Recreation Needs" of the Oregon Statewide Planning Goals.

6.1 Recreation

Recreation and tourism is increasing in Harney County. Recreational activities now rank third in economic importance, behind Agriculture and Forest/Wood products.

The economic benefits of recreational activities must be balanced against the potential overuse of the natural resources involved. Harney County has many opportunities for recreational activities provided there is adequate coordination between individuals, Federal, State, County and Local jurisdictions in planning to meet the needs of the County.

A variety of recreational uses may be found in the County. Some of these include mature studies relating to wildlife, plant life, geology and related uses. Rock-hounding, artifact collecting, photography, hunting, fishing, archery, camping and hiking are other areas that bring countless numbers to the County for their outdoor experiences.

The impact of a growing recreational and tourism industry is greater than the direct expenditures made by the visitors, due to the "multiplier" effect on the local economy. Coordination between public and private recreational facilities should be encouraged to provide a balance and variety of recreational experiences. Each, however, must be carefully evaluated for its economic and ecological impact.

Table 20 lists those recreational developments as inventoried by the Soil Conservation Service.

The Oregon Department of Transportation, Parks and Recreation Branch, has, through extensive research and analysis, made certain recommendations concerning certain recreational deficiencies that might occur throughout the State, and in particular, as here applied, in Harney County.

INVENTORY OF RECREATIONAL DEVELOPMENTS IN HARNEY COUNTY						
Name	**Water**	**Toilets**	**Picnic Sites**	**Overnight Sites**	**Activities**	**Remarks**
Anderson Park					SW	Pool, Tennis
Camper Corral	X	X	X	X	F-G-H-V	Electricity, Private Pond
Page Spring	X	X	X	X	F-G-H-V	
Fish Lake	X	X	X	X	B-G-F-L-V-SW	No motors allowed
Jackman Park	X	X	X	X	G-V	
Blitzen Crossing		X	X	X	F-G-V	
Krumbo		X	X		B-G-F-L	No motors allowed
Malheur Environmental Field Station	X	X		X	G-H	Electricity, Dormitory
Yellowjacket Reservoir	X	X	X	X	B-F	
Sands	X	X		X	SW	Pool
Valley Golf Course	X	X				Golf Course
Hines City Park	X	X				Playground facilities
Washington Park	X	X				Playground facilities
Davidson Park	X	X	X			
Village Trailer Park	X	X	X			Electricity
Sage Hen	X	X	X			State safety rest area
Delintment Lake	X	X	X	X	B-F-L-SW	Forest Service Campground
Joaquin Miller	X	X	X	X		Forest Service Campground
Veteran's Memorial Field						Ballfield
Filmore Park						
Buchanan Spring	X	X	X		G-H-V	
Buchanan Thunder Egg Beds					G	Rockhounding
Altnow Pond					B-F-L-SW	Warm Water Fishing
Chickahominy Reservoir	X	X	X	X	F-WS	

Activities: B - Boating; F - Fishing; G - Geology; H - History; L - Lake; V - Scenic; SW - Swimming; WS - Water Skiing

Table 20 – Inventory of Recreational Developments in Harney County

Below are the needs as developed by the ODOT, Parks and Recreational Branch for Harney County and some of the generalized standards cited by the ODOT. (The standards that accompany the different facilities represent a consensus of opinion, in many cases, and are not intended to be binding on any one particular recreational development in Harney County).

6.1.1 Needs for Harney County

1. Campsites near communities.

Campsites

a. Family Campground

- 4-11 camp units per net useable acre, 1 fireplace and 1 picnic table per unit
- 2,500 - 3,000 square feet per site
- 80 feet center to center minimum
- 10 acres per 1,000 population
- 300 activity days annually per unit


Campgrounds

b. Croup Camps

- 3 acres per 50 persons for short periods and would include 25 autos
- 700 activity days annually per acre

c. Organizational Camps

- Should be in a completely separated area Large campgrounds should have a number in integrated independent sections
- 5 acres per 100 persons (which would include development of permanent facilities and structures for eating and sleeping)
- Parking - 50 car minimum
- 700 activity days annually per acre

d. Camping for the Disabled

- Little change from the normal facilities to adapt for the disabled
- Campsites in a cluster including a comfort station and washhouse 300 feet or less from each site
- Walks - hard surface and non-slip

Campsites Near Communities In Harney County					
			Net Needed By		
Unit	Current Supply	Gross Need	1975	1980	1990
Site	321	226	(95)	(68)	(5)

Table 21 – Campsites Near Communities In Harney County

2. Maintenance and operation funds

3. Public outdoor pools

- Pool/1,000 population. The largest population is concentrated in the Burns/Hines urban area.

Public Outdoor Pools Needed In Harney County					
			Net Needed By		
Unit	Current Supply	Gross Need	1975	1980	1990
Pool	1	2	0	1	1

Table 22 – Public Outdoor Pools Needed In Harney COunty

4. Bike Trails

Bicycle Trails

- Generally, a bicycle trail would have the same construction standards 5 - 5 mile trails in considered short would normal1y take 25 minutes or less.
- Trails of considerable length need a certain amount of variety to maintain interest.
- A desirable width is 8 ft. for a two-way path.
- If trail parallels sidewalks - should be 2 ft. in width (one on each side)as for a light-duty road, service road and sidewalks
- Maximum grade - 6%
  - Minimum vertical clearance - 8 ft.
- Should have overnight facilities at reasonable intervals on long trails
- When the trails are constructed with a road, the road should have 2 - ten foot motor vehicle lanes plus a four foot lane for the bikes on each side; - Bi-directional on-street lanes should be avoided.

During the improvement of US 20/395 between Hines and Burns, there was a bike path built and designated. Due to the sparse population of Harney County, bicycle paths used for urban travel may be somewhat impractical in other areas outside of the Burns/Hines urban area.

Bike Trails In Harney County					
	Current	Gross	Net Needed By		
Unit	Supply	Need	1975	1980	1990
Mile	2	2	0	0	0

Table 23 – Bike Trails In Harney County

5. Ballfields

- Ballfields include baseball, softball, football, Rugby and soccer fields.

Ballfield Needs In Harney County					
	Current	Gross	Net Needed By		
Unit	Supply	Need	1975	1980	1990
Field	5	3	2	2	2

Table 24 – Ballfield Needs In Harney County

6. All Purpose Courts

- All purpose courts - 1 court/2,500 population includes Basketball, Volleyball, Badminton, etc.

All Purpose Courts Needs In Harney County					
	Current	Gross	Net Needed By		
Unit	Supply	Need	1975	1980	1990
Court	2	3	1	1	1

Table 25 – All Purpose Courts Needs

7. Golf Course

- 9 - hole course
- 50 - 80 acres Course per 25,000 - 27,000 persons

Golf Course Needs In Harney County					
			Net Needed By		
Unit	Current Supply	Gross Need	1975	1980	1990
Holes	9	9	0	0	0

Table 26 – Golf Course Needs

8. Tennis Courts

- Recent completion of I additional court.
- Court/2,500 population

Tennis Courts Needs In Harney County					
			Net Needed By		
Unit	Current Supply	Gross Need	1975	1980	1990
Court	3	3	0	0	0

Table 27 – Tennis Courts Needs In Harney County

9. Community Parks

- Community Park - 10 acres/1,000 population
- - 2 miles walking distance
- Serves 15,000 - 40,000 population. Can be up to 15 - 25 acres in size

Community Parks Needs In Harney County					
			Net Needed By		
Unit	Current Supply	Gross Need	1975	1980	1990
Acres	39.54	73	73	74	80
	(Fairgrounds)				

Table 28 – Community Parks Needs In Harney COunty

6.1.2 Other Recreational Needs

There are other needs identified by the residents of Harney County not expressed in the State Needs Identification process. They are listed here for information.

1. Winter Recreational Facilities Ski Slopes

- Within 100 miles of a metropolitan area
- 1 acre if ski slope for 20 - 30 skiers
- 7 acres developed and 3 buffer per 100 users
- Average skier should have 12,000 vertical feet of skiing per day
- Minimum width of slope - 110 - 250 feet
- Parking - 100 cars/acre
- Minimum size of area - 80 acres

Snowmobile Areas

- Cross-country ski course

2. Rifle Range

- Target area should be protected, preferably by natural embankments
- If land is level, adequate banks of soil can be constructed that will reinforce other types of backstops used
- Desirable to have a good-sized area with plenty of unused space behind the targets
- 50 ft. range is sufficient for most instructional and recreational programs, since the .211 caliber rifle will be used in most instances

3. Skeet Shooting

- Standards outlined by organizations in such recreational activities should be consulted, such as the National Rifle Association

4. Archery Range

- Sited on fairly level land, free from obstructions
- Sheltered from high winds
- Oriented in direction of prevailing winds
- Shooting line should be fixed
- Targets set at 10 yd. intervals (distance)
- 15 ft. between targets
- 30 ft. clearance on outside targets

- Target mounted on a round butt of spirally sewn straw or rush supported by a softwood target stand

5. Ice/Roller Rinks General Purpose

- Outdoor or indoor (ice)
- 85' X 185' surrounded by dasher boards - minimum
- Warming house facilities (ice)
- Area per skater - 30 square feet

Ice Hockey

- 85' X 200' optimum size
- Outdoor or indoor

Off road use is another favorite of many individuals.

6.2 Desert Trail

Public Law 90-543, as amended by Public Law 94-527, directed the Secretary of the Interior to evaluate the feasibility and desirability (or lack thereof) of designating a "Desert Trail," extending from the Canadian border through parts of Idaho, Washington, Oregon, Nevada, California, and Arizona, to the Mexican border. This is one of 22 potential National Scenic Trails designated for study by the Act. If a Desert Trail was to be established, it would become part of an enlarged National Trails System which now includes the Appalachian Trail and Pacific Crest National Scenic Trail.

National Scenic Trails should have the following characteristics:

1. The scenic and recreational qualities of the area through which the Trail passes should be sufficiently outstanding to attract visitation from throughout the United States.

2. The Trail should be a major recreation focal point and rank high in overall national priorities in terms of recreation use.

3. The Trail should cross two or more states and be several hundred miles in length or longer.

4. The Trail should be continuous throughout most of its length and primarily land based.

Map 9 –Harney County, Desert Trail

Oregon Task Force

The Oregon Task Force developed two basic alignments, which could be implemented separately if combined in a variety of ways.

East face of the Steens Mountain overlooking Alvord Valley

6.2.1 Steens Mountain Route

The first alignment is the basic route developed and promoted by the Desert Trail Association. The route would originate (or end) at Denio on the Nevada border, traverse the remote and scenic

Pueblo Mountains and continue on to the small town of Fields before ascending Steens Mountain. This massive fault block, reaching elevations of nearly 10,000 feet, provides both dramatic scenery and opportunities for experiencing a variety of biological phenomena in the several vegetative belts. An alternative to ascending Steens Mountain at Fields would be to continue the Trail to the east of Alvord Lake, skirting the western margin of a portion of Alvord Desert and ascending the Mountain's east face in the vicinity of Serrano Point. This route would provide the Trail user with an opportunity to experience the starkness of the Alvord Desert and would also avoid the extensive privately owned lands on the south end of the mountain. From the top of Steens Mountain, the Trail would drop to the east via one of several possible routes and then traverse the eastern boundary of the Malheur NWR before reaching the recent lava flows of the Diamond Craters areas.

The route across Steens Mountain and adjacent to the Malheur NWR presents some significant environmental conflicts. Steens Mountain, being a unique feature and a highly attractive recreation resource, has in past years attracted more and more recreationists of all sorts. The level of use has grown to the extent that the Bureau of Land Management's prime management objective, maintenance of the mountain's natural environment, may be threatened without considerably augmented management of the area. Concern was expressed by some of the Task Force membership regarding the capability of the area to sustain the additional use resulting from National Scenic Trail designation, even assuming enhanced BLM capability to manage the area. Specific areas of concern center around the erodability of solid, several rare endemic plant species, bighorn sheep, and the Red-banded trout population in Blitzen Gorge.

Routing of the Trail in the vicinity of the Malheur NWR may detract from the effective management of the refuge. The presence of the Trail users in the area may be disruptive to the many waterfowl species by the refuge.

From Diamond Craters, the Trail would be routed east across Riddle Mountain, then north to the vicinity of Malheur Cave, an interesting lava tube formation. Continuing north, the Trail would cross the Malheur River upstream of Warm Springs Reservoir, a popular and productive fishing spot, then turn east to parallel the Malheur River and the historic Meek's cutoff of the Oregon Trail for several miles. There are significant amounts of quality canyon land scenery in this reach, coupled with opportunities for rock and mineral collection and observation of big-game species such as antelope and mule deer. Leaving the vicinity of the Malheur River, the route drops southeast to cross Owyhee Dam, a point of interest in itself since it served as a prototype to Hoover Dam when it was constructed in the mid-1920's. Continuing to the Idaho border, the route passes deeply, incised canyon of Succor Creek and the Succor Creek State Recreation Area.

6.2.2 The Sheepshead Mountain Route

The second alignment is identical to the first in the reach from Denio to Fields. From Fields, the route passes either to the west or east of the Alvord Desert (or crosses a portion of the Desert. The western option follows generally the west margin of the Alvord Desert, then holds to the foot of Steens Mountain before reaching Mann Lake, an area popular with fisherman and campers, from Mann Lake, the Trail moves east for several miles to a junction with the eastern option.

The eastern option skirts the east margin of the Alvord Desert, affording striking cross-desert views of Steens Mountain. Passing near Mickey Hot Springs, a significant scientific study area and archeological site, the Trail continues north to the junction with the western option.

A major conflict associated with the Trail routes in the Alvord Desert area is the potential for geothermal development. While the timing of such development is unknown and may never occur, the type of geothermal development currently in use in other areas would provide a significant visual intrusion for the Trail user.

From the junction point, the Trail would continue northeast to ascend and traverse the ridgeline of the Sheepshead Mountains. These mountains, remote and little used by recreationists, would offer the Trail user both high-desert scenery and a wilderness escape from the more heavily used areas. Continuing east to the south of Saddle Butte and passing near Cedar Mountain, the Trail user would be passing through many miles of extremely remote and isolated country. After Cedar Mountain, the route would pass the formations of Red Butte and then parallel Lake Owyhee all the way to the dam. While Lake Owyhee is not a natural feature, the interface of its water with the surrounding dry desert country would be an important esthetic asset of the segment. At the dam, the route would connect with the Steens Mountain Route and continue to the Idaho border.

6.2.3 Combination Possibilities

Both primary routes offer advantages. The Steens Mountain route provides an opportunity to experience the high elevation environment of Steens Mountain, unlike any other part of eastern Oregon. The Sheepshead Mountain alternative on the other hand, offers opportunities for access to the wilderness character of some very little utilized high-desert, as well as an assortment of esthetically satisfying features. The Task Force discussed the possibility of having both a summer and winter route; the high elevation Steens Mountain route, closed for much of the year by heavy snow, would offer an ideal location for midsummer Trail use, while the Sheepshead Mountain route would provide opportunities for nearly year-round use. The routes could be combined either by including both in their entirety or by combining portions of the routes in various ways.

In addition to the above mentioned trail possibilities as part of the proposed "Oregon Recreation Trails System," a connecting trail segment from the proposed "Desert Trail" to the "Pacific Crest Trail" would extend west across southern Harney County. The results of meetings in Oregon, as reported by the Regional Director of the Western Region of the U. S. Department of the Interior, National Park Service.

"Oregon - Many of the comments on Oregon routes centered on the Steens Mountain route. Those who favor routing the Trail across the Steens, a majority of the respondents, feel that this feature would be a key element of any Desert Trail. Those who oppose this route feel that the Desert Trail designation would only make things worse from the environmental protection standpoint. Many contributors liked the idea of a winter and summer trail incorporating both the Steens Mountain and the Sheepshead Mountain routes. Departing from the Task Force alignments presented in the(Public Response) booklet, several suggestions were made for incorporating the Old State Road trace which extends from the Sheepshead Mountains across the northern end of Steens Mountain toward Malheur Cave. A number of respondents also expressed interest in extending the Trail north through Hell's Canyon and on to Canada via east Washington or west Idaho. The suggestion was also made that side trails be included connecting the Desert Trail with both the Blue Mountain Trail and the Pacific Crest Trail. This latter trail would extend from Fields west through Fremont National Forest, meeting the Pacific Crest Trail in the Winema National Forest.."

6.2.4 Discussion

The Desert Trail concept, as proposed by the Department of the Interior, was the subject of discussions during the formulation of the Harney County Comprehensive Plan. The "ad-hoc" committee on Goals 5 & 8 (Open Spaces, Scenic and Historic Areas, and Natural Resources; and Recreational Needs) voiced concerns over the design of the Trail, what facilities were to be provided, and the alignment of the Trail. The latter received much criticism in that there appeared to be no way to guarantee that the Trail would remain totally within the confines of publicly owned property. The overall opinion and recommendation of the committee involved in the review of the proposed "Desert Trail", as part of the Harney County Comprehensive Plan planning process under Goal 8, was that such a Trail was "inappropriate" at this time.

It should be noted, however, that representatives from pro-Desert Trail organizations were not at those "ad-hoc" Goal 5 & 8 Committee meetings, At subsequent meetings with the Harney County Planning Commission, at which time the report of the "ad-hoc" committee was accepted, representatives of pro-Desert Trail organizations were present to voice objections to the recommended policy as proposed by the "ad-hoc" committee. General consensus of the Planning Commission was that the policy recommended by the "Goal 5 & 8 Committee" regarding the "Desert Trail" proposal remain and form the basis for future review.

Some small segments of the proposed Trail have been completed. All of the completed sections are located on federal lands and are protected by federal standards.

Recreation Goal

It shall be the goal of Harney County to satisfy the recreational needs of the citizens of Harney County, the citizens of the State of Oregon and other visitors as much as financial, physical and human resources will allow.

Recreation Sub goals

1. To recognize the needs and desires of the county's residents for park and recreational facilities and programs.

2. To identify, preserve and protect areas of natural scenic importance for their contributions that are unique to Harney County, by applying the applicable steps in OAR 660-16-000.

3. To encourage those recreational activities that are of economic value to the county while maintaining a balance between public and private interests.

4. To maximize existing publicly owned land (Federal, State, County, City) in recreational development.

5. To provide for the unique recreational needs of the young, elderly and the handicapped.

6. To recognize and provide for special use areas and facilities not normally found in urban parks.

7. To optimize use of available public funds.

It is recognized that Harney County differs from many other Counties in Oregon in that it does not have a large urban population concentration and hence, an extensive urban park system does not exist at this time. Harney County has other recreational opportunities through the vast open spaces that characterize much of eastern Oregon.

Recreation Policies

1. The County strongly discourages land transferred from private to public ownership without prior approval of the Harney County Planning Commission and the County Court.

2. Recreational site development shall take into account access, topographic and physical features, water areas, wooded areas, etc.

3. Whenever possible, public agencies should consider leasing land to private enterprise for public uses which are compatible with the area and open for the benefit of the public.

4. Recreational sites should be developed only after consultation with appropriate public agencies to avoid conflicts with existing natural resources.

5. Where appropriate, drinking water, restrooms, sanitation facilities, and trash disposal/collection should be provided. Oregon State Health Department sanitation requirements shall be met.

6. Facilities within a recreational development site may be adjusted to meet the needs of an area respective of the character of the site and other natural resources.

7. A variety of camping experiences should be provided, from the primitive campground to improved facilities.

8. The Desert Trail (proposed route), and the Pacific Crest to Desert Trail (proposed southern route), shall be reviewed by the planning commission at a later date for compatibility and desirability of concept and design working with the Oregon Department of Transportation. The applicable steps in OAR 660-16-000 shall be applied as necessary.

9. The completed portion of the Desert Trail Route shall be preserved and protected in accordance with its 3A designation.

10. Harney County, in cooperation with other jurisdictions should designate specific sites and/or areas for Off-Road Vehicles. Such areas should be designated only after review under the Conditional Use procedure.

Chapter

7

7 Land Use

This section meets Goal 3 "Agriculture Lands", Goal 4 "Forest Lands", Goal 10 "Housing" and Goal 14 "Urbanization" of the Oregon Statewide Planning Goals.

7.1 Indian Lands

7.1.1 Historical Background of the Burns Paiute Indian Tribe

1. Malheur Paiute Indian Tribe

The Malheur Paiute tribe was the only tribe to make the Harney Basin its home before the settlers came. The band camped around Harney and Malheur lakes, in the Steens and Strawberry Mountains and west to Glass Butte.

There was a great nation of Paiutes before the coming of the white men. Every spring and summer they all gathered in the Harney Lake region to harvest the little

black seed known as “Wada”. This gave the name of “Wada Dikaa” to the band of Paiutes who lived in this location. The Indians freely roamed this county in a seasonal cycle to gather their food for winter. They gathered huckleberries in the Blue Mountains and fished for salmon in the middle fork of the Malheur River. Roots, seeds and nuts were harvested in the hills and desert.

As more and more settlers moved into the area, Paiutes started moving away from the valley and the strangers who had come there to the mountains and caves. They were in bands under four chiefs: Egan, Oits, Leggings and We-Wah We-Wah. Their numbers were great.

A fort was started at the mouth of Rattlesnake Creek in January 1876. Many soldiers came to Harney Basin and still more settlers came. Indians were pushed aside as the land, which was given to them by the Great Spirit, was taken by the white settlers. Some of the soldiers were staking out the Indian villages and wiping out entire bands in their sleep because they protested the treatment of their land – land that they had roamed freely all of their lives. Some managed to escape to safety as news of the killing was heard. Indians started to band together because they knew that one day they would have to fight for their land.

Oits, who was a medicine man, tried to get the people to settle down in peace with their brothers when they formed the Malheur Reservation in September 1872. An executive order set apart the Malheur Indian Reservation “for all the roving and straggling bands in eastern and southeastern Oregon which can be induced to settle there.” The reserve was the region drained by the three forks of the Malheur River, and area of about 2,285 square miles. The agency was to be located south of Castle Rock on the eastern limits. The Silvies River was the western boundary and Strawberry Butte was the northern boundary.

Indians used to bathe in the hot springs near the Agency. During the winter, the people lived in the lowlands. Some buildings were erected at the Agency, but use was discontinued due to lack of funds. Some years later a school was built for Indian children to learn the ways of farming and digging ditches to irrigate crops, but life was still not happy. Happiness to the Indian is doing and going about their way as did their ancestors.

There were 800 Indians recorded at the Agency in 1875. During this time, there were still some Indians living out in the hills, who just went about their business of living, trying to hide from the Calvary. One day a group of men had gone into the forest to hunt deer, upon their return they found their village was being destroyed by soldiers. A spark of revolt was felt.

Then came the Bannocks on their trail of destroying ranches and people on their way from the Idaho border to what is now known as Drewsey, Frenchglen and Diamond. Then they went north to Silver Creek where they engaged in battle with the soldiers from Camp Harney. The ones who escaped rode north into Umatilla

country to join with Indians there. The Calvary was still chasing them. Egan, who had been an interpreter for the white man, was a peaceful man who had joined the battle because this was his land. He was killed near Emigrant Springs by a Umatilla Indian and some soldiers. His head was brought into an Army camp for identification. With most of their people gone due to the battle, Chief Oits and his followers surrendered at the Malheur Agency in August 1876.

In November 1878 General Howard received definite word from the government authorities to disperse 543 prisoners, who were at Camp Harney, to other areas as punishment. They were prepared for the trip north at Camp Harney. Men were shackled together by a chain with a steel ball in the middle, two by two; women and children were allowed to ride in the wagons, but the men walked all the way.
In January of 1879 the trip began for the Paiutes. Some of the men were taken straight to Fort Vancouver, Chief Oits was one of them. Women and children were shipped to Yakima where they lived with strange Indians unknown to them. They lived there for about five years although some of the Paiutes drifted back to the Harney Basin.

Chief Oits was put on trial in Vancouver for his part in the Bannock War. As he was questioned, he said in his native tongue, “Do what you will with my body, because I will return and show you a much greater battle. More blood will be spilled.” He was in prison until sometime later and when he was released he vowed never to return to the land where he had spilled his blood, he settled with the Warm Springs Tribe.

News came from Sarah Winnemucca, daughter of Chief Winnemucca of Nevada, that each Indian was to be given 160 acres upon his return to the Harney Valley in return for the reservation, which was already in public domain. Many of the Indian people walked back to their home – the Harney Basin. Some didn’t trust the ways of the white man so they stayed, and therefore lost their 160 acres.

Some of the Paiutes went past Harney Valley to settle in Nevada, hoping that their relatives would follow. But some believed as one man, who said, “My people fought hard for this land, I would never leave it, for the earth was my mother and wind was my brother.”

2. Burns Paiute Indian Tribe

The story of the Burns Paiute Indian tribe during the past century is the story of a displaced people who tenaciously insisted on returning to and continuing to live in their homeland – Harney Valley. Because of the dedication, resolve and perseverance of the modern-day leaders of this group of people, a course of community development is being forged by the 250 residents of the Burns Paiute Indian Reservation.

In the 1880’s, as the Burns Paiutes returned to their homeland from the reservations where they had been taken after the Bannock Indian uprising in 1878, they became

a people without a place. Settlers had claimed much of the land where they camped and gathered food. They had no reservation. They were not recognized as a tribe. They had no standing. The little bit of land that had been given to some had no value for producing food.

As years passed, the federal government provided housing for the people – first in 1924 when Army tents were sent to Old Camp near the dump on the hill just west of Burns; then a year or two later twenty two-room houses were built.

Children were sent to Fort Bidwell, California or Warm Springs to go to school. In the 1930's and 1940's houses, a school and a church were built northwest of Burns along the Silvies River. The school burned down and the church, once served by the Catholics, is now a non-denominational group served by members of the tribe. In 1948 the children began to go to public school in Burns.

As wards of the government without tribal standing, it was impossible to take advantage of the federal programs available to other tribes. A concentrated effort during the 1960's succeeded in winning tribal status for the Burns Paiutes in 1968 and in 1972 the 760-acre reservation was established. Funding was obtained for construction of new homes, a community center and administration building, and other tribal buildings.

7.1.2 General Provisions

There is a significant amount of land within Harney County and the City of Burns that is owned by Native American Indians. There are basically two classifications of land; the Burns Paiute Indian Reservation (Indian Trust Lands exempt from property tax), and corporately owned lands (Fee Land subject to property tax). These lands form a significant portion of Harney County and should be included in its Plan effort.

The Burns Paiute Indian Reservation is located at the northern portion of the City of Burns. Part of the reservation is within the city limits and part without. The portion within the city limits is almost totally dedicated to cultivation and rangeland. The county portion also includes cultivation and range, but also includes the reservation community center. The reservation, working through the Bureau of Indian Affairs, has prepared a Comprehensive Master Development Plan. It includes the basic philosophy of removing the Indian village from the cultivation and moving it on top of the ridge to the village's west. Already, there is an extensive area of single-family development on top of the ridge. By moving the entire developed portion of the reservation to the marginal agricultural lands, the lower areas can be returned to productive agricultural use bringing a greater economic return to the tribe.

The overall Land Use Plan includes the development of small industrial, commercial, and residential use in a planned unit development fashion. Adequate housing is

being proposed to meet the needs of the tribe members rather than having many of the tribe members living within Burns.

The reservation currently has sewer service from the City of Burns, which will probably continue in the future. Police services are provided internally, however, there is an arrangement where the Burns police can provide back-up service.

The second kind of Indian land is the corporately owned parcels that are jointly owned by many Indian families and administered by the Bureau of Indian Affairs. There are over 11,000 acres of corporately owned lands spread throughout the county, but with the highest density in the cultivation areas east of Burns and Hines (See Map 10). These lands fall under the jurisdiction of the Bureau of Indian Affairs. Virtually all the lands are put to some type of agricultural use at this time and are designated for agricultural use in this Comprehensive Plan.

Indian lands are not subject to local jurisdiction zoning regulations. Therefore, the Paiute tribe and the Bureau of Indian Affairs can determine the land use future for either the reservation land or the privately owned lands. This may conflict directly with the County's and City's Comprehensive Plan efforts and designation for these lands. However, the BIA and the tribe have indicated a willingness to work with the county and city in a spirit of mutual cooperation and communication to try to assist each other in meeting needs and in minimizing conflicts.

Indian Lands Policies

Harney County will keep an open line of communication with the Paiute Indian Tribe and the Bureau of Indian Affairs to exchange ideas, views, and future plans of Indian owned lands.

Map 10 – Burns Paiute Indian Lands

7.2 Urbanization

7.2.1 Historical Background of Burns and Hines

1. City of Burns

Beginning about 1870 people started coming into the Harney Basin. At first it was the cattlemen like Frank McLeod and John Devine, horsemen like Thomas Whiting and pioneers such as Mace, Smyth, Witzel, Curry and King. When a number of rural people had accumulated in the area around what was to become the City of Burns, they were followed by merchants and shopkeepers to supply their needs. A.I. "Broady" Johnson and John Robinson erected the first hotel in 1881. Then Johnson opened a saloon nearby, sometime later Wash Smelser opened a tavern and Mrs. M.A. Fry was providing meals for travelers as early as 1881.

A school was established at Miller's Cove in 1884 and children began regular attendance under teacher E.W. Nevius. Many children rode horses to school.

W.C. Byrd and Martin Brenton established a livery stable, which Benton and Cal Geer would later operate as the White Front Livery Stable.

Broady Johnson quit his blacksmith business in Harney City and moved it to Burns. John Robinson opened a barber shop in 1881. George and Mary Jane McGowan moved to Burns in 1882. George was an educated merchant who went into partnership with Peter Stenger, together they built a large store near the Stenger home in 1883, which became a harbinger of the growth of Burns and the decline of near-by Egan.

A post office was established in January 1884. George McGowan was appointed postmaster. He named the town for Robert Burns, the renowned poet of his homeland – Scotland.

Along with the growth of population came problems of law and attorneys Captain A.W. Waters and George Sizemore came to town to practice law. Merchant Nathan Brown and his two sons, Ben and Leon, arrived to set up business. W.C. Byrd and his two sons, Charles and Julian, also settled in Burns and their family was to figure prominently in the growth of the town and the newspaper business in the community.

Mr. and Mrs. Louis Racine opened the French Hotel (named after their nationality), W.E. Grace and Horace A. Dillard came from Prineville. Grace opened a drug store and Dillard established the *Harney Valley Items* in 1885, the first newspaper in the region. By 1886, two physicians, Dr. T.V.B. Embree and Dr. Samuel B. McPheeters, were practicing in and around Burns. Dr. W.L. Marsden and Dr. J.W. Geary would come to town in 1898.

Burns had now become a town, which would provide almost anything that the community needed. A town government was established in 1889. The first mayor was W.E. Grace, who established the newspaper the *East Oregon Herald* in 1887. The date of February 18, 1891 is recognized as the official date of incorporation for Burns, although a slate of officers and councilmen had been in office for two years by that time.

In 1889 the southern 10,000 square miles of massive Grant County was separated and reorganized as Harney County. A year later Burns became the county seat and a courthouse was erected. The first Harney County taxes were collected in 1893.

There was always something going on to entertain early-day residents of Harney County. There was theatrical troupe, a roller skating rink, a pool table and frequent dances. In the days before fences, a few sportsmen owned long-legged greyhound dogs or wolfhounds, which were used to hunt coyotes by running them down. High-spirited horsemen would sometimes show off their skills by roping deer. Occasionally the community would organize rabbit drives in an attempt to lessen that troublesome scourge.

The women of Burns were always engaged in social activities such as quilting or church socials. Women's organizations such as the Rebekahs and Eastern Star and the men's fraternal organization from which they developed, Odd Fellows and the Masonic orders, were organized in Burns almost as soon as there were inhabitants. Men wanted places to meet, socialize, drink and gamble. Numerous saloons provided the entertainment they wanted. Workers and employers used barrooms as hiring halls.

When smallpox raged throughout the country authorities tried to protect people by extraordinary means. A special meeting of the Burns City Council was called on June 19, 1894 and Quarantine Ordinance No. 36 "…prevented all parties coming from Lakeview and California from passing through town unless a clean bill of health can be produced." Councilmen Brenton and Fry were appointed watchmen to enforce the quarantine, which was lifted on July 3, 1894.

By 1895 the population of Harney County was 2,500; 500 people resided in Burns. The town had four sawmills, a shingle mill and two flour mills. The courthouse was completed that year also.

Firefighting and prevention came before the city council at a special meeting in 1894. The council decided that four water wells would be dug on north Main Street and two on "B" Street; each well would be 8 by 10 feet and contain five feet of water. A fire engine was purchased for $1,200.00 in 1896. The wells were located in the middle of the street, and the fire engine was able to pump water from these wells to fight fires. In spite of these precautions the town was to suffer several devastating fires.

Each residence had either an Armstrong suction pump or a windmill to draw water for household use. Large, round galvanized tubs along with oblong copper boilers hung on the outside wall of each residence, along with washboards. Water for the family wash or Saturday night baths was sometimes heated on outdoor fires and each residence had an outhouse. Almost every family raised some kind of livestock on their house lot, generally chickens.

All of the business places in town had board sidewalks in front of them. The unpaved main street consisted of equal parts of alkali, dust and pulverized horse manure, which was raised and sifted into the buildings by strong summer winds and turned into a slick, gooey mess in the rain.

There was little knowledge received about the outside world and the citizens were not very interested in what was received. They had more serious concerns – the personal tasks of surviving in a land that was isolated from the mainstream of the population.

2. City of Hines

Construction of the Edward Hines Lumber Company sawmill began in 1929 at the site of the warm springs three miles south of Burns. It was to be the largest undercover sawmill in the world. Many homes would be needed to house the workers about to settle in the area.

The developing company, Stafford, Derbes and Roy, was hired to build the “greater Burns subdivision” that was to become Hines. Stafford, Derbes and Roy purchased 2,000 acres south of Burns and north of the sawmill site. The development was advertised, “The greater Burns development in the great Harney Valley is Oregon’s first made-to-order community and one of the first scientifically planned cities undertaken in America.” The planning was exhaustive and thorough. For example: all properties surrounding the townsite were owned by Stafford, Derbes and Roy, thus preventing construction of unsightly dwellings on the outskirts of town, which would have detracted from real estate values. Also, the new city was zoned into residential and business areas prior to any construction.

In 1929, Edward Hines ordered the first 150 homes built for his employees, who would arrive within a year. He also assisted in the design of the new city. The heart of town was to be a large circular park, so families could gather in the evening to visit while the children played. One block around the perimeter of the park was zoned for businesses only, the streets beyond the commercial area were all zoned residential.

Mrs. Edward Hines helped design the homes. She had observed other mill townsites where every house was identical and she stipulated that some 68 architectural designs were to be used in Hines. No two homes of the same design were to be built

side by side; nor were any two adjacent homes to use the same color of exterior paint.

Investors from Portland announced the construction of the Ponderosa Hotel overlooking the park. Construction began October 20, 1929 on the 100 by 90 foot hotel. However, business conditions worsened across the nation and although the economic climate was improving for the local area, the hotel project was abandoned for lack of funds to complete it. A local resident began to turn the old skeleton of a building into apartments in the 1970's.

In 1930, the Burns Mercantile Company opened on Circle Drive with E.J. Brown of Payette, Idaho as the manager of the grocery and general merchandise store. By the spring of 1930 grass was growing in the new park. The new Hines mill cut its first log in January, and new employees were moving into the homes. On March 14, 1930 the Burns City Council met to consider annexation of the Burns subdivision. Stafford, Derbes and Roy had invested $1 million in the construction of the city. They offered to sell the subdivision to the city of Burns. The City was unable to raise the money, so residents of the subdivision decided to purchase the water system, the parks and street developments. They formed their own city government and sold municipal bonds to make the purchase.

On May 16, 1930 with a unanimous vote, the residents chose to incorporate as the City of Hines. Later in the summer it was discovered that several votes had been cast by people who did not meet residency requirements and could not legally vote. A special election was held December 6, 1930 to correct the previous error.

The first officers elected were: C.J.Pettibone, mayor; Fred Potter, recorder; E.E. Kalk, treasurer; Harold Whitten, marshal and George Butler, Earl Sloan, Louis Gerrias, E.C. Hawkins, Tom Jamieson and Claude Shirley, councilmen.

A schoolhouse was completed in 1930 on land donated by Stafford, Derbes and Roy. The new Sagehen School, later know as Hines Elementary School, replaced a two room school previously attended by community children.
On June 6, 1931 the school board announced that H.R. Anderson was to be the principal of the Hines school. He served in this position for many years. Enrollment for the eight grades was 87 students for the school year beginning in September 1931. The population of Hines was 217 in 1930; by 1940 the population was 677.

When the new mill began operating in 1930, it worked irregularly, but the semi-monthly paychecks were very welcome in the days of the Great Depression. Families were living on less than $20 a week. The mill furnished electricity for both Burns and Hines at low rates. Slab wood and planer ends, scrap lumber, cost less than $3 a load, so people used wood stoves for cooking and wood furnaces for heat.

Hines had a marshal for police protection. The fire department was furnished by the mill, the men would come from the mill with a fire hose wagon, hook up to a hydrant

and fight the fire. A volunteer fire department was founded in the late 1930's. A swimming pool was built in 1935 south of the mill log pond. With the cooperation of both Burns and Hines, raffle tickets were sold to finance the project. A 50 X 100 foot wooden swimming pool was constructed. The water came from artesian springs at a temperature of 68 degrees summer and winter.

For ten to 15 years most of the residents of Hines continued to be employees of Edward Hines Lumber Company. In the late 1940's this began to change, but Hines as remained primarily a residential community.

The sewer system was constructed in 1954 and the town began to pave streets that had previously been dirt and red cinder. During the 1960's the Pleasant Valley, John Wood and Jones additions, and the Bushman Tract were added to the town.

The district offices of the Oregon Fish and Wildlife Department and the district offices of the Ochoco and Malheur national forests are now within the city limits of Hines. The Valley Golf Club was built during the 1950's on the northeast side of town. A police force replaced the marshal when the population grew to the point where a full police force was needed. The new city hall was built in 1979 in a section of the park.

By 1980 Hines' population had grown to 1,692. Changes in policy by Edward Hines Lumber Company in 1981 brought the closure, modernization of the mill and its sale to Snow Mountain Pine Company in 1983. The Hines sawmill and manufacturing plants had once employed about 1,000 people. Snow Mountain Pine eventually sold to Tecton Laminates who in turn sold to Louisiana Pacific. Louisiana Pacific is operating in 2001on a much smaller scale than Hines Lumber did.

The population of Hines in 2001 was 1,575.

7.2.2 Burns and Hines Urban Growth Boundaries

Harney County has actively participated in the urban growth planning efforts of the Cities of Burns and Hines. Members of the Planning Commission worked with City Planning Commission members on the Burns/Hines/Harney Urbanization Committee. The results of the Committee's work was a document carefully analyzing the growth demands and opportunities for the County's major urban area and set goals, policies, and specific recommendations for managing this area.

The primary result of the Committee's work was the setting of Urban Growth Boundaries around the Cities. These boundaries will serve as the projected future limit to urban growth and will be the line beyond which the Cities will not annex or approve services.

The area between the Urban Growth Boundary and the City limits is of particular importance to the County, as this area will stay in County jurisdiction until annexation occurs. The Urban Growth Program sets out specific policies for management of this area while still under County jurisdiction.

Harney County has adopted "Urban Growth Joint Management Agreements" with Burns and Hines, setting out officially the roles each jurisdiction will play in growth management. Those agreements and the supporting document, "Urban Growth Boundary and Program", are hereby incorporated as part of this Plan. Copies are on file at the Courthouse or either City Hall (See Map 11 showing the Burns UGB and the Hines UGB).

Map 11 – Burns & Hines Urban Growth Boundaries

7.2.3 Burns Urban Growth Joint Management Agreement

The parties to this Joint Management Agreement shall be the City of Burns and Harney County. The terms of this Joint Management Agreement shall be applicable to the Burns urban area, as defined by the Burns Urban Growth Boundary (UGB), and hereby made a part of this Agreement. In addition, a copy of this Agreement and the UGB map shall be separately printed, signed and recorded with Harney County. The County shall also adopt said Agreement and map by ordinance.

This Agreement is entered into pursuant to ORS Chapters 190 and 197, and the Oregon Statewide Planning Goals, for the purpose of facilitating the orderly transition from rural to urban uses within and around the Burns urban area. Words and phrases used in this Joint Management Agreement shall be construed in accordance with ORS Chapters 92, 215 and 227, and applicable Oregon Statewide Planning Goals, unless otherwise specified. In the event two or more definitions are provided for a single word or phrase, the most restrictive definition shall be utilized in interpreting this Agreement.

1. Introductory Information

This Agreement is the culmination of a series of actions intended to facilitate the orderly and efficient development of the urban area. Such actions include the preparation of City and County comprehensive plans; the establishment of an urban growth area and policies by a joint Burns/Hines/Harney County Urbanization Committee; coordination with other affected agencies; and County review of the Burns and Hines comprehensive plans.

2. Urban Growth Management Provisions

A. Harney County shall retain responsibility for land-use decisions and actions affecting the unincorporated urban area, and the County jurisdiction

immediately west of the UGB, such responsibility to be relinquished over any land within this area upon its annexation to either Burns or Hines.

B. The existing City limits for Burns should remain relatively unchanged until a majority of the City's urbanizable land has been developed for urban purposes. As well, expansions of the City limits should be in the direction of existing rural residential activity around the City. Any annexation outside the UGB shall require an amendment of the Agreement and the UGB map prior to, or concurrent with, such annexation.

C. Urban lands within the growth area shall be available for immediate development when found to be in compliance with applicable policies and standards of Burns. No land development should occur in this area without annexation and the full provision of urban facilities and services.

D. Urbanizable lands within the growth area shall be converted to urban purposes only after adequate sewer and water services can be made available to support urban growth and only after a majority of urban lands have been developed. Partitioning and subdivisions under County jurisdiction may be granted by the County, but only after conformance with this Agreement.

E. The County jurisdiction immediately west of the UGB shall not be developed to urban densities, nor shall the extension of sewer or water services to this area be planned, inasmuch as the UGB is not expected to ultimately include this residential area.

F. The Cities of Burns and Hines are the logical providers of urban services in the area. Therefore, development inside of the UGB may occur only after close coordination with the two Cities and the County.

G. Harney County may grant requests for development in incorporated urbanizable areas only after allowing both Cities the opportunity to comment on the proposed development. The County shall grant such a request only after it has determined that there will be no adverse impacts on the provision of urban services by either City. The County shall also grant approval only if it determines that the resulting land-use and facilities pattern (lot location, size, street locations and improvements, storm drainage systems) is consistent with future urbanization, and will not detract from the ability to convert the land efficiently to more intense urban use at a later date. The County shall inform the applicant, and shall cause to be included on the plat of any such partition or subdivision, notice to the public that such property is located inside the Burns UGB, and that it and surrounding properties are subject to future urbanization.

H. Harney County may grant requests for development in the County jurisdiction area immediately west of the UGB only after allowing both Cities an opportunity to comment on the proposed development. The County may grant a development request that has direct storm drainage into the City only after it has determined that there will be no adverse impact on the provision of storm drainage facilities by either Burns or Hines. The County may also grant approval only if it determines that the land-use pattern (lot location, size, street locations and improvements, storm drainage systems) is consistent with future urbanization, and will not detract from the ability to convert the land efficiently to more intense urban use at a later date.

I. Lands will only be annexed to Burns when contiguous to the existing City limits, and when there is immediate access to urban facilities, or when the land is serviceable within a reasonable length of time. Any annexation of land outside the UGB shall require an amendment of this Agreement and the UGB map prior to, or concurrent with, such annexation.

J. Urban facilities and services, including sewer and water, will not be extended to a property unless annexation of the property is impractical or economically unfeasible for the City, and there is a threat to public health by not allowing the extension of said facilities.

K. The City limits between Burns and Hines will be determined on a case-by-case basis as property is developed. The property will be annexed to whichever City, which can most efficiently provide public facilities and services.

L. This Agreement and UGB map shall be reviewed every five years. It may also be reviewed at any time upon the request of any of the jurisdictions. It should be noted that this Agreement and UGB map are based on current trends and projections using assumptions which anticipate minor changes in the future character or growth patterns of the Cities. However, the introduction of many factors could significantly alter these assumptions, and could call for the immediate re-evaluation and updating of this Agreement and UGB map.

M. A jurisdiction may initiate a review of this Agreement by resolution of its governing body, setting out the reasons for the review. The five-year review shall be initiated by the County Court. A joint Urbanization Committee, made up of members of the three local Planning Commissions, shall conduct the review and make a report of recommendations. All three full Planning Commissions shall then review the Committee's report. After a public hearing, with due notice, the Commissions will make recommendations to the governing bodies of the jurisdictions. The three governing bodies shall consider the recommendations and, after public hearings with due notice, shall jointly amend the Agreement and/or UGB map.

3. Referred Applications

A. Within 14 days of filing with the County, the County staff shall refer each partition, subdivision, or zone change request affecting the Burns UGB, or the County jurisdiction west of the UGB, to the City for its review and comment. Any additional information submitted by the applicant shall also be referred to the City promptly.

B. The City shall review the application and submit its comments to the County within 30 days of their receipt from the County. The City review shall be performed by the Planning Commission. If the Commission determines that there is no conflict with its Comprehensive Plan and Development Ordinance, then a "no conflict" correspondence shall be made to Harney County. If the Commission feels a potential conflict exists, then the Commission will provide a detailed report on such conflicts, including recommended actions to eliminate or reduce such conflicts.

C. Should no comments be made by the City within the established response time, and there has been no request for a time extension, the City shall be presumed to have no comment regarding the application.

D. After the County makes a final decision on an application, the County shall inform the City within five (5) days of the action.

4. Severability

The provisions of the Agreement are severable. If a paragraph, sentence, clause, or phrase shall be adjudged by a court of competent jurisdiction to be invalid, the decision shall not affect the validity of the remaining portions of this Agreement.

7.2.4 Hines Urban Growth Join Management Agreement

The parties to this Joint Management Agreement shall be the Cities of Burns and Hines, Oregon, and Harney County, Oregon.

The terms of this Joint Management Agreement shall be applicable to the Cities of Burns' and Hines' urban growth area. For the purposes of this Agreement, the Urban Growth Area shall be defined as that area of land extending from the Cities of Burns' and Hines' corporate limits to the City of Burns' and Hines' urban growth boundary as referenced and mapped in the City of Burns Comprehensive Plan, the City of Hines Comprehensive Plan and the Harney County Comprehensive Plan, and hereby incorporated into and made a part of this document. The development priority areas shall also be as referenced and mapped in the City of Burns

Comprehensive Plan, the City of Hines Comprehensive Plan and the Harney County Comprehensive Plan.

This Joint Management Agreement is entered into pursuant to ORS Chapters 190 and 197 and the Oregon Statewide Planning Goals for the purpose of facilitating the orderly transition from rural to urban land uses within the Cities of Burns' and Hines' urban growth area.

Words and phrases used in the Joint Management Agreement shall be construed in accordance with ORS Chapters 92, 215 and 227 and applicable Oregon Statewide Planning Goals unless otherwise specified. In the event two or more definitions are provided for a single word or phrase, the most restrictive definitions shall be utilized in construing this Agreement.

1. Introductory Information

A. This Joint Management Agreement is the culminations of the series of actions intended, in part, to facilitate the orderly and efficient transition from urbanizable to urban land uses within the urban growth area. Such actions include the preparation of city comprehensive plans, the cooperative establishment of an urban growth area and policies by a joint Burns / Hines / Harney County Urbanization Committee, coordination with effected governmental units, and county review of the city comprehensive plans.

B. The City of Burns City Council, the City of Hines City Council, and the Harney County Court have adopted by ordinance comprehensive plans, which include an urban growth boundary, and planning goals and policies.

2. Urban Growth Management Provisions

A. Harney County shall retain responsibility for land use decisions and actions affecting the urban growth area and the Rural Residential area, such responsibility to be relinquished over any land within this area upon its annexation to one of the cities.

B. The existing city limits for the Cities of Burns and Hines should remain relatively unchanged until a major portion of the respective city's existing useable land has been developed for urban purposes. As well, expansions of the city limits should be in the direction of existing rural residential activity around the communities.

C. The Urban Growth Boundary area is divided into two development priority areas. Outside of the Urban Growth Boundary area is an Urban Reserve Area. These will be developed in accordance with the following criteria:

1. Priority One Development Area shall be the land allowed for immediate urbanization when the policies on urban growth are conformed with. No land divisions should occur in this area without annexation and the full provision of urban facilities and services.
2. Priority Two development Area shall be developed only after adequate sewer and water services can be made available to support urban growth and long after the Priority One Development area is significantly urbanized.
3. The Urban Reserve Area shall be developed to Urban densities only after adequate to support urban growth and only after the Priority Two Development Area is significantly urbanized. Partitionings and subdivisions within this area may be granted by the County, but only after conformance with the Development Coordination Policy within the Comprehensive Plans and conformance with this Urban Growth Management Agreement.

D. The Rural Residential Area shall not be developed to urban densities.

E. The Communities are the logical providers of urban services in the urban growth area. Therefore, development inside of the Urban Growth Area should occur only after close coordination with the two communities and the County. Procedures for this coordination shall be found below.

F. Harney County may grant requests for development in the Priority Two, Urban Reserve and the Rural Residential areas only after allowing both communities the opportunity to comment on the proposed development and to give input as to its effects on any or all urban facilities and services. The County shall grant such a request only after it is determined that there will not be any undue impact on the provisions on these services by either community. The County shall also only grant approval if the county determines that the land use pattern, including lot location, size and street locations and improvements anticipates future urbanization and will not detract from the ability to convert the land efficiently to urban use. The County shall inform the applicant, and shall cause to be included on the plat of any partition or subdivision, notice to the eventual consumer that the property is located inside the Burns/Hines Urban Growth Boundary and that it and surrounding properties are subject to future urbanization.

G. Land will only be annexed when contiguous to existing city limits and when there is immediate access to urban facilities or when the land is serviceable within a reasonable length of time.

H. Urban facilities and services, including sewer and water, will not be extended to a property unless the property is annexed. Exceptions may be made to this policy only when annexation is impossible or economically unfeasible for the

city and when there is a threat to public health by not allowing the extension of facilities.

I. The city boundary between Burns and Hines as both communities grow will be determined on a case-by-case basis as property is developed. The property will be annexed to the community which can most efficiently proved public facilities and services.

J. The Urban Growth Boundary, Policies, and Program shall be reviewed in the early 1980's when data from the 1980 census becomes available. It shall then be reviewed regularly every five years. It also may be reviewed at any time upon the request of any of the jurisdictions. It should be anticipated that these policies and boundaries are based on current trends and projections that are based on assumptions which anticipate little change in the character or growth patterns of the communities. However, the introduction of many factors could significantly alter those assumptions and should call for the immediate re-evaluation and updating of this Growth Program.

K. A jurisdiction shall initiate a review of this program, map or agreement by resolution of the governing body setting out the reasons for the review. The regular five year review shall be initiated by the County Court. A joint Urbanization Committee, made up of members of the three Planning Commissions shall conduct the review and make recommendations for changes. All three full Planning Commissions shall then review the committee's report. After a public hearing, with due notice, the Commissions will made recommendations to the governing bodies. The three governing bodies shall consider the recommendations and, after public hearings with due notice, shall jointly adopt a revised program, map and/or agreement.

3. Referred Application – Coordination

A. The Harney County staff shall refer each partition or subdivision request affecting the Cities of Burns' and/or Hines' urban growth area to the affected city for its review and comment within 14 days of the date the request was filed with the Harney County staff. Any additional information submitted by the applicant shall be submitted to the Cities promptly.

B. The cities shall review the request and submit their recommendations to the County within 30 days of their receipt from the County staff. The City Planning Commissions shall review all referrals from Harney County for subdivision or land partitioning in the urban growth area. If a commission determines that there is no conflict with the Comprehensive Plan, especially policy "6" of the Urbanization section, then a "no conflict" correspondence shall be made to Harney County. If a commission feels a conflict exists, then the commission will review the referred development proposal and submit a recommendation to Harney County.

C. Should no recommendations be made by a City within established response times and there has been no request for extension, the City shall be presumed to have no negative comment regarding the application.

D. After the County makes a decision on the application, the Cities shall be informed within five (5) days of the action taken by the County.

4. Severability

The provisions of this Joint Management Agreement are severable. If an article, sentence, clause, or phrase shall be adjudged by a court of competent jurisdiction to be invalid, the decision shall not affect the validity of the remaining portions of this Agreement.

7.3 Housing

7.3.1 Rural Residential Housing

A major threat to the continued economic vitality in the county can be found in the expanding establishment of rural residential non-farm housing throughout its agricultural areas.

The problems that standard non-farm uses create in an agricultural area are both social and economic. Social problems develop between farm and non-farm people because of the different life styles and tolerances to farming or ranching practices. Non-farm people may object to the odors of agricultural or livestock production, dust, chemical sprays, smoke, and noise. It may be necessary for a farmer or rancher to severely restrict his operations if he is to comply with many of the possible objections. The non-farm people may also pose other problems to the farmer or rancher. For instance, loose dogs can cause injury to or loss of livestock and poultry and can also damage many grain crops; economic problems are created by increased school enrollment and higher school taxes, and through compliance with more restrictive methods of farming. Also, increased land values can drastically increase the overall tax burden and result in the selling of land for premature development for non-farm purposes.

The best farm soils are also the most easily developed. Most of the rural non-farm housing development has taken place on land suitable for farming. This results in these soils being unavailable for agriculture. As urban areas expand and rural development occur, additional farmland will be converted to non-farm uses, thereby making it unavailable for agricultural production.

However, it is recognized that there is a public demand for rural residential housing. Many individuals and families desire a lifestyle the owner may pursue some limited agricultural activity or hobby farming. Also, there are those who simply desire a housing situation located away from urban areas where many of the amenities of living in the country can be appreciated.

The public need for rural non-farm housing is one that the county should recognize and help to meet. However, satisfaction of this need must be balanced against the good of the county for preservation and protection of its agricultural land. Both goals can be reached with careful management of land and setting priorities for land development areas.

There are three basic types of rural housing, all of which occur in Harney County. The first of these is housing directly associated with a farm use. There should be no restrictions on the creation of farm housing. This includes the primary dwelling unit for the owner or manager of the farm unit within which the housing is located.

7.3.2 Rural Non-Farm Housing

The second type of rural residential housing is rural non-farm housing. This type of housing involves houses located on land parcels that are too small to be classified as a viable farm unit. This type of housing may also be proposed for forestry areas. The primary purpose of this parcel and housing is either to provide a hobby farm for the dwellers of the housing unit or simply to provide a residential location without any agricultural or forestry activities. As was stated above, there are many possible conflicts between these types of housing units and surrounding agriculture or forestry uses. However, the types of housing should be allowed in areas where conflicts can be minimized. Rural non-farm housing may be allowed within Harney County as a conditional use within the EFRU zone when certain criteria are met and only after review by the Harney County Planning Commission. Those criteria are delineated in the EFRU zone and are repeated below. There are two separate sets of criteria, either or the Planning Commission can use both of which when reviewing conditional use permits. The agricultural lands criteria will be used in agriculture areas as shown on the Comprehensive Plan map and the forestry criteria will be used for forestry areas shown on the map.

1. Agriculture Lands Housing Criteria

Single-family residential dwelling, not provided in conjunction with farm uses may be established, subject to the county governing body making a finding that each such proposed dwelling:

A. Is compatible with farm uses described above on adjacent lands devoted to farm use; and is consistent with the intent and purposes set forth in ORS 215.243; and,

B. Does not interfere seriously with accepted farm practice on adjacent lands devoted to farm uses; and,

C. Does not materially alter the stability of the overall land use pattern of the area; and,

D. Is situated upon generally unsuitable land for the production of farm crops and livestock, considering the terrain, adverse soil or land conditions, drainage and flooding, vegetation, location and size of the tract; and,

E. Complies with such other conditions, as the governing body of the County considers necessary.

2. Forestry Lands Housing Criteria

Single family residential dwellings may be established either:

A. Provided in conjunction with a forestry use on existing lots of forty (40) acres or larger, that were legally created prior to the adoption of the Comprehensive Plan subject to the County governing body making findings that each proposed dwelling be demonstrated to be necessary and accessory to commercial uses or meets the criteria of a, b, c, and d below; and

B. Provided in conjunction with non-forest uses on existing lots of five to 39 acres subject to the County governing body making findings that each proposed dwelling meet the following criteria:

C. Is situated upon generally unsuitable land for the production of forest, farm crops and livestock, considering the terrain, adverse soil or land conditions, drainage and flooding, vegetation, location and size of the tract.

D. The proposed use of the forest land is compatible with forest uses and practices and is consistent with the intent and purpose of this plan.

E. The use does not require the excessive removal of trees for construction of roads or structures.

F. The use will not influence forest management activities on adjacent land.

7.3.3 Rural Residential and Rural Recreational Subdivision

The third type of rural housing is by far the most intense and most potentially damaging to the agriculture and forestry base of the county. It involves rural subdivisions with grouping of small acreage tracts with one single-family unit per lot. This type of housing can be primary housing for the occupant, or is commonly used as recreational housing, for instance, the tracts in the vicinity of Yellowjacket Lake in the northern part of the county.

Housing of this nature is appropriate and helps provide for legitimate, valuable, and important use for residents of the entire state. When located so as to minimize potentially damaging effects on surrounding agricultural or timber, and where the tracts involved do not remove prime crop or range soils from production, unless there is an inherently overriding and compelling reason to do so, they could be approved. However, of course, other factors must be taken into consideration, especially impacts on public facilities and services and other resource values. In order to minimize the impacts on both the resource base and the public facilities and

services, special restrictions, embodied in zoning provisions, must apply to these areas.

Rural Residential subdivisions should be located only adjacent to existing urban areas, rather than in remote parts of the county. Rural Recreational subdivisions should have their occupancy limited, to assure that the housing is secondary and not primary for the owner. Rural Recreational subdivisions may be located anywhere in the County that is judged appropriate and in conformance with this plan and the LCDC Goals and Guidelines.

Map 12 – Turner Cabin, Rural Recreational (R-2) Zone

Map 13 – The Narrows, Rural Recreational (R-2) Zone

7.3.4 Unincorporated Communities

There is another type of housing that occurs in the jurisdiction. This is within the unincorporated communities located in various areas in the County. The unincorporated communities are discussed in detail later in this chapter (Section 7.7).

7.3.5 Housing Types

When housing is created in the County, it traditionally has been of a single-family nature. This is embodied in the current Zoning Ordinance. There are virtually no multiple family dwellings in the rural parts of the county. Mobile homes are only allowed when approved by the Planning Commission. This situation has worked well for the citizens of the County; however, some slight alteration is appropriate at this time.

The County supports the provisions of LCDC Goal 10 calling to "provide for the housing needs of citizens of the state". The County's concurrence with the City of Hines and City of Burns Comprehensive Plans, plus the provision for housing with this Plan work to meet this goal. It is important to have adequate non-single family housing in the urban areas to meet the needs of the County. The rural areas should only be used for single-family housing to avoid undue impacts on public facilities and services.

The County has only allowed mobile homes in the past as conditional uses in the rural areas. This is an effort to protect surrounding neighbors from any detrimental effects from this housing type. Mobile homes have improved in design and construction so much in recent years, however, that these effects may not be significant anymore. Also, housing prices have risen substantially in Harney County, as is the case throughout the country. New site built housing is becoming priced out

of the reach of many people at an ever-increasing rate. Mobile homes provide a means whereby many people can afford to own their housing that cannot afford traditional single-family homes.

The revised Zoning Ordinance for Harney County should recognize that mobile homes could be a viable and acceptable housing type. Therefore, mobile homes, when meeting certain strict design standards laid out in the mobile home ordinance, should be allowed outright in the rural parts of the county, when other provisions of the zoning and subdivision ordinances are complied with.

Housing Goal

To provide for the housing needs for all citizens of the County, balancing need against impacts on the County's land resource base and public facilities and services.

Housing Policies

1. The public need for rural non-farm housing is one that the county should recognize and help to meet. However, satisfaction of this need must be balanced against the goal of the county for preservation and protection of its agriculture and forestry land.

2. Rural residential housing on lots smaller that the minimum lot size shall be reviewed by the County through the Conditional Use procedure and approved only if the proposal conforms to the Agricultural Criteria on agricultural land or the Forestry Criteria on forestry land or both. These criteria are:

7.4 Rural Residential Exceptions To Goal 3 - Agriculture

There are areas of Rural Residential zoning located around and west of Burns and Hines. The majority of this zoned area encompasses large areas of Land Capability Class IV and VI Composition 1 soils. Only a relatively small part of Harney County is suitable for cultivation, and yet, as is typical in many places, this is the area that has been subdivided for rural residential use.

The Harney County Court, based on the study and recommendations of the Harney County Planning Commission, the Agricultural Advisory Committee, and the Board of the Soil and Water Conservation District, has determined that it is in the Public and County's best interest to designate most of the areas east of Burns and Hines as EFRU. The existing and proposed zoning is shown on maps and this will not cause any impact on what rural residential uses there are in this area, other than prohibiting the future creation of lots less than the minimum lot size of the EFRU zones limiting uses to those allowed in the zones. All existing lots will be legally nonconforming, or "grandfathered" and will not be restricted in their utilization other than conforming to the use provisions of the zones.

The Court has also determined that there is a need for Rural Residential Housing, as was shown earlier in this Plan element. It has been determined that the only appropriate places for this type of housing is adjacent to urban areas and especially adjacent to Burns and Hines. Therefore, the proper location is to the west of the Cities where the vast majority of the land is rolling and of poorer soils with Class IV and higher designations. There is some grazing in this area; however, there are no intense operations. Much of this land has been zoned R-1 in the past, however, the Court has determined that the area should be made larger to "make up" for the loss of extensive R-1 zoning east of the Cities, and to assure adequate land to meet the need given that any development will have to be at very low densities to meet septic requirements.

As this area is made up of Class VI soils, an Exception must be taken to LCDC Goal 3 - Agriculture that requires the preservation of all Class I through VI soils in Eastern Oregon.

The following Rural Residential Zone material consists of two sections,. Section One will deal with Highland Ranch Estates and Garland Acres and Section Two will deal with the North Burns Area and the Hebener Tracts. The land subject to the exception is physically developed to the extent that it is no longer available for uses allowed by the applicable goal.

Section One

A. Highland Ranch Estates

The Highland Ranch Estates subdivision and the three parcels south of the subdivision located just south of Hines on the west side of US Highway 20/395 will be considered as one area. The Highland Ranch Estates subdivision was established in 1964 prior to Land Use regulations. The subdivision is approximately 55 acres in size and contains 31 lots. There are 21 ownerships with 16 developed sites. Several ownerships contain more that one lot.

Water services are supplied through a community well. Septic systems are the responsibility of the individual property owners. Other public utilities (telephone and electricity) are onsite or nearby. The road, a dedicated public road, is paved and maintained by the County in the winter months.

The four parcels south of the Highland Ranch Estates are also zoned Rural Residential. The lots on the west side of the Highway contain residential dwellings and a commercial shop (See Map 14).

Map 14 – Highland Ranch Estates, Rural Residential (R-1) Zone

B. Garland Acres

Garland Acres subdivision was established in 1978. It is located west of the Cities of Burns and Hines city limits. Soils are predominately Class VI.

There are approximately 100.0 acres outside the Burns and Hines Urban Growth Boundaries. Approximately 26.57 acres are not within the platted subdivision and are located between the east subdivision boundary and the west boundary of the Burns City Limits. There are 73.44 acres remaining inside the subdivision with physical development on approximately 25.83 acres.

Water mains have been constructed to all lots and a community well supplies water. The water system is a phased system that will be upgraded as lots are developed. Septic systems are the responsibility of the property owner. There are easements for above ground public utilities on each lot.

The roads inside the subdivision are built to county specifications and are dedicated public roads. The roads are gravel, all weather roads and are maintained by the County (See Map 15).

Map 15 – Garland Acres, Rural Residential (R-1) Zone

Section Two

The area north of Burns to which the County is taking an exception to the agricultural goal, contains 396 acres. There are two distinct areas that must be treated separately for the purpose of taking an exception (See Map 16 and 17).

A. Hebener Tracts

The first area is the Hebener Tracts, which contains 266 acres with 16 different owners and 23 lots. The ownership varies from 4.98 acres to 63 acres. The 63 acres is owned by the original developer and is subdivided into 5 lots.

Fourteen of the 23 lots have existing development in terms of housing structures. Twelve of the 16 ownerships could be partitioned to allow additional five-acre lots, however, most of the owners have not expressed any desire to reduce the size of their existing lots.

The original Hebener Tracts were developed in 1975. The construction of 16 residences has resulted in making the Hebener Area no longer available for agricultural use. However, because most of the residents of the area do some type of farming, the area will not have a negative impact on the surrounding agricultural area. A five (5) acre zoning would maintain the level of development that has been occurring in the area since 1975.

Map 16 – Hebener Tracts, Rural Residential (R-1) Zone

B. North Burns Rural Area

The second area is the remainder of the exception area north of Burns excluding the Hebener Tracts. For discussion purposes the area will be referred to as the North Burns Rural Area. The North Burns Rural Area contains 103 acres with 19 different lots and only 1 lot is in contiguous ownership of 2 lots for 1 owner. The remaining lots are in separate ownership. This area has developed into an area that allows some small farming for people who work in the Burns/Hines area. The following is a chart of the existing lot sizes in the North Burns Area:

Map 17 – North Burns Rural Area, Rural Residential (R-1) Zone

North Burns Rural Area Land	
ACRES	**NO. OF LOTS**
18 - 15 acres	3
10 - 14 acres	2
9 - 5 acres	2
Less than 5 acres	12

Table 29 – North Burns Rural Area Land

All lots have been developed (i.e. 18 housing structures on 18 lots). The area, due to the small parcel size is committed to small lot development that does not lend itself to the commercial agricultural practices that exist in the surrounding area.

While much of the land is within the 100-year floodplain, development may occur as long as it conforms to the restrictive floodplain ordinance that the County has in place. The land surrounding the Hebener Tracts and the North Burns Rural Area is primarily grazing with some meadow hay production to the east and south of Burns. There is little likelihood that there will be any undue impacts on the agricultural activity in the surrounding areas. The proximity to the County's major urban areas allows a minimization of impacts, as compared to many other areas that have or could be considered for housing.

Section Three

A number of small subdivisions occurred during the 1970s and early 1980s, which provide small acreages near the Burns/Hines area. These subdivisions are Revak Tract, Choate Addition and Skelton Addition.

Map 18 – Choate & Revak Tracts, Rural Residential (R-1) Zone

Map 19 – Skelton Addition, Rural Residential (R-1) Zone

Map 20 – Norris Addition, Rural Residential (R-1) Zone

7.5 Commercial/Industrial Zoned Lands Exception to Goal. 3 – Agriculture

The land subject to the exception is physically developed to the extent that it is no longer available for uses allowed by the applicable zone.

The Commercial/Industrial zone is located south and southeast of the Cities of Burns and Hines and contains approximately 226 acres. These properties are developed to the extent that commercial agriculture cannot occur, i.e., the KZZR Radio Station, Harney County Fairgrounds, the Silvies River Lumber Company and the City of Burns Sewage Disposal Plant.

The area is impacted by the county road that runs through the area and separates the existing commercial/industrial lands on the west side of the road from the residential and agricultural lands to the east and south. The area is also impacted by the existing noise, smoke and dust that is the result of the existing adjoining areas.

In order to serve these areas with sewer and water, the Cities and the County must revise the UGB. Except for the Harney County Fairgrounds, which is presently connected to the City of Burns sewer system, the existing uses in the exception area do not need or rely on the sewer system at this time.

The County has designated a 45-acre site south of Hines as an exception area zoned as commercial. The area is presently the location of the only wrecking yard in the Burns-Hines area. The location of this wrecking yard is in the best interest of the county and its operator since it does not cause conflicts that could arise if it were located near a residential development. The operator also has plans for a truck stop on this same site. A truck stop would be compatible with the present uses on the site (See Map 21).

Map 21 – The Wrecking Yard, Commercial (C-1) Zone

Map 22 – South Egan Road Area, Commercial (C-1) Zone

7.6 Agricultural Lands

The vast majority of the land in Harney County is being utilized for agricultural or timber production. These activities are directly dependent upon the land resources for their continued viability. They are also the dominant industry of Harney County. Therefore, the continued economic vitality of the county and its people is dependent upon the preservation of this land resource and its dedication to its uses.

The State of Oregon Land Conservation and Development Commission Goals and Guidelines set as a goal for the state, to which Harney County must subscribe: "to preserve and maintain agricultural land." The goal goes on to state:

> "Agricultural land shall be preserved and maintained for farm use, consistent with existing and future needs for agricultural products, forest and open spaces. These lands shall be inventories and preserved by adopting exclusive farm use zones pursuant to ORS Chapter 215. Such minimum lot sizes as are utilized for a farm use zone shall be appropriate for the continuing of existing commercial agricultural enterprise within the area."

In early 1978 the Harney County Planning Commission appointed a Harney County Agricultural Advisory Committee to work to develop an agricultural element for the Harney County Comprehensive Plan that conformed to the LCDC Goals and Guidelines and that worked to preserve and protect the agricultural element of the Harney County economy and society. That committee met throughout the spring and summer of 1978 culminating in public workshops throughout the county in August. The committee discussed the role of agriculture and regulations designed to protect it within the county, the variety of agricultural types and ownerships, the role of Malheur National Wildlife Refuge in respects to the surrounding agricultural area, conflicts between public and privately owned agricultural lands, government policies for the management of agricultural lands, and the impact of non-agricultural land uses upon the agricultural areas. Three major products emerged from this effort. First was listing of various generalized land use types for the county with a definition of each to be used as the basis of the Comprehensive Plan Land Use Map. Second was the development of an Exclusive Farm, Forestry and Range Use Zone. Third was the creation of this agricultural element for the Harney County Comprehensive Plan.

This plan element will include a definition of each of these land use types, discussion of its current situation and role within the county, an identification of problems and land use conflicts, and policies to guide the county governing bodies through future decision-making processes on land use questions and other factors affecting the use of land in Harney County.

7.6.1 Land Use Designations

The Agricultural Advisory Committee, working with the consultant, developed a land Use map, which delineated areas of various land use categories throughout the county. Agricultural areas were broken up into cultivated and range land designations. Also the forest areas were broken into national forest and other forest. The existing land use map does not show all of the forestland throughout the County. Of particular note is the exclusion of the forested area on the western slope of the Steens Mountains. It was determined by the Committee that it was more important to indicate these areas as agriculture grazing, their primary use. Generalized areas of mineral resources were identified and included on the map, as were potential geothermal, oil and gas areas.

Based on the existing land use map, soils maps indicating generalized Soil Conservation Service classifications, ownership maps, and intimate citizen knowledge of the county, a Comprehensive Plan Land Use Map was developed indicating generalized areas of particular land uses. This map shows the vast majority of the County in agricultural use with lands of public ownership and private ownership being delineated. Other significant areas include the forestlands in the northern part of the county. These are designated as either part of the national forest or state and privately owned. The Malheur National Wildlife Refuge and the Squaw Butte Experimental Station and the Burns/Hines urban area and rural residential area are other major components.

Various land use classifications were developed and defined to be used in formulating the Comprehensive Plan Land Use Map. All land uses in the County will fall within these designations. The intention of these land use designations is several fold. First, it indicates the areas of specific types of land uses as they are and as they are planned. Therefore, it will serve as a guide for the decision makers of the County as they are considering future land use requests by individual property owners or land managers. Second, it will serve as a basis for the implementation of a new zoning ordinance providing the tools by which to implement the map and the goals and policies of this plan. Third, it draws a close line between public and private ownership areas and between public owned areas of different intensities, such as multiple use land versus wilderness. The intention here is that, while the areas may all be zoned as one designation, it provides a means whereby a public agency or private individual desiring to change the intensity or type of land use, must have the proposal reviewed and approved by the Harney County Planning Commission as an amendment to the Comprehensive Plan. Therefore, there are designations for the land use map that are not actually used at this time. This is intended as a means whereby the possibility of these certain land uses occurring is recognized and anticipated even though they currently do not exist.

The designations for the Comprehensive Plan Land Use Map as developed by the Harney County Agricultural Advisory Committee are as follows:

1. Agriculture Designation

Agriculture means the current use or potential use of land for accepted farming practices for the purpose of obtaining a profit in money by raising, harvesting and selling crops; feeding, breeding, management and sale of livestock, poultry, fur bearing animals, or honey bees, or the produce thereof; or for dairying or the sale of dairy products, or for aquaculture, or any other agricultural or horticultural use of animal husbandry or any combination thereof. Agriculture also includes the preparation and storage of agricultural products, the propagation or harvesting of a forest product, and the exploration for and exploitation of mineral resources. Agricultural does not include refuge or wilderness areas as described below. Agriculture includes two sub districts defined as follows:

Private Agriculture

- Private agriculture areas are lands that conform to the above definition and that are privately owned and managed.

Multiple Uses

- Multiple use areas are primarily under government ownership to be used for a multitude of activities including, but not limited to: agricultural activities including range management and agricultural research; wildlife habitation; recreation; and mineral resource extraction.
- A multiple use area cannot be limited to only one of these uses. Public access shall be maintained through motorized and non-motorized means.

2. Rural Residential

Rural Residential means areas used or set aside for low density residential use on lots no smaller than five acres in size or the area necessary for suitable septic systems, whichever is larger. Such areas are intended to be adjacent to existing urban areas and in areas of marginal agricultural utility.

3. Unincorporated Community

Unincorporated Communities are unincorporated areas near urban density residential development with or without commercial areas. These areas should have lot sizes not less than those acceptable for septic approval.

4. Forestlands

Forestlands include lands that are composed of existing, and potential forest areas which are suitable for commercial forest uses; other forested lands needed for watershed protection, wildlife and fisheries habitat and recreation; lands where

extreme conditions of climate, soil and topography require the maintenance of vegetative cover irrespective of use; other forested lands in urban and agricultural areas which provide urban buffers, wind breaks, wildlife and fisheries habitat, livestock grazing, scenic corridors and recreational use. Commercial forest land is capable of producing crops of industrial wood, generally in excess of 20 cubic feet per acre of annual growth; land that is not totally withdrawn from timber use but may have limited timber production capacity because of use restrictions, stocking levels, technical or economic limitations, etc. Forest lands includes two sub districts defined as follows:

Non-National Forest Lands

- Non-National forestlands include areas that are privately owned, state owned, or owned by the Bureau of Land Management, and that have stands of Class II and III timber.

National Forest Lands

- National forest lands include the portions of the Malheur and Ochoco National Forests that fall within Harney County. These are multiple use areas primarily under government ownership to be used for a multitude of activities including, but not limited to: timber management, agricultural activities including range management and agricultural research; wildlife habitation; recreation; and mineral resource extraction.

- A multiple use cannot be limited to only one of these uses. Public access shall be maintained through motorized and non-motorized means.

5. Minerals and Aggregate Resource Overlay

Mineral and Aggregate resources include areas with proven quantities and qualities of minerals, oil and gas, precious stones, gravel, aggregate, hot water or steam, that are suitable for commercial utilization now or in the future. Uses in these areas may include exploration and exploitation of the resources, processing of the resources, and agricultural uses. This designation may overlay other designations.

6. Commercial Areas

Commercial uses include those areas where businesses and manufacturing can be developed to provide needed services to the general public. There are few areas in the County that provide for commercial development and those that are designated for commercial development are not built out completely.

Map 23 – Harney County Land Use Zones

7.6.2 Topic Concerns and Conclusions

The Agricultural Advisory Committee, as it was discussing the rural land uses throughout the County, had specific discussions on various topic areas that directly affected agriculture. Presented below is a synopsis of that discussion and the conclusions that were drawn.

1. Malheur National Wildlife Refuge and Squaw Butte Experimental Station

These two institutional areas have long been part of the land use pattern of Harney County. They are distinct in their character in that they are publicly owned and dedicated to specific purposes. It has been determined that both of these areas can and should be zoned EFRU as this designation conforms to the uses on the property and helps to protect them from encroachment of incompatible land uses. However, the Planning Commission has determined that they should be delineated as separate and uses from the normal agricultural land uses on the Comprehensive Plan Land Use Map. By doing so, they are distinguished as something different than normal agricultural uses and are specifically delineated as to their boundaries. Therefore, any expansion or reduction of the Refuge or Experimental Station area will need to be reviewed by the Planning Commission and County Court as part of a Comprehensive Plan amendment procedure.

2. Public and Private Range Land

The vast majority of rangeland in Harney County is owned and administered by the Bureau of Land Management. The Comprehensive Plan Land Use Map shows these public and private ownership patterns as subcategories of the general designation "Agriculture". It is intended that all of these areas would be zoned EFRU. However, the Planning Commission and the County Court as part of a Comprehensive Plan amendment process differentiate them on the Comprehensive Plan Land Use Map as an indication to the public of the ownership pattern in the county and as a means whereby significant alterations of this ownership pattern will be reviewed.

7.7 Unincorporated Communities

A reflection of the success or failure of homesteaders in the establishment of unincorporated communities in Harney County is beneficial. A town site with a post office and merchandise store, sometimes a saloon and livery stable sprang up around pockets of population. Many like The Narrows, Berduge, Albritton, Harriman, Evergreen, Harney City and Wellington are only names on a map today. But during their hay-day were bustling towns that supported the surrounding area with services and entertainment. Others like Andrews, Buchanan, Crane, Diamond, Drewsey, Lawen, Fields, Frenchglen, Princeton, Riley, and Wagontire continue to support the surrounding population with limited services.

7.7.1 Abandoned Unincorporated Communities and Historical Background of Settlements in Harney County

1. The Narrows

In 1889, Albert Hembree settled at a location where a narrow channel connected Malheur and Harney Lakes, giving the area its name, The Narrows. Hembree started a business that included both a hotel and a general store. The area's post office was transferred from Springer, on Sod House Lane, to The Narrows in 1892. That same year Charles Haines started his general store and rapidly built a clientele from the community of ranchers, farmers and travelers. In 1896, Haines took over the post office from Mr. Hembree, who continued to operate the hotel.

During the winter of 1892-93 a 300-foot bridge was constructed at The Narrows. By the first decade of the twentieth century, the town had become a center of commercial and social activity. At one time it had two hotels, three saloons, a garage, a school, a post office, two livery stables, a restaurant, the largest general store for miles around and a dance hall that attracted patrons from distant outlying districts.

The community, which once even had its own doctor, began to decline in the late 1920's and 1930's, and was abandoned in the 1940's. Charles Haines, the best known inhabitant of The Narrows and one of the best businessmen Harney County has every had, died in 1916. He left an estate worth $365,000.00, all earned in his general store. A shrewd judge of human nature, Charlie used a unique credit system in his store - ranchers with a good credit rating paid Charlie once a year after their annual livestock sales, and no interest was charged. School continued to be held at The Narrows until the early 1940's, when the district was consolidated with the Sod House District. The Narrows post office was closed in 1936.

2. Sod House Community

The Sod House community derived its name from a sod shanty built by trappers in the late 1860's or early 1870's. Those trappers, seeking beaver, muskrat and other fur-bearing animals on the south shore of Malheur Lake, constructed their sod dwelling near a spring close to where the Blitzen River flows into the lake. The spring came to be called Sod House Spring. Likewise, the road running across the northern end of Blitzen Valley became known as Sod House Lane.

In the late 1880's, cattle baron Peter French built headquarters at the northern end of his Blitzen Valley Empire and named it the Sod House Ranch.

The first post office in the community was located in the Alva Springer home near Sod House Spring. It was established in 1889 and called "Springer". In 1892, the post office was moved to The Narrows and renamed Narrows, Oregon.

In 1908, a post office and store were started at Voltage, a village just east of the Sod House area and the site of the present headquarters of Malheur National Wildlife Refuge. Voltage was discontinued in 1936. The first Sod House school was probably opened in the early 1890's. It was located a short distance east of Sod House Spring. Later school buildings were more centrally located along Sod House Lane. In the early 1940's the Voltage and Narrows school districts were consolidated with the Sod House district, and transportation costs were paid to students coming a long way to school. In 1955 a modern school/teacherage complex replaced the old structure that no longer complied with state standards.

In 1935, the Eastern Oregon Livestock Company sold its holdings in Blitzen Valley to the federal government to be added to the Malheur National Wildlife Refuge for migratory birds. These 65,000 acres, including Sod House Ranch, we only a part of the 150,000 acre cattle ranch that had once belonged to Peter French. French was killed in a quarrel with a homesteader in 1897.

The refuge headquarters was built near the Sod House Spring with the help of labor from the Civilian Conservations Corps (CCC) camp located in Blitzen Valley near the Sod House Spring in 1935. The CCC was a government program that put people to work during the Great Depression of the 1930's. The CCC was disbanded in June 1942, but during its stay in Harney County, the men built fences, dikes, roads and made other improvements both at the refuge and other locations in the area.

In 1965, a Job Corps Camp was constructed at Coyote Buttes to accommodate two hundred enrollees and instructors. Disadvantaged young men from all over the United States were brought to Harney County to be tutored in math and reading and to learn job skills. The Job Corps was part of President Lyndon Johnson's plan to build the Great Society. When he left office, priorities changed, and the Job Corps Center in Harney County was disbanded in 1969.

In 1970, a consortium of colleges established the Malheur Environmental Field Station at the Job Corps facility. It has a full time director and a maintenance staff. College courses are offered there from June through September, and housing is offered to various recreational groups during the year.

The Sod House community was a populous, progressive, sociable neighborhood until the early 1980's, when an unprecedented series of high water years caused Malheur and Harney lakes to gradually rise several feet. Ranch lands and homesites were flooded and ranch families were forced to leave their homes. In March 1985 when the spring thaw of the lake began, all the ranch buildings north of Sod House Lane were destroyed by the buckling and heaving of thick blocks of ice.

Only a few families now live in the devastated community. To save them from the flood waters, the school and teacherage buildings were moved in 1984 from Sod House Lane to high ground south of the refuge headquarters. Only four students were enrolled in the 1987-88 school year.

3. Camp Harney

Soldiering hasn't changed much in the last 200 years and soldiering at Camp Harney was no exception. The routine was mostly boring, punctuated by a few hours of stark horror on the battlefield. The romance of military life is mostly conjured up in the minds of writers and readers thirsting to be entertained. The life of a soldier at Camp Harney was filled with inspections and close order drills, both afoot and on horseback. Soldiers also practiced marksmanship on the rifle range. A primary concern was to keep themselves, their arms, and their living quarters clean. Horses also had to be cared for and tack cleaned and repaired. Although some of those serving at the camp were designated infantrymen, almost all were mounted.

Prior to an 1868 treaty with the Indians, during winter months soldiers were ordered into the field on punitive expeditions against the Native Americans. At other times, troops were mounted in response to Indian depredations.

Maurice Fitzgerald, who served as an enlisted man and later as an officer of the camp, came to Burns to practice law after resigning his commission.

After General George Crook's 1868 treaty with the Indians, the authorities apparently felt that the region was safe enough to allow officers' wives and their small children to live at Camp Harney. According to the 1870 census, there were thirteen small children and seven women residing in officers' quarters, one Chinese and one Negro cook, and two female housekeepers.

The camp became a focal point of activities as more people moved into Harney Valley. It was Camp Harney where local settlers and their families took refuge during the Bannock uprising of 1878. Camp Harney had ten different commanding officers in its 13 years of existence. Company H. 21st U.S. Infantry marched out of Camp

Harney on June 13, 1880, marking the complete abandonment of the camp by troops.

4. Harney City

The town of Harney was located where Rattlesnake Creek entered Harney Valley about two miles south of Camp Harney. In 1893 the amount of taxable property in Burns was only $64,217 as compared to Harney's $177,860. The town and surrounding area continued to grow and in about 1909 the community had a two-room schoolhouse attended by seventy children, which indicated a population of between two or three hundred residents. There were two stores, two or three saloons, two livery stables, a blacksmith shop and two hotels. Saloon owner Marshal Stroud was shot one day in front of the Harney Post Office, which he entered before dropping dead. Although there were no eyewitnesses to the shooting, there was known to be bad blood between Burbank Clay, Frank Buckland, a man named Matheny and the deceased; therefore, all three were indicted. Matheny turned state's evidence and was acquitted. Although it is unclear, the other two are presumed to have been sentenced to prison terms.

There were still quite a few houses left in Harney by 1920, but not very many people.

5. Silvies Valley

Silvies Valley was once a vast marshland filled with beaver dams – a bountiful area for the fur trapper. It was later homesteaded and settled by some twenty or more families, and today the meadows of native grasses are utilized for hay and grazing by both wildlife and livestock. The area has one of the healthiest populations of Antelope in southeastern Oregon, and deer can been seen feeding at dusk.

The valley was discovered by an expedition of fur trappers in 1826. Antoine Sylvaille and others were sent to trap the Malheur and Owyhee rivers by Peter Skene Ogden, chief trader for the Hudson's Bay Company. These men also explored new territory and Ogden honored the party's leader by naming the river they found flowing southward out of the Blue Mountains for Sylvaille. Any Army commander later renamed the river "Cricket River" because of all of the insects, but this name did not stick, and although the spelling has been corrupted, the river that flows through Silvies Valley to Malheur Lake is known today as the Silvies River.

About 1875 Charles Rann trailed cattle from John Day Valley to Silvies Valley. His buckaroo headquarters cabin was set up near a ford in the Silvies River close to Flat Creek. In 1879 Silvies Valley attracted Tom Overfelt and Frank Sweetser. They bargained for the Rann herd that fall. They had little time to prepare for one of the hardest winters to hit the area. Heavy snows, crusted with ice, spelled death for many of the cattle. By spring, thousands of carcasses covered the ground and filled the air with a terrible stench. Hock Mason bought Sweetser's and Sweetser left shortly afterward to become a leading rancher in northern Nevada. Overfelt and

Mason soon sold to the larger outfit of Miller and Lux. Overfelt moved to the lower Malheur River country and gained interest in property known as the Harper Ranch.

According to records in Grant County a man by the name of McCaskett may have filed for the first homestead in Silvies Valley in 1881. In 1889 the Silvies area was divided when the legislature passed a bill to create Harney County. Part of Silvies remained in south Grant County and the rest became the northernmost part of Harney County.

A log schoolhouse was built in 1893-94 near the Dan Camblin home and the schoolteacher often boarded with the Camblin family. In 1914 they built a new schoolhouse north of the stockyards and old truck barns, the building still stands today. In 1920-21 a school was built a few miles northwest of the store and was later moved just south of the store. School was held alternately at the Hopper and Scheckel ranches. At one time there was a schoolhouse between the Ray Purdy ranch and the Cross place that now belongs to Wayne Purdy. The schoolhouse sat in the upper southwest meadow with a teacherage close by.

The Rann Post Office opened in April 1886. Silvies Post Office opened south of Silvies in the Trout Creek Basin at the Cross Ranch in February 1892. Adelaide Cross was the postmistress. The office closed in July 1906, but was re-established in 1915 at the Bennett Ranch. State stations were established at the Bennett Ranch on Bridge Creek, the Scheckel Ranch, the Metschan place and the Hardisty Ranch in the Trout Creek Basin.

C.C. Hankins and his brother John came to Oregon from Joplin, Missouri, on bicycles. They were short of money when they reached Oregon, so when a drunk admired their bicycles they promptly sold them to him. They walked on to Silvies Valley, where their uncle Roland Hankins lived.

In 1898 Bill Baker started the first store in Silivies Valley. The building stood just southwest of the site of the existing store. Later Bill Huff lived at this place which was opened again as a store and service station by Del Hankins in1922. Dan Chamblin's wife, Estella, helped organize a Sunday School that met at one of the schoolhouses. Baptist preachers used the Silvies River for baptisms.

Picnics, large dinners and dancing were held at the old log school until school policy forbade dancing. Silvies Valley residents moved their dances to the ranch homes of Plez or Del Hankins, the Huffs, the Scheckels, or the Purdys. Music for the dances was provided by residents, playing such instruments as the violin, harmonica, organ, piano, banjo, guitar and accordion. Sometimes the hat was passed or basket lunches were sold to pay the musicians for their efforts.

Horses, many of fine breed and quality, were an important means of transportation, and many hours were spent riding to take care of the cattle that roamed the area. This was before 1918, when the U.S. Forest Service began controlling the number of

cattle turned out to graze. Summer range was very good and brought cattle buyers to the county. After the railroad came through Silvies from Burns to the lumber town of Seneca in 1927, cattle were shipped from a stockyard in Silvies Valley to Burns.

Severe winters sometimes made feeing cattle impossible so they would be driven to Harney Valley, Calamity or Drewsey to be fed hay. Ranchers sometimes needed outside wages to hold onto their land and they often worked for Miller and Lux's Pacific Livestock Company to supplement their incomes. Since the holdings of Miller and Lux were so extensive in Harney County, ranchers sometimes put up hay "on the shares" for the PLC. By working for a share of the hay, owners of smaller ranches obtained enough feed to last their cattle through the winter.

A small cemetery on a hill just off Highway 395 near Bridge Creek overlooks Silvies Valley and the former Hankins Ranch. There are two headstones and five small markers. Only a few of the older families still live in the area.

6. Blitzen and Diamond Valley

When Peter French arrived from California in June of 1872 to establish a cattle ranch in Blitzen Valley, he found that a man by the name of Porter had preceded him in settling there. There is no record as to when Porter arrived or what happened to him following the sale of his small herd of cattle and his "P" brand to Pete French. French continued to use the "P" brand and the headquarters he built at the foot of Steens Mountain is know today as the "P" Ranch.

French, 23 years old when he came to southeastern Oregon, was a small man but a natural leader, though ruthless in many ways, his crew was loyal and devoted. With their help, he succeeded in building one of the finest cattle empires in Oregon. In a quarter of a century, he established a ranching operation that included over 100,000 acres of land, 30,000 head of cattle and 3,000 head of horses and mules. Sub-headquarters at Diamond, Buena Vista, Riddle Ranch, Barton Lake and Sod House were needed to manage the ranch due to its size.

Reuben Kiger was one of the earlier Diamond Valley settlers. He arrived in the area in the spring of 1872 and established a headquarters on the major creek of the valley, which was later named for him. Kiger prospered and was on the way to accumulating an even larger operation, when he sold to French for $80,000 and returned to the Willamette Valley with his family.

Mace McCoy arrived in Diamond Valley in the early 1870's. He and several others purchased swampland in lower Diamond Valley. A.H. Robie later acquired the lands of the group headed by McCoy. Robie branded his cattle with a diamond shaped mark, hence the name of Diamond Valley.

In 1877, French purchased the several thousand acres of swampland in Blitzen Valley that had been acquired by Robie, Frank McBean and others. In a short time,

French had acquired land from the head of the Blitzen Valley to the meander line of Malheur Lake.

Under riparian law, ownership of lands bordering the edge of a meandered lake would guarantee ownership of land below the meander line to the center of the lake in the event that the lake level ever receded.

In the case of Malheur Lake, squatters moved onto the new land as the water receded. While they could not get title under the Homestead Act, they continued to live on their claims and French was unable to evict them. A test suit was filed against one of the squatters. The court found that the original meander line was not a true meander, and a new survey was ordered. The new line excluded several thousand acres of land, most of which was being squatted upon. The squatters were then able to file under the Homestead Act to secure title to their claims. The court order thus determined the northern boundary of the Peter French property.

French was killed December 26, 1897 by homesteader Ed Oliver. French's men called it murder; the homesteader claimed self-defense and was acquitted by a jury. Oliver disappeared shortly thereafter. French's supporters said Oliver deserted his wife and children. The family claims he was murdered. He never reappeared in Harney County, nor was his body ever found.

The story has been the subject of two books and has appeared as chapters of numerous others. Whether one believes the homesteaders or French's supporters, the truth remains that the French cattle empire left an indelible mark upon the history of Harney County.

The French holdings were sold to Henry J. Corbett of Portland and others. The ranch was operated for several years with Bill Hanley as manager; Swift and Company then purchased the property. During the time Swift owned the ranch, the Diamond Valley property was divided and sold as smaller ranches. An attempt was made to colonize the upper Blitzen Valley, but the Great Depression and the drought of the late 1920's and early 1930's precluded any success that might have occurred under more favorable conditions. Early in 1935, the portion of the Swift land north of the head of the Blitzen Valley was purchased by the Biological Survey and added to the Malheur National Wildlife Refuge.

In order for the government to develop this valley for waterfowl and wildlife purposes, three Civilian Conservation Corps camps of 200 men each were opened. These camps were located at the Sod House refuge headquarters area, Buena Vista and Five Mile Spring. Camp supervision was the responsibility of the Army and the Biological Survey administered the work program. Buildings at the Refuge Headquarters and the Buena Vista Station were constructed. The old Pete French headquarters buildings were renovated, as was the Frenchglen Hotel. Miles and miles of fence were constructed for the refuge and the Grazing Service. The Blitzen

River was confined to a canal for 26 miles, three new diversion dams constructed and many miles of major canals with diversion systems were built.

7. Catlow Valley

In January 1874 David Shirk drove a large herd of cattle into what was then an unnamed valley on the west side of Steens Mountain. Shirk described the country as covered with two feet of snow, but, he wrote, the bunch grass above the snow was so lush that the cattle could get a good fill. Several days after his arrival and the establishment of a camp on Home Creek, a Chinook wind melted the snow. His description of the valley then was of a cattleman's paradise.

The grass on the foothills waved in the wind much like a meadow, and the valley floor was covered with white sage two feet high. He also mentioned that in February they butchered a small beef that was equal in flesh to a corn fed animal in Illinois.

Shirk named the valley for his employer, John Catlow. Catlow settled on the east side of Steens Mountain on Trout Creek in the early 1870's. Shirk's position as foreman for Catlow gave Shirk the opportunity to select a good homestead for himself and in May 1877 Shirk returned to homestead on Home Creak. His brother William filed for a homestead on Three Mile Creek the following year.

In the meantime, Tom Wall had filed for a homestead at Roaring Springs in 1874. Another settler, Spangenberg, made final proof on a claim at the mouth of Skull Creek in May 1898. Both Rock Creek and HL Ranches had been patented prior to the turn of the century.

Grazing by large numbers of cattle and the sheep of itinerant herdsmen began the depletion of the grass and white sage. It became apparent that the bona fide ranches had to provide a supplement for winter feed by stacking hay. The ranches then began to irrigate the meadows for hay production. By that time the excessive use of the range with increased numbers of domestic livestock began to show. Then in 1914 the second grass disaster came. Land settlement was the national trend, promoters and locators were bringing in settlers by the thousands and the attractive, level land of Catlow Valley received its share. Hundreds of claims were filed and had to be developed, so dust arose from busy plows all over the valley.

Because a string of favorable moisture years occurred the settlers wrote to New England or Ohio or wherever and urged friends and relatives to come and get free land before it was all gone. Small settlements sprang up, such as Beckley, Berdugo, Blitzen and Sageview. The population of the valley was around seven hundred with over two hundred voters, but by 1920, nearly all had been starved out. The dry weather cycle cruelly dashed the settlers' high hopes. Some had come with money and built nice homes, but sold for what they could get, or just walked away. During the drought and Depression of the 1930's, Harney County had 300,000 acres of delinquent tax land on the rolls, and 100,000 of that was in Catlow Valley.

In 1925, to alleviate the plight of the homesteader and to protect crops, the county paid a bounty of five cents for every rabbit caught. To collect the bounty, people brought the ears of the rabbits to the county seat as proof of their claims. Some storekeepers let settlers pay for merchandise with rabbit ears instead of cash, and they hauled ears to Burns by the wagonload. In 1925 80,338 rabbits were bountied and in 1926 the number rose to 330,895. The county continued the bounty until 1952.

8. Silver Creek Valley

Silver Creek Valley is located on the high desert west of Burns, along Highway 20. The ranches enjoy good water and grazing land, and timber is close by. Among the early settlers in the area was Thomas Jefferson Shields, who came to the valley with his new bride in 1880. Thomas Shields was the first Harney County judge. He was appointed by Governor Pennoyer in June 1890, pending the first election in the newly formed county.

Logue Cecil settled near Camp Currey in 1871 and the ranch remains in the family today. The first school, a log cabin with a wood stove in the middle of the room, was built in the Evergreen community. The first teacher taught before 1890 and T.J. Shields taught the following three winters. School was held for only three months each year. In 1889, Bill Brown built a community dance and meeting hall and donated it to Riley School District No. 10 for use as a school. The name of the school district was later changed to Suntex. The original building was replaced in 1949.

The first post office in the Silver Creek community was established in 1880 at the ranch home of Rufus Witzel at Evergreen. Tom O'Keefe carried mail by horseback and wagon over a route between Prineville and Canyon City. The post office has had a variety of homes over the years. In 1956 it was moved, along with the town of Riley, to its present location at the junction of Highway 395 and Highway 20. Riley was named for Amos W. Riley of the ranching partnership of Riley and Hardin.

9. Harriman

Land-owner Dr. Homer Denman started the town of Harriman with the belief that the Oregon Short Line Railroad would pass through. He was so positive of this that he named the town, located on the southeast side of Warm Springs Butte near Crane, after Edward Harriman, a railroad magnate. The post office was established in 1907.

The town consisted of a one-building general store and hotel, owned by Denman. Denman sold the store to George Parker, who later resold it to Price and Grace Cochran. Mr. Parker then went into partnership with C. Lee, who started a second store. In its heyday, Harriman had a post office, doctor's office, barbershop,

restaurant, and school. It was said that lively Fourth of July celebrations, with foot races and other activities, were held there.

When the railroad line arrived in Harney County in 1916, the railhead was established at Crane. Now out of the mainstream of travel, the hopeful settlement of Harriman eventually became a ghost town. The hotel was moved to Crane and the school, which once sat a little east of the main part of town, was also moved to Crane, where it was used for the first through fourth grades. The hotel was also moved to Crane. The post office closed in 1917. Later, when the railroad came on to Burns, the tracks did pass nearby but Harriman's businesses had moved to Crane to take advantage of the depot.

10. Waverly

From 1908 until 1916, Mr. and Mrs. Brakeman operated the Waverly post office and store on the east end of Malheur Lake. Near the site of the former community is a country graveyard known as the Windy Point Cemetery.

7.7.2 Functioning Unincorporated Communities

1. General Provisions

There are various unincorporated communities and rural commercial areas throughout the county that serve a significant and important role as part of the county's social and economic fabric. These areas provide goods and services in a centralized location to the farmers and ranchers of the rural part of the county and also provide needed goods and services to the many travelers passing through the county or visiting the county itself. Also many elementary schools are within these communities. These areas are designated specifically on the Comprehensive Plan Land Use Map and have zoning designations that allow the development of residential, commercial, public, and light industrial activity. It is recognized that none of these areas have any public facilities including sewer and water. Also, they are very often surrounded by prime agricultural soils. Therefore, their expansion and internal density must be controlled if health problems and compatibility problems are to be avoided.

When rural residential housing, especially rural residential subdivisions, are allowed in the county, it is appropriate to encourage their location within unincorporated communities so that there is a minimum amount of travel required by residents of these rural subdivisions for goods and services, as well as for education for their children. The identified unincorporated communities and rural commercial areas are listed below:

Andrews	Rural Service Center
Buchanan	Rural Commercial Area
Crane	Rural Community
Diamond	Rural Service Center
Drewsey	Rural Community
Fields	Rural Service Center
Frenchglen	Rural Service Center
Lawen	Rural Commercial Area
Princeton	Rural Commercial Area
Riley	Rural Commercial Area
Wagontire	Rural Commercial Area

Map 24 –Harney County, Unincorporated Communities

A county-wide Residential Lands Study examining all buildable lands planned and zoned for residential use was completed in 1997.

The inventory identifies, in map form and text, all existing buildable, vacant lots within incorporated cities, unincorporated communities and acknowledged exception areas zoned for residential use.

1. Each unincorporated community, rural residential exception and rural commercial exception area are identified on maps and text including the following:

    A. Existing plan and zone designation(s).
    B. Number, size and total area of all vacant and developed (built) lots.
    C. Type and number of structures.
    D. Known natural hazard (flood plain, steep slopes, for example).
    E. Ownership of lands.
    F. Existing public facilities and services, including availability of roads and water.

2. Within the Urban Growth Boundaries (UGB) of Burns and Hines, the study identifies on map and text, the following:

    A. Existing plan and zone designations.
    B. Number and size of all vacant and developed (built) lots.
    C. Type and number of structures.
    D. Existing public facilities and services, including water and sewer.

Maps have been prepared for all unincorporated communities and rural exception areas (residential and commercial), and for all urban and urbanizable areas within the Urban Growth Boundaries of Burns and Hines. Copies of all maps are available in the Planning Department of Harney County.

Each map shows the location of each: single-family residence, multi-family residence, manufactured home, adult foster home, other residential facilities, commercial enterprise, industrial facility and public facilities. In addition, unincorporated community boundaries and urban growth boundaries are designated on the comprehensive plan map. Flood zones and floodways, where such exist, are delineated on the zoning map overlays. Other hazards to building, such as steep slopes, have also been identified.

A database has been built which reflects information required, including the map reference, tax lot, location and zone, acreage, acreage being used in conformance with zoning, acreage being used in non-conforming ways, acreage not available for building due to wetlands, flood ways, other prohibitive factors, public usage, and net buildable land.

All of the above have been designated in the Comprehensive Plan as either "rural communities," “rural service centers,” or “rural commercial”. Drewsey and Crane were, at one time, incorporated towns, but are no longer. Crane and Drewsey are platted with streets, and some service easements, which are not vacated. No unincorporated communities have water or sewer services, using wells and septic systems, individually constructed and maintained is required.

"Exception areas" are those lands located outside the Urban Growth Boundaries of Burns and Hines that are designated unincorporated community, rural service center, rural commercial and rural residential.

Except for lands held in trust by the Burns Paiute Tribe and land owned by Federal agencies, the County Planning Department, Planning Commission, and County Court are responsible for the planning and zoning of all unincorporated areas (outside city limits of Burns and Hines).

UNINCORPORATED COMMUNITIES' STATISTICS						
Unincorporated Community	Total Area	R-3 Residential Area Built	Public Area, Facilities	Commercial And other Area	Non-Buildable Area	*Net Buildable Space
Andrews	52.0	1.7	32.8	0	0	16.9
Buchanan	1.8	1.8	0	Shares bldg	0	0
Crane	**124**	39.4	35.4	0	0	**49.2**
Diamond	1.8	1.8	0	Same	0	0
Drewsey	22.4	18.4	11.6	Same	0.1	4.0
Fields	153.7	5.1	2.4	Same	0	148.6
Frenchglen	**15.1**	**7.1**	1.5	Same	**6.7**	**2**
Lawen	0.5	0.5	share bldg	Same	0	0
Princeton	8.5	0.5	0	0	0	8.0
Riley	34.0	0	0.05	4.4	0	29.5
Wagontire	10.5	2.6	0	0	0	8.0
Totals	**424.3**	**78.9**	**83.75**	**4.4**	**6.8**	**266.2***

Table 30– Unincorporated Communities' Statistics

*Buildable land does not equal total acreage less built spaces because of overlapping usage. Public area and facilities includes Federal land, Post Offices, Schools and Churches. With the exception of Riley, which has 4.5 acres designated Commercial, all Unincorporated Communities are designated residential, R-3.

It should be noted that in the unincorporated communities where each resident supplies their own water and uses septic systems, the separation of the two require considerable amount of space (how much depends, in part, dependent on soil conditions). In some unincorporated communities, such as Crane and Drewsey, the lot sizes are small, requiring at least 6 contiguous lots to be able to fit both a well and septic system. It takes six contiguous lots in Crane, for example, to equal approximately 1/4 acre. Crane has the added disadvantage of still having most of the original service alley easements still in county ownership and therefore unavailable in trying to site the well and septic systems. The County may wish to consider the adoption of a plan policy, which sets up a process for vacating the service easements between streets to ease this situation for residents of Crane.

Paved roads serve Unincorporated Communities; streets are not generally paved, however. Maintenance of streets, where they exist, is a County responsibility. Most are graded gravel, though a few "streets" have been worn across open land by vehicles without benefit of grading.

BURNS AND ITS URBAN GROWTH BOUNDARY				
City of Burns	Total Acres	Area Built	Area Not Buildable	Area Net Buildable
Commercial	146.4	82.4	0	59.0
Heavy Industry	94.5	69.7	0	23.7
Light Industry	52.9	16.9	7.5	28.5
Open Space	*680.7	0	0.2	680.5
Public Space	147.1	142.4	0.4	0
Residential/				
Multi-Family	102.6	30.0	0	72.6
Residential/				
Single Family	650.9	248.9	8.5	393.5
Residential/				
Manufactured Home	11.4	9.4	0	2.0
Subtotal	**1886.5**	**599.7**	**16.6**	**1259.8**
Burns UGB				
Commercial (C-1)	51	1.5	0	49.5
Exclusive Farm Use (EFRU-1)				
Residential (R-1)	23.1	11.9	0	11.1
Subtotal	74.1	13.4	0	60.6
Totals	**1960.6**	**613.1**	**16.6**	**1320.4**

Table 31 – Burns and its Urban Growth Boundary

*Of the 680.7 acres of land under Open Space, half or 330 acres is held by the Burns Paiute Tribe and is therefore, outside the jurisdiction of the City of Burns. Open Space zoning will need to be changed for development to occur, such a zone change is not considered an impediment to development.

HINES AND ITS URBAN GROWTH BOUNDARY				
City of Hines	Total Acres	Area Built	Area Not Buildable	Area Net Buildable
Commercial	109.7	42.1	3.8	63.8
Industrial	19.8	5.0	0	14.8
Public Space	108.9	102.9	3.2	0
Residential	252.9	154.7	9.9	88.3
Subtotal	**491.3**	**304.7**	**16.9**	**166.9**
Hines UGB				
Commercial (C-1)	649.5	134.7	15.8	498.9
Exclusive Farm Use (EFRU-1)	298.5	19.2	0	279.3*
Residential (R-1)	153.9	40.0	1.8	112.1
Subtotal	1101.9	193.9	17.6	890.3
Totals	**1593.2**	**498.6**	**34.5**	**1057.2**

Table 32 – Hines and its Urban Growth Boundary

Hines has one area (EFRU-1 zone), which is listed as “buildable”, but it is not currently zoned to be used for any other uses. Zone change is needed but is not considered an impediment to being buildable.

It should also be noted that the C-1 zone in the UGB of Hines permits industrial uses.

EXCEPTION ZONES IN THE HARNEY BASIN				
Zone	Total Acres	Area Built	Area Not Buildable	Area Net Buildable
Commercial (C-1)	142.7	43.0	0	99.6
Residential (R-1)	575.9	191.9	8.0	375.9
Totals	**718.6**	**234.9**	**8**	**475.5**

Table 33 – Exception Zones in the Harney Basin

Some of the buildable lands (206.6 acres) in the Exception Area in R-1 and R-3 zones are also set aside under Exclusive Farm and Range Use. In order to develop,

such lands would need to be taken out of Farm Deferral in order to be used for non-farm residences.

There are subdivisions within the R-1 zone, which have established large lot sizes. Those are properly zoned for houses but would need to be partitioned before any more lots could be created; therefore they are considered fully occupied at this time. In addition, some areas are zoned for 5-acre minimums. Those, which exceed 10 acres, could also be partitioned and built upon. Such acreage is considered buildable in this inventory only if it exceeds 10 acres.

INVENTORY OF RESIDENTIAL UNITS IN HARNEY COUNTY					
Location	Single-Family Residences	Manufactured Homes	Multi-family Residences*	Adult Care Facilities	Total
Burns & UGB	894	207	28	7	1136
Hines & UGB	571	62	8	3	644
Andrews	0	2	0	0	2
Buchanan	1	1	0	0	2
Crane	18	7	1**	0	26
Diamond	2	1	0	0	3
Drewsey	10	3	0	0	13
Fields	1	3	0	0	4
Frenchglen	4	2	0	0	6
Lawen	1	0	0	0	1
Riley	1	0	0	0	1
Wagontire	0	1	0	0	1
Totals	**1503**	**289**	**37**	**10**	**1839**

Table 34 – Inventory of Residential Units in Harney County

*This figure does not count the number of living units; it denotes the number of multi-family properties on the basis of tax lots, including duplexes, multiple units and mobile home parks.

**Multi-family residence in Crane is temporary residence for students at Crane High School.

2. Recommendations

A. County should investigate vacating service easements in the rural communities, specifically Crane and Drewsey.

B. City of Burns should encourage the rezoning of Open Space (OS), replacing it with Residential, Commercial or Industrial zones as need occurs.

C. The County should consider developing a zoning ordinance for those areas inside the Hines Urban Growth Boundary, to facilitate transition from rural to urban densities.

D. As area within Hines Urban Growth Boundary is developed, density and amenities should be consistent with those within the Hines City Limits.

E. The City of Hines should encourage property owners in EFRU-1 to seek change to Residential zoning as need occurs.

3. Andrews Rural Service Center

A. Historical Background

Andrews' post office was established in 1890, and was named for Peter Andrews who settled in Wildhorse Valley on the east side of Steens Mountain. The common name for the community was "Wildhorse", but residents chose the name of their first postmaster for the town because they felt it was more dignified. Peter Andrews ran a dairy and sold butter, cheese and milk to the Chinese workers at the borax mine on the desert playa Alvord Lake. The Chinese workers lived in small, one-room houses across the lake from Andrews.

Marjorie Shull, pioneer resident of Andrews, was appointed postmistress at Andrews in 1933 and held that position for 33 years when she retired and moved to Burns. The town's businesses have been closed for many years.

B. General PRovisions

Under the Administrative Rule for Unincorporated Communities, OAR 660, Division 22, Andrews meets the definition for a "Rural Service Center". According to the Rule, a "Rural Service Center" is an unincorporated community which consists primarily of commercial or industrial uses providing goods and services to the surrounding rural area, or to persons traveling through the area, but which also includes some permanent residential dwellings.

The existing development in Andrews consists of a single elementary school, which has been temporarily closed due to lack of enrollment. However, the Harney County Education Services District maintains the option of reopening the school, should the enrollment numbers grow, in fact, anticipates such growth within the next two to three years. Some residential development also exists. A store and tavern formerly operated here, but no longer exist.

Andrews is built on the eastern edge of the Steens Mountain foothills, with the area to the north, south, and west generally flat. Historically, the native vegetation in the area consisted primarily of juniper trees with an under story of grasses and sagebrush. Much of the native vegetation in the surrounding area remains.

Land surrounding Andrews is zoned EFRU (Exclusive Farm and Range Use), and is a mixture of private land and Bureau of Land Management rangeland. The development pattern of Andrews consists of single-family residences.

The Fields-Denio Road runs through Andrews, and is a graveled, two-lane road maintained by the County. There are no local streets or alleys. There is no fire protection district.

Andrews is designated in the comprehensive plan as a Rural Service Center (See Map 25).

C. Andrews Rural Service Center Policies

1. Andrews shall be designated a rural service center, in recognition of its function of providing primarily goods and services to the surrounding rural areas, and to travelers passing through on the Fields-Denio Road.

2. One zoning district limited to residential and small-scale commercial uses shall be established.

3. The County shall encourage mixed residential and commercial uses.

4. The County shall support traffic safety improvement to the Fields-Denio Road.

5. An applicant for a use other than a use that is permitted outright must demonstrate that the affected transportation facilities are adequate to serve the proposed use, considering the functional classifications, capacity and the level of service of such facility.

6. If Harney County determines that they must expand the boundary of Andrews Rural Service Center, it shall follow the criteria listed in OAR 660, Division 4 for exception to Goal 3.

Map 25 – Andrews, Rural Service Center Zone

4. Buchanan Rural Commercial Area

A. Historical Background

The William D. Buchanan family arrived in Harney County in 1886. The father and two sons, Joe and George, claimed land in the area which was to be given their name. The Buchanans had a stage stop at the top of the hill, north of the present-day Buchanan, which is the former J.W. Buchanan ranch. Stage passengers paid fifty cents for a meal, those who had a team of horses or were traveling with a freight team were charged only 35 cents for their meal, but they paid 25 cents per head for feed and water for their horses. The School stood along the creek on the site of today's Oregon highway rest area along Highway 20.

B. General Provisions

Under the Administrative Rule for Unincorporated Communities, OAR 660, Division 22, Buchanan does not meet any of the definitions for unincorporated communities. As such, Buchanan must be planned and zoned for rural commercial uses, which must provide for more limited uses than provided for an unincorporated community

The existing development in Buchanan consists of a single business providing automotive services, farm implement sales and repair, jewelry/art store, and a gas station/convenience market. Some residential development also exists.

Buchanan is built on the edge of the foothills, with the area to the south and west generally flat. Historically, the native vegetation in the area consisted primarily of juniper trees with an under-story of grasses and sagebrush. Much of the native vegetation in the surrounding area remains.

Land surrounding Buchanan is zoned EFRU (Exclusive Farm and Range Use) and is a mixture of private land and Bureau of Land Management rangeland. The development pattern of the Rural Commercial Area consists of single-family residences.

U.S. Highway 20 runs through Buchanan. The Crane-Buchanan Road intersects Highway 20, along the southern boundary of the rural commercial area. Both of these roads are paved two-lanes. There are no local streets or alleys. There is no fire protection district.

Buchanan is designated in the comprehensive plan as a Rural Commercial Area (See Map 26).

C. Buchanan Rural Commercial Area Policies

1. Buchanan shall be designated as a rural commercial area, in recognition of its function of providing some limited amounts of goods and services to the surrounding rural residential areas, and to travelers passing through on U.S. Highway 20 and the Crane-Buchanan Road, and because of its function of providing some housing opportunities for residents within the boundaries of the rural area identified herein as Buchanan.

2. A new zoning district limited to residential and rural commercial uses (2,500 square foot buildings) shall be established.

3. The County shall encourage mixed residential and rural commercial uses.

4. The County shall support traffic safety improvements to the Crane-Buchanan Road, where it connects to U.S. Highway 20.

5. An applicant for a new use other than a use that is permitted outright must demonstrate that the affected transportation facilities are adequate to serve the proposed use, considering the functional classifications, capacity and the level of service of such facilities.

6. If Harney County determines that it must expand the boundary of Buchanan, it shall follow the criteria for an exception to Goal 3 (OAR 660, Division 4)

Map 26 – Buchanan, Rural Commercial Area Zone

5. Crane Rural Community

A. Historical Background

Crane, once a thriving little city with five restaurants, four hotels, two general merchandise stores, a dance hall, a newspaper, a bank and a movie theater was never rebuilt to its former glory after a series of devastating fires, the last in 1938.

The town was at its peak during the time it served as the railhead for the Union Pacific Railroad. The railroad arrived in 1916 to much fanfare from Harney County citizens. The *Burns Times Herald* reported, "Chief Construction Engineer Young brought the first train in with two coaches and several flat cars filled with excursionists from Ontario, Vale, Juntura, Riverside and other points. As soon as he had disposed of the excursion people, he invited the Harney County people to ride with him, and the train was soon filled. It was necessary to make two trips to and from the scene of the big steam shovel in Crane Creek Gap, to accommodate all."

The railroad was destined for Burns to serve a new sawmill there, and in 1924, the line was completed into Burns. The businesses might have survived to serve the eastern half of the county had the town not be plagued by fires.

With the arrival of the railroad, Crane became a thriving business center and permanent buildings started going up. One of the first stores sold groceries and dry goods, and was owned by a Mr. Lee. Later the Hotel Denman was moved in from nearby Harriman. A large store called the Vale Trading Company was established by Mr. Dunlop, of Vale and sold groceries, dry goods and machinery – its slogan was "Everything for Everybody."

A high school was built on Crane Creek, and Alice Smith began teaching on October 28, 1901. In 1910, Archie McGowan established one of the first and oldest Ford dealerships in Oregon and sold four Model T's.

Weinsteins also had a store in a brick building that was later turned into the Rivoli Theatre, and movies became a part of the town's entertainment. There was also the Hudspeth store and the Crane State Bank. Crane once had three garages, a warehouse, a lumber yard, livery stables, a butcher shop, restaurants and a shoe repair shop operated by Fred Terhufen, who also sold shoes.

In August 1916, P.J. Gallagher and George E. Carter, established a newspaper, *The Crane American.* Gallagher soon left to pursue a career as a lawyer and Carter continued to publish the newspaper until 1935. He sold the business and it was moved to Burns in 1936 where it ceased publication after a short time.

The state highway department began building a gravel road, Oregon Highway 78, into Burns in 1917, and its completion in about 1920 greatly improved travel conditions for those in the southern end of the county.

Ranchers in the area around Malheur Lake moved their families to Crane during the summer months while they did the haying and then moved them back to the Lawen area each winter to feed their cattle and send their children to school. When the railroad came in 1916, Crane citizens saw that they would need an elementary school. With the addition of the lower grades, more people began to make Crane their permanent residence.

The tiny community today is the home for Crane Union High School and Crane Elementary School. The high school is a boarding school for the children of ranch families who inhabit the vast rural regions of the county. Some students are living over one hundred miles from home.

A few families live there, the post office and a service station / tavern, and farm supply are the only businesses. The Church of Jesus Christ of Latter-day Saints and a community chapel serve the community's spiritual needs. In the heyday of Harney County's growth, the town was an important, bustling center of trade. A post office was established in 1895 with Henry C. Turner as the first postmaster. Discontinued in 1903, the office was reopened in 1911, and continues to serve at the present time.

B. General Provisions

Under the Administrative Rule for Unincorporated Communities, OAR 660, Division 22, Crane meets the definition for a "Rural Community". According to the Rule, a "Rural Community" is an unincorporated community consisting primarily of permanent residential dwellings but also has at least two other land uses that provide commercial, industrial, or public uses (including but not limited to schools, churches, grange halls, post offices) to the community, and the surrounding rural area, or to persons traveling through the area.

The existing development in Crane consists of the Crane Store, part of the old railroad station, a public boarding school and a church. Residential development also exists.

Land surrounding Crane is zoned EFRU (Exclusive Farm and Range Use) and is a mixture of private land and Bureau of Land Management rangeland. The development pattern of Crane consists of single-family residences.

Crane-Venator County Road runs through the Rural Community. This road is a paved two-lane road. There are several local streets and no alleys. There is no fire protection district.

The Crane Rural Community is designated in the comprehensive plan as a Rural Community (See Map 27).

C. Crane Rural Community Policies

1. Crane shall be designated as a rural community, in recognition of its function of providing permanent residential dwellings and goods and services to the surrounding rural residential areas, and to travelers passing through on the Crane-Buchanan Road, and because of its function of providing housing for residents within the boundaries of the area identified herein as Crane.

2. A Crane Community Residential plan designation and zoning district shall be applied to the residential areas within Crane. A Crane Community Commercial plan designation and zoning district, providing for small-scale low impact commercial uses, shall be applied to existing commercial uses and to areas set aside for future community commercial uses within Crane.

3. The County shall support traffic safety improvements to the Crane-Buchanan Road.

4. An applicant for a new use other than a use that is permitted outright must demonstrate that the affected transportation facilities are adequate to serve the proposed use, considering the functional classifications, capacity and the level of service of such facilities.

5. If Harney County determines that it must expand the boundary of the Crane Rural Community, it shall follow the criteria listed in OAR 660, Division 4 for exceptions to Goal 3.

Map 27 – Crane, Rural Community Zone

6. Diamond Rural Service Center

A. General Provisions

Under the Administrative Rule for Unincorporated Communities, OAR 660, Division 22, Diamond meets the definition for a "Rural Service Center". According to the Rule, a "Rural Service Center" is an unincorporated community consisting primarily of commercial or industrial uses providing goods and services to the surrounding rural area, or to persons traveling through the area, but which also includes some dwellings.

The existing development in Diamond consists of a small hotel and restaurant, and a small grocery store. The post office was previously operated in the store, but all mail service was transferred to the Princeton Postal Contract Station in December 1997. Limited residential development also exists.

Diamond is built in a wide valley, with a hill directly to the east (on the edge of the store/hotel parking lot), Historically, the native vegetation in the area consisted primarily of juniper trees with an under story of grasses and sagebrush. Much of the native vegetation in the surrounding area remains.

Land surrounding Diamond is zoned EFRU (Exclusive Farm and Range Use), and is a mixture of private land and Bureau of Land Management rangeland. The development pattern of the Rural Service Center consists of single-family residences, although there are two bed-and-breakfast businesses in the valley, outside the service center.

The Diamond Valley Road runs through the Rural Service Center, and is a paved two-lane. There are no local streets or alleys. There is no fire protection district.

Diamond is designated in the comprehensive plan as a Rural Service Center (See Map 28).

B. Diamond Rural Service Center Policies

1. Diamond shall be designated as a rural service center, in recognition of its function of providing goods and services to the surrounding rural residential areas, and to travelers passing through on the Diamond Valley Road, and because of its function of providing housing for residents within the boundaries of the area identified herein as Diamond.

2. One zoning district limited to residential and small-scale commercial uses shall be established.

3. The County shall encourage mixed residential and commercial uses.

4. The County shall support traffic safety improvements to the Diamond Valley Road.

5. An applicant for a new use other than a use that is permitted outright must demonstrate that the affected transportation facilities are adequate to serve the proposed use, considering the functional classifications, capacity and the level of service of such facilities.

6. If Harney County determines that it must expand the boundary of the Diamond Rural Service Center, it shall follow the criteria listed in OAR 660, Division 4 regarding an exception to Goal 3.

Map 28 – Diamond, Rural Service Center Zone

7. Drewsey Rural Community

A. Historical Background

In 1883, Gabriel "Gabe" Rush, erected a building on the North Fork of the Malheur River at the foot of the Blue Mountains southwest of Castle Rock. Abner Robbins and E.E. Perrington started a general store inside this first structure. The men filed for land for a town site and applied for a post office. It was then that the town of Drewsey officially came into existence.

Prior to that time, the area had been a favorite camping spot for the Paiute Indians, who fished for salmon in the river, hunted deer, and foraged for bitter-root, biscuit root, wild carrots, wild onions and other foods.

In 1872, a federal executive order designated the region, drained by the three forks of the Malheur River – about 2,285 square miles – as the Malheur Indian Reservation for "all the roving and straggling bands in eastern and southeastern Oregon, which can be induced to settle there." The white-men's Indian agency headquarters was located south of Castle Rock on the eastern boundary. The Paiutes were encouraged to become farmers and to learn under the agent's supervision, the ways of "English speaking people," as the Indian people describe the cultural differences. Military and freight roads from Harney City and Canyon City served the area.

The reservation included about 12,000 acres that were considered tillable. During the Bannock Indian War of 1878 the Paiutes scattered to reservations in Idaho, Nevada and California. The Indian prisoners held at Camp Harney, and their families, were taken to Yakima, Washington as punishment for joining the Bannocks' uprising as they rampaged through Harney Valley.

Settlers began to eye the reservation lands. As early as 1882, people were acquiring "squatters' rights" to the land around Drewsey. In 1883, with the exception of Camp Harney, the last of the Malheur Indian lands were restored to the public domain. The "squatters" and other newcomers were able to file claims on the land. From that time on, Drewsey grew quite rapidly for several years, becoming a typical "cow town". The Pacific Livestock Company acquired considerable holdings in the area and became the principal employer. With an abundance of crops and livestock being raised, two lumber mills in operation, and various smaller enterprises beginning, the town continued to grow and prosper through the 1920's.

Failure of the railroad to come through Drewsey from Juntura, bypass of the Central Oregon Highway, the Depression, and the demise of the Pacific Livestock Company, all contributed to the decline of Drewsey. Drewsey has gone the way of many of the earlier towns. Today there is a combined garage, store

and post office, and a tavern and restaurant. About a dozen occupied homes remain.

Drewsey continues to serve as the local gathering place for surrounding areas. The school is still operating, the two churches have services each week, and the gymnasium is used for school activities, meetings, and other community activities. Fishermen are plentiful during the summer, although the catch today is trout. Salmon can no longer reach the Malheur River because of dams and other changes in the river system of northeastern Oregon. Fall brings an influx of hunters into the area.

B. General Provisions

Under the Administrative Rule for Unincorporated Communities, OAR 660, Division 22, Drewsey meets the definition for a "Rural Community". According to the Rule, a "Rural Community" is an unincorporated community consisting of permanent residential dwellings but also has at least two other land uses that provide commercial, industrial, or public uses (including but not limited to schools, churches, grange halls, post offices) to the community, and to the surrounding rural area, or to persons traveling through the area.

The existing development in Drewsey consists of a retail commercial store, a tavern, a small public school and a post office. Some residential development also exists.

Land surrounding Drewsey is zoned EFRU (Exclusive Farm and Range Use) and is a mixture of private land and Bureau of Land Management rangeland. The development pattern of the Rural Community consists of single-family residences.

Commercial Avenue runs through the Drewsey. This road is a paved two-lane road. There are several local streets and no alleys. There is no fire protection district.

Drewsey is designated in the comprehensive plan as a Rural Community (See Map 29).

C. Drewsey Rural Community Policies

1. Drewsey shall be designated as a rural community, in recognition of its function of providing permanent residential dwellings and goods and services to the surrounding rural residential areas, and to travelers passing through the area, and because of its function of providing housing for residents within the boundaries of the area identified herein as Drewsey.

2. A Drewsey Community Residential plan designation and zoning district shall be applied to the residential areas within Drewsey. A Drewsey Community Commercial plan designation and zoning district, providing for small-scale low impact commercial uses, shall be applied to existing commercial uses and to areas set aside for future community commercial uses within Drewsey.

3. The County shall support traffic safety improvements to the Crane-Buchanan Road.

4. An applicant for a new use other than a use that is permitted outright must demonstrate that the affected transportation facilities are adequate to serve the proposed use, considering the functional classifications, capacity and the level of service of such facilities.

5. If Harney County determines that it must expand the boundary of the Drewsey Rural Community, it shall follow the criteria listed in OAR 660, Division 4 for exceptions to Goal 3.

Map 29 – Drewsey, Rural Community Zone

8. Fields Rural Service Center

A. Historical Background

Fields Station was first established as a roadhouse on the stagecoach line between Winnemucca, Nevada and Burns in 1881. Charles Fields homesteaded at the site of the Fields post office and “kept the travel and freight haulers.” In 1911 he sold out to John Smyth and when the post office was established in 1913, Smyth named it for Fields.

Fields is about as far as one can get from anywhere – 112 miles south of Burns, and a long, long way from anywhere else. The old stone roadhouse still stands, remodeled as a store and restaurant. The stone horse barn is still in use, although it has partly collapsed. The stationmaster’s tiny cabin with walls of sawed stone and a sod roof, long unused, reminds the passerby of pioneer times.

B. General Provisions

Under the Administrative Rule for Unincorporated Communities, OAR 660, Division 22, Fields meets the definition for a "Rural Service Center". According to the Rule, a "Rural Service Center" is an unincorporated community consisting of commercial uses providing goods and services to the surrounding rural area, or to persons traveling through the area, but which also includes some dwellings.

The existing development in Fields consists of retail commercial store, a small public school. Some residential development also exists.

Land surrounding Fields is zoned EFRU (Exclusive Farm and Range Use) and is a mixture of private land and Bureau of Land Management rangeland. The development pattern of the Rural Service Center consists of single-family residences.

The Fields-Denio Road runs through Fields. This road is a paved two-lane road. There are several local streets and no alleys. There is no fire protection district.

Fields is designated in the comprehensive plan as a Rural Service Center (See Map 30).

C. Fields Rural Service Center Policies

1. Fields shall be designated as a rural service center, in recognition of its function of providing goods and services to the surrounding rural residential areas, and to travelers passing through the area, and because of its function of providing housing for residents within the boundaries of the area identified herein as Fields.

2. One zoning district limited to residential and small-scale commercial uses shall be established.

3. The County shall encourage mixed residential and commercial uses.

4. The County shall support traffic safety improvements to the Fields-Denio Road.

5. An applicant for a new use other than a use that is permitted outright must demonstrate that the affected transportation facilities are adequate to serve the proposed use, considering the functional classifications, capacity and the level of service of such facilities.

6. If Harney County determines that it must expand the boundary of the Fields Rural Service Center, it shall follow the criteria listed in OAR 660, Division 4 regarding an exception to Goal 3.

Map 30 – Fields, Rural Service Center Zone

9. Frenchglen Rural Service Center

A. General Provisions

Under the Administrative Rule for Unincorporated Communities, OAR 660, Division 22, Frenchglen meets the definition for a "Rural Service Center". According to the Rule, a "Rural Service Center" is an unincorporated community consisting of commercial uses providing goods and services to the surrounding rural area, or to persons traveling through the area, but which also includes some dwellings.

The existing development in Frenchglen consists of a retail commercial store, a hotel anda school. Some residential development also exists.

Land surrounding Frenchglen is zoned EFRU (Exclusive Farm and Range Use) and is a mixture of private land and Bureau of Land Management rangeland. The development pattern of Frenchglen consists of single-family residences.

State Highway 205 runs through Frenchglen. This road is a paved two-lane road. There are several local streets and no alleys. There is no fire protection district.

Frenchglen is designated in the comprehensive plan as a Rural Service Center (See Map 31).

B. Frenchglen Rural Service Center Policies

1. Frenchglen shall be designated as a rural service center, in recognition of its function of providing goods and services to the surrounding rural residential areas, and to travelers passing through the area, and because of its function of providing housing for residents within the boundaries of the area identified herein as Frenchglen.

2. One zoning district limited to residential and small-scale commercial uses shall be established.

3. The County shall encourage mixed residential and commercial uses.

4. The County shall support traffic safety improvements to State Highway 205.

5. An applicant for a new use other than a use that is permitted outright must demonstrate that the affected transportation facilities are adequate to serve the proposed use, considering the functional classifications, capacity and the level of service of such facilities.

6. If Harney County determines that it must expand the boundary of the Frenchglen Rural Service Center, it shall follow the criteria listed in OAR 660, Division 4 regarding an exception to Goal 3.

Map 31 – Frenchglen, Rural Service Center Zone

10. Lawen Rural Commercial Area

A. Historical Background

A small store with a post office is all that remains of Lawen – a once busy community of homesteaders (and squatters), who settled in the 1880's on the northern edge of Malheur Lake and below the meander lines as the lake receded.

The lush native meadows of the Lawen area are highly prized for hay for cattle, and in later years, with diking and ditches, Ormand and Standley Ausmus and Henry Vogler reclaimed several thousand acres for crops of malting barley and alfalfa. During the 1940's and 1950's, boxcar loads of barley were shipped by rail from Lawen. The floodwaters claimed all of that land in 1983.

The original town of Lawen was located about two and a half miles south of the present location, along the edge of the slough. The post office was established in 1887. Lawen once boasted a population of about 100 people, and several businesses were located there.

Alice Parker Presley's father homesteaded in Lawen in the late 1880's. Children walked, rode horseback, or ice-skated to school. Skating parties were a favorite winter pastime in addition to potluck suppers and dances at the schoolhouse.

Long time resident Bertha Carey remembered coming to the country in 1898, when Lawen was a big settlement and the school had as many as 45 students. At one time, Lawen had two stores, a dance hall and saloon, a livery stable, a drug store, a blacksmith shop, a hotel and Harney County's first woman Doctor, Mr. Minnie Iland.

Clothing, most of it sewn at home, was washed on a washboard, and wrung by hand. Sometimes, the women would take their tubs and wash boards to the hot springs near Crane. The water was clear and hot, and the clothes seemed whiter and brighter after being washed in the mineral water.

Long ditches cooled the water from the hot springs so that cattle could drink the water. Dr. Iland operated a health resort and swimming pool there, and at one time gas washing machines were available for people who wanted to do their laundry.

Lawen had the only store in the vicinity, until the railroad came to Crane. Then some of the ranchers who had to move from their homes near Lawen in the spring and summer because of the high water, decided to have permanent residences in Crane, instead of moving back and forth from Lawen in the winters to Crane in the summers.

A terrible drought in the 1920's and into the 1930's caused some of the settlers to move, and many places were left deserted. Some buildings from the deserted homesteads still remain. Other settlers survived the drought by haying and planting grain in the dry lake bed. It was at this time that buffalo skulls were unearthed from the center of the lake. And although it is hard to believe today, roads once crisscrossed Malheur Lake, and people had built houses far below the meander line. Today the lake is the largest body of water in the northwest.

Ministers came from Burns to serve the people. Before the store was moved, it had a side room that served as the dance hall, Grange hall and church. Later this room was torn down and these events took place upstairs in the store. P.H. Gray operated the store and the only hotel in the area between Riverside and Burns for a long time.

The first automobile in the Lawen and Crane area came in 1910 and was a Model "T" Ford, which was sold by Archie McGowan.

Ted and Dorothy Carson purchased the Lawen store, located on Highway 78 since 1929, in 1946 from Margaret Bamberry. Herb Fawcett helped move the building to highway frontage. Buildings in Harney County were frequently moved as people moved. The structures were loaded on huge rollers and moved to the new locations.

Former proprietor Dorothy Carson tells of a young couple coming through Lawen on the way to a funeral. They needed gasoline, which was pumped by hand, and the young man and woman had no money to pay for the gas, so they left a brooch with Carson as collateral. Some time later, a letter arrived with the money for the gas and for the postage to return the brooch to the original owners. The brooch was of great value and had belonged to the girl's ancestors. The Carsons owned and operated the store for 36 years.

The rising of the flood waters in the 1980's brought changes to the Lawen community. The school was closed, and the district consolidated with the Crane school district. Carsons sold the store, and it has since passed through a number of owners.

Most of the Lawen residents were forced to move as a result of the high lake levels, leaving only a handful of residents to call Lawen home.

B. General Provisions

Under the Administrative Rule for Unincorporated Communities, OAR 660, Division 22, Lawen does not meet any of the definitions for unincorporated communities. As such, Lawen must be planned and zoned for rural commercial uses, which must provide for more limited uses than provided for an unincorporated community

The existing development in Lawen consists of a single building which houses a post office, residence and very limited convenience store. There are several outbuildings, but no other residences or businesses.

Lawen is built in the middle of Harney Valley, in an area that is generally flat. Historically, the native vegetation in the area consisted primarily of grasses and sagebrush. Much of the native vegetation in the surrounding area remains.

Land surrounding Lawen is zoned EFRU (Exclusive Farm and Range Use), and is a mixture of private land and government-owned land. The development pattern of the Rural Service Center consists of a single-family residence.

OR Highway 78 runs through Lawen, and is a paved two-lane road. The Lawen Road intersects Highway 78, along the southeastern boundary of the Rural Commercial Area, and is a graveled two-lane, maintained by the County. There are no local streets or alleys. There is no fire protection district.

Lawen is designated in the comprehensive plan as a Rural Commercial Area (See Map 32).

C. Lawen Rural Commercial Area Policies

1. Lawen shall be designated as a rural commercial area, in recognition of its function of providing some limited amounts of goods and services to the surrounding rural residential areas, and to travelers passing through the area and because of its function of providing some housing opportunities for residents within the boundaries of the rural area identified herein as Lawen.

2. A new zoning district limited to residential and rural commercial uses (2,500 square foot buildings) shall be established.

3. The County shall encourage mixed residential and rural commercial uses.

4. The County shall support traffic safety improvements to U.S. Highway 78.

5. An applicant for a new use other than a use that is permitted outright must demonstrate that the affected transportation facilities are adequate to serve the proposed use, considering the functional classifications, capacity and the level of service of such facilities.

6. If Harney County determines that it must expand the boundary of the Lawen Rural Commercial area, it shall follow the criteria for an exception to Goal 3 (OAR 660, Division 4).

Map 32 – Lawen, Rural Commercial Area Zone

11. Princeton Rural Commercial Area

A. Historical Background

The site of the first Princeton post office was about one and a half miles north of the present junction of The Narrows and Diamond roads off Highway 78 and was established October 15, 1910 with David Williams as the first postmaster. The building was fashioned after the Lawen store, with the grocery and post office downstairs and living quarters in the upper story. There was also a blacksmith shop at the site. The post office building was destroyed by fire in about 1915. Soon afterward Richard Haines, who was then postmaster, constructed a one-story building at the Narrows-Diamond Junction for a grocery store and post office. He operated the business until 1918, when he sold out and moved to Middleton, Idaho.

The next Princeton post office was located about three miles southeast of Haines' store, in the home of Barney and Edith Graft Kobler, who was the postmistress. In the late 1920's, the Koblers got into a row with a stage driver. Banty Nelson shot and killed Barney Kobler in the fracas, and Edith gave up her job as postmistress.

The post office was once again moved, this time just a quarter of a mile west to the residence of George Christopher, who was appointed postmaster. The Princeton post office remained at this location until 1953 when it was moved north about three miles after the route of Highway 78 was changed. Since that time the post office, store and lunch counter have remained at the same site.

After Richard Haines left Harney County in 1918, his store building was converted into a one-room school with modest living quarters for the teacher. School was held in this building until 1928, when the state demanded a more central location. A cabin was moved in about a mile to the southwest for the school while the store building continued to be the teacher's residence. The Princeton school was discontinued in 1932.

When Harney Electric Cooperative brought electricity to the rural area in 1957, the Princeton community was gradually transformed from an area of dry-land ranches and sagebrush to a region of productive irrigated grain and alfalfa fields.

B. General Provisions

Under the Administrative Rule for Unincorporated Communities, OAR 660, Division 22, Princeton does not meet any of the definitions for unincorporated communities. As such, Princeton must be planned and zoned for rural commercial uses, which must provide for more limited uses than provided for an unincorporated community

The existing development in Princeton consists of only a single residence, but the new owners have given notice that they are considering re-establishing the Princeton store, which was formerly located in their residence. The store was closed and the post office moved to a nearby residence within the past 10 years. There is some potential for the postal contract station being relocated within the Princeton rural community. Some residential development exists outside the rural commercial boundaries.

Princeton is built on the eastern edge of the Steens Mountain foothills, with the area to the north, south, and west generally flat. Historically, the native vegetation in the area consisted primarily of juniper trees with an under story of grasses and sagebrush. Much of the native vegetation in the surrounding area remains.

Land surrounding Princeton is zoned EFRU (Exclusive Farm and Range Use), and is a mixture of private land and government-owned land. The development pattern of the Rural Community consists of single-family residences.

OR Highway 78 runs through Princeton with the Diamond Valley Road intersecting Highway 78 just south of the Princeton. Both of these roads are paved two-lanes. There are no local streets or alleys. There is no fire protection district.

Princeton is designated in the comprehensive plan as a Rural Commercial Area (See Map 33).

C. Princeton Rural Commercial Area Policies

1. Princeton shall be designated as a rural commercial area, in recognition of its function of providing some limited amounts of goods and services to the surrounding rural residential areas, and to travelers passing through the area and because of its function of providing some housing opportunities for residents within the boundaries of the rural area identified herein as Princeton.

2. A new zoning district limited to residential and rural commercial uses (2,500 square foot buildings) shall be established.

3. The County shall encourage mixed residential and rural commercial uses.

4. The County shall support traffic safety improvements to U.S. Highway 78.

5. An applicant for a new use other than a use that is permitted outright must demonstrate that the affected transportation facilities are adequate to serve the proposed use, considering the functional classifications, capacity and the level of service of such facilities.

6. If Harney County determines that it must expand the boundary of the Princeton Rural Commercial area, it shall follow the criteria for an exception to Goal 3 (OAR 660, Division 4).

Map 33 – Princeton, Rural Commercial Area Zone

12. Riley Rural Commercial Area

A. Historical Background

In the 1940's and 1950's conditions in Harney County's rural areas were not that far removed from the conditions of earlier days. Telephone service was marginal or non-existent until the 1960's. Dependable electric power service wasn't available in most rural communities until 1958. The following first person account by Marie Macomber, postmaster of Riley, tells of her latter-day pioneering experiences. Her account is typical of the experiences of other rural communities in the county during that time.

My husband, Charles, and I moved to Riley from Chehalis, Washington. What a different world Riley was. We were accustomed to electricity, telephones and inside privies. Riley families had "light plants" to generate power individually – if they were prosperous enough. Coleman lanterns served the middle class in addition to kerosene lanterns and lamps and everyone had standby candles.

The telephones were, at best, not good. The old wall phone had a handle to operate the ringer. Every household on the line had a coded ring – one short, two long, three short, etc. Seven rings meant emergency, everyone answered seven rings. The neighbors decided that a better telephone system was needed and to get it they would have to build it themselves. They organized the Silver Creek Telephone Company. The same short and long ring system was used, but with the new system the operator would answer one long ring and then connect the caller with the Burns system's operator. At last, the outside world could be reached. This system served the community until the 1960's.

Electricity was brought to the rural areas of the County and northern Nevada in 1958. This modernization brought irrigations wells, sprinkler irrigation systems and an increase in the production of crops.

B. General Provisions

Under the Administrative Rule for Unincorporated Communities, OAR 660, Division 22, Riley does not meet any of the definitions for unincorporated communities. As such, Riley must be planned and zoned for rural commercial uses, which must provide for more limited uses than provided for an unincorporated community.

The existing development in Riley consists of a grocery store/service station and a post office. A residence is included in the store building with some residential development occurring just outside the rural commercial boundary.

Riley is built in a valley, with foothills to the north, south and east. Historically, the native vegetation in the area consisted primarily of juniper trees with an under

story of grasses and sagebrush. Much of the native vegetation in the surrounding area remains.

Land surrounding Riley is zoned EFRU (Exclusive Farm and Range Use), and is a mixture of private land, U.S. Forest Service and Bureau of Land Management rangeland. The development pattern of the Rural Commercial area consists of single-family residences.

U.S. Highway 20-395 runs through Riley. The two highways intersect at the western boundary of the rural commercial area, and are paved two-lanes. There are no local streets or alleys. There is no fire protection district.

Riley is designated in the comprehensive plan as a Rural Commercial Area (See Map 34).

C. Riley Rural Commercial Area Policies

1. Riley shall be designated as a rural commercial area, in recognition of its function of providing some limited amounts of goods and services to the surrounding rural residential areas, and to travelers passing through the area and because of its function of providing some housing opportunities for residents within the boundaries of the rural area identified herein as Riley.

2. A new zoning district limited to residential and rural commercial uses (2,500 square foot buildings) shall be established.

3. The County shall encourage mixed residential and rural commercial uses.

4. The County shall support traffic safety improvements to U.S. Highway 20/395.

5. An applicant for a new use other than a use that is permitted outright must demonstrate that the affected transportation facilities are adequate to serve the proposed use, considering the functional classifications, capacity and the level of service of such facilities.

6. If Harney County determines that it must expand the boundary of the Riley Rural Commercial area, it shall follow the criteria for an exception to Goal 3 (OAR 660, Division 4).

Map 34 – Riley, Rural Commercial Area Zone

13. Wagontire Rural Commercial Area

A. Historical Background

Someone found a wagon tire in the desert and the area surrounding it became knows as “Wagontire”. Romantics speculate that the wheel came from a wagon train that was attacked by Indians, but no one really knows why the relic was left behind. Another mystery is the history of 49 three-inch cannon balls that were found between Wagontire and Riley in 1978.

Before 1900, a German named Anton Egli settled on a ranch near Wagontire Mountain. The family moved to North Hollywood in the 1920’s. Joe Egli (Anton’s son) became the senior casting director for Paramount Studios during the heyday of large movie companies. Ed Egli (another son) drove the multi-horse teams in many early day cowboy westerns. As people settled the high desert area, they received their mail at the Egli ranch. Later, the ranch became an official post office called Egli. In 1919 the post office name was changed from Egli to Wagontire.

The only good water for miles around was from springs on Wagontire Mountain, which led to waterhole feuds, gun battles and murder. The early pioneers were tough, uncompromising people, they did whatever they considered necessary to survive in a hard land.

B. General Provisions

Under the Administrative Rule for Unincorporated Communities, OAR 660, Division 22, Wagontire does not meet any of the definitions for unincorporated communities. As such, Wagontire must be planned and zoned for rural commercial uses, which must provide for more limited uses than provided for an unincorporated community.

The existing development in Wagontire consists of a single business, which includes a store, gas station, motel, RV hook-ups and limited groceries. There is no other residential development.

Wagontire is built in a rolling foothills area. Historically, the native vegetation in the area consisted primarily of juniper trees with an under story of grasses and sagebrush. Much of the native vegetation in the surrounding area remains.

Land surrounding Wagontire is zoned EFRU (Exclusive Farm and Range Use), and is a mixture of private land and Bureau of Land Management rangeland. The development pattern of the rural commercial area consists of single-family residences.

U.S. Highway 395 runs through Wagontire, and is a paved two-lane. There are no local streets or alleys. There is no fire protection district.

Wagontire is designated in the comprehensive plan as a Rural Commercial Area (See Map 35).

C. Wagontire Rural Commercial Area Policies

1. Wagontire shall be designated as a rural commercial area, in recognition of its function of providing some limited amounts of goods and services to the surrounding rural residential areas, and to travelers passing through the area and because of its function of providing some housing opportunities for residents within the boundaries of the rural area identified herein as Wagontire.

2. A new zoning district limited to residential and rural commercial uses (2,500 square foot buildings) shall be established.

3. The County shall encourage mixed residential and rural commercial uses.

4. The County shall support traffic safety improvements to U.S. Highway 395.

5. An applicant for a new use other than a use that is permitted outright must demonstrate that the affected transportation facilities are adequate to serve the proposed use, considering the functional classifications, capacity and the level of service of such facilities.

6. If Harney County determines that it must expand the boundary of the Wagontire Rural Commercial area, it shall follow the criteria for an exception to Goal 3 (OAR 660, Division 4).

Map 35 – Wagontire, Rural Commercial Area Zone

7.7.3 Provisions Applied to all Unincorporated Communities

The EFRU zone should surround these communities as close as possible while leaving enough area to respect property lines of properties that have the unincorporated community uses on them and allowing, where desired and appropriate, land available for future development.

The minimum lot size in these unincorporated communities should be ~~one~~ two acres or that size necessary to secure necessary septic permits, whichever is the larger.

The recognition of the ~~Rural~~ Unincorporated Communities requires that an exception be taken to LCDC Goal 3 - Agriculture that requires the protection of all Class I through VI soils. All of the Unincorporated Communities fall in areas with these types of soils; therefore, an exception must be taken. The analysis of the Unincorporated Communities in light of the exception criteria is below.

A. Why these other uses should be provided for:

The Unincorporated Communities provide an extremely valuable service to the agricultural community of the County. The availability of groceries, hardware, and other services at these locations is very important to the economy. Without the Unincorporated Communities, ranchers and farmers would be forced to travel to Burns to meet their needs. This would greatly increase the cost of agricultural operations and would probably seriously impede the County's economy.

B. What alternative locations within the area could be used for the proposed uses:

The Unincorporated Communities are already established; therefore there are no alternatives to these locations.

C. What are the long term environmental, economic, social and energy consequences to the locality, the region or the state from not applying the goal or permitting the alternative use:

The loss of the Unincorporated Communities would run ~~totally~~ counter to Goal 3 - Agriculture. The Communities are part of a network of activities that are necessary to continue the violable agricultural economy of the County. There would be a loss of a social center with the loss of several of these Communities. Likewise, there would be great energy and environmental impacts if the ranchers and farmers were forced to travel to Burns to meet their day-to-day needs.

D. A finding that the proposed uses will be compatible with other adjacent uses.

The Unincorporated Communities have long been established; therefore, their compatibility is a matter of history. The relationship with adjacent agricultural operations is not one that hampers either use.

7.8 Airport Development

Harney County has within its boundary the Burns Municipal Airport. The City of Burns owns and manages the airport and implements the plans for this facility through the Burns Municipal Airport Master Layout Plan adopted in 1994. The County provides the planning for land use and the surrounding area.


Burns Municipal Airport

CURRENT AIRPORT LAYOUT PLAN REPORT CONCLUSIONS

1. Burns Municipal Airport is a Basic Utility 1 category airport providing service to the communities of Burns and Hines, in addition to a large portion of southeastern Oregon. Harney County alone, represents 10,228 square miles of land area, with nearly forth percent of county population living outside the incorporated communities of Burns and Hines. As a result, the service area for the airport extends beyond the typical 30 to 60 minute surface travel time, due to the scarcity of comparable airports in the region. These conditions combine to make Burns Municipal the primary regional airport serving southeastern Oregon.

2. Burns Municipal Airport currently has 20 based aircraft and approximately 4,400 annual operations.

3. Airport survey data indicates that the majority of based aircraft are not stored in hangars.

4. The airport has two runways, both of which are 5,100 feet long and 75 feet wide. Runway 12-30 is designated as the primary runway and Runway 3-21 is the secondary runway.

5. The *FAA Runway Design Model* indicates that based on Burns field elevation and maximum mean daily temperature, the existing length of 5,100 feet is adequate to accommodate approximately 93 percent of the general aviation fleet under most conditions. The model indicates that a runway length of 5,580 feet would be needed to accommodate 100 percent of the general aviation fleet (aircraft weighing less than 12,500 pounds); 5,260 feet would be needed to accommodate 95 percent of the fleet.

6. According to FAA Form 5010 – Airport Master Record, the pavement on Runway 12-30 is rated at 30,000 pounds for aircraft with single wheel (SW) landing gear configurations; 50,000 pounds for dual wheel (DW); and 90,000 pounds for dual tandem (DTW) configurations. The Runway 3-21 pavement is rated at 13,000 pounds SW, although, recent visual inspection of Runway 3-21 identified failing

pavement, which indicates that the original design capacity is not currently maintained.

7. Runway wind coverage at 12 miles per hour is approximately 94.5 percent on Runway 12-30 and 93.0 percent on Runway 3-21; the two runways combine to provide 98.7 percent coverage at 12 mph. The FAA design standards indicate that at airports where the primary runway has wind coverage at 95 percent and above, a crosswind runway will not be eligible for federal funding participation. Based on wind coverage of Runway 12-30, maintaining a crosswind runway does meet FAA funding criteria.

8. The existing and future critical aircraft projected to use the airport are the Cessna 402 and King Air B200, respectively. The Cessna 402 is included in the Airplane Design Group I and Approach Category B; the King Air 200 is included in Airplane Design Group II and Approach Category B. Based on existing and near-term forecast activity, airport reference code (ARC) "B-I" is appropriate for Burns Municipal Airport. Later in the planning period, it is anticipated that the level of larger aircraft activity will increase, therefore, airport reference code "B-II" is identified as the ultimate ARC for Burns Municipal Airport.

9. Burns Municipal Airport supports seasonal fire spotting and suppression aircraft operations (fixed-wing and rotor wing) in addition to year-round medivac flights.

10. The airport has approximately 825 acres of land area, with approximately 27 percent used to accommodate aviation related facilities (runways, naviads, approaches, landside development). The remaining land is undeveloped.

The Burns Municpal Airport provides a valuable service to the residents and vistors of Harney County.

Map 36 – Burns Municipal Airport, Airport Development

7.9 Weed Control


Toadflax

Harney County is a designated weed control district. The Harney Soil and Water Conservation District also functions as the Weed Control Board for the County. Certain weeds in the county have become a menace to agriculture and forestry operations and need to be controlled. The County Extension Office has identified the following weeds as ones that should be eradicated or controlled by an active weed control program:

1. These weeds should be eradicated:
    a. Tansy Ragwort
    b. Perennial Pepperweed

2. These weeds should be controlled:
    a. Dalmation Toadflax
    b. Canadian Thistle
    c. Whitetop
    d. Russian Napweed
    e. Morning-glory
    f. Scotch Thistle
    g. Kalamath Weed
    h. Mediterranean Sage
    i. Teafly Spurge
    j. Skelton Weed
    k. Halogston
    l. Yellow Star-Thistle
    m. Annual Weeds
        1) Mednahead Wildrye
        2) Punture Vine

For the weed control program to be effective it must have the cooperation not only of private landowners, but the state and federal agencies should actively participate in it as well. The County will have to dedicate monies to support this program until the district can be self-supporting through tax revenues.

7.10 Minimum Lot Sizes

Minimum lot sizes must be maintained in Harney County that insure the retention of land in parcels large enough to reasonably assure the continued viability of agricultural use in the rural portions of the County. It has been determined that the minimum lot size for the areas of the county zoned EFRU should be 80, and 160 acres. For areas designated for rural residential use, especially those areas designated for rural residential subdivisions, the minimum lot size should be five acres or the minimum size acceptable for a septic permit, which ever is the larger.

There are many areas of the county where the minimum lot size for the EFRU zones may prove excessive for various types of agricultural operations. In cases where an individual can demonstrate that an agricultural use for which it is shown that the minimum lot size is not necessary in order to assure a viable economic return on policy relating to the property, in accordance with the Oregon Revised Statutes definition of farm use, then variances may be granted by the Planning Commission for creation of lots smaller than a minimum lot size in an EFRU zone. For example, the advent of good irrigation water supplies and systems to serve some of the county's Class II, III, and IV soil areas, may allow intensive cultivation of the land to a point where the minimum lot size is not necessary to maintain economic vitality. Even very small parcels may be allowed if certain very intense agriculture uses such as aquaculture or work farming are proposed.

There are certain agricultural and agricultural-related operations that are allowed in the EFRU zones as conditional uses. Many of these uses, such as livestock yards or grain elevators do not require the minimum lot size. Therefore, the conditional use process includes a provision whereby the Planning Commission may allow a reduced lot size as part of the conditional use approval.

A very common and acceptable practice is the creation of "mortgage lots". These are lots created out of much larger parcels, simply to define the limits that a financing institution is dealing with when mortgaging a house or other improvement. There have been instances of landowners creating mortgage lots and then selling these lots separate from the balance of the original property. The County needs a means to allow the creation of mortgage lots while still assuring that land use patterns conform to the Comprehensive Plan and Zoning Ordinance. The subdivision ordinance has provisions that do this.

7.10.1 Exclusive Farm and Range Use Zones

The County has determined that the two EFRU zones are needed to meet the needs of the County and to maintain continuity with the present land use pattern. In determining whether the smaller minimum lot sizes allowed in the EFRU-2 zone would result in the creation of management units, a comparison was done to determine the cost per acre in each of the EFRU zones. The study used only sales

of land with no improvements over a three-month period. In the EFRU-1 zone there were ten sales recorded with the total of 167,987 acres sold at an average cost per acre of $181. In the EFRU-2 zone there were 7 sales recorded with the total of 2,361 acres at an average cost of $178 per acre.

1. EFRU-1 Zone

The EFRU-1 (160 acre minimum lot size) zone is the largest zone in the county with approximately 5,600,000 acres. Approximately 76% is in public ownership. The majority of the county's large livestock operations are in this zone. These operations are most often second and third generation ownerships.

There is little sprinkler irrigation in this zone. Most operations depend on wild flooding for the meadow hay and fall pasture. There is some alfalfa grown for private use as well as several commercial alfalfa operations in the south end of the county. SCS soil classes are not available for private lands. BLM has classed some of their soils in the southeastern portion of the county. Those BLM soils that have been mapped are primarily Class VI soils.

2. EFRU-2 Zone

The EFRU-2 zone has a minimum lot size of 80 acres with approximately 268,950 acres, of which approximately 30% is publicly owned. SCS soil classes in this zone are primarily IVw (wet) and VIe (erosion). The west and northwest portion of the zone is classed VIe and the remainder IVw. Those lands that are in crop production are sprinkler irrigated. Crops being alfalfa, potatoes, grain, some corn as well as turnips used for livestock feed. The areas close to Burns depend on wild flooding for meadow hay and fall pasture. The area is the historical area of non-rangeland farming in Harney County. During the past this area has been farm lots developed between 80 and 160 acres without an apparent negative effect on the commercial agriculture activities of the area. The EFRU-80 Zone to the north, west and east generally lies at the base of steep slopes and is a natural division between EFRU-80 and EFRU-1 ~~160~~. To the south of the dividing line are Harney Lake and the Malheur National Wildlife Refuge. The northeast side is defined by Highway 78 which is the dividing line between EFRU-2 ~~80~~ and AG-20 Zones. An Analysis of the zone shows the following:

Ownership of Parcels In Harney County		
Acres	**Private Parcels**	**Privately Owned**
80 & Over	47%	78%
Less than 80	53%	22%

Table 35 – Ownership of Parcels in Harney County

Due to the method used in the analysis, a review of the parcels and ownerships between 81 and 160 acres was not done at that time. An additional review of the parcels and ownerships of over 80 acres show that of 150,349 acres, 22,827 acres (18% of the acres and 55% of the parcels) is between 81 and 160 acres. Harney County, due to the type of agriculture use and large old family ownerships, has a number of large ranches. These large ranches make the percentages seem to favor a large lot size. However, the predominate ownership, excluding the very large ranches, is between 81 to 160 acres.

All EFRU zones contain wildlife winter range and sensitive habitat. There are provisions in the zoning ordinances to protect these habitats.

7.10.2 Agricultural Zones

The Meadowland Subdivision was approved by the State in 1969, allowing the creation of a large subdivision with a variation of many different lot sizes ranging from 5 acres to 640 acres. The Meadowland Subdivision is located between Highways 20 on the north and 78 on the south. The western boundaries are approximately 7 miles east of Burns and the eastern boundary is the Crane-Buchanan Road. The boundary lines have been adjusted to exclude a number of larger parcels along the southern boundary.

In deeding the properties, Meadowland Subdivision has reserved "an easement of forty (40) feet along all boundaries for public highway for use in common with others, with the power to dedicate," . . . . . along with a right-of-way and right-of-entry for constructing, maintaining, etc., utility facilities, i.e. telephone, electricity, water, sewer, and gas. The roads in the Meadowland Subdivision are not dedicated. By reserving the easement to Meadowland Subdivision, a forty (40) acre parcel becomes a 35.14-acre parcel.

The first or smaller area is located west and along the Crane-Buchanan Road and consists of 8,386 acres. There are 118 ownerships, (2,975 acres) in parcels of 10 to 40 acres, with 15 site developments; 52 ownerships (4,901 acres) in parcels of over

40 to 160 acres, with 2 developed homesites. There is also 480 acres of public owned lands, (county). (This does not include land listed on the 1983 and 1984 foreclosure lists.) Parcelization is clustered in this area while site development is scattered through out the area.

The larger portion of the EFRU-2 Zone, situated between Highways 20 and 78, is approximately 7 miles east of Burns and west of Penny Road. This area is impacted by severe parcelization, Indian Trust lands, and other public owned lands. This portion of EFRU-2 Zone consists of 41,890 acres. Sixty-five (65) parcels (13,899 acres) are in public ownership, (these do not include parcels on the 1983 and 1984 foreclosure lists.); 314 individual ownerships (9,074 acres) in parcels of 40 acres or less, with 11 developed homesites; 27 individual ownerships (1,767 acres) in parcels of more than 40 acres but less than 80 acres; and 125 individual ownerships (17,150 acres) of parcels 80 acres or more, with 13 homesites. The heavier parcelization occurs within the northern one-half and the western one-third of the area with scattered Indian Trust lands, state lands, county lands and larger private owned parcels. The remaining portion is primarily Indian Trust lands, State lands, and larger private owned parcels with scattered 40 acre or less sized parcels. Most of the development that has occurred has been in the northern portion within three miles of Highway 20 and in the southern most portion adjacent to Highway 78. Local ownership is approximately 11 percent.

Again, the larger portion of the EFRU-2 Zone, situated between Highways 20 and 78, contains 14,379 acres in public ownership. Indian Trust lands make up 8,786 of those acres, which represent 55 allotments. The ownership of the allotments varies from one (1) to eighty-one (81). Indian Trust lands are those lands held in trust by the Federal Government for individuals and/or their heirs. Neither Harney County nor the State of Oregon has any jurisdiction over these lands. The Bureau of Indian Affairs has no control over the types of construction, improvements, or developments on any of the individual allotments, so long as the individuals have ownership of the allotment. For example, an allotment with 81 owners may have as many as 81 residential structures if each owner has segregated his interest in the allotment or the allotment could have one (1) residential structure with 81 residents. There are no restrictions on the type of construction or sewer and water development. The Bureau of Indian Affairs will not interfere with the wishes of the owner if they want to develop their land so long as they have ownership of that land. The current development plans for each allotment will depend on the owners. The only apparent current use of the land is limited grazing.

The majority of the allotments do not have rights-of-way authorization. The only right-of-way granted in "Right-of-way for ditches or canals constructed by authority of the United States, as set forth in Document 144-72."

Harney County is subject to the open grazing law. If a property owner has not fenced his property, grazing has probably occurred at some time. Some grazing

does occur using careful management plans for approximately four months of the year.

Water developments (wells) have occurred through out the area and are not concentrated in any one area. Water quality cannot be determined without doing a physical survey of the existing wells. Those who have had their water tested, have done so to see if it is potable and have not recorded the analysis with the Watermaster, therefore there is no record available. Depth of the wells range from 11 feet for stock water to 755 feet for irrigation. There are some problems with boron, salt and sand.

The EFRU-2 Zone is impacted by the run off waters from Soldier Creek, Coffeepot Creek, Rattlesnake Creek, Mahon Creek, Cow Creek, Little Cow Creek, Rock Creek and Little Rock Creek, as well as the Poison Creek Slough, Malheur Slough and the Ninemile Slough.

7.10.3 Agriculture Goals and Policies

The committee discussed the general role of agriculture as part of the economy and social makeup of Harney County. It was generally agreed that agriculture is and should remain one of the basic economic elements of the county. Various activities are occurring in the county that erodes agricultural vitality and viability. Most predominantly this includes extensive parcelization of agricultural lands and the development of rural non-farm housing. It was recognized by the committee that these types of activities should be allowed within the county, but should be controlled as to their location and intensity. Based on the conclusion that agriculture is of primary importance to the county, the following goals and polices were developed:

Land Use Goal

Recognizing that agriculture is, and will continue to be, one of the primary economic, social, and environmental factors of Harney County, it is the goal of the county to utilize the land in such a manner that it will provide a continuing source of economic vitality through agricultural production.

Land Use Policies

1. In making land use decisions or other decisions affecting land use, preservation, protection, and encouragement of agricultural land use shall have one of the highest priorities.

2. Agricultural lands, (SCS I-VI soils and other lands suitable for or needed to permit adjacent agriculture) shall be preserved and maintained for agricultural use through designation of EFRU zones.

3. Agricultural land shall be used for a non-agricultural use other than those permitted by State Statute only after a plan amendment and a qualified exception to Statewide Planning Goal 3 has been approved.

4. The County shall establish EFRU zones of ~~40,~~ 80~~,~~ and 160 acres.

5. In cases where it can be demonstrated that the proposed land division and/or farm dwelling on a lot smaller than the applied EFRU zone minimum lot size will result in a commercial farm use appropriate for the continuation of the existing commercial farm operations in the area, the division or farm dwelling may be allowed by criteria established in the zoning ordinance.

6. Harney County, as a weed control district and enforcing the State Weed Control law, will actively work to control weeds noxious to the county's agriculture and forestry uses.

7. Non-farm uses on pre-existing lots, including single-family residential dwellings or mobile homes, not provided in conjunction with a farm or forestry use may be established, subject to the county governing body making a finding that each such proposed use:

    a. Is treated as a conditional use in the EFRU zones.

    b. Is consistent with the intent and purpose of the EFRU zones.

    c. Is compatible with farm uses described above on adjacent land devoted to farm use; and is consistent with the intent and purposes set forth in ORS 215.243; and,

    d. Does not interfere seriously with accepted farm practices on adjacent lands devoted to farm uses; and,

    e. Does not materially alter the stability of the overall land use pattern of the area; and,

    f. Is situated upon generally unsuitable land for the production of farm crops and livestock, considering the terrain, adverse soil or land conditions, drainage and flooding, vegetation, location; and size of the tract; and,

    g. If appropriate, is justified as an exception to LCDC Goal 3 using the exception criteria of LCDC Goal 19.

8. The County will permit a plan and zone change from EFRU-1 ~~160~~ to EFRU-2 ~~80~~ only if the particular area is predominately characterized by types and sizes of commercial farm operations consistent with that of the areas already planned and zoned EFRU-~~80~~2.

7.10.4 Implementation - Zoning Ordinance

The use of the agriculture land is very similar to the use of the forestry land in Harney County. Both are threatened by incompatible land uses adjoining or encroaching on their area. The B. L. M. range land, and the private owned agricultural lands are greatly diminished in their potential output, and therefore, in their potential contribution to the Harney County economy, by the allowing of rural residential housing within or adjacent to their boundaries. The creation of lots with sizes that do not allow economic agriculture operations greatly depletes the potential for overall agricultural management and continued economic viability. It is in Harney County's best interest to preserve and protect all agriculture lands for agriculture uses, thereby protecting this extremely important resource for the Harney County people.

The major tool for protecting the agriculture area is through the Zoning and Subdivision Ordinance. It is important to designate a minimum lot size that will assure the optimum opportunity for a high level of productivity from these lands. The proposed EFRU (Exclusive Farm, and Range Use) is designated to offer the optimum protection to the agricultural lands within the County. It utilizes a minimum lot size of 80, and 160 acres. It also prescribes the various uses and conditional uses that can be allowed in these areas. In addition, a procedure is provided to allow non-farm uses, especially single-family structures, to be located within these areas if certain stringent requirements are met by conforming to the provisions of ORS Chapter 215. The EFRU zone will allow automatic farm tax deferrals for lands on which legitimate farm use activities are taking place. The AG-20 zone, because of the known geothermal resource and the interest in the area for the production of aquaculture, will not be an exclusive farm use zone and will require qualification for farm deferral. Utilization of this zoning designation and the Subdivision Ordinance which helps to implement it, for the entire agriculture area of Harney County, will serve to help protect this area for agriculture uses and to assure that, through careful management, it will contribute strongly to the Harney County economy and character in the future.

7.11 Forestlands

Forestlands, and the products and influences of those lands, play a major role in economic, social, and environmental character of Harney County. Forest products processing is the largest single consistent employer within the county. Sale of timber, wages, and proceeds from National Forest Receipts make significant contributions to the Harney County economy. Table 36 below indicates the role of forestry in the county job market.

Forest Related Employment	
Total Population	7,650
Labor Force	3,750
Employment in Agriculture, Forestry, & Fisheries	400
Percent of Population	5.2%
Percent of Labor Force	10.7%
Employment in Lumber & Wood Products	890
Manufacturing Percent of Population	11.0%
Percent of Labor Force	23.7%

Table 36 – Forest Related Employment

The above figures are the latest available from the State of Oregon Employment Division. While they give a good indication of forest related employment, they do not reflect the total impact of forest use on the job market. They do not include any timber cutting personnel or the managerial or support staff of the Edward Hines Lumber Company. It can easily be seen that forest use is the major contributor to the Harney County economy.

Table 37 below indicates the National Forest receipts returned to the county with an indication of percentage of change from the previous year.

National Forest Receipts Dollars Returned to the County		
Year	**Amount**	**% Change From Previous Year**
1973	$ 722,736.24	----
1974	913,831.21	+ 26.4%
1975	535,284.69	- 41.4%
1976	948,837.62	+ 77.3%
1977	1,505,700.00	+ 58.7%

Table 37 – National Forest Receipts Dollars Returned to the County

As can be seen from Tables 36 and 37, the role of forestry includes bringing major economic return to the County. This in turn brings social benefits by providing income for a significant portion of the County's families.

The "Harney County, Oregon, Resource Atlas" describes the forestry land use and the character of the forests. That section of the document is quoted below.

> "Harney County commercial saw timber is composed primarily of Ponderosa pine. Harney County contains one of the largest stands of Ponderosa pine in the United States in the Ochoco and Malheur National Forests. Ponderosa pine occurs from the lower limits of the tree growth upward in altitude approximately 2,000 feet. This area has an annual precipitation between 18 and 30 inches.
>
> "Cutting is usually selective--the older, weaker, and less vigorous trees being harvested. (In Oregon) As a sawtimber tree, Ponderosa pine is second in quantity only to Douglas fir, and in value often exceeding that of Douglas fir.
>
> "Larch and Douglas fir occur above the Ponderosa pine. A substantial stand of noncommercial juniper and pinon-juniper type are located in the central section of Harney County. They are located on the fringes of semi-arid regions, on sites too dry for Ponderosa pine.
>
> "About 6.4 percent of the forest land in Harney County, or 26,520 acres, is in private ownership. Approximately 93 percent of the forestland in the county, 382,770 acres, is in federal ownership. About 89 percent of the federal forest land is in the Ochoco and Malheur National Forests. The remaining four percent of the federal forestland is under Bureau of Land Management control."

Less than .5 percent of the forestland, or 1,400 acres, is owned by the State of Oregon, with the major portion administered by the State Board of Forestry. The County owns less than .5 percent of the forestland in the county, 240 acres.

The major uses of forestland in Harney County are for production of crops of commercial timber, for outdoor recreation, and for watershed protection. Other uses for wildlife habitat and grazing are also important.

Private and state owned timberlands have been classified and are mapped according to their productivity levels by the State Department of Forestry. This map is on file with the Harney County Court.

The Oregon State Department of Forestry has prepared a document entitled "Harney County Timber Class and Productivity Levels". It contains detailed maps of all private, state, and BLM commercial timberlands in the County, giving class and productivity information. Neither Malheur nor Ochoco National Forests have documents that have this much detail on timber productivity. These inventories are being prepared at this time, but will not be available until the early 1980s. In the interim, the Forest Service and the County will use soil resource inventories currently developed. Both the State Forestry document and the Forest Service inventories are adopted as part of the inventory elements of the Plan and are on file with the County Court and available for inspection.

There are four other major uses of the National Forest area besides production of timber. The first of these is its utilization as an important watershed supplying irrigation and domestic water for Harney County. The National Forest has two watersheds that are contained within the County - the Silvies River shed and Silver Creek shed. Both of these watersheds flow into the Malheur Lake Drainage Basin. From these two watersheds water is supplied to irrigate 178,000 acres of land. Besides irrigation, these waters are also used for fishery purposes.

The second type of non-timber use found in the National Forest Area is its use as a habitat for fish and wildlife. This is more fully discussed in the ~~Fish and~~ Wildlife Preservation Plan element of this Comprehensive Plan.

The third non-timber use in the National Forest is for recreation. The Recreation element of this plan indicates the many recreational opportunities existing in the National Forest area. The Recreation element of this Plan includes a projection of recreational use of the National Forest until the year 2000.

Grazing of livestock is the fourth non-timber use of the forest area. Not only does the forest provide valuable land for grazing, it brings economic return to the county government. Grazing is measured in "Animal Unit Months" (AUM). Currently there are 16,139 AUMs in the National Forest areas of Harney County. The current grazing fee is $1.63/AUM. Therefore, in 1977-1978, $26,306.57 in grazing fees were collected by the Forest Service. Of this, $6,576.50 was returned to the county.

The grazing fee increased, as of March 1, 1979, to $2.03/AUM. Based on constant AUMS, this will bring the total fees collected to $32,278.00 with $8,069.50 being returned to the county government.

The U. S. Forest Service has been developing a land allocation and management program for the Malheur and Ochoco National Forests. The environmental impact statement for this document was adopted on November 2, 1978, which described the allocation and program for management of this land. This particular program was Alternative "C" of the environmental impact statement. The statement below describes Alternative "C" and its allocation and management program.

7.11.1 Alternative "C"

This is the preferred alternative and is a blend of resource actions coordinated with nonintensive management of recreation and wildlife. This alternative allocates three percent, 28,837 acres, to five Management areas; ten percent, 97,336 acres, to wildlife emphasis; nine percent, 82,103 acres, to visual emphasis with the remainder, 78 percent, 750,614 acres, to timber and range emphasis. This will provide and output of 140,300 MBF of timber, 421,800 acre-feet of water, and 86,170 AUMs for livestock.

7.11.2 Land Use Conflicts

The use of forestry land is very similar to the use of the agricultural land in Harney County. Both are threatened by incompatible land uses adjoining or encroaching on their area. The National Forest area, the B. L. M. forest land, and the private and state owned commercial forest lands are greatly diminished in their potential output, and therefore, in their potential contribution to the Harney County economy, by the allowing of rural residential housing within or adjacent to their boundaries. The creation of lots with sizes that do not allow the economic harvesting and reforestation of timber greatly depletes the potential for overall forest management and continued economic viability. Forestry and the National Forest Service in preserving and protecting all forest lands for forest uses, thereby protecting this extremely important resource for the Harney County people.

7.11.3 Minimum Lot Size of Forest Lands

The major tool for protecting the forest area is through the Zoning and Subdivision Ordinance. As with the agricultural areas of the County, it is important to designate a minimum lot size that will assure the optimum opportunity for a high level of productivity from these lands. The proposed Forest Use (FU) zone is designed to offer the optimum protection to the forestlands within the forest area of Harney County. It utilizes a minimum lot size of 80 acres. It also prescribes the various

uses and conditional uses that can be allowed in this zone. In addition, a procedure is provided to allow single-family structures to be located within this zone, on lot of 40 acres or more that were legally created prior to the adoption of the comprehensive plan if certain stringent requirements are met, or on qualified lots of record. The forestland in Harney County which is zoned FU-80 is in the northern part of the County. Of the total 409,290 acres (or 93%), 382,770 acres of land is in federal ownership. The remaining seven percent is scattered throughout the forest zone. The 80 acre minimum lot size will restrict development except where the development is forest related. In the past the county has had a 40 acre forest zone and due to the small amount of private ownership there has been little non-forest related development. The County shall require that all new dwellings in conjunction with a farm or forestry use, be necessary and accessory to the farm or forest uses, and that no new divisions less than 80 acres be allowed in the FU Zone. Utilization of this zoning designation and the Subdivision Ordinance which helps to implement it, for the entire forest area of northern Harney County, will serve to help protect this area for forest uses and to assure that, through careful management, it will contribute strongly to the Harney County economy and character in the future.

Forestlands Goal

To provide areas suitable for commercial timber production, grazing, watershed protection, wildlife habitat, and fisheries, and to discourage uses incompatible with forest management.

Forestlands Policies

1. Harney County generally supports the utilization of Alternative "C" from the "Silvies-Malheur Planning Unit-Land Management Plan-Environmental Impact Statement" as that which should be utilized to manage the National Forest lands within the county. However, the amount of timber production and AUMs possibly should be adjusted as more data becomes available.

2. Forest cubic foot site classes 1 - 6 forest lands as well as non-commercial forest lands shall be protected from incompatible encroachments of non-forest uses by the adoption of the 80 acre forestry zone.

3. Road standards should be limited to the minimum width necessary for management and safety. Highways through forest lands should be designed to minimize impacts on such lands. Rights-of-way should be designed so as not to preclude forest growth whenever possible. Maximum utilization of utility rights-of-way should be required before permitting new ones.

4. The Forestry zone shall be utilized in all forest areas as a means to protect forest lands.

5. Before any forest land is converted to non-forest uses permitted conditionally in the FU Zone, the five following criteria shall be met.

   a. The site is generally unsuitable for timber production for the approval of a non-resource dwelling or geothermal, and mineral and aggregate extraction.
   b. The proposed use of the forest land is compatible with forest uses and practices and is consistent with the intent and purpose of this plan.

   c. The use does not require the excessive removal of trees for construction of roads or structures.

   d. The use does not permit any development on pre-existing lots less than five acres.

   e. The use will not influence forest management activities on adjacent land.

   f. The site does not constitute an old growth stand.

6. Before any forest land is converted to non-forest uses through rezoning, the County will adopt a plan amendment and exception to LCDC Goal 4 using the exceptions criteria of LCDC Goal 2.

7.11.4 Exception to Goal 4 - Forestry

The housing element of this Plan describes Rural Recreational housing. There is only one existing area of this type of housing, called the Turner Cabin Development, in the County. This is at Yellowjacket Lake, an area within the Forestry area as inventoried in this element. Therefore, an exception to LCDC Goal 4 is necessary to justify the County acknowledging this area through zoning. An analysis of the development in light of the criteria is given below:

1. Why these other uses should be provided for;

The Housing element indicates that there is a need for this type of housing. In order to meet this need, adequate land must be set aside. The Turner Cabin area is an existing development at a relatively appropriate location. The area is characterized by heavy forests and is set on the shores of Yellowjacket Lake. With the protective clauses built into the R-2 (Rural Recreational) zone, the use is appropriate.

2. What alternative locations within the area could be used for the purposed uses;

There are several other areas in the County that would provide basically the same amenities as the Yellowjacket Lake area, however, this project is already platted and

partially developed. Therefore, it is appropriate to utilize the existing area to meet the need rather than start new areas.

3. What are the long term environmental, economic, social and energy consequences to the locality, the region or the state from not applying the goal or permitting the alternative use;

There would be a great deal of pressure to meet the public need for this type of housing in other locations if this area was not utilized. This would probably have greater impacts on environmental, economic, social and energy factors of the County than utilizing the existing area available.

4. A finding that the proposed uses will be compatible with other adjacent uses.

The provisions of the R-2 zone are strict in their dealing with compatibility standards. The ordinance should be strong enough to protect the surrounding forest resource.

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(1) Harney County Oregon Resource Atlas; Oregon State University Extension Service, Corvallis, Oregon; August 1973

7.12 Population and Housing Projections

7.12.1 General

The major causes for growth in Harney County have been developments in the cattle and lumber industry. Support services necessary to maintain these industries have, for the most part, been located within the cities of Burns and Hines. Because these basic economic resources employ people, the urban areas have grown to meet the demands in housing, consumer goods, and services. Due to public agency policies that are designed to maintain a sustained yield of timber, grasslands and wildlife from public land, the county's dependence upon the harvest of natural resources from these public lands stabilizes the county's growth. Unless there is a drastic change in public policy, existing industries dependent upon natural resources will continue to have a vase from which to operate and will increase their production at a limited rate. It can be assumed, therefore, that population growth within the cities of Burns and Hines will continue at a relatively steady pace following historical trends.

Harney County has had a steadily decreasing growth rate over the thirty years between 1940 and 1970, averaging approximately one percent growth per year, but reducing at approximately 50 percent per decade.

At this time (1978) a supplemental census is not available for the entire county area so the eight-year period between 1970 and 1978 is not known. However, the incorporated area of Burns and Hines showed a 10.4 percent growth rate during this period and it therefore can be expected that the entire county had a comparable rise, representing approximately one percent per year for the eight year period. From the table it can be seen that the growth of the two city area has traditionally been greater than that of the county, except for the 1960 to 1970 period in which the incorporated area actually experienced a decline. This can be attributed to rural residential housing occurring at a greatly increased rate outside of the existing city limits of the two communities. Also, mobile home courts and subdivision development has taken place near the city limits and in areas that will eventually become parts of the city.

Graphs 1 and 2 illustrate the actual population growth patterns for Hines and Burns over the last 48 and 88 years, respectively. It can be seen that for the period between 1940 and 1978 there is a stabilization of growth averaging around 1.2 percent per annum for the urban area, including both cities.

Three separate elements can go into change of population and must be considered in estimates and projections. These include the birth rates and death rates, population increases due to annexations, and in and out migration. Also it must be realized that, while based on these factors, major changes may occur that could drastically alter the population of the urban areas of Harney County in a relatively short period of time. If events such as this occur, the following projections are not

valid and must be re-evaluated in light of these circumstances. Therefore, the following assumptions are made as part of theses population projections:

1. The form of government and the political economic and social organization and institution of the United States will remain substantially unchanged.

2. No all out war, internal revolution, devastation, epidemic, or other disaster will occur which will affect the area.

3. No new major employer will locate within the urban area nor will one relocate out of the area.

The economic section of this plan and the Burns and Hines Plans will be making economic forecasts indicating the employment levels to be anticipated for the various industry classifications over the course of the life of the plans. Those projections show that approximate 1.6 percent annual increase in employment opportunities in the communities. It can be anticipated that this would represent an approximate population growth somewhere between a .5 percent and a 1.5 percent figure, depending upon the proportion of the local labor force that moves into the new employment opportunities, the reduction of the local unemployment rate because of the new opportunities, and the utilization of local female labor force in any new employment opportunities.

The growth of the rural areas of the county is going to be dependent on many factors. These include the following among others: the growing demand for a rural living environment, the availability of land for rural residential development, the availability of energy to support transportation to rural areas, the continuing demand for farm related housing, etc.

The County is supplying various areas of land to be zoned Rural Residential, as is discussed in the Housing and Agriculture Elements of this Plan. It is assumed that this amount of land will be adequate to meet the need for this type of housing pattern. This will be discussed later in this section. However, the primary, focus of much of this document is the protection of the County's agricultural lands. Therefore, the County policy is to remove such lands from development potential and to provide alternative areas where the soil types, topography, and proximity to urban areas is more appropriate for housing the rural population.

This Harney County Comprehensive Plan element deals with population projections and housing projections for the rural areas of the County. The overall projections, of course, must include the Burns and Hines Urban Areas; however, the projections for these areas will not be discussed in this element. The reader is directed to the Plans for each Community for detailed discussion of their projections.

The following population projections for Burns, Hines, the entire urban area, the rural area and the County as a whole are derived from the above assumptions and conclusions.

Current Population (2001) Burns, Hines and Harney County					
	Burns Area	Hines Area	Total Urban	Rural Area	Total County
City Limits	3,522	1,573	5,095	--	--
Urban Fringe	160	184	344	--	--
Total Urban	3,682	1,757	5,439	--	--
Rural Area	--	--	--	2,211	--
Total County	--	--	--	--	7,650

Table 38 – Current Population 2001

City of Burns - Population Projections					
Annual Rate	**1978**	**1985**	**1990**	**1995**	**2000**
Low (0.5%)	3,682	3,813	3,903	4,008	4,109
Medium (1.0%)	3,682	3,948	4,149	4,361	4,583
High (1.5%)	3,682	4,086	4,402	4,742	5,109

Table 39 – City of Burns – Population Projections 1978-2000

City of Hines - Population Projections					
Annual Rate	**1978**	**1985**	**1990**	**1995**	**2000**
Low (1.0%)	1,757	1,884	1,980	2,081	2,187
Medium (1.5%)	1,757	1,950	2,101	2,297	2,475
High (2.0%)	1,757	2,018	2,228	2,460	2,716

Table 40 – City of Hines – Population Projections 1978-2000

Urban Area - Population Projections (Based on above figures)					
Annual Rate	**1978**	**1985**	**1990**	**1995**	**2000**
Low (.67%)	5,439	5,697	5,889	6,089	6,296
Medium (1.2%)	5,439	5,898	6,250	6,658	7,058
High (1.667%)	5,439	6,104	6,630	7,202	7,825

Table 41 – Urban Area – Population Projections 1978-2000

Rural Area - Population Projections*					
Annual Rate	**1978**	**1985**	**1990**	**1995**	**2000**
Low	2,211	2,310	2,476	2,465	2,545
Medium	2,211	2,393	2,535	2,647	2,802
High	2,211	2,533	2,810	3,050	3,312
*Total County - Urban Area = Rural Area					

Table 42 – Rural Area – Population Projections 1978-2000

Harney County - Population Projections*					
Annual Rate	**1978**	**1985**	**1990**	**1995**	**2000**
Low	7,650	8,007	8,365	8,554	8,841
Medium	7,650	8,291	8,785	9,305	9,860
High	7,650	8,637	9,440	10,252	11,137
*Based on historical Urban: Rural ratio of 66.6%:33.4%					

Table 43 – Harney County – Population Projections 1978-2000

7.12.2 Rural Housing Projections

Generally, most rural housing in Harney County is family oriented. There is virtually no multi-family housing in the rural areas. The Housing element of this plan discusses the appropriate housing types of the rural portions of the County and concludes that only single-family dwellings, both stick built and manufactured, is appropriate in the rural area. Other housing types, especially apartments and mobile home parks are appropriate only in the Urban area.

No accurate current data exists in the number of people per dwelling unit for the rural housing in Harney County. Therefore, the housing projection must be based on an assumption of average family size. This Plan assumes that three people per dwelling unit is a reasonable figure to use at this time, recognizing that the results of the 1980 Census will allow an opportunity to refine these projections in the near future.

Harney County - Rural Area Housing Projections					
Average Rate	**1978**	**1985**	**1990**	**1995**	**2000**
Low	737	770	825	822	848
Medium	737	798	845	882	934
High	737	844	937	1,017	1,104

Table 44 – Harney County –Rural Area Housing Projections

These projections can be loosely translated into land consumption projections until the year 2000. The projections can only be speculative because of the large differentials in lot sizes in the rural areas. The minimum lot size in these areas is five acres. If this was the size for all rural residential housing in the county, it could be anticipated that 5,520 net acres would be needed by the year 2000 using the high projection.

It is much more realistic to assume that only a very small portion of the rural residential housing would occur on five acre lots. Department on Environmental Quality regulations are generally making ten-acre lots the minimum allowed in the county. At this level, 11,404 acres would be needed by the year 2000. This does not take into account that a significant portion of the rural housing units will be farm related, therefore using very large parcels.

The area approximately 2,038 acres of land west and north of Burns and Hines, outside the UGB, zoned Rural Residential. This Plan assumes that this land will be adequate to meet the need for rural residential housing outside the urban area for the duration of the planning period. Farm related housing will occur as needed for agricultural operations.

Chapter

8

8 Implementation, Revision and Process

This section meets Goal 2 "Land Use Planning" of the Oregon Statewide Planning Goals.

8.1 Implementation

This plan is a collection of thoughts, ideas, concerns, observations and recommendations. Upon its adoption, it can be a solid foundation for Harney County to make the county a better place in which to reside and work. The active use of this Plan as a guideline for county activity and projects will probably be the only way that Harney County's goals can be realized.

This section of the Plan deals with the ways it is to be used. There are three separate areas: implementation, revision, and process. Implementation involves specific policies or recommendations, which are intended to see that Statewide Goals and Guidelines are followed. There are two separate parts to this. The first is an active effort on Harney County's part to undertake or support policies and recommendations that will help the County to reach the goals. These policies and recommendations must conform to the appropriate guidelines. The various recommendations within this Plan reflect this method if implementation.

The second is to react to or participate in the actions or projects of others, using the goals and policies as the basis of evaluation and action. This will commonly involve commenting on various land use decisions before the County Planning Commission and may also include, for example, deciding on road improvement proposals or developing a program to encourage irrigation development.

During the implementation, conflicts possibly would arise between various goals, policies, and recommendations. Also, there may be a need for interpretation or for evaluation of compliance with various criteria. The responsibility for these three functions would be shared between a Citizen Involve-ment Program and the decision-making bodies.

Implementation Policies

1. Harney County, working under the Citizen Involvement Program, shall adhere to this plan and its policies.

2. The goals and policies of this Plan shall be the foundation for reacting to and commenting on the actions and proposals of others.

3. Conflict resolution, interpretation, and criteria evaluation shall be a responsibility shared by all segments of the community with opportunities for citizen involvement at all levels.

4. This County will not be liable for any loss in property values resulting from the implementation of state-adopted goals through the County Comprehensive Plan and related ordinances since the Joint Legislative Commit-tee on Land Use (ORS 197.134[4]) is specifically charged to study and make recommen-dations to the Legislative Assembly for a compensation program for the reduction of such land values resulting from the implementation of those state-adopted goals in the County Plan and ordinances. Liability for such losses resulting from implementing state policy (goals) therefore is the responsibility of the State.

8.2 Revision

This Plan should be dynamic document. It is based on existing conditions and future projections. In the event that existing conditions change or that predicted courses are not fully followed, the assumptions and conclusions found in this Plan may become inaccurate. In this event, they must be re-evaluated and modified as necessary. Correspondingly, the policies and recommendations may need adjustment. These types of revisions may occur at any time; however they should be approached cautiously. If this Plan is to be a stable foundation for decision-making, it must be changed only when it is determined that the broad community interest will be better served by the revision. The Plan should not be changed solely for individual gain.

Revisions of the Harney County Comprehensive Plan are just as critical and important as the original development and adoption process.

The time span for this Plan is not set; however, it should be assumed to have an approximately **five-year life span**. At the end of that time, it should be totally revised. This major revision process should include a complete re-evaluation of the existing conditions and trends with a resetting of goals and policies. An evaluation of the effectiveness of the Harney County Plan would be valuable in the process.

Plan Map changes of agricultural to residential, proposed changes of the Burns/Hines Urban Growth Boundary, or any similar change is considered to have significant impact. Therefore, the Plan and implementing measures are to be reviewed at least once every two years by the Harney County Planning Commission. The review should begin with an examination of data on development trends, population growth and effectiveness of policy statements to guide daily and long-term decision-making. The process must also include an evaluation of the social, economic, environmental and energy implications of alternative solutions and strategies for development. Above all, this process should involve a broad cross-section of the county in a program of continuing citizen involvement. If done with a narrow focus, the Harney County Comprehensive Plan would no longer be a statement of the county's desires and concerns for future development and preservation.

Minor changes to the Harney County Comprehensive Plan, which do not have a significant effect beyond the immediate area, are not to be made more frequently than once a year. Proposals for minor changes to the Plan are to be reviewed sparingly during the year. This cautious process in important for maintaining the public's long-term confidence in the Plan and credibility of daily decision-making. Changes to the Plan are to be based on special studies or other updated resource data and used as a factual basis to support the change. The public need and justification for a change must be addressed and documented.

Revision Policies

1. This Plan may be revised when conditions change from what they were at its adoption to the extent that the assumptions and conclusions become inaccurate. The broad county interest must be served by the change and not for just any private interest. Major Plan revisions to the Harney County Comprehensive Plan that would result in a widespread and significant impact beyond the immediate area are not to be made more frequently than every two years.

2. No more than five years after the adoption of this Plan, a major revision process should be undertaken to update it in its entirety.

3. Any major revision should be based on examination of development trends, population growth and effectiveness of policy statements since the previous adoption or revision date.

4. Any revisions of the Urban Growth Boundary shall be coordinated with the Cities of Burns and Hines in accordance with the procedures set forth in "II. (K)" of the Urban Growth Area Joint Management Agreement.

8.3 Process

Citizens are often called upon to participate in government decision-making processes. This may involve such things as a minor variance request, or a countywide social service program. A county response is intended to be a comprehensive overview of county concerns and ideas. It should reflect what is determined to be best for the City as a whole.

In order to assure the most fair and equitable processes for considering land use requests, it is important that the County have a procedure for its hearings and criteria to judge the requests by. The procedures outlined in the policies below were developed as a means whereby the best possible process could be maintained, respecting the County's citizen involvement program, Oregon case Law, and this Comprehensive Plan.

Procedural Policies

1. Major revisions and minor changes to the Harney County Comprehensive Plan and implementing ordinances must be adopted by the County Court following the forwarding of a recommendation by the Planning Commission based upon citizen involvement and coordination with other governmental units and agencies.

2. Property owners within 250 feet of an area subject to change are to be notified by first class mail of proposed changes as is specified by the zoning ordinance under the notification procedures.

3. The conduct of the public hearings shall be in accordance with those procedures outlined in the Harney County Zoning Ordinance for Zoning Procedures.

4. Procedure for Conducting Public Hearings on Zoning and Subdivision Matters

   A Public Hearing on Zoning or Subdivision matters held by either the Planning Commission or County Court shall be held in accordance with the following procedure:

   a. Opening of the Hearing with a Statement of Its Purpose by the Chairman or County Judge.

   b. Presentation of information and recommendations, if any on the matter at hand by staff members involved.

   c. For Subdivisions, presentation to the Planning Commission of findings and recommendations by the Subdivision Review Committee.

d. For all matters before the County Court, presentation by a member of the Planning Commission of the Commission's findings, actions, and any recommendations.

e. Presentation of testimony by the applicant and/or his representatives.

f. Questions of the applicant and/or his representative by the Commission.

g. Appearance of any proponents of the matter at hand.

h. Questions of the proponents by the Commission.

i. Appearance of any opponents of the matter at hand.

j. Questions of the opponents by the Commission.

k. Rebuttal of the opponents testimony by the applicant and/or is representative.

l. Final questions by the Commission.

m. Chairman or County Judge closes the hearing.

5. Criteria for judging zoning and subdivision matters

The criteria below are to be the basis of consideration and decision making on zoning and subdivision matters. The Commission and Court may use other factors that are judged appropriate and applicable to a particular case. The applicant bears the burden of proof of these criteria and the Commission and/or Court must make specific findings that these criteria are met based on information made available in the applicant's application and the public hearing(s). The diversity and impact of a given case will determine the degree of proof that an applicant must submit. Zone changes and subdivisions require a greater burden than conditional uses and variances.

a. That the proposed use is in conformance with both the land use map and goals and policies of the "Harney County Comprehensive Plan", or that there was a mistake in the Plan, or that conditions have substantially changed since the Plan was adopted.

b. That there is a demonstrated public need for the proposed use.

c. That there are no other appropriately zoned and available lands that could be used to satisfy the public need.

d. That the particular property is better suited to meet the public need than other potential properties.

e. That there will be no undue impacts on the provision of public facilities and services including but not limited to schools, roads, sheriff, etc.

f. Comprehensive plan designations are complied with. This includes the criteria for creation of non-farm and non-forestry uses in the EFFRU zone.

Chapter

9

9 Appendix

9.1 Bibliography

This Appendix includes the bibliography to provide additional reference material in one's study of Oregon Land Use and related issues.

9.1 Bibliography

Basin Investigations, Malheur Lake Basin; Oregon State Game Commission; Same; March, 1968

An Appraisal of Potentials for Outdoor Recreational Developemnt; U.S. Department of Agriculture, Soil Conservation Service; Same; June, 1972.

Burns-Hines Preliminary Plan Report; Bureau of Governmental Research and Service, University of Oregon; July, 1970.

Harney County, An Historical Inventory; Royal Jackson and Jennifer Lee; Gail Graphics; January 1978.

Quarterly Labor Market Information Review, State of Oregon; State of Oregon Employment Division, Department of Human Resources; Same; Summer, 1978.

Planning for Development, Program and Policy Considerations; Bureau of Governmental Research and Service, University of Oregon; Same; August, 1971.

Water Resources Investigations in Oregon; U. S. Department of the Interior Geological Survey, Oregon Water Resources Department; Same; 1977.

Solar Heating & Cooling, Engineering, Practical Design, and Economics; Jan F. Kreider and Frank Kreith; Hemisphere Publishing Corporation; 1977.

Oregon Natural Areas, Data Summary; Oregon Natural Heritage Program; Same; April, 1978.

Harney County Plans for Tomorrow; Harney County Program Planning Council; Harney County Extension Office, Oregon State University; 1969

Comprehensive Land Use Plan, SEOCOG; Southeast Oregon Council of Governments; Same; August, 1973.

Geology of Oregon; Ewart M. Baldwin; Edwards Brothers, Inc.; 1964.

Annual Planning Information, Fiscal Year 1979; State of Oregon Employment Division, Department of Human Resources, Research and Statistics; Same; May, 1978.
Resource Atlas, Natural, Human, Economic, and Public; Oregon State University Extension Service; Same; August, 1973.
Oregon's Long-Range Requirements for Water, Malheur Lake Drainage Basin; State Water Resources Board; Same; 1969.
Revisions of Occupational Employment Trends in the State of Oregon, 1974-1980;
State of Oregon, Employment Division, Department of Human Resources, Research and Statistics; Same; June, 1978.
General Population Characteristics, Oregon; U. S. Department of Commerce, Bureau of the Census; Same; August, 1971.
Oregon Outdoor Recreation Supply Bulletin; U. S. Department of the Interior, Bureau of Outdoor Recreation; Same; 1976,
Resource Analysis, Harney County Oregon; Resource Development Section, Cooperative Extension Service, Oregon State University; Same; November 25, 1968.
Housing Perspective '95; Southeast Oregon Council of Governments; Same; March, 1973.
Oregon Outdoor Recreation Needs Bulletin, 1977; U. S. Department of the Interior, Bureau of Outdoor Recreation; Same; 1977.
Sitting of Mobile Homes in Oregon; Bureau of Governmental Research and Service, University of Oregon; Same; April 1978.
Supplemental Report Economic Analysis, Burns - Hines - Harney County; Bureau of Governmental Research and Service, University of Oregon; November, 1969.
Final Environmental Statement, Silvies - Malheur Planning Unit; U. S. Department of Agriculture, Forest Service; Same; November2, 1978.
Mineral and Water Resources of Oregon; U. S. Geological Survey; Committee on Interior and Insular Affairs; 1969.
Oregon Outdoor Recreation Demand Bulletin; U. S. Department of the Interior, Bureau of Outdoor Recreation; Parks and Recreation Branch, Department of Transportation; September, 1976.
City of Burns, Oregon, Storm Drainage Study; G & W Engineering; Same; October, 1974.
Ground-water Resources in Harney Valley, Harney County, Oregon; A. R. Leonard, U. S. Geological Survey; Same; November, 1970.
The Silvies River Basin, Water Resources Planning; Department of the Army, Walla Walla District, Corps of Engineers; Same; May 10, 1971.
Oregon State Parks Systems Plan; Parks and Recreation Branch, Department of Transportation; Same; November, 1975.
Area Manpower review, Burns (Harney County) Labor Area; State of Oregon Employment Division, Department of Human Resources; Same; Fall, 1977.
Soil Resource Inventory, Ochoco National Forest; Forest Service - Pacific Northwest Region; Same; December 1977.
Soil Resource Inventory, Atlas of Maps, Malheur National Forest; Forest Service - Pacific Northwest Region; Same; 1974.
Studies Related to Wilderness Wildlife Refuges; George W. Walker and Donald A. Swanson; U. S. Government Printing Office; 1968.

Steens Mtn. Resource Committee, Meeting and Tour; Department of the Interior, Bureau of Land Management, Same; July 15, 1966.
Basin Investigations, Malheur River Basin; Oregon State Game Commission; Same; September, 1967.
Harney County Solid Waste Management Plan; G & W Engineering; Same; 1976.
Revised Overall Economic Development Plan; Ida-Ore Regional Planning & Development Association Inc.; Same; 1976.
Needs Assessment for Harney County; Department of Human Resources; Same; 1976.
Shotgun Shooting Facilities Plans; National Rifle Association; Same; Aft. 1973.
Burns, Hines and Harney County Economic Analysis; Bureau of Governmental Research and Service, University of Oregon; Same; September, 1969.
Bibliography of the Geology and Mineral Resources of Oregon (fifth supplement); State of Oregon, Department of Geology and Mineral Industries; Same; 1973.
Goals, Strategy, and Tasks of the Earthquakes Hazard Reduction Program; Department of the Interior; Same; 1974.
Assessment of Geothermal Resources of the United States - 1975; Department of the Interior; Same; 1975.
Revenue Sources of Oregon Counties, Fiscal Year 1973-74; Bureau of Governmental Research and Service, School of Community Service and Public Affairs, University of Oregon; Same; April, 1975.
Regional Sewerage and Water System Plan; Cornell Howland Hayes & Merryfield Clair A. Hill & Associates; Same; August, 1973.
Oregon Statewide Comprehensive Outdoor Recreation Plan; U. S. Department of the Interior, Bureau of Outdoor Recreation; 1978.
Urban Planning and Design Criteria; Joseph DeChiara/Lee Koppelman; Van Nostrand Reinhold Company. 1975.
Oregon Rail Plan; Oregon Department of Transportation/Strategic Planning Section; Same; September, 1978.
Ground-Water Levels 1968-1972; WM. S. Bartholomew, Monte E. Graham & John Feusner; State of Oregon; November, 1973.

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