

WESTON COUNTY LAND USE PLAN

Prepared by the Weston County Planning Commission  
with assistance from the  
Tri-County Planning Office  
Newcastle, Wyoming

Approved by Weston County Board of County Commissioners  
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## Weston County Land Use Plan

### Introduction

Although Weston County has had an active planning commission for many years, recent growth resulting from energy resource development in Campbell County and the State Land Use Planning Act of 1975, which requires that all local governments develop land use plans by the end of 1977, have resulted in the Planning Commission developing this Weston County Land Use Plan. It is intended to aid the County Commissioners in establishing policy for land use and related activities in the County. As such, it will serve as a guideline for decisions relating to growth and development in the unincorporated areas of the County.

Time and again it is pointed out that planning is a process that must reflect change as it occurs. For this Plan to be more than another paper exercise it must be reviewed and modified as conditions and the needs of the County change.

Land use planning, while not a pleasant task, offers one way for local people to have a very real involvement in the direction the County will take as it deals with the change that is occurring now and that will be with us for the foreseeable future. You are encouraged to join in the process and make your views known, because no land use plan will be better than the collective judgements of the people it serves.

This Land Use Plan would not have been developed without the continuing efforts of the Weston County Planning Commission and the support of the Weston County Board of County Commissioners.



### Location

Weston County is located in the northeastern corner of Wyoming on the edge of the Black Hills. It is surrounded by Crook County to the north, Campbell and Converse Counties to the west, Niobrara County to the south and South Dakota to the east. The County includes two incorporated communities, Newcastle and Upton, and one unincorporated community, Osage. The closest larger urban areas are Rapid City, South Dakota, about 80 miles to the east and Gillette, about 75 miles to the west. The County contains approximately 2,408 square miles or 1,541,120 acres.

Major highways serving Weston County include U.S. Route 85 traversing the County from north to south in the eastern quarter of the County and U.S. Route 16 which bisects the northeastern third of the County in a northwesterly-southeasterly direction.

Rail facilities serving the County are the Burlington Northern which parallels U.S. Route 16 as it crosses the County. Public airports are located at Newcastle and Upton.

### History

Until the mid 1870's, northeastern Wyoming had been reserved as "Indian Territory". The Custer Expedition explored the Black Hills in 1874, and discovered gold on French Creek, South Dakota on July 30, 1874. With the news of the discovery, miners poured into the territory, opening the Black Hills to settlement.

In 1866, the first cattle drive was made from Texas to Montana. In subsequent years, many thousands of longhorns came up the Texas trail through this part of Wyoming, despite the constant hazards of Indian attack. After 1876, ranches were established along this trail, and stock cattle were obtained from the trail herds.

Transportation facilities began to develop. The Cheyenne - Black Hills stage was established to link Black Hills gold fields with the Union Pacific Railroad at Cheyenne some 200 miles to the south. Freight outfits pulled by horses, mules and oxen operated along the same route.

In the late 1880's, Frank W. Mondell, an engineer for the Chicago, Burlington & Quincy Railroad, located the Cambria Coal fields. The CB&Q was extended from Alliance, Nebraska and reached Newcastle in November 1890. Several years before the coal discovery, oil springs were found in the same general area. In 1891, a number of shallow wells were sunk, and the mining company patented the townsite of Newcastle as an oil placer claim. Newcastle, the first major town in the County, was initially established as a shipping and service center to serve the new coal mining camp at Cambria. The Town was incorporated in 1889 and Weston County was created from a portion of Crook County on March 12, 1890, with Newcastle as the County Seat. Cambria produced the only hard coal in the western region and it was in high demand. The mine flourished for 39 years, producing over 12 million tons of coal.

Oil was first discovered in the Osage field in 1918. Clareton, Fiddler Creek, and other oil fields sparked a major oil boom through the 1940's and into the late 1950's, and refineries were built at Newcastle and Osage.

In 1914, the Black and Yellow highway was established linking Minneapolis with the Black Hills and Yellowstone Park through Weston County. The tourist industry has since grown, with the County serving as one of the western gateways to the Black Hills.

Homesteading, which had been occurring in the County all along, increased significantly during the World War I era. Many, as they encountered the difficulty of surviving on small acreages, left in despair. Dry-land wheat farming was established in the 1880's and grew steadily. As lumber was needed by settlers and the mines, several sawmills were established. As the need for bentonite developed, the County's extensive deposits were among the first developed in the State.



## Physical Characteristics

### Land

There are a number of reports indicating areas of land use in different categories. The areas used here derive from mapping done specifically for this study. The areas were determined by plotting data from ASCS aerial photographs on a base map at a  $\frac{1}{2}$ " equals 1 mile scale and then measuring the areas by category.

TABLE A

	<u>RANGE</u>		<u>FOREST</u>	<u>FARMING</u>		<u>Urban</u>	<u>TOTAL</u>
	<u>Open</u>	<u>Forested</u>		<u>Dry-Land</u>	<u>Irrigated</u>	<u>Built-up</u>	
<u>Acres</u>	1,256,159	120,115	84,056	60,170	2,780	17,840	1,541,120
<u>% of</u>	81.5%	7.8%	5.4%	3.9%	0.2%	1.2%	100%
<u>Total</u>							

Obviously, the major land uses are agricultural in nature, with the dominant agricultural use livestock grazing. Second in area is forested land; of this more than 20,000 acres are classified by the State as commercial timber. Indicative of the general lack of available water in the County is the small area under irrigation.

In contrast to much of the rest of the State, the federal government owns only 19.7 percent of the area of the County. Only six other counties have less federal ownership (Campbell, Converse, Crook, Goshen, Laramie, Niobrara and Platte) while many have from 30 to 60 percent federal ownership, and Teton County is 98.66 percent federally owned. About 10 percent of the County is owned by the State, which compares pretty well with other counties where the range is from about three percent to a little more than 12 percent. Private ownership constitutes more than 69 percent of the surface area of the County, which is relatively high compared to other counties, which range from a high of more than 90 percent in Goshen County to a low of less than one percent in Teton County, with many counties ranging between 40 and 80 percent privately owned. Of the land controlled by the federal

government, the Forest Service controls about 220,000 acres, or 14.4 percent of the total county area, mostly in the Thunder Basin National Grassland, and the Bureau of Land Management controls almost 80,000 acres, or 5.2 percent of the County area.

### Climate

The climate in Weston County is classified semi-arid. Fahrenheit temperatures show a wide range between summer and winter and between daily maximums and minimums. The average annual temperature is 47 degrees, with a range of average daily temperatures from 74 degrees in July, to 23 degrees in January. The lowest temperature observed in Newcastle was 32 degrees below zero in February and the highest was 106 degrees in July. It is interesting that the low temperature occurred in February while the low average monthly temperature occurred in January. The average length of the growing season is 137 days with the average date of the last freezing temperature in the spring, May 16, and the first freezing temperature in the fall, September 29. The temperatures and the length of growing season vary over the county, generally with lower temperatures and a shorter growing season at the higher elevations.

### Topography

The County exhibits two distinct topographic regions; the high prairie and Black Hills Uplift in the northeast third of the County, and rolling plains sloping southeasterly over the balance of the area. Elevations vary from 3,900 feet in the southern portions of the County to 6,750 feet in the northeastern corner. The uplift consists of tree- and grass-covered peaks and crests and dissected plateaus.

### Geology

The geology of Weston County is dominated by the Black Hills Uplift, a massive batholithic uplift of igneous rock, to the north and east, and the Powder River Basin, a broad structural intermountain basin that extends from Newcastle westward to the Big Horn Mountains some 120 miles away.



Much of the Weston County side of the Black Hills Uplift is covered with uplifted sedimentary rocks which have numerous outcrops and by a plain of redeposited tertiary sediments. The east flank of the Powder River Basin dips gently to the west and is an important oil and gas producing area in the County. Oil producing strata are primarily Cretaceous in age. Typically, oil and gas production is prolific when discovered but depletes quite rapidly. The line of contact where the Black Hills are uplifted from the depth of the Powder River Basin bisects the northeastern third of the County, passing through Newcastle. Along this contact are numerous limestone and sandstone outcroppings. Bentonite and other minerals are exposed in the area. The Cambria coal field and other small coal fields of Cretaceous age exist within the Black Hills Uplift and have been mined by underground mining techniques where the vein outcrops.

#### Drainage

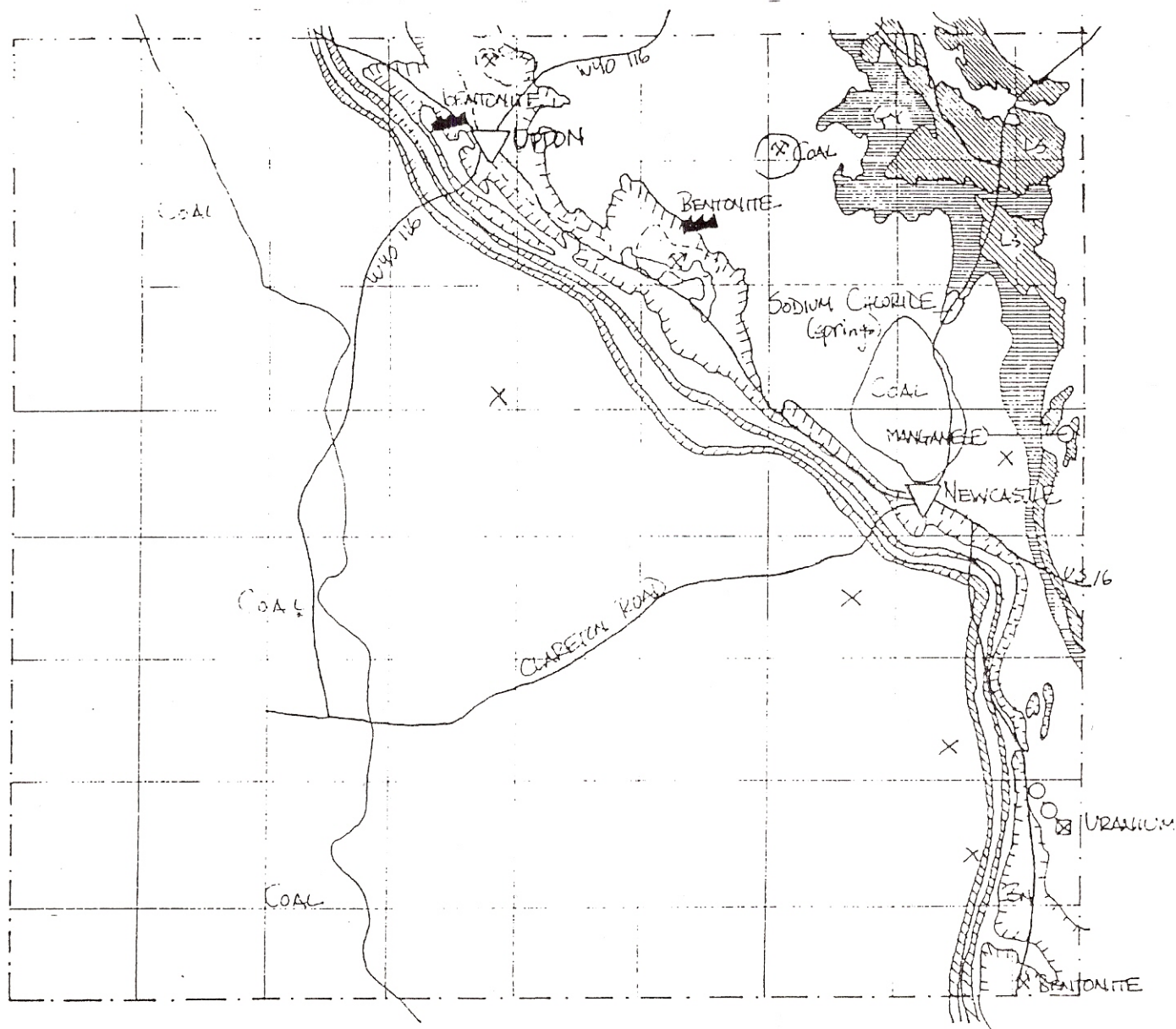
All drainage in the County flows eventually into the Cheyenne River. The majority of the drainage flows southeasterly, with the only major regular streams, Beaver Creek flowing diagonally across the County in a southeasterly direction, and its tributary, Stockade Beaver Creek, flowing southerly in the east one-fourth of the County, joining the Cheyenne River in South Dakota. A portion of the northwest corner of the County drains into the Belle Fourche River, which flows northwesterly until it changes direction in Crook County, skirting the Black Hills and also joining the Cheyenne River in South Dakota.

#### Soils





Soil types within the County are many and varied but there are general geographic areas possessing similar characteristics due to origin and climate.





The Black Hills portion of the County consists of undulating plateaus, steep mountain slopes, and deep, narrow valleys. The soils here are shallow to deep, well drained, loamy and clayey and have formed in materials weathered in sandstone, limestone

# WESTON COUNTY MINES & MINERALS



## LEGEND

LS  LIMESTONE  
 GY  GYPSUM  
 BN  BENTONITE  
 O  URANIUM OCCURRENCE

 UNDERGROUND MINE  
 OPEN PIT MINE OR QUARRY  
 OPEN PIT OR QUARRY  
 MILL SITE  
 X GRAVEL PIT



and granite. Many of the soils are stony, and rock outcrops are numerous. Much of the area is forested.

Near the base of the Black Hills are some undulating to rolling, shallow to deep, well drained, loamy soils which have formed in materials weathered from the "red beds". These soils have a high available water capacity, and those that are nearly level to sloping are suitable for irrigation. Some of these soils are dry farmed and some are grassland.

Most of the County is a part of the Great Plains. This plains area consists of nearly level to rolling uplands and sloping to steep dissected uplands. The nearly level to rolling uplands are extensive and occur in the western portion of the County. The dissected uplands include isolated buttes and steep escarpments. These occur as rough breaks in the southwestern portion of the County. Most of the soils in the nearly level to rolling uplands have formed in residuum from sandstone, shale and interbedded sandstone and shale. They are mostly moderately deep to deep, well drained, and loamy. Some of the parent materials have a high content of alkali and/or soluble salts, and alkali soils are common. The available water capacity is moderate to high. If these soils are irrigated, good water management is needed to prevent the raising of water tables and accumulations of soluble salts. Some areas are dry farmed, but most of these soils are used for rangeland. The soils in the dissected uplands are mostly shallow, well drained, loamy and clayey, and have formed in materials weathered from sandstone, shale and interbedded sandstone and shale. There are numerous rock outcrops and areas of badlands. Most of the area is grassland, but there are extensive barren areas and a few trees grow in the rougher areas and along the steeper escarpments.

Extending through the east central portion of the County is a narrow belt of undulating to hilly, shallow to deep, well drained, clayey soils. These soils have formed in materials weathered from dark-colored shale. Small areas of these soils are dry farmed, but most of the area is grassland.

Alluvial soils occur along most of the major streams and tributaries. The flood plains are very narrow in some places. Along most of the small streams in the mountains and foothills there are narrow bottoms with well to poorly drained alluvial soils. Alluvial soils occur around the heads of draws and along small intermittent streams. The soils are mostly deep, well to poorly drained, sandy, loamy, and clayey. In many places these soils have high contents of alkali and/or soluble salts. The available water capacity is low for the sandy soils and moderate to high for the loamy and clayey soils.

### Water

#### Precipitation

Precipitation ranges from an average of 12 inches per year in southern Weston County to 16 inches in the northeastern portion. Approximately 70 percent of the annual precipitation falls during the growing season. Snowfall varies from 30 to 65 inches on the plains to much more in the mountains.

#### Surface Water

Surface water availability is limited because most of the drainage in the County is intermittent, and up to 80 percent of total outflow occurs during May, June and July in the form of spring runoff. Since crop water needs are greatest during July and August, the need to control and store runoff is important.

#### Ground Water

In the absence of adequate surface water, ground water is of critical importance. Most of the ground water available to wells in the County is in bedrock formations. This is due to the great thickness and extent of the consolidated bedrock aquifers compared to the relatively thin, unconsolidated aquifers of limited extent found in flood plain alluvium. Even though much more ground water is stored in bedrock than in unconsolidated material, the unconsolidated material usually yields water at a greater rate and accepts recharge faster. Only a small amount of ground water is beneficially consumed annually by man's activity.



Most of the natural recharge to unconsolidated aquifers discharges as base flows of surface streams, recharges consolidated aquifers, and evaporates. The quality of ground water affects its availability for a specific use.

Water quality is better near the outcrop (recharge) areas and deteriorates towards the center of geologic basins. Generally speaking, the quality of ground water in the County is fair at best and poor in many cases. Exceptions are the good-quality waters from mountain springs and the well water flowing or pumped from aquifers close to outcrop (recharge) areas.

Hydrologic characteristics of aquifers also affect the availability of ground water. One of the most important is permeability. Therefore, aquifers that are capable of supporting large-yield wells usually have thick saturated materials.

Ground water is used for domestic, stock, industrial, irrigation and other purposes. Domestic and stock wells are normally low-yield, intermittent producers. Water for such uses is found at depths above 1,000 feet.

#### Timber

Of the 120,000 plus acres shown on the land use map as forested, some 23,000 acres have been identified as commercial forest land (that land which is producing, or is capable of producing, usable crops of timber). Most of these lands are owned by private individuals and are located in the northeastern part of the County. The major commercial forest type is Ponderosa Pine.

There were six sawmills operating in the County during 1974, and their total cut was 22,000 Million Board Foot (MBF) or about 10 percent of the total cut for the year in the state. The major wood products produced were rough and finished lumber, chips and pallets.

#### Minerals

The Geological Survey of Wyoming listed the following mineral occurrences in Weston County:



TABLE B

Barite	Quartz - agatized wood
Bentonite	Sodium Chloride
Clay	Stone
Copper	Sandstone
Gold	Limestone
Gypsum	Cement Rock
Manganese	Uranium
Coal	Oil and gas

Of these, oil and gas have historically been the most important, followed by bentonite and coal, although coal's importance appears to have more historic importance than current economic importance. Clay, sandstone and limestone may have some significance. Uranium is generally low grade and its development will depend upon its price, although there appears to be some renewed interest in it in the County.

#### Agriculture

Agriculture plays a vital role in the County's economy. The major crops are oats, barley, wheat and hay. Cattle and sheep are the County's major agricultural product, with cattle numbering 52,000 head in 1975, up from 32,600 head in 1950, and sheep numbering 10,500 head in 1975, up from 9,000 head in 1950, but considerably below the 1964 high of 30,900 head.

#### Environmental Quality

Weston County is fortunate to have very good air, water and land quality. Its low population density and the relative absence of heavy industrial development are significant contributing factors to this.

Relatively minor air quality problems relate to particulate matter from the power plant at Osage, bentonite processing northwest of Upton, the refineries at Newcastle and Osage, and the lumber mill at Newcastle. Black Hills Power & Light, who owns the Osage plant, recently has installed substantial air-cleaning equipment, and the plant presently meets established State standards. The bentonite mills are monitored on a regular basis by the Wyoming Department of Environmental Quality (DEQ) and at random by the Federal Environmental Protection Agency (EPA). The refinery at Newcastle recently has been sold, and as a condition of purchase, the refinery will be brought up to Wyoming standards. The refinery at Osage is one of the newest in Wyoming, and meets established standards, as does the Newcastle lumber mill.

There is not much data available on existing air quality, but that which is available shows that Weston County has an air quality substantially better, in general, than established State standards. During 1976, the State DEQ maintained an air quality monitoring station at Mondell Airport, 7 miles west of Newcastle. The results showed an arithmetic average of  $5 \text{ ug/m}^3$  (micrograms per cubic meter) of  $\text{NO}_2$  concentration; the State standard for an annual arithmetic mean is  $100 \text{ ug/m}^3$  (Primary). The arithmetic average for  $\text{SO}_2$  was  $1 \text{ ug/m}^3$ , compared to the  $60 \text{ ug/m}^3$  maximum State standard. The geometric mean for total suspended particulates was  $13 \text{ ug/m}^3$ , compared to the State standard of  $60 \text{ ug/m}^3$ ; another monitoring station at Gordon Ranch in the southwestern part of Weston County recorded a geometric mean of  $30 \text{ ug/m}^3$  total suspended particulates during 1976.

This data is not comprehensive or conclusive, but the South Dakota School of Mines and Technology is participating in the development of a program which will more definitively establish baseline conditions for the Black Hills, Weston County included. Project NOSAMP (Northern States Air Monitoring Program) includes monthly air monitoring performed with a mobile lab which traces a specified route.

The NOSAMP monitoring station in Weston County is southwest of Upton on Wyoming Route 116. The South Dakota School of Mines will be requested to inform the County of their findings and of any changes in air quality that the continued air monitoring program reveals.

Water quality problems in Weston County are even less substantial than air quality problems. The refinery at Newcastle has been discharging wastes into Oil Creek, or Cambria Creek, but this practice is anticipated to be discontinued after the clean-up program is in operation. The refinery will have its own water treatment plant, among other things. Both Upton's and Newcastle's sewage treatment systems are meeting established State standards.

A greater problem is in the area of non-point pollution, primarily soil erosion, which is characteristic of sparsely vegetated range land, particularly during spring runoff. Area ranchers have for many years tried to find solutions to this problem through cooperation with the Beaver Skull Conservation District and Soil Conservation Service (SCS) and most recently through beginning to work with the Water Quality 208 program.



Measurements of water quality in Weston County are not readily available, as most streams are intermittent. The U.S. Geological Survey did have a stream gaging station on Beaver Creek, near Newcastle, and the results of a chemical analysis from that station are attached as Appendix A. Water quality standards were established for Stockade Beaver Creek, as a designated interstate water, and according to the Wyoming Water Planning Program Report No. 10, published by the State Engineer's Office, "Generally the quality of interstate waters in Northeastern Wyoming is within the limits of established standards". These standards are specified in "Water Quality Standards for Interstate Waters in Wyoming", published by the Wyoming Department of Health and Social Services.

Land quality problems in Weston County historically have related primarily to the reclamation of bentonite mined land. At present, all mining operations must meet established reclamation standards.

Were the municipal landfill sites not operated correctly, this would be another land quality problem, but at present Newcastle's site is meeting DEQ standards, and it's anticipated that Upton will receive an operating permit for its new site in the near future.



## Economic Analysis

### Employment Trends and Current Estimates

Generally, Weston County is rebounding from a 15 year decline in employment, population and households. Population in Weston County is currently at 1970 levels, having experienced a continued decline in the early 70's and a rebounding in 1974 through 1975.

Weston County experienced a decline in employment averaging a loss of ten jobs per year between 1965 and 1975. Since 1970, employment has risen at an average annual rate of 3.6 percent.

In 1975, employment in Weston County was 2,840 compared to 2,990 in 1965 -- a decline of nearly 5 percent. Over the ten year period, employment declined to a low of 2,410 in 1970 -- nearly 20 percent below 1965 employment level. However, by 1974, total employment had rebounded to a level of 2,720 and by 1975 to 2,840; this represented an average annual increase of 3.2 percent for the 1970 through 1975 period.

Employment in mining, manufacturing and trade showed the strongest gains throughout the 1965 to 1975 period. Between 1965 and 1970, employment in mining rose by 4.5 percent and between 1970 and 1975, employment in mining rose by an additional 15.5 percent. In manufacturing, total employment declined by nearly 9 percent annually between 1965 and 1970 but rose by 26 percent annually between 1970 and 1975. Employment in wholesale and retail trade displayed a pattern similar to manufacturing employment trends, declining by 2 percent annually between 1965 and 1970 and then rebounding for a 4.4 percent annual increase between 1970 and 1975.

In Weston County, the leading employment sectors are presently in mining, manufacturing and transportation, communications, and utilities. Relative to the share of mining employment in the Tri-County area\* as well as the State of Wyoming, mining in

\*Tri-County area includes Crook, Weston and Niobrara Counties

Weston County is nearly 60 percent and slightly more than 100 percent higher, respectively. The percent of Weston County employment in manufacturing, relative to the Tri-County area, is 17 percent higher and nearly 48 percent higher than the entire State of Wyoming. Finally, the percent of employment in the transportation, communications, and utilities sector is 46 percent above the proportion of employment in this sector in the Tri-County area and the State of Wyoming. Employment in agriculture in Weston County is more than 55 percent below the relative contribution of this sector for the Tri-County area, and 10 percent below the contribution of this sector throughout the State of Wyoming.

In 1970, the distribution of employment by sex indicated that males accounted for 75.4 percent of all employment in Weston County.

Labor force participation (the percent of the total population employed) in Weston County in 1970 was 48 percent, which was slightly higher than the overall national average of 43 percent.

Between 1967 and 1972, the number of manufacturing concerns in Weston County changed. In 1967, there were 3 lumber and wood product manufacturers in Weston County. By 1972, Weston County experienced an increase of 2 for a total of 5 lumber and wood product manufactures. In 1967, Weston County had one publishing and printing concern. By 1972, 4 of these were located in Weston County. In 1972, Weston County was the location of one food and kindred products manufacturer; it had none in 1967.

A selected survey of major employers in Weston County shows that as of fall 1976, the employment outlook is towards modest but continued growth. Tesoro and Burlington Northern Refineries anticipate an expansion within the next 5 years, and bentonite production is expected to double by 1980.

#### Population Trends and Current Estimates

Weston County experienced a 20.5 percent decrease in population between 1960 and 1970. In 1970, Weston County had a higher percentage of its population residing in incorporated areas -- 70.1 percent residing in either Upton or Newcastle.

The age of the population in Weston County shows a high concentration of individuals in the bracket of under 14 and between 25 and 54 years of age. This is similar to the national average,



except that the percentage of those under 14 years of age is 11 to 12 percent higher than the national average. Population in the age bracket of 55 years and over is nearly 10 percent below the national average.

As of 1970, 21 percent of the population in Weston County had not been residing in the County prior to 1965.

The population of Weston County as of August, 1977 was estimated to be 7,200 persons, having declined from a 1960 high of 7,929. Weston County's population in 1970 was 6,307 and the population continued to decline until 1974, when the trend reversed, as is shown by the Figure "Historic and Projected Population".

#### Household Trends and Current Estimates

Changes in the number of households in Weston County between 1960 and 1970 parallels the change in population and employment, decreasing 16.1 percent, or 377 households.

There has been a slight decline in the average household size in Weston County, from 3.39 persons per household in 1960 to 3.20 in 1970. This reflects the national trend.

Since 1970, the average income of households has increased substantially faster than the national overall rate of inflation of 39.8 percent. Average household income in Weston County was \$8,666 in 1970, up from \$5,751 in 1960, an increase of 50.7 percent. This reflects the relatively large employment in manufacturing, mining and transportation, communications and utilities.

#### Summary Findings -- Factors Affecting Future Growth

Three crucial economic factors have been examined. These are: (1) trends and outlook for agricultural employment and production, (2) trends and outlook for mining activity and, (3) potential employment spill-over from coal mining activities in Campbell County. Based on discussions with State officials and local operators, as well as research on the Tri-County area, these three areas are judged to be those which will dominantly influence future growth and development within the Tri-County area. Based on the projected performance of each of these factors, additional growth and development in the Tri-County area in sectors such as retailing, wholesaling, services and government can be anticipated in the years ahead.



In summary, principal findings regarding the current and prospective outlook of each of these "growth generators" are as follows:

1. Agriculture

While Weston County has experienced a significant increase in agricultural productivity -- principally increases in terms of the number of livestock on farms and ranches and substantially higher yields from small grains such as winter and spring wheat -- employment in agriculture has declined by 35 percent since 1965, but increased by 8.3 percent between 1970 and 1975. The decline may be somewhat exaggerated because of a change in collecting the data after 1965.

In the foreseeable future, agriculture is anticipated to remain a principal economic force -- though the total percentage of individuals employed directly or indirectly in agriculture is likely to decline. The best evidence available indicates that productivity on farms and ranches in the Weston County area is likely to remain stable or slightly increase over the next ten years. At the sametime, employment directly in agricultural activities (farming and ranching) is more than likely to continue to substitute technology for labor.

2. Mining

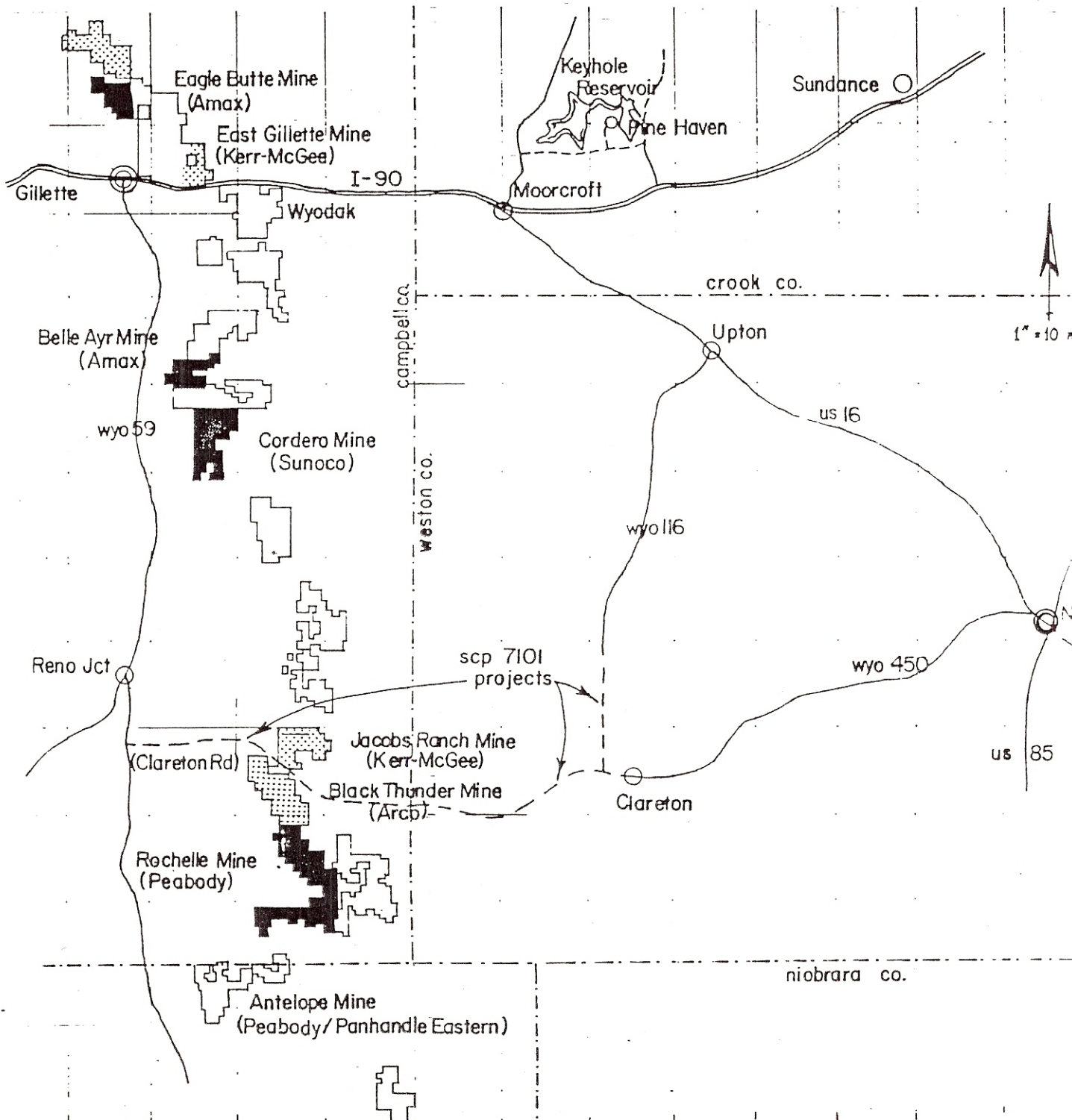
Mining activity and associated employment can be expected to continue its major role in Weston County. Existing and potential mining activity in the County already contributes substantially to the economic structure. As of 1975, employment in mining represented 18 percent of all employment in the County. Since 1965, employment in mining in Weston County has increased by 18.6 percent.

Petroleum and natural gas production -- the major historic mining activity in Weston County -- are expected to remain stable or decline slightly depending on the success of current deep well drilling efforts.

Bentonite production, which began as early as 1900 in Weston County, will be a continued source of growth. Bentonite mining activities in the County, yielding an annual production level of approximately 200,000 tons in 1973 and 1974, declined in 1975, but is projected to return to 1974 levels and remain stable or increase to between 215,000 to 225,000 tons a year, by 1980.

FIGURE

CAMPBELL CO. MINING ACTIVITY & WESTON/CROOK COUNTIES



East Gillette coal  
mining area to:

20 miles	Moorcroft	55 miles
50 miles	Sundance	50 miles
70 miles	Newcastle	45 miles
40 miles	Upton	70 miles
	Gillette	
	Douglas	

Reno Junction coal mining  
area to:

Coal Mining Legend

Actions

	specific applications
	proposed future actions
	federal leases, prospecting permits, pending preference right lease



Recoverable uranium reserves in Weston County are estimated to be negligible.

### 3. Spill-Over Growth From Energy Development

Population growth from employment opportunities in energy development -- principally coal mining activities in Campbell County -- could represent a significant source of future growth for Weston County. Because of existing and planned transportation routes, Weston County is expected to be a principal location of spill-over growth from the start-up of coal mining activities in Campbell County.

Based on projections prepared from a survey of major energy companies presently or expected to be operating in Campbell County, estimates of spill-over growth to Weston County have been prepared. The estimates are stated in terms of a probable range -- low to high -- and reflect the start-up of energy activities in three principal areas in Campbell County, including the Reno Junction area. Further, estimates are stated in terms of the number of permanent employees living in Weston County and working in coal mining operations in Campbell County.

Between 1976 and 1980, approximately 20 percent of the employment associated with coal mining activities in Campbell County is anticipated to reside in Crook and Weston Counties. Based on the present size of communities in Weston County and travel distances to mines which are expected to open prior to 1980, a total of 375 to 500 employees in energy mining activities in Campbell County could be residing in either Crook or Weston Counties. Weston County communities experiencing spill-over growth are expected to be Upton, Osage and Newcastle with a combined total of 270 Campbell County mining employees at the low range and 355 Campbell County mining employees at the high end of the range.

In 1980, new sections of highways, the Clareton Road linking Reno Junction and Newcastle, and the Hay Creek Road linking Upton to the Clareton Road, are planned to open. The Clareton Road already provides access to the Newcastle area, thereby enabling mining employees at locations in Central Campbell County and Reno Junction to reduce travel time from place of residence to place of work. The Clareton Road, and the Hay Creek Road when up-graded, should substantially improve access to the Newcastle - Upton, area.



After 1980, overall spill-over potentials to Crook and Weston Counties from mining operations in Campbell County are estimated to represent approximately 24 percent of all new employment occurring at mines during this period. The major location of spill-over growth is likely to be Weston County, predominantly Newcastle, where an estimated 130-265 employees who will be working at mining activities in Campbell County are projected to reside. Upton will also experience increased growth levels as the number of mining employees residing there and working in Campbell County is projected to be 45-100. A slightly lower share of the spill-over growth will reach into Crook County.

#### Population Estimates

Table 1, below, summarizes how each of the "growth generators" is expected to influence the economic outlook in Weston County. Identified in Table 1 is the expected performance of "growth generators" in two ranges. The first range is labeled "minimum scenario". The second range is identified as the "maximum scehario". These two scenarios form the framework from which judgements and technical calculations have been made regarding the expected rate and level of growth in Weston County in terms of minimum (not less than) and maximum (not greater than) limits. The "minimum scenario" is based on an extrapolation of trends adjusted to the past five years. The "maximum scenario" is based on tracing the impact of all identifiable "growth generators" at their maximum and deriving the relationship between employment increases and spill-over population increases.

Population gains in Weston County are projected to be not less than 6,500 and not more than 7,800 by 1980. Between 1981 and 1985, population in Weston County is projected to grow to at least 6,850 and to 9,300 at the most. If Weston County population reaches no more than the minimum level in 1980 -- a slight gain of approximately 200 will have been achieved since 1970. On the other hand, should the maximum level be attained, the population of Weston County would be approaching its 1960 level of 7,929. Continued population growth in Weston County

TABLE 1

ECONOMIC OUTLOOK IN WESTON COUNTY  
ALTERNATIVE GROWTH SCENARIOS  
BY SOURCE OF GROWTH

Minimum Scenarios

- Agricultural production stable to slightly declining. Employment in agriculture declines modestly
- Bentonite mining continues at 1975 production level and no new mines or mills opened.
- Oil and natural gas production continues to decline at historic rate of approximately 5 percent annually. Direct employment level remains essentially the same. Exploration activities taper off slightly and thus some decline in employment.
- Spill-over growth from coal mining at low range projection of 50 employees. Place of residences principally in Upton and Newcastle as a result of the opening of the Clareton Road to Reno Junction in 1980.
- Dependent sector (non-basic economic activities such as retailing, government, etc.) experiences a moderate expansion, principally in Newcastle.

Maximum Scenarios

- Agricultural production is stable to slightly increasing. Employment remains at or near the level of 350. Productivity growth results from improved range management and additional irrigated acreage.
- Bentonite mining increases to plus 50 percent of 1975 production.
- Oil and natural gas production remains stable. Historic decline in production offset by deposits from deep wells.
- Spill-over growth from coal mine at high range projection. The increases occur through 1985, but at a somewhat higher rate after 1980. Newcastle will be the principal recipient of spill-over growth.
- Dependent sector increases at plus 5 percent a year after 1980. Newcastle retailing expands trade area.

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Source: Gladstone Associates

to 1985, even at the minimum level, would raise the population to 6,850 -- 8.6 percent above the 1970 level. If the maximum level should be reached, then population growth since 1970 will have occurred at an average annual rate of three percent over the fifteen year period.

At present, there are a number of uncertainties which could affect where the actual population level falls within the "min-max" range. For example, spill-over population growth to Weston County may not be as accelerated prior to the up-grading of the Clareton Road in 1980 as assumed in the higher range. Alternatively, it is possible that mining employment working in Campbell County would seek a place of residence in Weston County



prior to the up-grading of the Clareton Road and bear the short term inconvenience of traveling over a rough road.

### Household Trends

As indicated in Table 2, below, Weston County will have the largest number of households of the three counties. This reflects the expected distribution of population growth in the Tri-County area between 1976 and 1985. Future gains in households in Weston County will continue past trends, though for different reasons. By 1985, the number of households residing in Weston County will be 18 percent to 58 percent greater than in 1970. This increase is attributed, for the most part, to spill-over growth from Campbell County mining development activities.

TABLE 2

ESTIMATED HOUSEHOLDS IN THE TRI-COUNTY AREA  
BY COUNTY AND GROWTH RANGE  
1980 AND 1985

	<u>Minimum Range</u>		<u>Maximum Range</u>	
	<u>1980</u>	<u>1985</u>	<u>1980</u>	<u>1985</u>
Tri-County Jurisdiction				
Crook County	1,420	1,950	1,890	2,200
Weston County	2,150	2,320	2,520	3,100
Niobrara County	<u>1,110</u>	<u>1,150</u>	<u>1,110</u>	<u>1,150</u>
TOTAL Tri-County Area	4,680	5,420	5,520	6,450

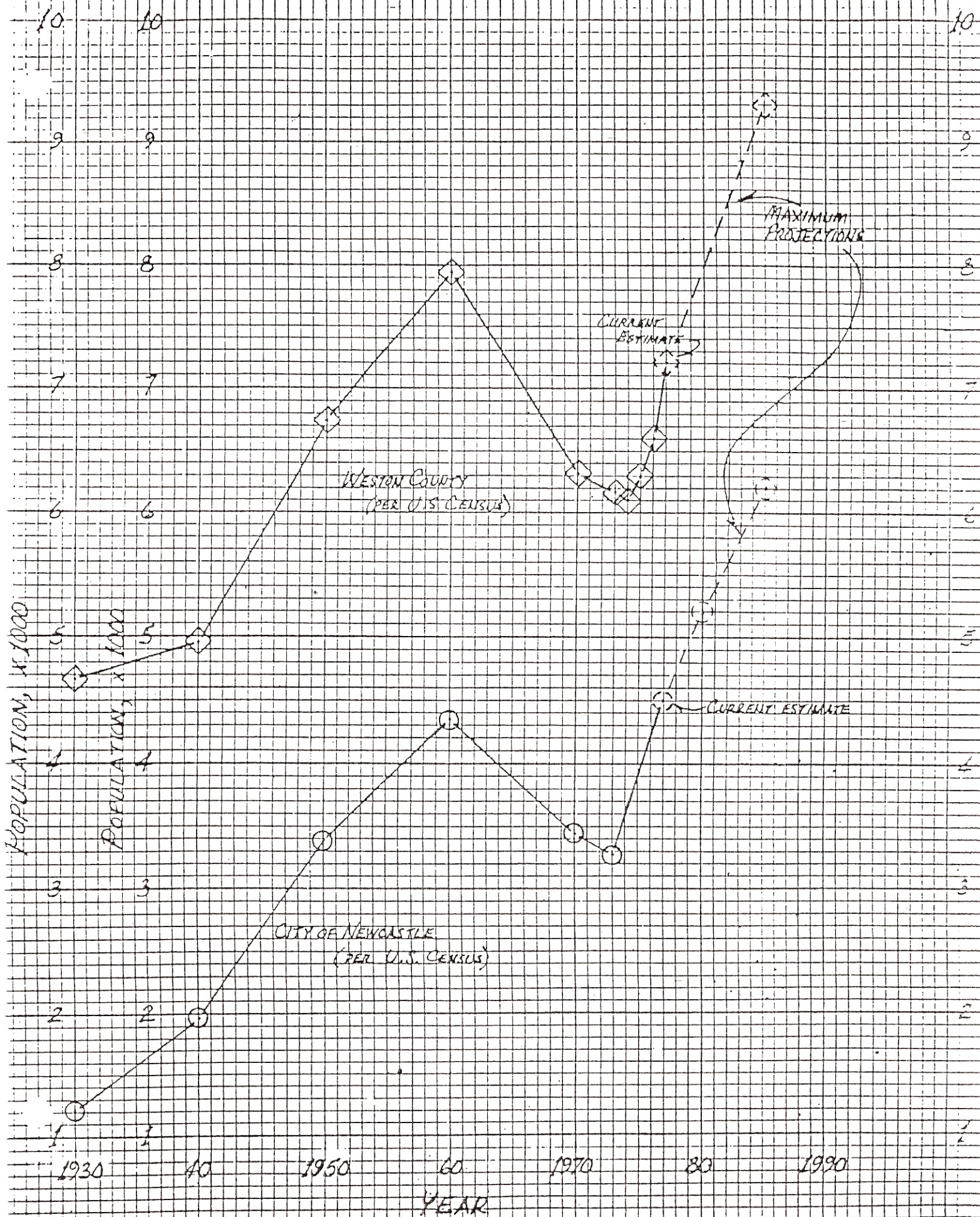
Source: Gladstone Associates

### Employment Projections

Employment in Weston County is projected to increase at a healthy pace over the next 15 years at either the minimum or maximum range. In part, employment gains will result from increases in "basic" employment in bentonite or uranium mining. Employment gains in base sectors will, in turn, generate additional employment through the classical "multiplier effect". A large proportion of future employment gains will also result from the spill-over



# HISTORIC AND PROJECTED POPULATION, WESTON COUNTY, NEWCASTLE



-TRI-COUNTY PLANNING OFFICE, 1977-



population growth from mining activities in Campbell County. Population growth in Weston County can be expected to generate additional employment as a result of increased spending.

By 1980, employment in Weston County is projected to rise to 2,930 at the minimum and as high as 3,220 at the maximum. In 1985, total at-place employment in the County is projected to be a minimum of 3,010 and maximum of 3,730.

In 1980, the population residing in major communities is projected to account for 72 to 80 percent of the total population of the County. By 1985, the share of total population in major communities is projected to increase to 73 to 85 percent. Newcastle is expected to receive 60 to 65 percent of the net increase, with Upton receiving 20 percent and the balance of the County receiving 20 to 15 percent between 1980 and 1985.

Using electrical hook-up data and other indicators, it appears that Newcastle has grown at the rate of approximately 3 to 4 percent over the last few years. If this rate of increase continues, the City will have in the range of 5,000-5,200 people by 1980 and 6,000-6,200 by 1985.

Upton appears to be increasing its population at a slightly slower rate. With an existing estimated population of 1,200, population could increase to the range of 1,450 by 1980 and 1,700 by 1985.

Where people ultimately locate will depend on many factors, including the cost and availability of building sites and housing, mobile home spaces, and utilities.

#### Current Land Use Patterns

The general land use patterns in Weston County can be characterized by the dominance of agricultural land use, primarily

livestock grazing south and west of Highway 16, which diagonally bisects the northern portion of the County in a northwest/southeast direction, with forested range and dry-land farming north and east of the highway. Urban uses are generally confined to the incorporated communities of Newcastle and Upton and the County's only unincorporated community, Osage.

Livestock grazing is the dominant use of the County's 1,541,120 acres, representing more than 82 percent of the total surface use. Second in area is potentially commercial timber areas, representing about eight percent, followed by forested-range at about six percent, dry-land farming at just under four percent, urban built-up at a little more than one percent and irrigated crop land at less than  $\frac{1}{4}$  of one percent.

Put in a slightly different order, agriculture, assuming forested land is used agriculturally, accounts for more than 98 percent of the surface use of land in the County. This does not take into consideration right-of-ways for rail lines, overhead and underground transmissions lines, roads, or water areas, mining and oil and gas areas and so on.

Urban-type uses are found in and adjacent to the communities of Newcastle, Upton and Osage.

Land ownership is predominantly private, which constitutes a little less than 70 percent of the County. Federal surface ownership is divided between the Bureau of Land Management and the Forest Service. BLM administers a little more than five percent of the County's surface area, while the Forest Service administers about 15 percent (more than 14 percent is in the National Grassland and the balance in the Black Hills National Forest). The State owns almost eleven percent of the County's surface area.

#### Community Services and Facilities

Community services and facilities provided by Weston County, as with all counties in the State are limited to police protection, fire protection and roads and bridges. These services are furnished on a demand basis and are adequate for the present.



## WESTON COUNTY'S GOALS, OBJECTIVES AND POLICIES

### DEFINITIONS

<u>Goals:</u>	A broad statement of community expectations or concerns, defining the direction and character of future development.
<u>Objectives:</u>	Specific standards of achievement which measure progress toward the stated goal.
<u>Policies:</u>	Specific actions proposed in order to meet the goal.
<u>Implementation:</u>	Specific tools recommended for carrying out the policies.

1. Citizen Participation: Goal: To have maximum public involvement in the local planning process.

Objective: A. Weston County's Planning Commission will serve as the major citizen involvement program for the County's land use planning program.

Policies: 1) Establish and maintain the Weston County Planning Commission, which will meet regularly.

2) When considering matters of significance to specific areas of the County, meet in that area of the County.

3) Meet annually with the Newcastle and the Upton Planning Commissions to discuss matters of mutual interest.

Objective: B. Weston County will develop and maintain a public information program about land use planning.

Policies: 1) Make the Planning Commission available to meet with community groups or organizations, upon request, to present information on land use planning.

2) Use all types of media to inform local residents about land use planning.

3) Place planning materials in the Weston County Courthouse and the Upton Library.

2. Environmental Quality: Goal: To maintain or improve the quality of air, water and land resources in Weston County.

Objective: Ensure consideration of Weston County's environmental quality as the County develops.

Policies: 1) Land use planning decisions in Weston County will be evaluated considering their effects on air, water and land quality.

2) Discourage changes in land use that will cause degradation of Weston County's environment.

3) Weston County will require that sewage disposal facilities are planned in accordance with applicable state and federal permit requirements before approval of proposed development.

4) Solid waste disposal sites should be developed and maintained in accordance with applicable state and federal regulations.



3. Economic Analysis: Goal: To consider economic factors when making land use decisions.

Objective: Allocation of land for development will be based on projections of employment and economic growth.

Policies: 1) Weston County will continue to analyze, in the land use planning process, the condition and trends of the area's economy and will identify the land and facilities necessary for desired economic development.

2) The Weston County land use planning process will continue to include consideration of the County's major industries and future employment levels.

3) Consideration of land for development will include analysis of public costs related to such development, with attention to available public facilities, services and the resources necessary to support the development.

4) Weston County will assure that proponents of developments bear an equitable share of public costs associated with their proposal.

4. Agricultural-Rural Lands: Goal: To plan for the continuing use of agricultural-rural lands, and for the potential of change in the use of those lands. Agricultural and rural lands in Weston County include all lands shown on the Weston County Land Use Plan Map which are not designated urban, or are not designated in an urban planning area.

Objective: A. Assure the continuance of the agricultural and rural nature of Weston County as the backbone of the County's economy and special life style.

Policies: 1) Weston County encourages the development and maintenance of agricultural-rural lands.

2) Land use restrictions on agricultural lands will be kept at the absolute minimum, commensurate with protection of these lands from external exploitation.

3) Ways to enhance and maintain agricultural-rural land uses will be sought.

Objective: B. Allow conversion of agricultural-rural lands to non-agricultural use only when it has been demonstrated by the proponent that the best interests of the County and its residents will not be damaged by such conversion.

Policies: 1) Weston County is not in favor of agricultural-rural lands being converted to non-agricultural use. Any proposal for such conversion will require consideration of the social, economic and environmental consequences for the owner and the community.

2) Assure that proponents of conversion to non-agricultural use bear any public costs resulting from that proposal.

3) Make determinations concerning conversion to non-agricultural use after public hearings and after giving proper notice.



5. Public Lands: Goals: To provide for a cooperative process of land use planning between Weston County and other governmental entities and agencies, so that the plans of each will reflect the needs of the other.

Objective: A. Weston County's Land Use Plan and planning process shall continue to include all lands, public and private, within its physical boundaries.

Policies: 1) Provide other governmental agencies opportunities to participate in the preparation and review of the Weston County Land Use Plan.  
2) Participate in the preparation of other governmental agencies' plans and studies that affect Weston County.

Objective: B. Weston County, in implementing its Land Use Plan, will try to assure that public agencies recognize and cooperate with the County's efforts to secure equal consideration for private as well as public owners.

Policies: 1) Coordinate County planning activities with other governmental agencies, particularly the United States Forest Service, the United States Geological Survey and the Bureau of Land Management.  
2) Keep other governmental agencies aware of the County's planning so that these agencies will not ignore the County's desires as they develop their own plans.  
3) Inform other agencies of the potential impact of their decisions on Weston County planning.

Objective: C. Weston County will carefully evaluate new access to public lands in its land use planning to minimize adverse effects of access on public and private lands.

Policies: 1) Assure that plans for roads are made with a clear understanding of the impacts that could result from the access resulting from such roads.  
2) Plan for access to public lands where such access is clearly in the best interests of the County and its residents.  
3) Avoid providing access to public lands where such access may result in the disruption of other authorized uses of such lands.

6. Water: Goals: To conserve water, and relate its use and development to desired land use.

Objective: A. Weston County will consider the quantity and quality of surface and underground water in its land use planning process, including consideration of the availability of water in evaluating proposed land use changes prior to their approval.

Policies: 1) Assure that adequate water is available for present as well as proposed land uses.

2) Maintain and enhance the County's water resources.

3) Give special attention to the water needs of agriculture and existing communities in the County.

4) Be aware of the total commitments of the County's water resources to avoid over-allocating this scarce resource.

Objective: B. Weston County will actively pursue opportunities to make its concerns about water known to other governmental agencies, particularly when such agencies are considering actions relating to the County's water.

Policies: 1) Assure that the County's concerns about water are fully understood by other governmental agencies, particularly when they are considering action on policy that could affect the County's water.

2) Keep the County's residents informed about actions that could affect local water.

3) Participate in decisions concerning water right transfer or water development.



7. Natural Resources: Goal: To plan land use consistent with the orderly development, use and conservation of Weston County's renewable and nonrenewable natural resources.

Objective: A. To consider the impact of planning decisions on the County's natural resources, particularly agriculture, forestry, and mining (including bentonite, oil, and gas).

Policy: 1) Weston County will use the inventory and map of its natural resources as a basis for its land use planning process.

Objective: B. Weston County will consider the effects on its natural resources of any proposed changes in land use.

Policies: 1) Discourage development that would endanger the County's natural resources.

2) Give full consideration to development controls that lead toward the wise use and conservation of the County's natural resources.

3) Require proponents of changes in land use to provide adequate natural resource data to evaluate the effects of their proposal.

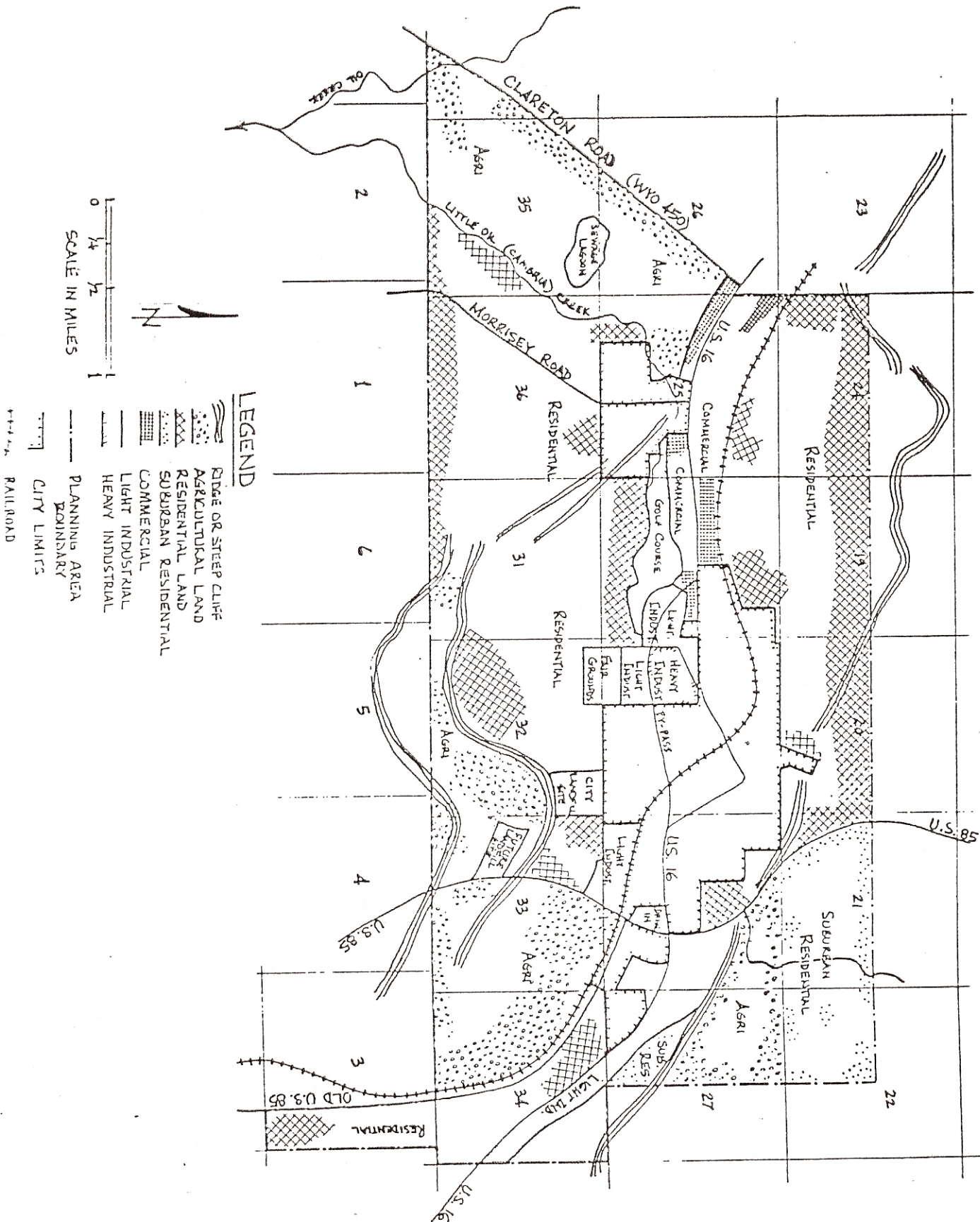
8. Natural Hazards: Goal: To minimize the loss of life and property from natural hazards.

Objective: Plan land uses to minimize the risk of harm to persons or property from natural hazards.

Policies: 1) Weston County will identify its known natural hazards and use the information in its land use planning.

2) Other agencies will be informed of the presence of natural hazards, so their plans can reflect any hazards in the area.

# NEWCASTLE PLANNING AREA Map #1





9. Scenic, Historic and Recreational Lands: Goal: To conserve, protect and, where appropriate, develop Weston County's scenic, historic and recreational lands.

Objective: A. Protect scenic and historic resources from disruption or degradation from changes in land use.

Policies: 1) Weston County will identify and consider its significant scenic and historic resources and use this information in its land use planning process.

2) Weston County will support the development of scenic and historic resources, where appropriate, and when it is in the best interests of the County and its residents.

3) Other agencies will be informed of the County's concerns when they are contemplating development of scenic and historic resources in the County.

Objective: B. Weston County will consider rural recreational needs and facilities in the County in its land use planning process.

Policies: 1) Evaluate the rural recreational needs of all residents.

2) Avoid disruption of rural land uses and life styles resulting from improperly located rural recreational sites.

3) Take advantage of unique local opportunities for rural recreation.

10. Large Scale Development: Goal: To mitigate the social, economic, and environmental impacts on Weston County from rapid or large scale growth and development.

Objective: A. In the event of rapid or large scale development, Weston County will prepare and maintain plans to accommodate it, minimizing harmful impacts to County residents.

Policies: 1) Develop alternatives to minimize anticipated impacts to the County.  
2) Direct growth to locations best suited to cope with it.  
3) Avoid over-reacting at the first sign of change.

Objective: B. Assure that financial capability exists to provide services required as a result of rapid growth and development.

Policies: 1) Provide that the developers bear their fair share of public costs related to their activities.  
2) Be aware of the long-term financial commitments that can accrue as a result of rapid growth and development.  
3) Inform state and federal agencies of the financial impact that their decisions relating to growth can have on the County.

Objective: C. Weston County will do all it can to assure that decisions relating to growth-inducing actions made by the state and federal governments will reflect clear knowledge of the probable results in Weston County.

Policies: 1) Keep informed about pending decisions by other governmental agencies.  
2) Keep County residents informed about such actions.  
3) Develop the groundwork to support legal efforts to force recognition of the County's planning efforts.



11. Public Facilities and Services: Goal: To plan for the provision of public facilities and services in coordination with Weston County's Land Use Plan.

Objective: A. Assure efficient provision of required public services when considering land use decisions.

Policy: 1) Weston County will coordinate the types and location of the public facilities and services it provides with existing and proposed land uses.

Objective: B. Limit urban-type growth and development to urban places.

Policies: 1) Discourage development that requires public facilities and services in rural areas.

2) Require developers to provide any public facilities and services necessary for their developments.

Objective: C. Weston County will plan public facilities and services to minimize adverse effects on present and future land uses and to be located consistent with the County's goals, objectives and policies.

Policies: 1) Avoid disrupting existing land uses, particularly agriculture, for development of public roads or other facilities.

2) Coordinate provision of public facilities and services with state and federal agencies.

3) Encourage efficient and attractive design of public facilities systems.

12. Urban Lands: Goal: To have urban lands in Weston County planned for by urban communities, and to maintain the rural nature of the balance of the County.

Objective: A. Encourage urban development in areas capable of serving that development.

Policies: 1) Urban lands in Weston County should be incorporated.

2) Urban areas will provide urban services.

Objective: B. Weston County will attempt to have plans for these areas made by the city or town to which such areas could annex.

Policies: 1) Newcastle and Upton, as identified urban areas, will plan for their respective urban fringe areas.

2) Osage will plan for itself and include its plan in the County's plan; see Appendix E.

3) Development of random, urban-type enclaves will be avoided in the County.

13. Residential Lands: Goal: To plan for suitable land to meet the housing needs of all Weston County residents.

Objective: A. To limit non-agricultural residential development to urban and urbanizing areas, and to keep public services provided by the County to the minimum.

Policy: 1) Weston County will identify land suitable for residential use, considering public costs and disruption of natural resources.

2) Weston County will avoid the disruption of rural land patterns by inappropriate residential development.

Objective: B. To minimize impacts from temporary housing needs resulting from rapid growth and development.

Policy: 1) Weston County will identify sites for temporary housing when such housing is necessary.

Objective: C. To protect the rural life style and maintain the integrity of traditional land use in the County.

Policy: 1) Weston County discourages the development of recreational or seasonal housing in the unincorporated area of the County.

14. Energy Conservation: Goal: To plan land use in Weston County that encourages energy conservation.

Policies: 1) Weston County will consider energy conservation in designating land uses in the County Land Use Plan.

2) Encourage new development to locate in existing urban areas.

3) Develop farm-to-market roads to minimize energy needs for transportation.



- 1) The Weston County Planning Commission has regular meetings on a regular, monthly basis. Adoption of the County Land Use Plan was preceded by three public hearings and news articles, including publication of the Preliminary Goals, Objectives and Policies.
- 2) Before approving land use change proposals, particularly subdivisions, Weston County requires that the necessary permits from the State Department of Environmental Quality be obtained.
- 3) An analysis of the local economy has been done, and it includes projections of population and employment. The County intends to keep current on economic activity which affects the County and recognizes that the results of the analysis will be modified with changing conditions.
- 4) The Planning Commission drafted subdivision regulations which were presented to the County Commissioners, and adopted in August, 1977.
- 5) The County Clerk has been directed to refuse filing subdivision plats until the plats have been approved by the Planning Commission and the County Commissioners.
- 6) The County has a written cooperative agreement with the State Forestry office and the U.S. Forest Service stating that the County will notify the local foresters of subdivision proposals that might affect government-owned lands. The foresters also have agreed to be available for technical assistance in evaluating subdivision proposals in timbered areas.
- 7) The Bureau of Land Management has located an office in Newcastle; BLM states that the Land Use Plan developed by Weston County will be coordinated with BLM's land use planning efforts. Information will be exchanged and meetings held to assure that this occurs.
- 8) A generalized map of Weston County's natural resources has been developed, and is utilized in evaluating land use change proposals.
- 9) Copies of the Preliminary Plan were sent to BLM, USFS, SCS, the State Lands Commissioner, the State Highway Department, and the State Planning Coordinator's Office for review and comments.

## CHEYENNE RIVER BASIN

06394000 BEAVER CREEK NEAR NEWCASTLE, WYO.

LOCATION.--Lat 43°32'07", long 104°07'02", in NW¼ sec. 18, T. 41 N., R. 60 W., Weston County, at gaging station, at highway bridge, 2.2 mi (3.5 km) downstream from Sheep Creek, and 23 mi (37 km) south of Newcastle.

DRAINAGE AREA.--1,320 mi<sup>2</sup> (3,420 km<sup>2</sup>), approximately.

PERIOD OF RECORD.--Chemical analyses: November 1945, June 1946 to August 1947 (monthly), December 1949 to August 1953 (monthly), October 1967 to September 1975 (monthly).  
Sediment records: September 1949 (monthly), March 1950 to September 1957 (daily).

## CHEMICAL ANALYSES, WATER YEAR OCTOBER 1974 TO SEPTEMBER 1975

DATE	TIME	INSTANTANEOUS DIS- CHARGE (CFS)	DIS- SOLVED SILICA (SI02) (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG)	DIS- SOLVED SODIUM (NA) (MG/L)	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
OCT. 09...	1530	27	.5	290	140	560	8.4	230	0	1900	310
NOV. 22...	1510	17	8.1	450	170	270	4.9	190	0	1600	390
DEC. 12...	1410	A13	9.6	470	160	260	4.4	230	0	1600	380
JAN. 11...	1015	A11	13	500	170	220	5.1	300	0	1800	270
FEB. 05...	1000	A13	12	540	83	220	4.2	270	0	1500	290
MAR. 11...	1100	A38	6.8	210	57	250	5.8	160	0	840	250
APR. 04...	1400	159	5.5	170	39	300	7.4	140	0	640	350
MAY 02...	0915	89	6.7	190	81	320	6.7	220	0	1100	200
JUNE 06...	0840	147	7.7	140	31	130	6.5	160	0	490	110
JULY 18...	1045	10	5.0	470	130	770	5.8	95	0	1700	1000
AUG. 19...	1820	8.6	1.3	460	110	350	4.4	68	0	1700	460
SEP. 11...	1200	2.4	.0	500	140	820	5.8	75	0	2000	1100

A Daily mean discharge.

DATE	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED NITRATE (N) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)	HARD- NESS (CA, MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	SODIUM AU- SOM- TIUM RATIO	TEMPER- ATURE (DEG C)
OCT. 09...	1.1	.05	.01	3290	4.47	2.40	1300	1100	6.8	15.5
NOV. 22...	.8	.05	.11	2940	4.00	135	1800	1600	2.8	4.0
DEC. 12...	1.0	.11	.02	3050	4.15	107	1800	1600	2.6	.5
JAN. 11...	.8	.20	.04	3080	4.19	91.5	1900	1700	2.2	.0
FEB. 05...	.8	.66	.10	2820	3.84	99.0	1700	1500	2.3	.0
MAR. 11...	.7	.25	.05	1700	2.31	174	770	640	3.9	.5
APR. 09...	.6	.18	.04	1570	2.14	674	580	470	5.4	2.5
MAY 02...	.9	.11	.04	1990	2.71	478	810	630	4.9	9.0
JUNE 06...	.6	.05	.05	1000	1.36	397	480	350	2.6	12.5
JULY 18...	.9	.02	.05	4140	5.63	112	1700	1600	8.1	--
AUG. 19...	.8	.02	.03	3100	4.22	72	1600	1500	3.8	25.0
SEP. 11...	.9	.02	.03	4640	6.31	30.1	1800	1700	8.4	15.0

Source: Water Resources Data for Wyoming - Water Year 1975

U.S. Geological Survey Water-Data Report WY-75-1



OSAGE LAND USE PLAN

The following Plan was developed over a period of months by the Osage Land Use Planning Committee, and finalized at a meeting of that Committee on December 14, 1977.

Area numbers refer to the attached aerial photograph of the Osage vicinity.

Area 1 - The area extending from the U. S. Post Office on the west side of Nefsy Avenue (old U.S. Highway 14) and approximately one block deep, north to the Skull Creek Road, and from the Skull Creek Road area between Nefsy Avenue and the Burlington Northern Railroad property extending south to approximately the road where old Highway 14 turns to join new Highway 16. It is the recommendation of the committee that any undeveloped lot or lots not now having any buildings on them, be used for small business development. Reason for this recommendation is that it is already the center of the business district and therefore the most logical place for small business.

Area 2 - This area is already in use as a residential and individual enterprise area. The area is mostly wooded and would be the most logical area to expand with residential housing. The area east of the Burlington Northern track and north of the Skull Creek Road is already occupied by a trailer court and thus is already residential.

Area 3 - The area extending from Black Hills Power & Light along the east side of the Burlington Northern tracks, extending north to the Skull Creek Road, east along Skull Creek Road as far as the property of Boise Cascade extends and then south parallel to the Burlington Northern tracks to the Power and Light land, is recommended for use as an industrial area. The committee felt that access to the railroad and the conditions of the terrain made this land most desirable as industrial development.

The Land Use Planning Committee feels that the land surrounding Osage, except for the land heretofore described, should be used as grazing land and for agriculture except where industrial development would be more beneficial to the land owner and the area.

Once more, we wish to stress the point that these recommendations refer to undeveloped land.

The Osage Land Use Plan is respectfully submitted by the Osage Land Use Planning Committee for approval by the Weston County Planning Committee.

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Robert W. Fowler, Chairman

MEMBERS:

Ed Jones  
Mrs. Ed Hawki  
Ed Buchanan  
Dick Knipp  
Deke Bock



[illegible]

CAMPBELL COUNTY















CONVERSE COUNTY

NIOBARA COUNTY

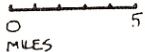
WESTON COUNTY



### LEGEND

- |   |                    |   |                   |
|---|--------------------|---|-------------------|
|  | URBAN AREAS        |  | RIVERS            |
|  | URBAN GROWTH AREAS |  | HIGHWAYS          |
|  | FORESTED AREAS     |  | PROPOSED HIGHWAYS |
|  | CROPLAND           |  | RAILROAD          |
|  | BENTONITE          |  | HISTORIC TRAILS   |
|  | OIL & GAS FIELDS   |  | RECREATION AREA   |
|  | AIRPORT            |  |                   |

NOTE: AREAS WITHOUT AN INDICATED SURFACE USE ARE PREDOMINANTLY USED FOR LIVESTOCK GRAZING.

[illegible]