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Population Movement and Growth in Utah County, Utah 1940 to 1980

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POPULATION MOVEMENT AND GROWTH IN UTAH COUNTY, UTAH 1940 to 1980

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This thesis, by Brian W. Maxfield, is accepted in its present form by the Department of Geography of Brigham Young University as satisfying the thesis requirement for the degree of Master of Science.

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Chapter 1

INTRODUCTION

Utah County, Utah, has, in the last forty years, undergone an enormous change, changing from several agriculturally oriented communities into an urbanized area of rapid growth and economic diversity. The results of this rapid urbanization have affected the social, economic, and political make up of the county as well as drastically changing many of its land use aspects and patterns. By all forecasts, this growth will continue, causing many future changes in the urban patterns within the county.

Of these changing urban patterns, certainly the most dominant and obvious occurs in residential areas. Residential land use accounts for almost 30 percent of the total amount of urbanized land in America (Niedercorn and Herle, 1964:105). The increase in residential areas, of course, relates to an increase in population and represents the contribution of many factors which have influenced the population growth and movement.

The developing growth of the residential areas of Utah County presents many facets for study and analysis. Among these are the causes of growth and the nature of the growth patterns. This thesis will be limited to the study of the growth patterns, and only brief reference will be made to the other issues.

Statement of the Problem

Urban Sprawl

Utah County's land use patterns have changed tremendously during the past four decades. Within this period of growth, the county population has increased from 57,174 in 1940 to 218,106 in 1980.

Such growth in many areas has resulted in urban sprawl patterns recognizable by poorly distributed subdivisions lacking in services and being constructed in unsuitable areas. The accompanying economic and social costs of poor land use affect both communities and individuals as services must be improved or extended (Germanow and Grimsley, 1973:1). The end result is that the costs of sprawl are paid for by the whole citizenry rather than the individuals effecting the improvements and extensions.

In order to combat urban sprawl, the policy of Utah County, for the past forty years, has been to direct growth toward the existing communities where urban services are more readily available.

> The question of people settling in the unincorporated areas was discussed at some length, and it was the expressed general opinion of the members present that every effort should be made by the County Planning Commission to force people to settle within the present confines of municipality boundaries first, and then allow expansion into the outskirts when facilities within the city are exhausted, thus protecting the people in the cities from having to bear the expenses of running utility lines into unincorporated areas and also prevent breaking up of farms in the rural areas from allowing plats to be sold for housing and business establishments.
> (Planning Commission Minutes, 1942:15)

This directive, however, most likely had an ulterior motive in protecting the area from racial instrusions.

> The negro problem was the next matter of business. Mr. Callahan stated that this problem was discussed with Mr. Spivey and it was found that the steel plant had employed 167 negroes. All of these were single men living in the barracks. Mr. Spviey stated that white men could do any required operations in connection with steel manufacture. Mr. Callahan suggested that the problem should not be increased by over discussion. None of the negroes who are here now are permanent. No real estate men have been ask [sic] to rent or sell houses to negroes. Mr. Markham said that he didn't think there would be a problem from the present group of negroes that are employed at the steel plant.
>
> Markham moved that we concur with Mr. Callahan's point of view and not stir up this issue but leave it quiet until something really arises. Mr. Salisbury seconded the motion and it was passed unanimously. (Planning Commission Minutes, 1943:43)

Although a racial motive may have originally existed, the benefits derived from a controlled growth policy relating to lower service costs and taxes as well as benefits to the health, safety, moral, convenience, and general welfare of the area were also soon recognized.

Focus of the Thesis

The directed growth policy of the county is a major reason for the existing urban patterns found within Utah County. In order to accurately access this thesis, it is necessary to locate and map the development and population growth within the county. Once the data has been collected, it is then available for examination to observe and recognize the movement and trends which have occurred.

The thesis of the Utah County Planning Commission was that the growth of the county could and would be controlled through a policy of directing the population growth toward the cities. The thesis of this paper is to show that the county policy has been effective. This paper, therefore, will not address the issues and methods of the policy enforcement, but rather will analyze the results of the policy.

The Study Area

Utah County was chosen as the study area for several reasons. First, it is an area which has undergone a rapid change in growth leaving many observable changes of its land use patterns in the wake. This facilitates much of the research necessary for recording population growth and movement as many of these changes are still measurable, and much of the population growth in Utah County is recent enough to have been recorded in detail.

Second, the cities of Utah County, having been settled at approximately the same time, in generally the same manner, mostly for the same reasons, and by people adhering to a like idealism, can easily be looked on as one homogeneous area. Because of the homogeneous nature of the area, fewer growth and movement variables exist such as could be found in an area where towns have differing economies and sociological make ups.

Third, the farm village arrangement of the original settlements and the distinctive square block patterns of

their original plats are still easily identifiable. In a like manner, many of the growth patterns which have occurred since 1940 are easily identifiable as residential areas began to move outward from the existing square block arrangements.

Finally, the accessibility of the area for study and the accessibility of material and data from the county were also important factors in the selection of Utah County as the study area.

Review of Literature

Urban Theories

Even a casual inspection of a city or region will reveal the existence of various kinds of specialized land use areas. The geographical arrangement of these areas reflects such factors as land values, accessibility, and the history of urban growth (Johnson, 1967:163). Because of these arrangements, many diversified theories have been produced relating to the arrangement of patterns upon and within the landscape.

The basis for many of the studies done in Urban and Human Geography comes from the same thoughts expressed by Christaller that if laws exist to explain the life of the economy, there exist special economic-geographic laws determining the arrangement of towns (Getis, 1966:220). The primary concern of most urban theorists, therefore, has been to discover and then examine the laws which govern urban patterns.

Three of the most well-known theories which have been developed relating to urban growth patterns are those by Burgess, Hoyt, and Harris and Ullman. They are commonly referred to as the concentric zone theory, the sector theory, and the multiple-nuclei theory. Though these three theories were developed in relation to cities and their growth, they also relate to growth patterns in larger urbanized areas.

E. W. Burgess in 1924 published what has become known as the zonal or concentric zone theory (Johnson, 1967: 163). This theory hypothesizes that a city develops outwards from a central core area forming concentric zones. These zones range from a central business district in the central area through a transition zone, a zone of working men's homes, and a higher class residential zone eventually reaching a commuters zone. This theory was a product of observations made of the Chicago area and was developed as a very general explanation of that city's growth.

Homer Hoyt is given credit for developing the sector theory in 1939 (Hoyt, 1939). Hoyt, as well as others, felt the Burgess theory was far too general and that it left a gap with reality. Hoyt's theory recognized more of the role of transportation routes in the growth of a city. This theory relates especially well to the development of residential areas. It theorizes why, over a period of urban expansion, a zone of high class housing tends to be located on one side of a city rather than in a continuous ring (Johnson, 1967:166). Hoyt's theory is certainly more spe-

cialized than that of Burgess, but it still relates more to an assessment of the pattern of residential growth rather than to an analysis of the structure of an entire city.

The multiple-nuclei theory advanced by C. D. Harris and E. Ullman in 1945 took the shortcomings of the other two theories into consideration (Harris and Ullman, 1945:7-17). The Harris-Ullman Theory promotes the idea that certain types of land use develop around certain growing points. Basically, activities of a similar nature group together because of potential cohesion. Other activities tend to be separated because of unlike characteristics. This theory allows for the fact that cities have their own peculiarities in their individual sites. It also brings in the factors of economic, social, and historical forces which cause the grouping around the various nuclei.

Since none of these three theories is mutually exclusive, elements of all three can be used in explaining the growth patterns existing in Utah County. Along with the concentric circle, the sector, and the multiple-nuclei theories, elements of several other theories may be used to explain elements of the county's growth. Among these are Christaller's central place theory, as well as theoretical refinements made by Berry and Garrison.

Literature Relating to Utah County

Two of the most extensive works relating to urban land use within Utah County and the Utah Valley in partic-

ular were done by W. E. Coffman in 1944 and R. L. Layton in 1962.

Coffman's work, The Geography of the Utah Valley Crescent, is primarily a regional geography of the valley as it existed in 1943. The interacting aspects of his study include the physical setting and history of settlement as well as the influences on the landscape from irrigation, agriculture, manufacturing, commerce, and trade.

Layton's work, An Analysis of Land Use in Twelve Communities in Utah Valley, Utah County, Utah, is a 1962 examination of most of the settlements within Utah County. The major aspects of this work deal with land use within the valley and its communities as they existed during that point in time.

Both of these works contain extensive data from their time periods usable for an examination of growth trends. Layton's work, however, contains an actual location analysis of the various land uses as well as a central place analysis of the valley in 1958. Though his work does not compare the population growth and movement between any time periods, it does offer useful data for comparison with other time periods.

Two other works which have proven to be very useful in the collection of data are the Agricultural Geography of Utah County 1849-1960 by C. Wride and Orem, Utah: A Study in Urban Land Use by G. Shaw.

Wride's work, as is obvious from the title, contains data relating to agricultural development in Utah County from 1849 to 1960. Data from this work is useful in relating the residential growth of the county to its former agrarian economy.

Shaw's work, much like Layton's, contains a very detailed analysis of land use. His data provides useful insight relating to growth trends within Orem City before and up to 1975.

Finally, works dealing with Mormon settlements such as those done by Lowry Nelson, Richard Jackson and Robert Layton, as well as several others, though not offering recent data relating to population growth and movement, do offer insights into the original settlement patterns and make up of the inhabitants of the county. These insights are certainly invaluable when analyzing why's and wherefore's of urban growth in Utah County.

Methodology

One can take a point in time, examine the various residential land use patterns for that time and conclude how things exist. In order to make comparisons, however, it is necessary to examine data from several points in time. The objective of the methodology employed for this study, therefore, is to provide comparable data for points in time during the last four decades. The methodology employed to obtain this objective includes the extraction of material

from available resources as well as from field work. The gathered data was then available for cartographic representations.

Available Resources

Data relating to the growth of Utah County during the last forty years does exist and is attainable. Population counts and housing figures, as well as data relating to the social, economic, and historical make up of the county, are available from many sources. In order to make this data useful, however, it must first be gathered and then put into a comparable form.

Data from "Archival Sources" accounts on the average for 95 percent of research work (Haggett, 1966:186). It is important, therefore, that we realize how dependant we are on someone else's accuracy and that much of the data collected was researched for non-geographical purposes.

Non-Areal Sources. The U. S. Census is the most obvious source dealing with population growth and movement, and it is certainly one of the most accessible. The problem encountered with the census data was not extraction but rather correlation. While the data is comparable between the years for Utah County as a whole, it is only with the more recent 1970 census that details have been published for small areas (i. e. blocks, enumeration districts, and census tracts). This has necessitated research into the precinct boundaries of the pre-1970 census's as well as examining

census boundary changes made due to annexations, incorporations, and new urbanization. Once this was accomplished, census information was transferred onto maps for correlation and comparison.

Studies done previously by various county agencies have also provided important resource material. Information was obtained from works relating to population updates, projections, housing studies, water studies, and various other official and non-official county documents. Elements from these studies were then used in preparing many of the graphs and tables used throughout this paper.

It was hoped at the outset of research for this paper, that computerized information relating to the location, size, and year of construction for each dwelling in the county would be obtainable from the county assessor's data. This proved to be unattainable, however, as the computer programs containing this information have not yet been completed. In order to obtain like information, it would have been necessary to examine every property file for the county. Although this was done in a few instances, it proved to be too time consuming to be considered practical for the scope of this study.

Areal Sources. Maps and air photos available from Utah County played an invaluable part in researching past time periods. Air photos available from 1946, 1953, 1958, 1970, and 1975 provided the ability to reconstruct the residential patterns as they existed previously. Much of the

reconstruction of street patterns and city boundaries was also accomplished by using maps from the county, the various cities, and the Harold B. Lee Library of the Brigham Young University. Many of these maps were created for purposes not relating to this study, but they proved to be very useful in describing previous street patterns and growth areas.

Available land use base maps provided a data sheet for recording the field work and collected data. These sheets, covering a quarter township, provided a base map which provided a detailed summary for most areas of the county. Even though the detail of these maps could not be reproduced in a usable form for this study, data extracted from these maps served as a resource for many of the various maps, graphs, and tables contained in this work.

Field Work

Field work provides information which may be the most relevant and useful. This is because the collector knows the original accuracy of his survey besides being able to directly collect his work primarily for geographical purposes (Haggett, 1966:186).

The major field work involved in this study was a windshield survey conducted to locate and map all of the dwelling units within the county as they presently exist. The only areas not surveyed and mapped in this method were Orem and Provo where, due to the existence of their individual planning departments, most of the necessary data was

already available and usually in much greater detail than that obtainable through such a survey.

To prepare for this windshield survey, the various base maps of the area to be surveyed were obtained and updated by using the county plat maps. Data from the available air photos was also collected and was checked and analyzed at the time of the surveys. Once the surveys were completed, the data obtained was compared to data from earlier air photos. This provided a double check on numbers and location for previous years.

Cartographic Representations

In order to present data in an areal sense and make the growth patterns more identifiable, the representation of collected data through maps and figures is invaluable. This use of cartographic representations isolates the growth patterns in time and space allowing the comparisons necessary for this study. In doing this they "compress, abstract, and simplify reality serving as models that retain the spatial relationships and juxtapositions relevant for particular purposes of analysis" (Taafe, 1970:37).

At the time of this study, the Utah County Planning Commission was in the process of updating their Master Plan. Part of this process included the production of a number of colored maps by Paul Larson of the Planning Commission staff. It was found that many of the maps were useful in describing many of the aspects relating to Chapter 2 on the physical

and climatic influences of growth. They are, therefore, included with permission from the Utah County Planning Commission.

In order to provide more detail of the various locations and rates of growth, figures were made for the various time periods showing the various street patterns, city boundaries, and growth areas. These figures were made by taking the patterns as they now exist and working backwards reducing the street boundaries and areas to their previous existence.

Chapter 2

PHYSICAL AND CLIMATIC INFLUENCES

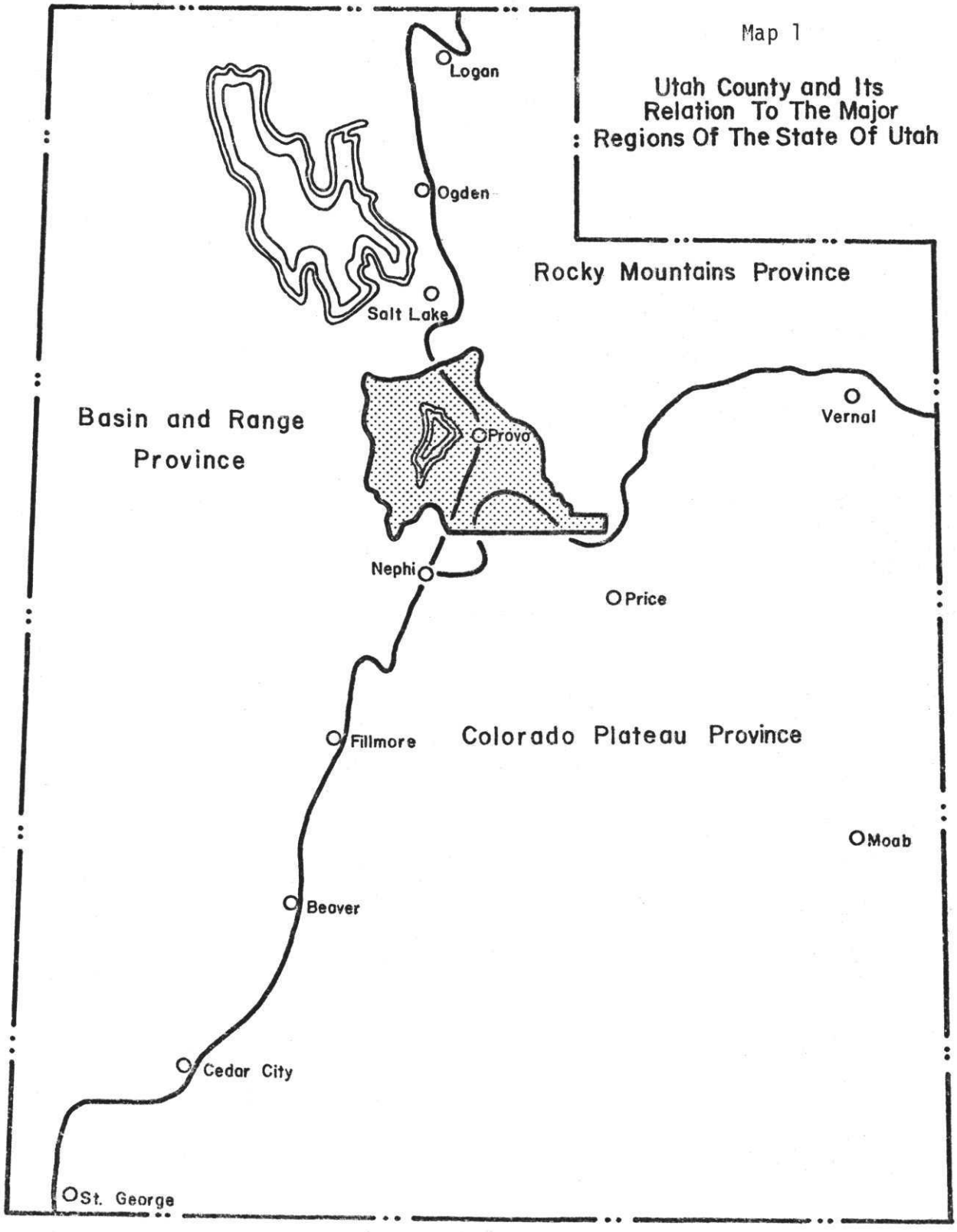
The physical landscape and climate of an area are among the most basic of factors which can influence the use and human settlement of the land. This chapter examines briefly the physical and climatic influences as well as the nature of the soils and the water as products of the physical and climatic environment. The influence of these factors on the growth and development of Utah County was probably more profound during the initial settlement period, but these factors still have an important effect on present growth and development.

Physical Setting

Utah County is located in the north central area of the State of Utah (See Map 1). The county covers 1,394,760 acres and ranges from dry desert lands on its western side to forested mountains on its eastern side. The land forms of the county can be classified into three distinct areas. The western half of the county lies within the Great Basin or Basin and Range Province, the eastern part of the county belongs to the Mountain Range area, and, finally, a less extensive region of high plateau lands exists in the southeastern part of the county (Wride, 1961:4).

Map 1

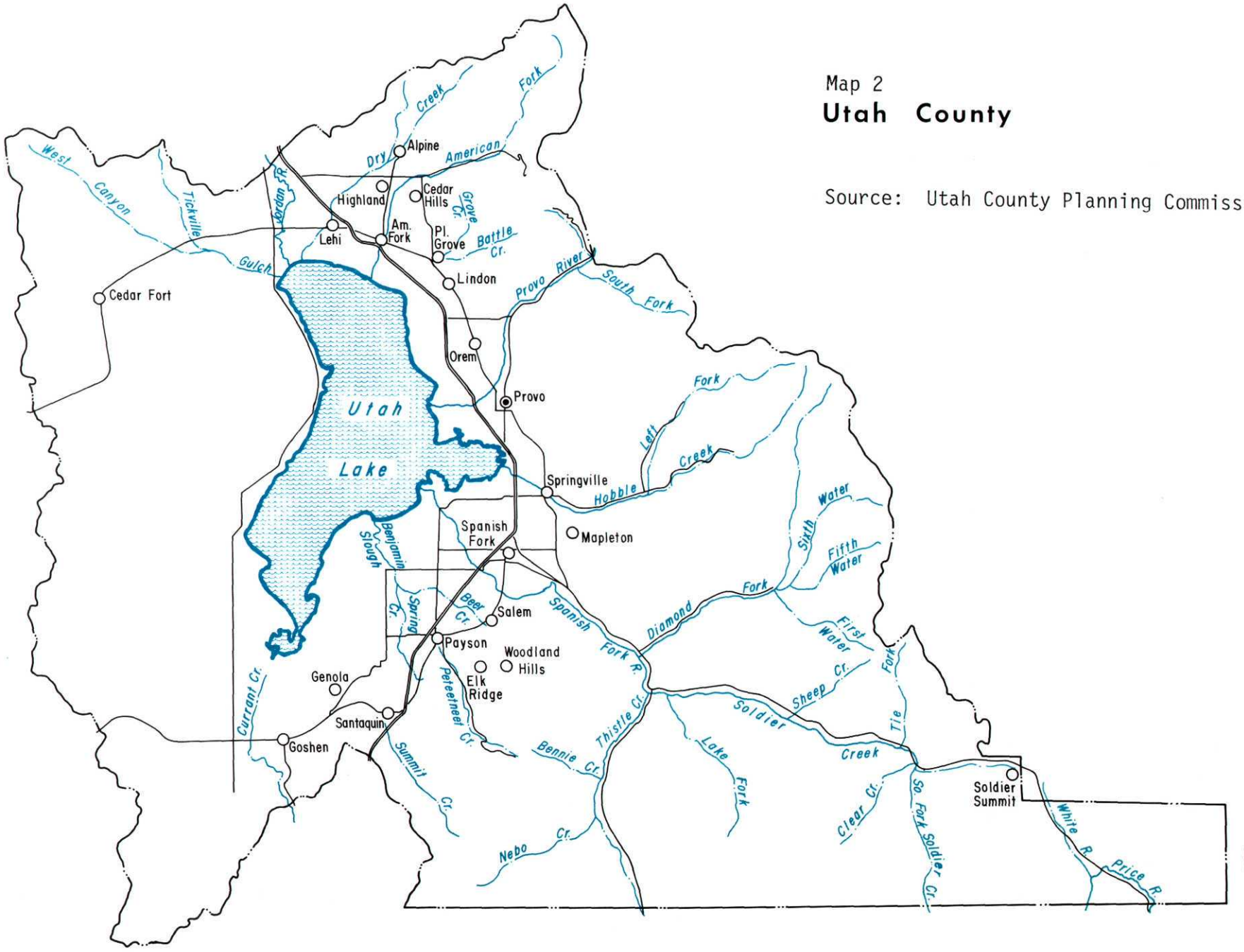
Utah County and Its Relation To The Major Regions Of The State Of Utah



While many of the areas in the county are important physically and economically, the central north-south area of the county, in terms of population movement and growth, is the most dominant in importance. This central core area contains two of the most dominant physical features of the entire county with Utah Lake forming its western boundary and the high mountain peaks of the Wasatch Range forming its eastern boundary. The valley located between these two features is an elongated lake plain running approximately 45 miles from north to south and ranging from 2 to 12 miles in width. It is on this lake plain that almost 99 percent of the county's 218,106 people are located, along with most of its agricultural cropland and industry. These three areas, consisting of Utah Lake, the lake plain, and the mountain peaks, require a further description for the purpose of understanding their role in influencing population movement and growth within the county.

Utah Lake

The lake is approximately 21 miles long and 10 miles wide, covering an area of approximately 93,000 acres (see Map 2). It is a shallow, murky lake which rarely exceeds 10 feet in depth. The source of water for the lake is the streams which flow from the mountains to the east. More than 30 streams, although some are intermittent, flow to the lake from a drainage basin covering 3,600 square miles (Coffman, 1944:43). These streams enter the lake mostly on



Map 2

Utah County

Source: Utah County Planning Commission

its northern and eastern shores. From the mountains to the west, only intermittent waters reach the lake.

Since pioneer times, Utah Lake has been used as a water storage reservoir, normally containing around 270,000 acre feet of irrigation water. This irrigation water, however, is diverted northward through the Jordan River (the lake's only outlet) to farmland located in the Salt Lake Valley. At one time, Utah County farmland close to the lake was flooded in the spring and early summer months as water was held back to be used by the Salt Lake Valley farmers during the dryer summer months. Resulting friction between the farmers in Salt Lake Valley and the farmers in Utah Valley finally led to a compromise in 1885. Since that time, the daming of the lake above an elevation of 4488.95 feet has been prohibited (Coffman, 1944:45).

Due the low plains surrounding the lake on the north, south, and east, high water tables have hampered any extensive development along the shorelines of the lake. The only extensive development attempted was in 1910 on the steeper southwestern shoreline at Mosida. This was an attempt on the dry western side of the lake to irrigate 8,000 acres of orchard land by pumping water from the lake into a canal system. This project failed as the water level of the lake dropped in successive years beyond the level of the pumps and the existing water rights (Wride, 1961:104).

Presently, recreation is the major use of the lake, other than its use as a water reservoir and for providing

the Geneva Steel Works with a large water source. Several recreational developments exist around the lake; the most extensive of which area located at Utah Lake State Park and at Saratoga Resort.

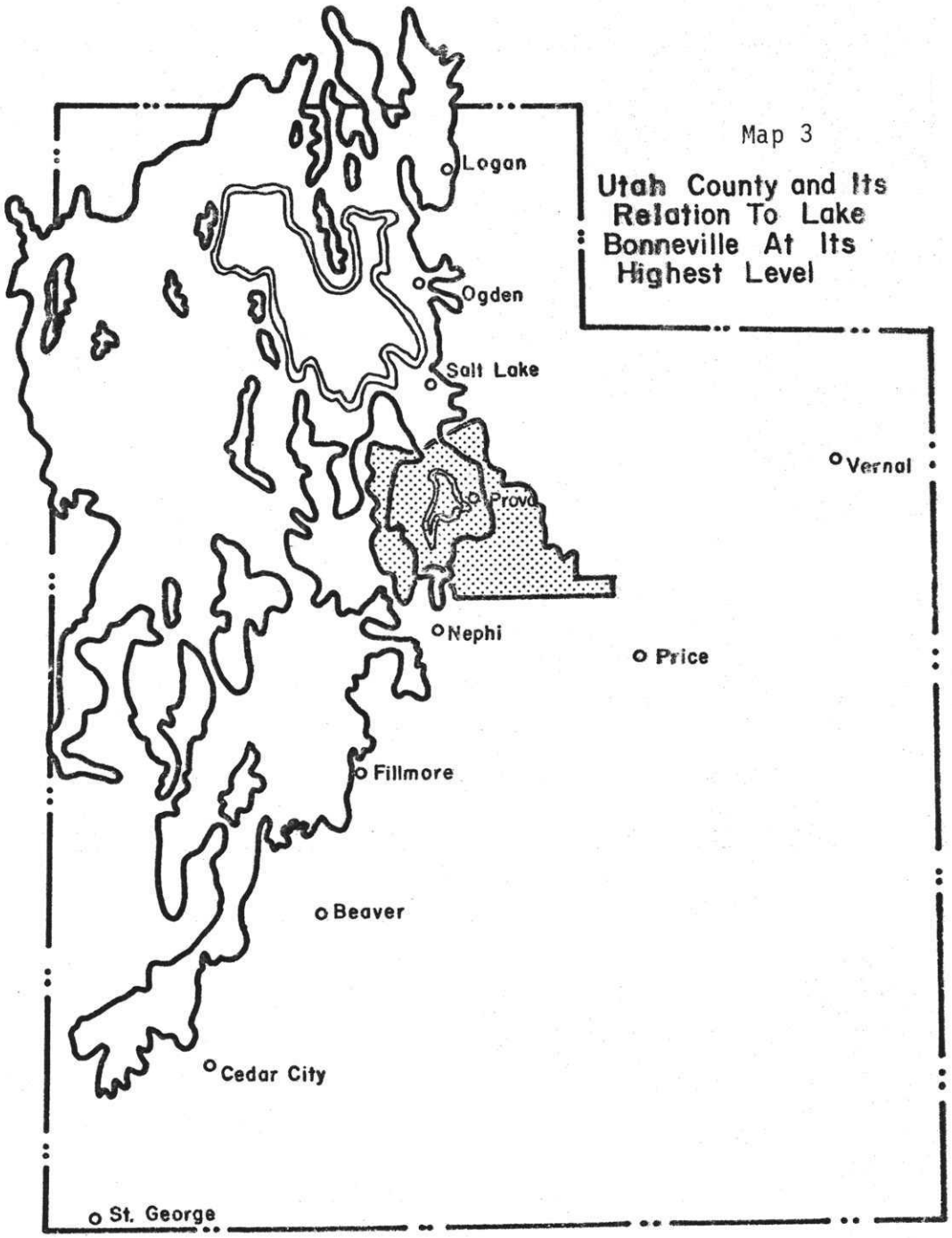
Utah Lake, in respect to population growth, has served as an industrial and recreational base rather than as an aesthetically pleasing mecca for residential development as many lakes have in other areas. The high water tables and associated problems of drainage and sewage disposal have essentially acted as a barrier to residential development at the present time.

The Lake Plain

Between the lake and the mountains is an area which is a part of what has been termed an Oasis (Jefferson, 1916: 346-58). This term comes from the Wasatch Front's existence on the extreme eastern edge of the Basin and Range Province. The climatic effects of the mountains and the lake have made this crescent shaped area into an oasis of vegetation in comparison to the dryer areas located west of the lake plain.

The physiography of the valley is not associated as much with Utah Lake as it is with ancient Lake Bonneville (see Map 3). Lake Bonneville occupied much of the western part of the state reaching its highest level over 30,000 years ago. A large bay of the lake covered generally those areas of the county below 5,000 feet in elevation.

Credited to the existence of Lake Bonneville are several bench area deposits of both lacustrine and fluvial



Map 3

Utah County and Its Relation To Lake Bonneville At Its Highest Level

origin. Each stage of the lake's history left deposits forming benches or terraces along the eastern edge of the lake plain adjoining the mountains. At the same time, several rivers were forming deltas as they entered the lake.

The remainder of the lake plain slopes gently from the mountains to the lake with its width extending from less than one mile at the eastern edge of Provo Bay to a range of six to twelve miles in its northern and southern areas. Because of the lake plain's lack of physical barriers to growth other than some river and stream channels and some high water table areas, it has been the prime area for development in the county.

The lake plain provides the best combination of available water, adequate soils, and favorable climatic conditions. This combination not only favors agricultural production, but it also favors residential development.

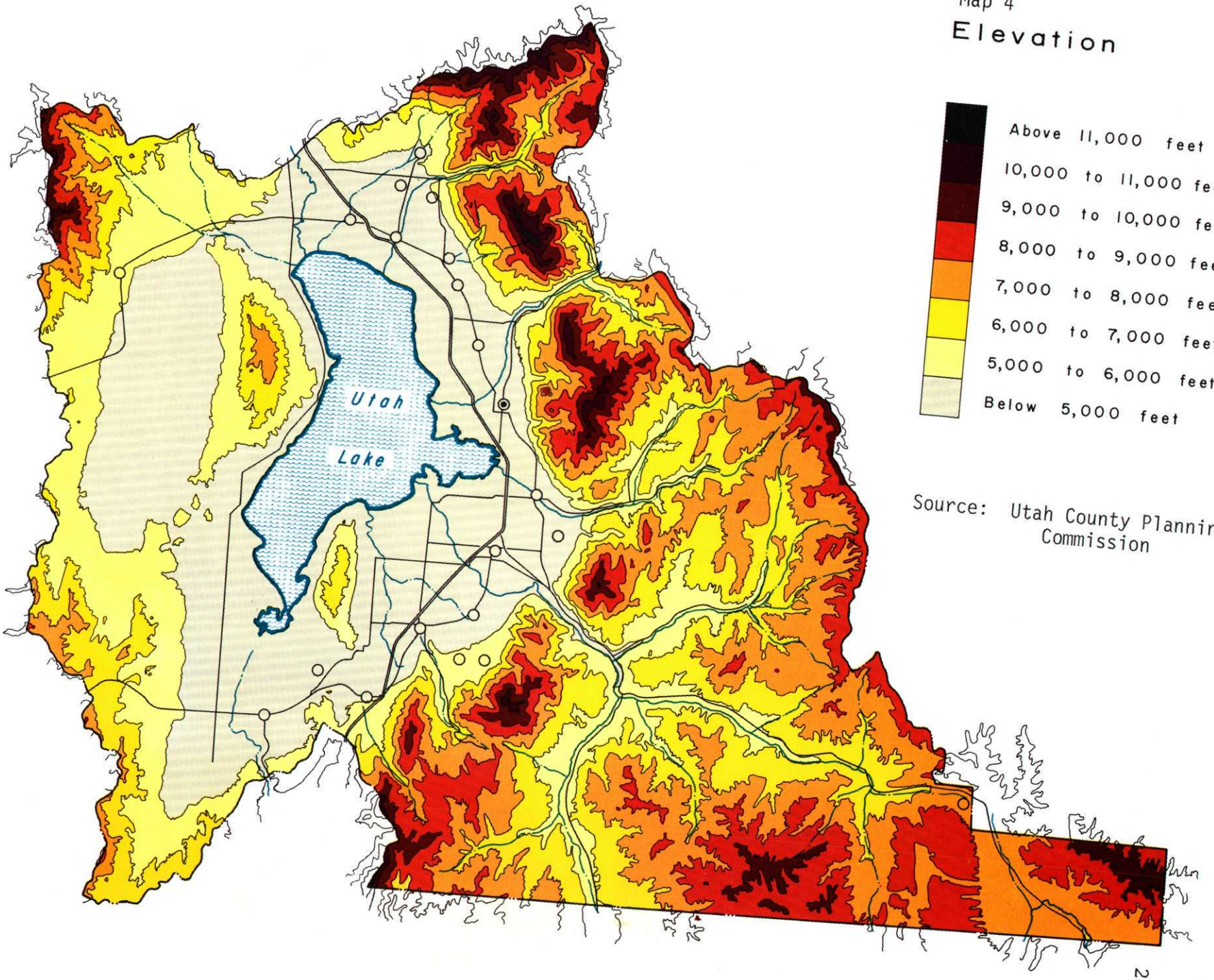
The Mountain Area

The mountain area rises abruptly over 6,000 feet above the eastern edge of the lake plain and continues throughout the eastern portion of the county. Map 4 and 5 show the elevation and relative slopes found within the county.

The mountains, with peaks over 11,000 feet, serve not only as a barrier to extensive population growth; but they also serve as a barrier to passing storms. This barrier, more specifically the Wasatch Front, not only determines much of the county's climate by its orthographic

Map 4

Elevation

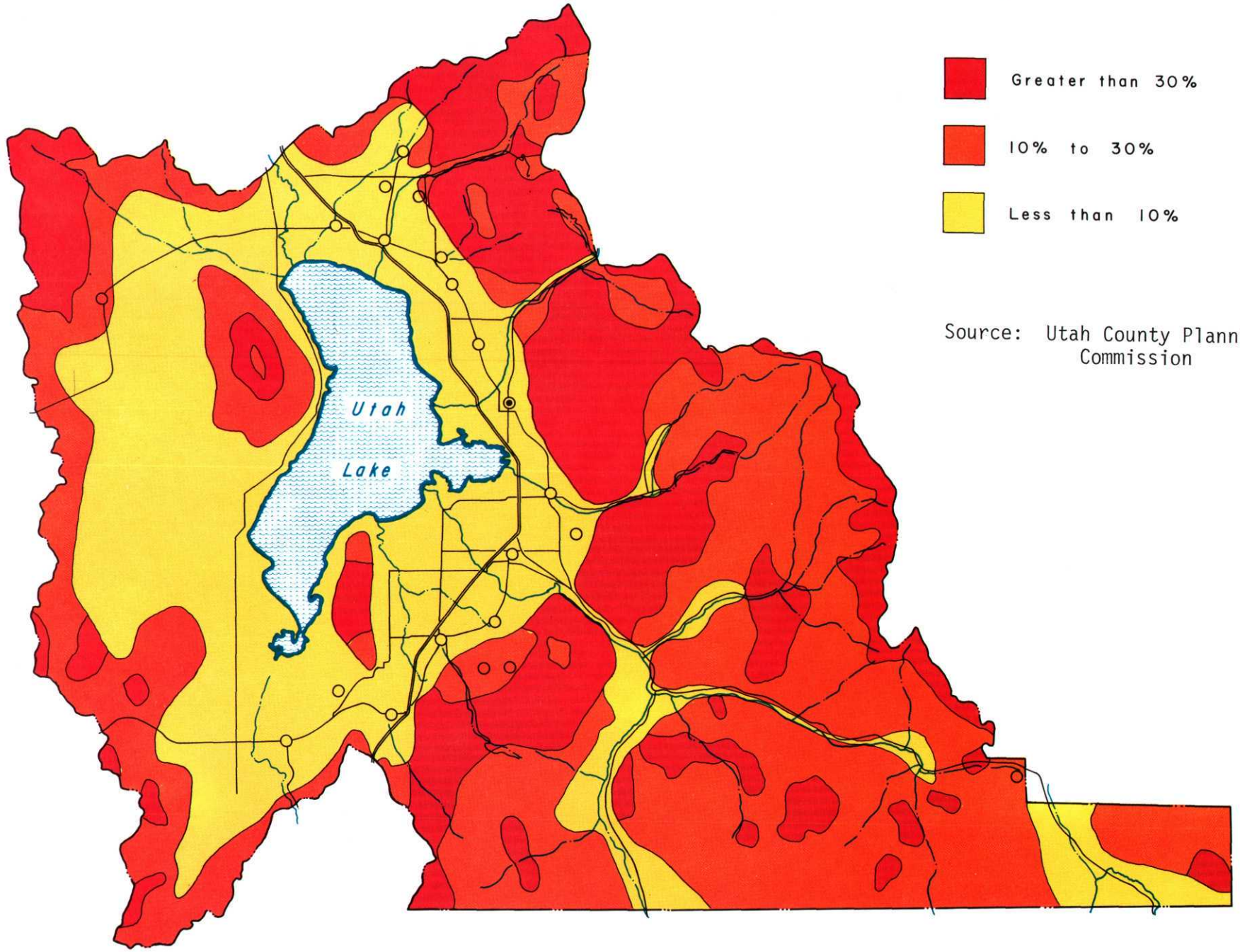


Above 11,000 feet
10,000 to 11,000 feet
9,000 to 10,000 feet
8,000 to 9,000 feet
7,000 to 8,000 feet
6,000 to 7,000 feet
5,000 to 6,000 feet
Below 5,000 feet

Source: Utah County Planning Commission

Map 5

Slope



Greater than 30%

10% to 30%

Less than 10%

Source: Utah County Planning Commission

effect on precipitation; but it also, along with the eastern mountain area, forms the most extensive and valuable watersheds in the county. These watersheds provide water not only for the flowing streams but also for the springs and aquifers necessary in providing culinary water for the county's populace.

The mountains have in the past contained a portion, albeit small, of the county's residences. These have been located almost exclusively in association with transportation and mining activities. The Spanish Fork Canyon railroad settlements of Thistle, Clinton, Mill Fork, Tucker, Gilluly, Soldier Summit, and Colton; the mining towns of Dividend, Homansville, Manning, and Dutchman are mostly vacant now with little more than a place name on a map to show they once existed (Master Plan, 1981:16).

The most extensive development in the mountains now consists of mountain home and resort areas. Mountain home areas are found in American Fork, Provo, and Hobblecreek Canyons. Most of the mountain homes are seasonal with permanent population amounting to less than two-tenths of one percent of the county population.

The effect, therefore, of the mountain areas on population growth is much the same as with the lake. The mountains serve industrial and recreational uses and act as a barrier to residential expansion. The real effect of the mountains on the population of the county has been in their effect on the climatic conditions.

Climate

Since the Utah Valley area was settled as an agricultural community, the importance of the climate on the settlement pattern lies mostly in its effect on agricultural production. Because the climate of Utah Valley is influenced so greatly by the local physiographic features of the lake, mountains and bench areas, a distance of a few miles and a few hundred feet in elevation can make a noticeable difference in temperature or precipitation (Wride, 1961:14).

Utah County's overall climate can be described most simply as dry with cool winters. Coffman, in his paper on The Geography of the Utah Valley Crescent, termed the county's climate as a semi-arid or steppe type climate. Such a climate is characterized by a definite seasonal range of temperatures and by low rainfall (Coffman, 1944:40).

Temperature

The average temperature of Utah County varies greatly according to time of year and lcoation. As a representation of the valley area, Table 1 gives a summary of average monthly temperatures and temperature extremes as they occurred at Provo between 1897 and 1975. Maps 6 and 7 depict the temperature variations throughout the county.

As can be seen from the maps, the lake and lake plain are among the warmest areas in the county. This is important as the type and amount of agricultural production is often determined by the amount of warmth received and

Table 1

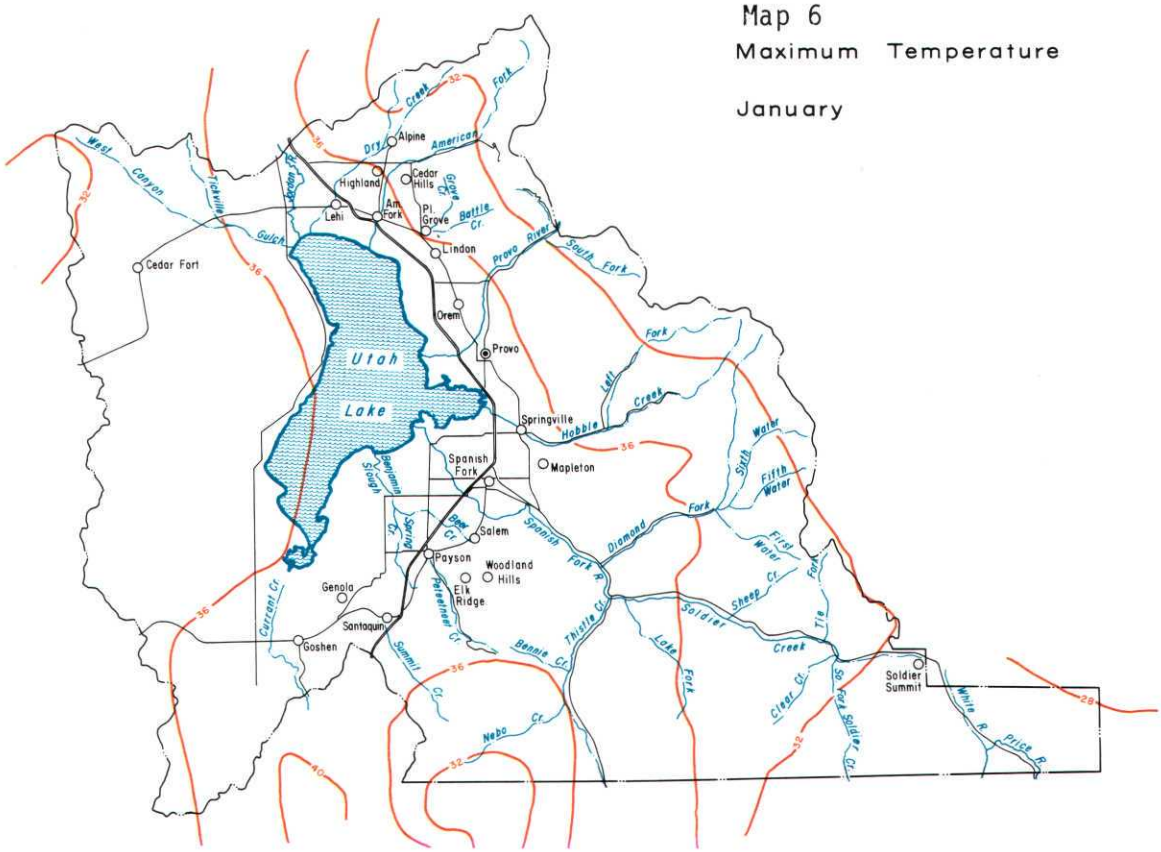
AVERAGE MONTHLY TEMPERATURES
AND TEMPERATURE EXTREMES
FOR PROVO, UTAH

Month	Mean (°F)		Extreme (°F)			
	Daily Max.	Daily Min.	Record High	Year	Record Low	Year
Jan.	38.5	15.6	63	1953	-26	1937
Feb.	45.1	21.4	71	1972	-20	1917
March	53.6	25.9	78	1968	-5	1923
April	62.6	32.3	93	1910	6	1929
May	74.1	39.9	101	1910	21	1913
June	83.0	46.8	104	1940	28	1919
July	91.7	53.3	108	1931	32	1921
Aug.	89.2	51.6	105	1937	31	1932
Sept.	80.1	41.6	98	1948	21	1926
Oct.	67.5	33.5	93	1910	12	1917
Nov.	51.6	25.5	79	1915	-10	1955
Dec.	39.9	18.4	68	1939	-35	1924
Annual	64.7	33.8	108	1931	-35	1924

Source: Master Plan, 1981:19

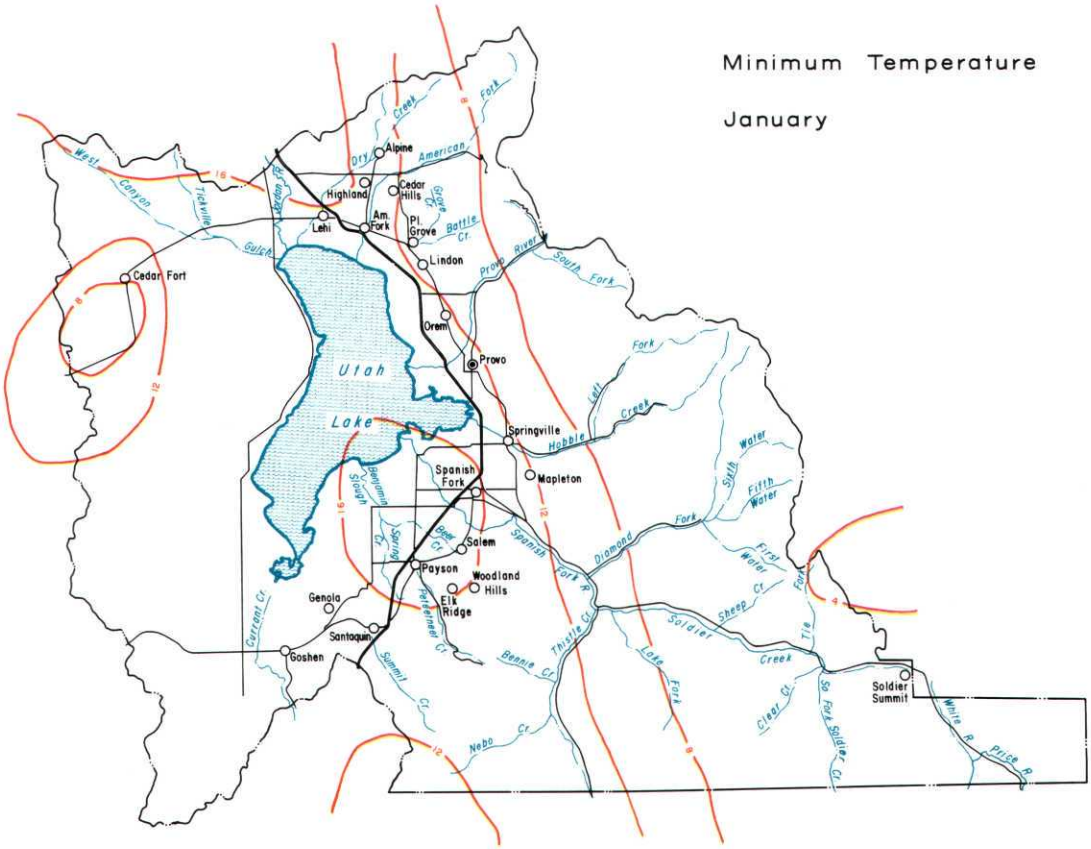
Map 6
Maximum Temperature

January



Minimum Temperature

January



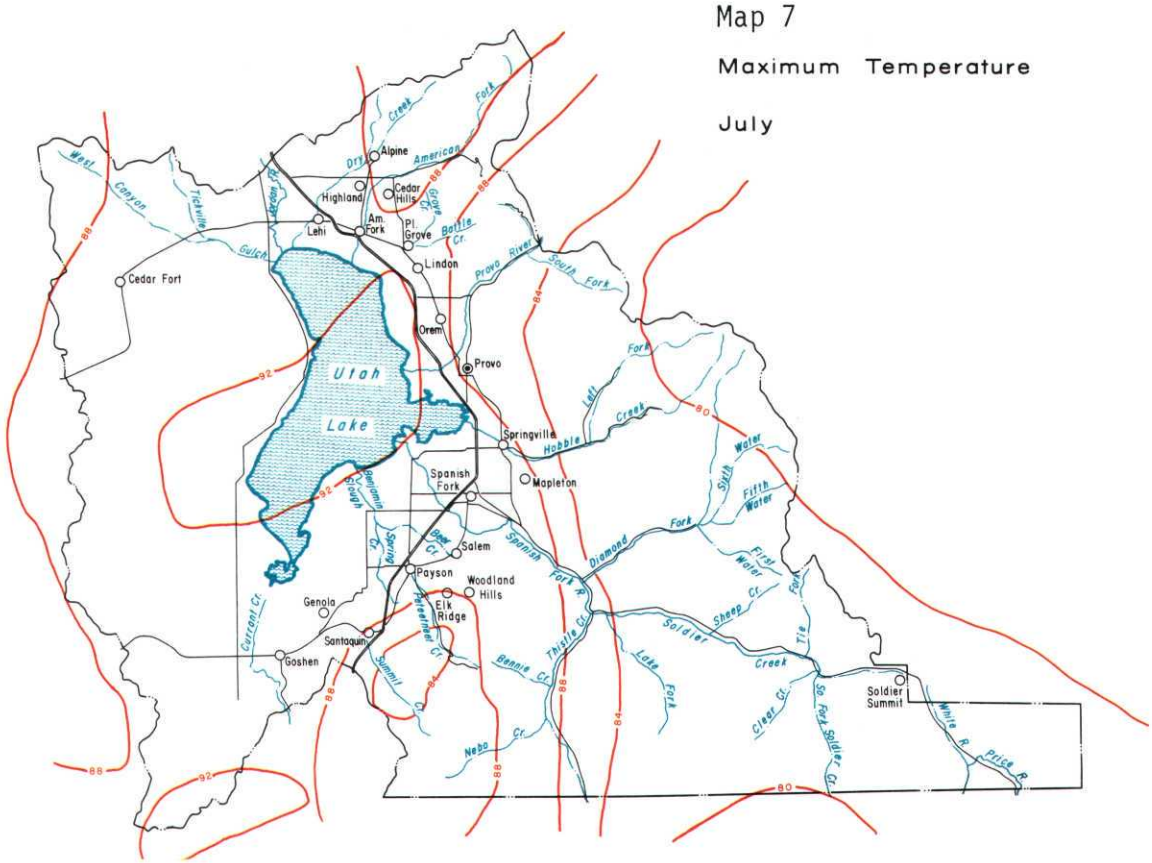
Source: Utah County Planning Commission

AVERAGE JULY TEMPERATURE RANGES

Map 7

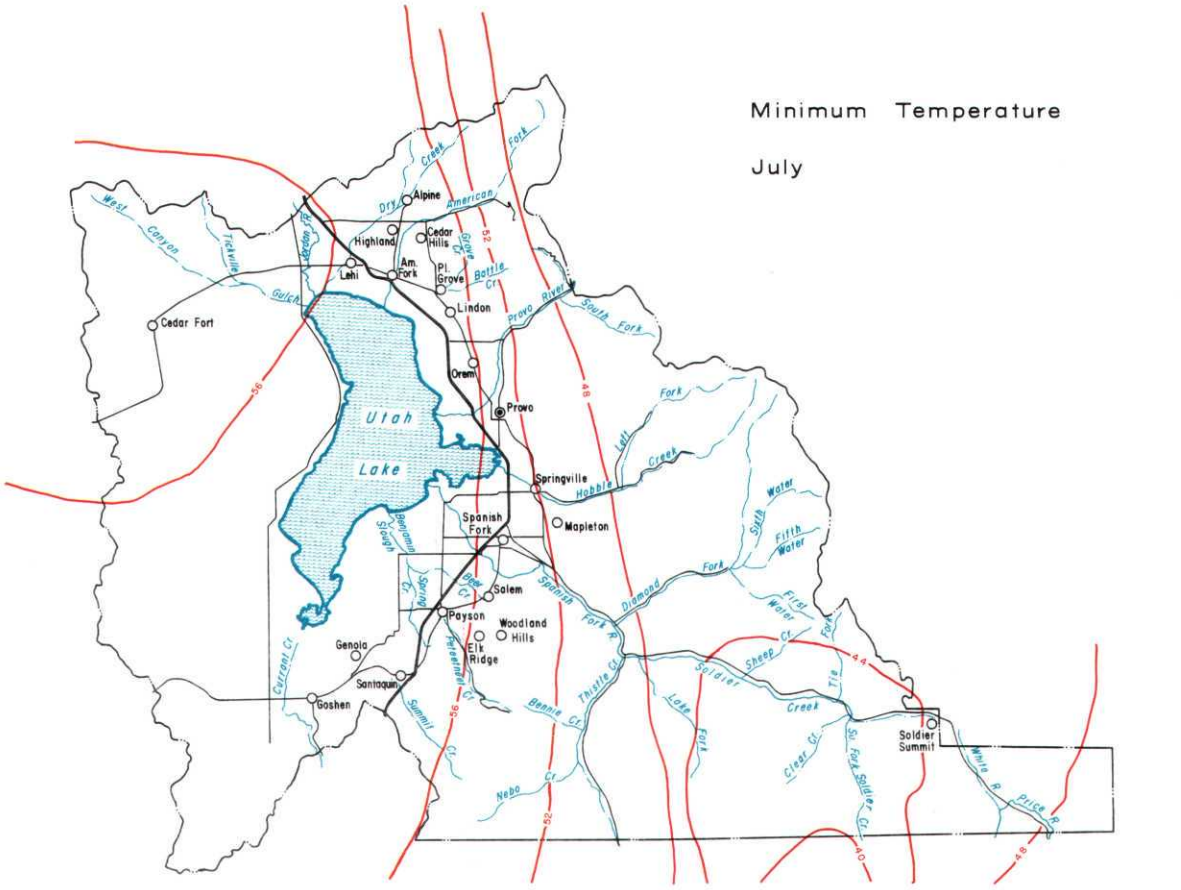
Maximum Temperature

July



Minimum Temperature

July



Source: Utah County Planning Commission

and by the period over which frost is absent. The lower part of Map 8 shows the length of the frost free periods throughout the county.

Precipitation

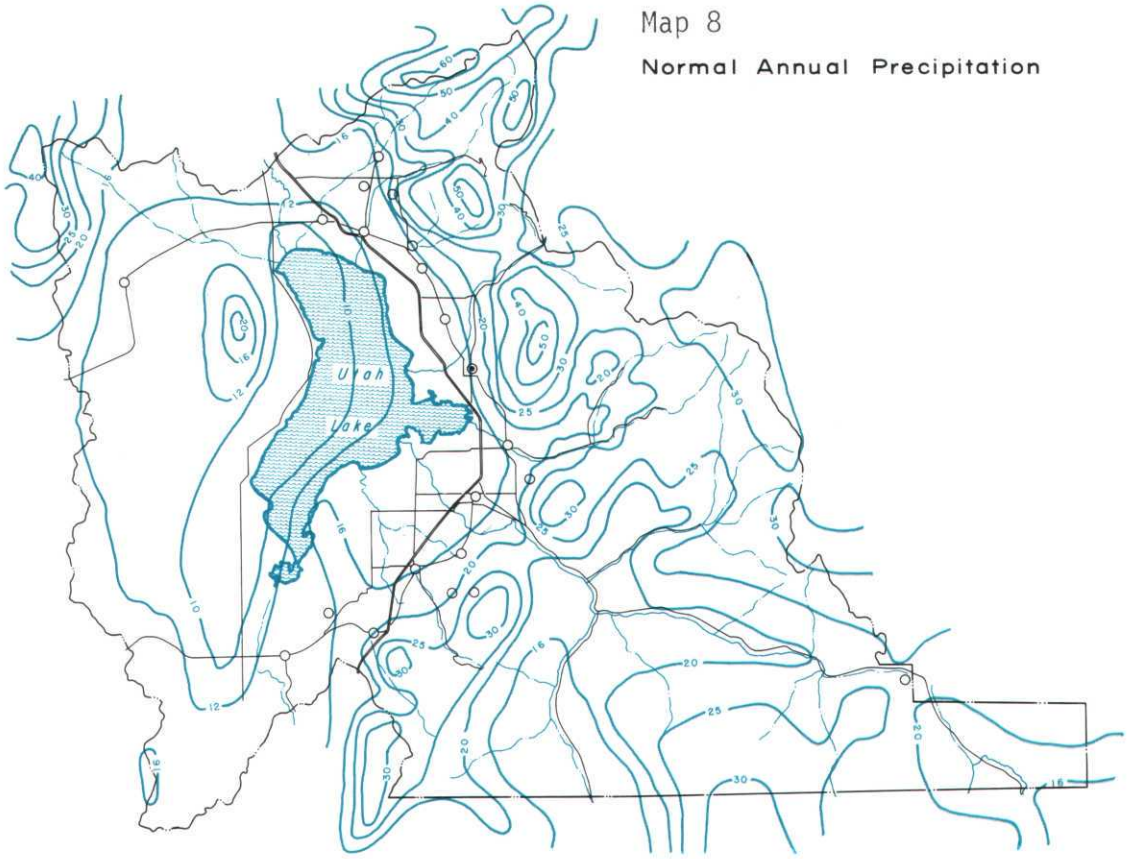
The Pacific Ocean is the major source of precipitation in Utah County. As the moisture from the ocean moves inland, some is lost over the coastal and desert ranges west of Utah. A large amount of precipitation does, however, reach the mountain areas of the county. This is especially true during the winter months when the upper atmospheric jet stream funnels a large percentage of the nation's winter storms through the area (Master Plan, 1981:18).

As with temperature, the precipitation which Utah County receives during a year varies as to location and to season. Annually, some areas on the western side of Utah Lake receive only about 10 inches of precipitation, while some of the higher mountains receive up to 50 inches. Table 2 shows the variation in the amount of precipitation at one Utah Valley site. Maps 8 and 9 show these variations over the year throughout the county.

During the winter months, the mountain areas receive nearly 900 percent more precipitation than do the lowlands near Utah Lake (Master Plan, 1981:20). Since summer storms provide only one-third of the annual precipitation in the county, the amount of winter snow pack is often critical as it must provide water for the lowland crops and for the various culinary aquifers during the dryer summer periods.

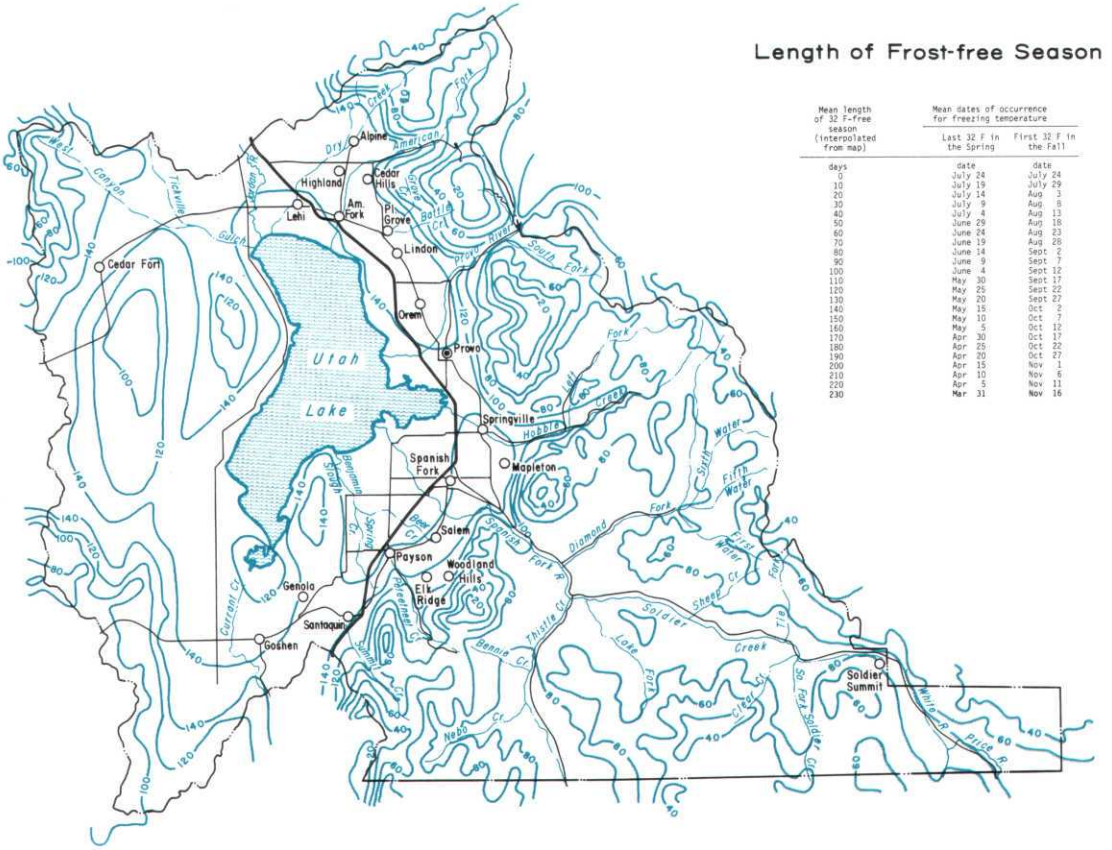
Map 8

Normal Annual Precipitation



Length of Frost-free Season

Mean length of 32 F-free season (interpolated from map)	Mean dates of occurrence for freezing temperature	
	Last 32 F in the Spring	First 32 F in the Fall
days	date	date
0	July 24	July 24
10	July 19	July 29
20	July 14	Aug 3
30	July 9	Aug 8
40	July 4	Aug 13
50	June 29	Aug 18
60	June 24	Aug 23
70	June 19	Aug 28
80	June 14	Sept 2
90	June 9	Sept 7
100	June 4	Sept 12
110	May 30	Sept 17
120	May 25	Sept 22
130	May 20	Sept 27
140	May 15	Oct 2
150	May 10	Oct 7
160	May 5	Oct 12
170	Apr 30	Oct 17
180	Apr 25	Oct 22
190	Apr 20	Oct 27
200	Apr 15	Nov 1
210	Apr 10	Nov 6
220	Apr 5	Nov 11
230	Mar 31	Nov 16

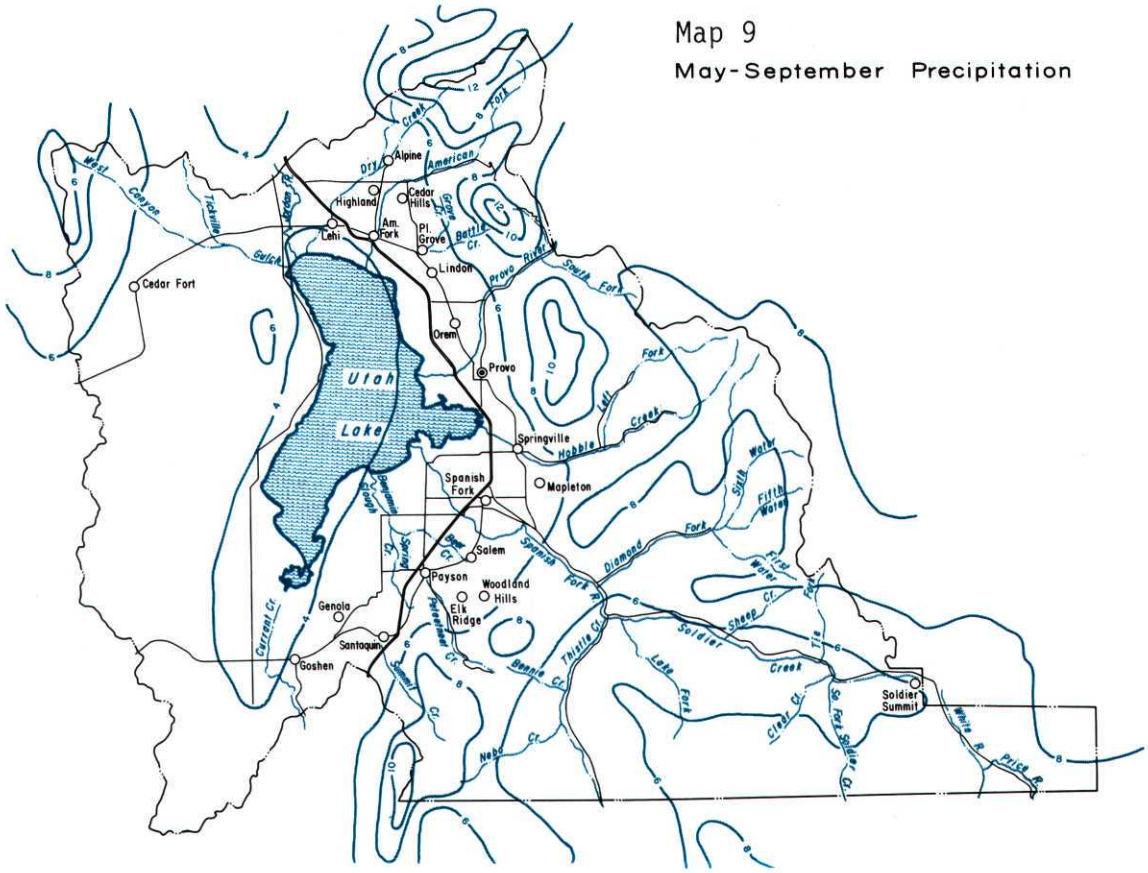


Source: Utah County Planning Commission

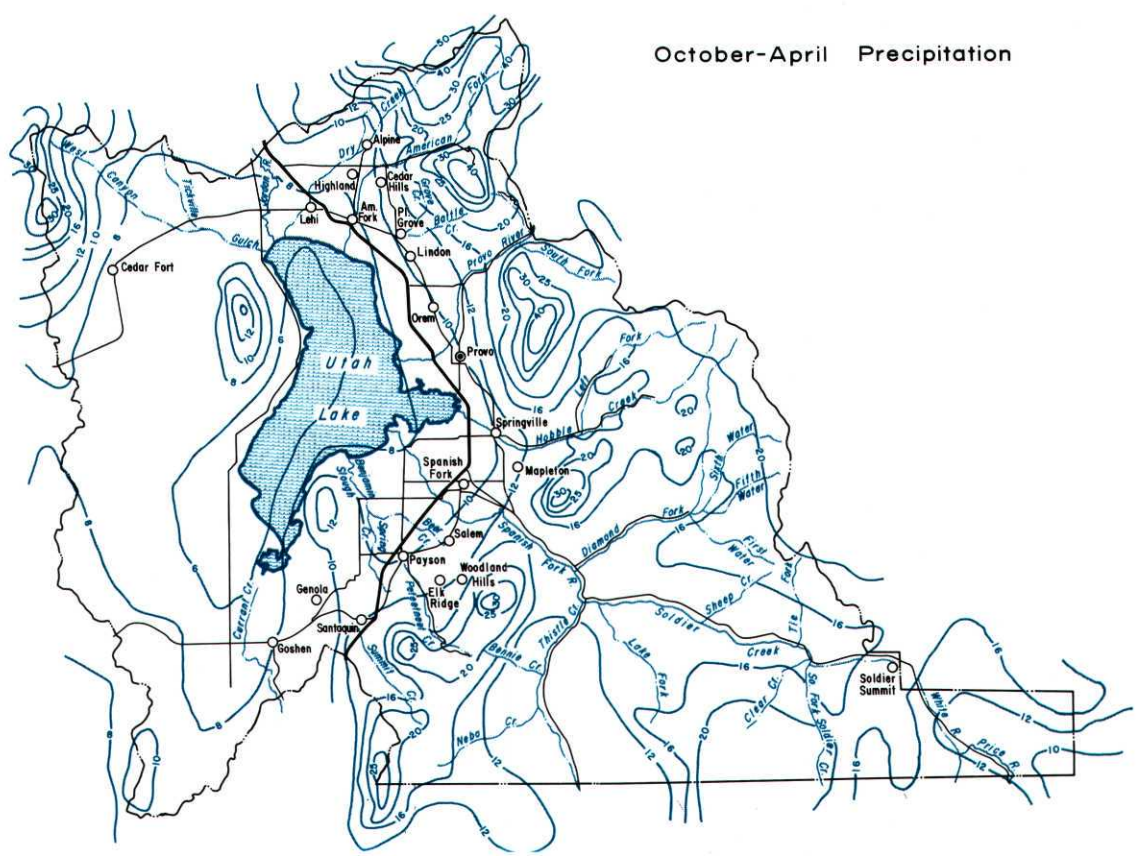
AVERAGE SEASONAL PRECIPITATION

Map 9

May-September Precipitation



October-April Precipitation



Source: Utah County Planning Commission

Table 2

MEAN MONTHLY PRECIPITATION AT THE SPANISH FORK POWER HOUSE STATION

Month	Mean Total Precip. (Inches)	Mean Snowfall (Inches)
July	.82	0
Aug.	.93	0
Sept.	.92	T
Oct.	1.71	.4
Nov.	1.61	5.5
Dec.	1.85	13.9
Jan.	1.79	15.55
Feb.	1.52	9.9
March	2.00	9.35
April	1.95	2.9
May	1.62	.25
June	.94	T
Annual	17.66	57.75

Source: Master Plan, 1981:18

The elevations above 7,000 feet provide 40 percent of the drainage area in the county while providing 75 percent of the irrigation water (Coffman, 1944:41). A study done in 1949 by Thomas and Peterson showed that in Utah about 7 acres of range and forest watershed are required for every acre of irrigated land (Wride, 1961:15). This figure may presently be less due to sprinkler and drip irrigation systems which require less water than does flood irrigation. The importance of the winter storms, however, in supplying

adequate surface and ground water for the dryer summer months cannot be over emphasized.

Soil and Water

Along with favorable climatic conditions, the fertility of the soil (judged by texture and natural vegetation) and the presence of water were major criteria used by the Mormon pioneers in selecting suitable sites for colonization (Hunter, 1940:131). Soon after the initial arrival of the Mormons into the Salt Lake Valley, several exploration parties visited and explored Utah Valley (Wride, 1961: 40). The members of the parties brought back very favorable reports regarding the suitability of the area for settlement, with some members so impressed that they even suggested making Utah Valley the initial focal point of Mormon settlement (Neff, 1940:151).

Not only were the Mormons favorably impressed by the potential fertility of the Utah Valley area, but so were several groups of explorers who preceeded the pioneers. A party led by Catholic Fathers' Silvestre Velez de Escalante and Atanzaio Dominauez found abundant water and good soils during their visit to the Utah Valley in 1776. Father Escalante recorded this information and wrote of the possibility of establishing several villages in the valley (Wride, 1944:31-35).

Other explorers such as Jim Bridger and John C. Fremont also spoke very favorably of the potential fertility

of the area. It was, in fact, information from these two explorers which first informed the Mormons of the agricultural potential of the valley (Wride, 1944:37-40).

Soils

Throughout history, soils have played an important part in the development of settlement patterns. Great civilizations have almost invariably had good soils as one of their chief natural resources (Brady, 1974:1). Although it may be premature or presumptuous to term Utah County as a great civilization, the quality of soils found in the lake plain area have played, and continue to play, an important part in the county's growth patterns. Map 10 gives a general summary of the soil classifications of Utah County, while Table 3 provides a simplified explanation of the classifications. As can be seen from the map, the largest amount of the upper four classes of soils are found in the lake plain area. As can be seen from the table, these upper four classes are the most suitable for cultivation and plant production.

Soils have more importance, however, than as a habitat for plant growth; they also have a great effect on urban growth. Soils underlay the foundations of structures, serve as the bed for roads and highways, and serve as filters for septic sewage systems.

Utah County has no countywide sewage disposal system. Therefore, all areas in the valley outside of the corporate limits of the cities must rely on septic sewage disposal

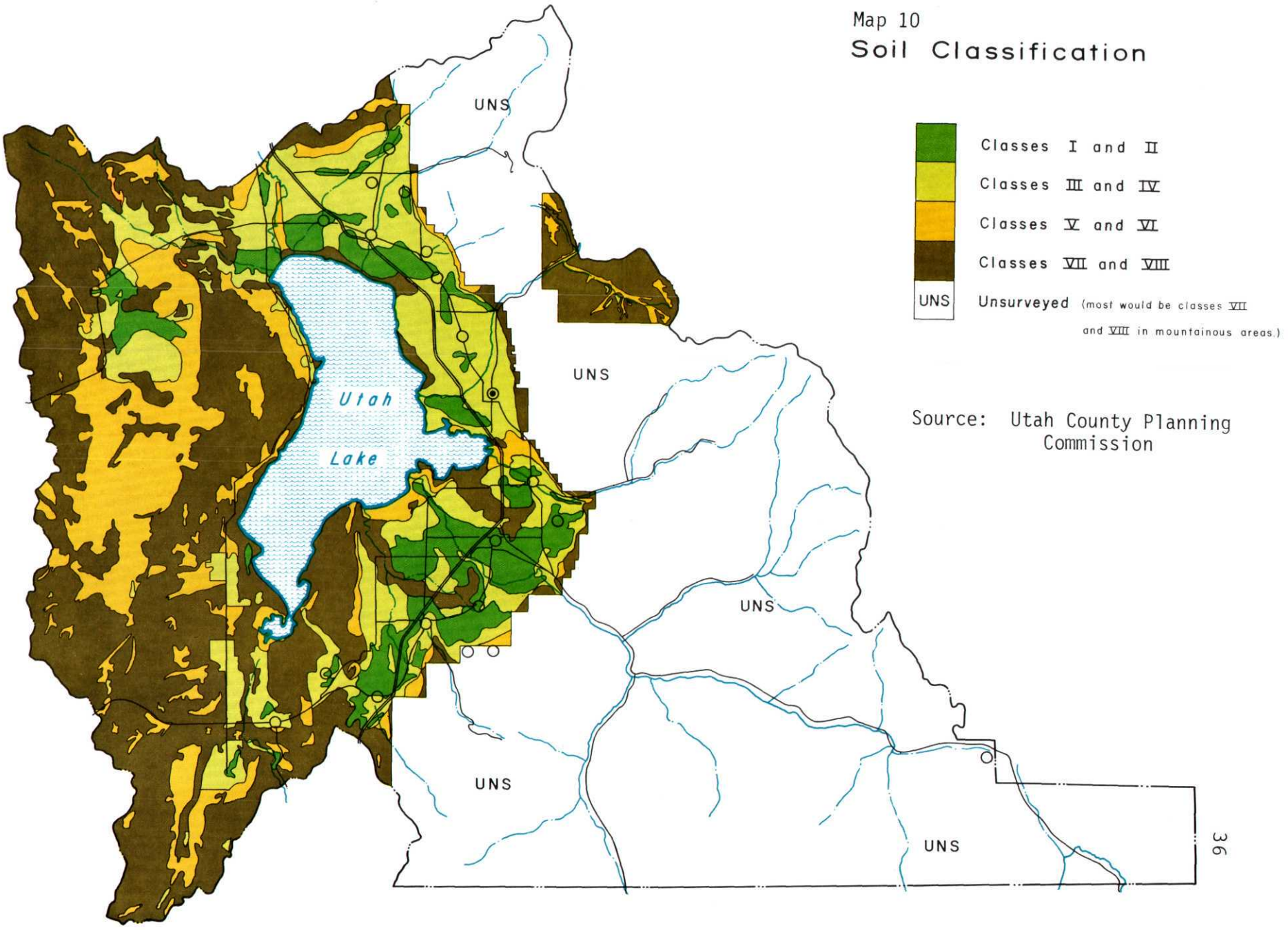

Map 10
Soil Classification
Classes I and II
Classes III and IV
Classes V and VI
Classes VII and VIII
UNS
Unsurveyed (most would be classes VII and VIII in mountainous areas.)
Source: Utah County Planning Commission
UNS
UNS
UNS
UNS
UNS
Utah
Lake

Table 3

LAND CAPABILITY CLASSIFICATION

Land Class	Land Capability and Use Precautions	Main Uses	Secondary Uses
	Group I. Lands Suitable for Cultivation		
I.	Excellent land, flat, well drained. Suited to agriculture with no special precautions other than good farming practice.	Cropland	Pasture
II.	Good land with minor limitations such as slight slope, sandy soils, or poor drainage. Suited to agriculture with precautions such as contour farming, strip cropping, drainage, etc.	Cropland Pasture	Orchard Wildlife
III.	Moderately good land with important limitations caused by soil, slope or drainage. Requires long rotation with soil-building crops, contouring or terracing, strip cropping or drainage, etc.	Cropland Pasture Orchard	Urban Wildlife
IV.	Fair land with severe limitations caused by soil, slope or drainage. Suited only to occasional or limited cultivation.	Pasture Orchard Urban	Cropland Wildlife Range
	Group II. Lands Not Suitable for Cultivation		
V.	Land suited to forestry or grazing without special precautions other than normal good management.	Range Forestry Urban	Wildlife
VI.	Suited to forestry or grazing with minor limitations caused by danger from erosion, shallow soils, etc. Requires careful management.	Range Forestry	Urban Wildlife
VII.	Suited to grazing or forestry with major limitations caused by slope, low rainfall, soil, etc. Use must be limited, and extreme care taken.	Forestry Watershed Wildlife	Range
VIII.	Unsuited to grazing or forestry because of absence of soil, steep slopes, extreme dryness or wetness.	Wildlife Watershed Visual Backdrop	

Source: Dasmann, 1976:120

systems. Because of this, soils play an important part in determining the location and density of many residential areas. Map 11 shows a simplified summary of the soil capabilities for septic sewage systems in Utah County. Steep slopes, high water table levels, and tight or loose soils all combine to limit the areas suitable for septic tank systems.

Although some areas of the county are presently undeveloped either agriculturally or residentially due to problems resulting from alkalinity, high water tables, or lack of water, proper soil management can make much of this land usable. As urban pressures increase, the economic feasibility of reclaiming these areas may become more practical. In the past, however, development has usually taken place on those soils which are the easiest to develop and heed the least amount of management.

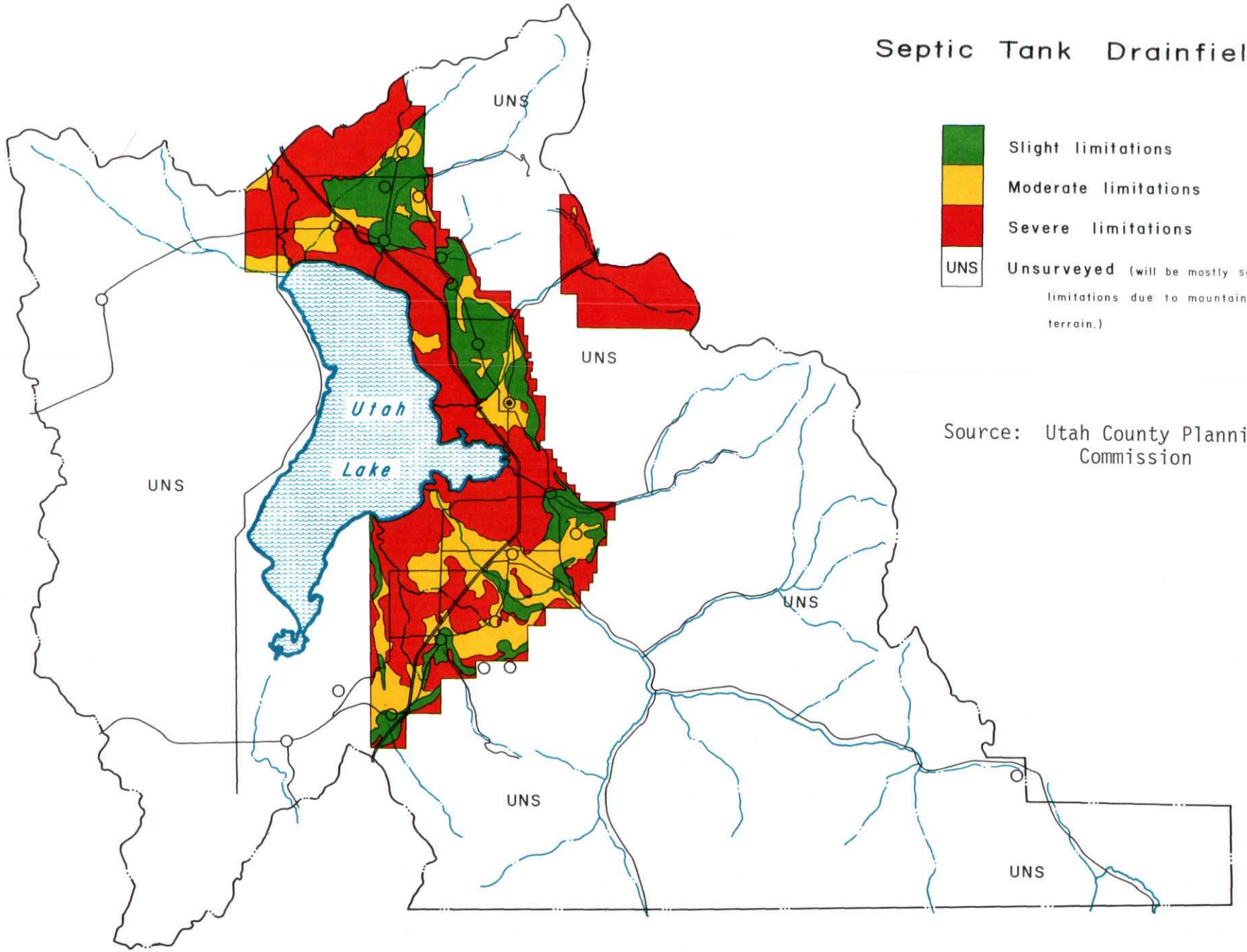
Water

The necessity of water for animal and plant life is a universal fact. It is only natural, therefore, that the location of the majority of man's activities is associated with available water.

As mentioned previously in this chapter, Utah County's climate is one of low rainfall. This is, of course, a yearly statistical average. In reality, the climate can be quite variable producing periods wetter or dryer than the statistical average. As a result, finding adequate supplies of water for the entire year for both agricultural and culi-

Map 11

Soil Limitations for Septic Tank Drainfields



Source: Utah County Planning Commission

nary uses are all water related problems which can have a significant influence on population location and growth.

Surface Water. The most obvious source of water in any area is that which flows in streams or rivers or is stored in lakes. As the settlement of Utah Valley occurred, the early settlements located near an adequate supply of surface water for culinary and agricultural use.

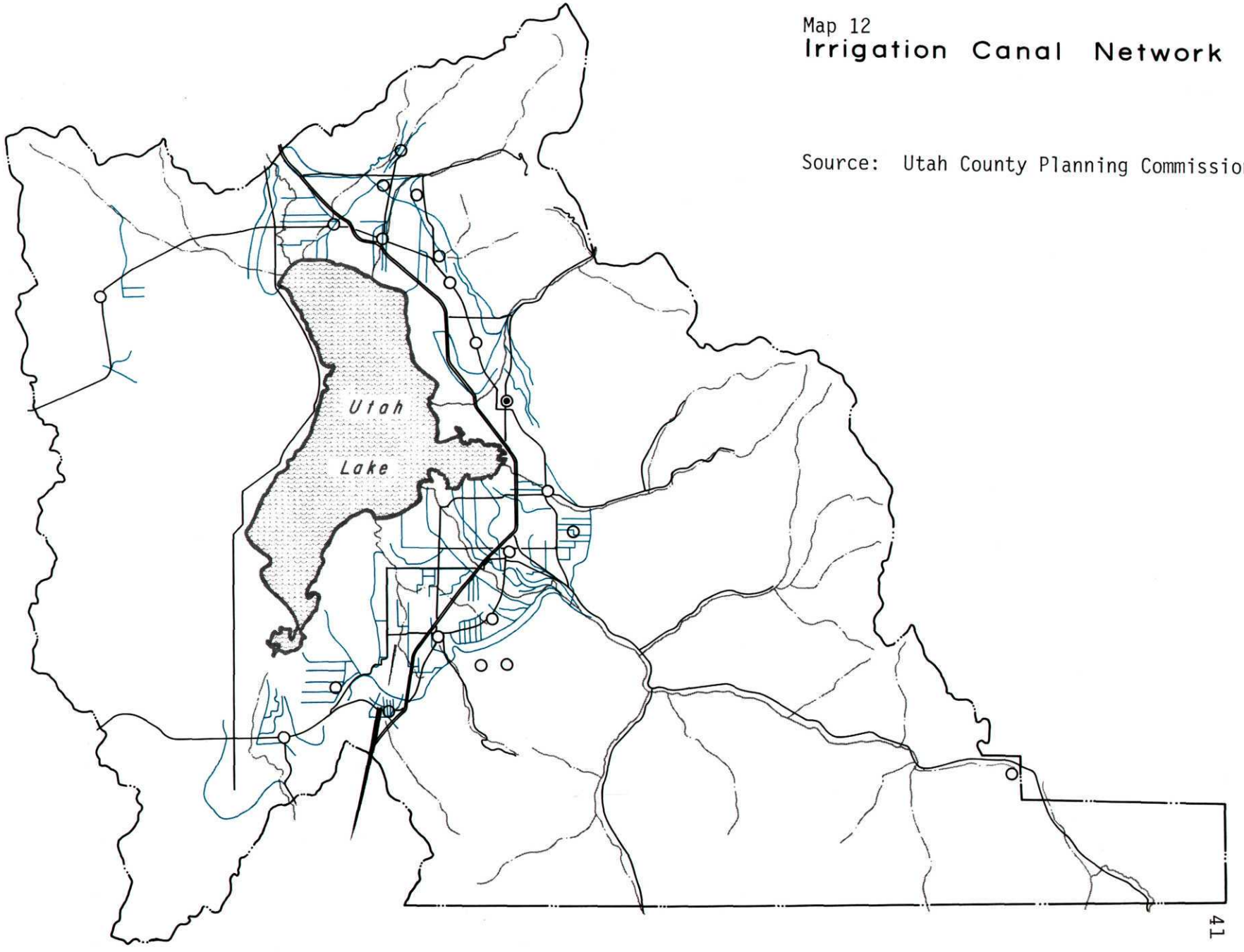
The importance of the surface water in relation to population is evidenced by the direct correspondence in size of the communities with the size of their adjacent stream (Layton, 1963:4). Springs and wells soon supplied most of the settlements with adequate culinary water, but the surface water from the various streams was the major source of water for agricultural irrigation (Master Plan, 1981:50).

As with most agricultural systems in semi-arid regions, irrigation is the key to intensive agricultural development. The early pioneers began to build irrigation canals almost upon arrival in the valley. The usual practice during this period of initial settlement was to divert streams at lower levels and dig canals to serve a smaller acreage until new settlers arrived. When the communities were then somewhat more economically established, more extensive canal projects were constructed (Wride, 1961:44).

Map 12 shows the extensive network of canals in Utah County. The canals in past years dictated, for the most part, which areas of the county could be farmed with any

Map 12
Irrigation Canal Network

Source: Utah County Planning Commission



intensity. In recent times, however, the location of the canals corresponds with much of the residential development in the county. This is not necessarily an association with the canals, but rather one with the farmlands which the canals irrigate.

Subsurface Water. The ground water of Utah County is substantial. This is not to say that it is available in unlimited quantities, but rather that the Utah Valley yields more water than any other valley of the state (Coffman, 1944:54).

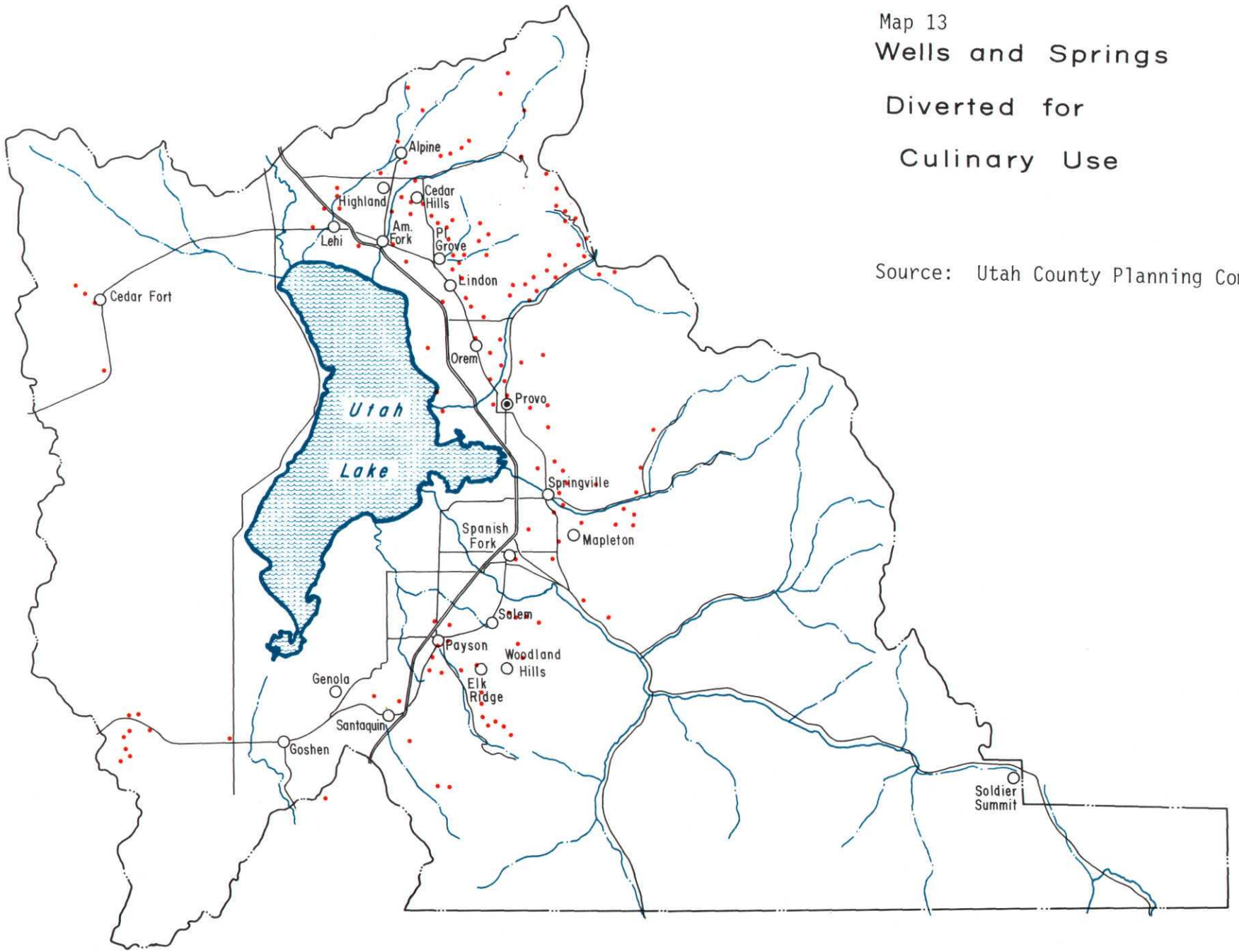
The greatest and certainly the most important use of this water is for culinary purposes. Map 13 shows the wells and springs diverted in the county for culinary use. In canyon locations, diversions are virtually all spring collection systems, while in the valley diversions are generally well systems (Master Plan, 1981:54).

In 1971, the amount of culinary water used (all from spring and well sources) was 40,000 acre feet. At the same time, the amount of water supplied from spring flow totaled 41,000 acre feet with another 10,000 acre feet supplied from well sources. Together with the 51,000 acre feet supplied by these sources, existing underground rights could produce another 100,000 acre feet; and undeveloped rights could provide another 31,000 acre feet. All together, the ground water supply in 1971 totaled 182,000 acre feet which, at the 1971 use rate, would supply over 600,000 people (Council of Governments, 1972:37).

Map 13

Wells and Springs Diverted for Culinary Use

Source: Utah County Planning Commission



Although many of the surface waters were quickly influenced by the presence of the early settlers, ground waters seemed unassailable by man's harmful influence until very recently (Master Plan, 1981:55). The Utah County Master Plan 1980 lists four concerns caused by an increase in population. They are:

> 1. Oversubscription of surficial water (e.g. the quantity of water permitted to be pumped each year exceeds the average quantity of water returned to the ground by rainfall and snowfall).
> 2. Failure of septic tank systems in the agricultural areas of the county and the prospect of higher density populations depending upon wells and septic sewage disposal.
> 3. Urban roads, roof tops, parking lots, curbs and guttering reorienting storm water from downward percolation (necessary for the recharging of the groundwater reservoirs) to streams, canals and pipes which run to Utah Lake.
> 4. Interference of new activities on the underground conduits of several water supplies which depend mainly upon mountain waters for recharge. This involves the location of septic tanks in recharge areas for springs as well as the pumping of new adjacent wells which interferes with the flow rate of some springs and artesian wells.
> (Master Plan, 1981:56)

Future growth is very dependant on the amount of ground water available. The protection and management of this resource is vital in order to supply new growth and to sustain the population as it now exists.

Chapter 3

GROWTH INFLUENCES 1849-1940

During the settlement period of western America, the economic activity and development of the Utah Valley was different than that found in the typical western mining camp, cattle town, and rural trading center. While the market forces primarily influenced economic and population patterns in these areas, Utah County's growth was shaped by administrative decisions and group planning (Arrington, 1955:99).

Up until about 1890, Utah Valley's growth was determined greatly by the will and decisions of the leaders of the Mormon Church. The role of the church during this time was predominant. The church planned, regulated, and promoted as the occasion required. Its organizational structure, its personnel, its equipment, and its funds were actively utilized to assure group survival and growth (Arrington, 1955:98). As the economy grew and developed and as an area could economically support more people, additional Mormon immigrants would be sent to settle the area.

According to Arrington, the distinctive elements in the social and economic patterns of the Mormon communities began to change in the 1880's.

> The Edmunds Act, with its sequal in the antipolygamy raids; the Edmunds-Tucker Act, with its wholesale confiscation of church properties; the devastating character of the depression of the

> 1890's; the accumulation of a huge church debt; the end of the frontier; the deteriorating man-land ratio; the relative growth in numbers and power of Gentiles in the Mormon Commonwealth; the apparent promise of Mormon leaders, in return for Statehood, to be "loyal" to American institutions generally; and later, the linkage with the conservative wing of the Republican party in order to assure the seating of Reed Smoot and other favors--all these factors joined to wash away the distinctive aspects of Mormon institutions and policies. Absentee, individualistic, nonsectarian capitalism began to envelop the Mormon economy, as it had earlier enveloped most western communities outside the Great Basin.
>
> (Arrington, 1955:104)

After that time, economic development in the valley primarily depended on capital supplied by the Federal government and outside corporations. The growth of Utah Valley since 1890 is mostly attributable, therefore, to favorable legislation and the valley's location on major transportation routes to the Pacific Coast markets (Arrington, 1955: 104).

The objective of this chapter is to establish a base whereby the growth patterns which developed after 1940 can be better defined. In establishing such a base, it is necessary to briefly discuss the interworkings of agricultural and industrial development and the influences which directed their growth and, in turn, that of the Utah Valley.

1849-1890

Initial Settlement

The necessity of establishing the central base for Mormon colonization in the Salt Lake Valley, delayed the settlement of Utah Valley for two years after the arrival of

the Mormons into the Salt Lake Valley. Once the church leaders felt numbers were sufficient in the Salt Lake Valley to quell any Indian uprisings, the first settlers were sent to the Utah Valley where they established themselves at Fort Utah (Provo) (Wride, 1961:42).

Settlement soon followed throughout the valley. Despite repeated opposition by Indians, American Fork, Lehi, Pleasant Grove, Alpine, Lindon, Spanish Fork, Payson, Springville, Salem, and Santaquin were all settled during the next few years. Table 4 lists the incorporated places of Utah County and their dates of settlement.

Table 4

INCORPORATED PLACES OF UTAH COUNTY

Present Name (Former Name)	Date Settled	Date Incorporated
Alpine (Mountainville)	(1850)	1855
American Fork (Lake City)	(1850)	1853
Cedar Fort	(1852)	1965
Cedar Hills	(1974)	1977
Elk Ridge (Salem Hills)	(1971)	1976
Genola (Hardscrabble, Silver Lake, and Idlewild)	(1881)	1935
Goshen (Sodom, Mechanicsville, and Sandtown)	(1857)	1935
Highland		1977
Lehi (Evansville)	(1850)	1852
Lindon (Stringtown)	(1856)	1924
Mapleton (Union Bench)	(1861)	1902
Orem	(1877)	1919
Payson (Peteetneet)	(1850)	1852
Pleasant Grove (Battle Creek)	(1850)	1855
Provo	(1849)	1851
Salem (Pond Town)	(1851)	1886
Santaquin (Summit City)	(1851 & 1855)	1890
Soldier Summit	(1918)	1921
Spanish Fork (St. Luke)	(1850)	1855
Springville	(1850)	1853
Woodland Hills	(1970)	1979

Source: Master Plan, 1981:7

The first directive from the church to the settlers was to build a fort or stockade to serve as a community shelter, but more importantly as an area of protection from the Indians. The second directive was for the colonists to go forth in organized groups to dig irrigation canals, erect fences, plant crops, build roads, construct homes, and otherwise prepare the groundwork for subsequent settlement (Arrington, 1955:98).

Town sites were surveyed shortly after the pioneers arrival, although they were not always readily occupied due to continued Indian problems. Further instructions to enclose the town sites with protective walls were never fully heeded by the settlements in Utah Valley.

While the basic grid layout is found in all the earlier incorporated communities of Utah Valley, there is no written evidence to show that one common plan was followed in surveying the town sites (Jackson and Layton, 1976:136). Jackson and Layton state that the common grid pattern found in the Mormon community was not necessarily unique, and it resulted more likely from its easiness to survey. It also facilitated the assigning of city lots by making the lot sizes equal (Jackson and Layton, 1976:138). These lots became the site for the homes, orchards, vegetable and flower gardens, and the livestock and poultry sheds.

The farm village arrangement with the agricultural fields outside the town limits and with the homes and farm outbuildings inside the town limits is typical of early

Mormon communities found in the west. Nelson comments that the farm village pattern is the oldest form of land settlement, but it is considered distinctive of the Mormon community because the major pattern of settlement at that time elsewhere in the United States was the isolated farmstead (Nelson, 1952:4).

The conclusions reached by Jackson and Layton concerning the uniqueness of the Mormon village include the following:

> 1. Regular grid pattern oriented as close to north and south as the settlers could manage with the crude instruments in their possession.
> 2. Streets which are generally wider than those found in non-Mormon villages.
> 3. Main streets and side streets which are usually of the same width.
> 4. Extremely large blocks which are four acres or larger in size.
> 5. Lots which dwarf typical lots in non-Mormon villages.
> (Jackson and Layton, 1976:140)

Early Agriculture

During pioneer times, one of the most distinguishing characteristics of the agricultural pattern in Utah County was its small farms (Wride, 1961:57). Besides being more economically feasible to the ill-equipped and often unskilled pioneer, the church leaders felt that small farms would encourage the careful husbandry needed for subsistence (Wride, 1961:49). The immense labor of irrigating, the lack of adequate farming equipment, and the lack of farming experience of many of the early pioneers provided the incen-

tive to keep farm holdings small and made it difficult for many families to care for more than smaller acreages (Wride, 1961:49).

In 1870, the average size farm in Utah County was still only 25 acres. Of the 1,178 farms in the county at that time, 36 percent were less than 20 acres with nearly 90 percent being under 50 acres (Wride, 1961:57).

Agricultural Roles of Utah Valley. Utah Valley's role in Mormon colonization was to be a livestock and grazing center (Arrington, 1955:100). Trouble with the Indians, such as the Walker War in 1853, effectively prevented such a development at that time as large herds were susceptible to raids (Huff, 1947:45).

The next assignment for Utah Valley was to become a sugar beet producing area. In 1851, with the support of the church, machinery was purchased in France and shipped to Provo. Numerous attempts were made to produce sugar from the beets which the Utah Valley farmers had been assigned to grow; but after much labor and a great expenditure of money, the enterprise proved to be a monumental failure (Arrington, 1955:100).

With the abandonment by Mormon authorities to establish an immediate balance of an industrial-agricultural economy, the third role for Utah Valley was to increase its agricultural production. The goals of this new role were to provide a livelihood for more incoming Mormon immigrants

while at the same time providing a surplus which could be used in buying necessary imports, particularly machinery (Arrington, 1955:100).

Agricultural Markets. In 1857, a purported uprising of the Mormons against the United States brought about what is referred to as the Utah War. The war arose from misunderstandings and mistrust between the Mormon colonists and Federal authorities (Flake, 1975:7).

Though no actual engagements were fought between the two sides and though the conflict was settled before the Federal Army reached the Mormon settlements, the war did have a profound effect on the Utah Valley settlements.

The first effect on the Utah Valley was a population movement. Vowing that any Federal troops entering the Salt Lake Valley would find it as desolate as the pioneers did when they first arrived, Brigham Young moved the greater part of the populace of the Salt Lake Valley southward into the Utah Valley (Flake, 1975:130-138). This caused an obvious, although temporary, boom to the valley's population. Once differences were settled, ending the conflict, some of the visiting population remained in the valley. At the same time, some of the Utah Valley populace, particularly a segment from Lehi, left for areas outside the valley. The population exchange did result in a net overall growth for the Utah Valley but not one of any significance.

The second and probably greatest effect of the war on the valley resulted from its effect on agricultural pro-

duction. Following the settlement of the war, Federal troops were stationed at Camp Floyd near the present site of Fairfield in the Cedar Valley area of Utah County. This camp, which was reported to be the largest army garrison in the country at the time, provided a bonanza for farmers who had surplus produce to sell to the army. This, in turn, provided a base for an increase in population.

Due to Utah Valley's location, other markets for agricultural produce soom came into existence. Major wagon roads to California which passed through the county provided a ready market for the valley's farmers as did various mining camps. The mining camps supplied by the Utah Valley farmers included not only those in the county but also those in adjacent counties and even many in neighboring states and territories (Wride, 1961:57).

Even though the army pulled out in 1861 due to the beginning of the War Between the States, the settlers were presented with another windfall. As the troops departed for the east, stores and supplies of all kinds were sold to the local citizenry at a fraction of their original cost (Arrington, 1955:101).

Agricultural and Economic Growth. The money exchanged from selling goods to the army and the surplus sale of stores and supplies, brought a new level of prosperity to the area. The valley was soon better supplied than most pioneer Mormon valleys with facilities for carding, spinning,

and weaving. There were also facilities for threshing and milling grain, as well as for cutting and dressing timber (Arrington, 1955:101).

With fertile soil and adequate irrigation water, the valley's greatest economic progress was, however, in agriculture. By 1860, with the increase of an economic base, Utah Valley was able to absorb a population of 8,248 people and by 1870, 12,203 people. While other areas experienced a scarcity of labor, Utah Valley communities were trying to utilize a labor surplus in such marginal projects as building walls, constructing new meetinghouses, and establishing new roads (Arrington, 1955:101).

By 1879, the county was the leading agricultural county in the territory and led the territory in the production of nearly every important agricultural product (Wride, 1961:56). In the 1870's, however, the need to provide land for the natural increase of the population as well as for the influx of new settlers brought about pressures to develop new lands in the county.

Coming of the Railroad

In 1869, the transcontinental railroad was completed through the northern part of the Utah territory. In 1873, a line connecting the valley with the transcontinental line was completed to American Fork. With the expansion of the line through the county, further agricultural and economic expansion began (Wride, 1961:64-66).

Agricultural growth, before the railroad, eventually came to the point where the further development of markets was dependant on rapid, inexpensive transportation. Not only did the railroad bring a quicker mode of transportation to the valley, but it also made mining operations in Utah and Nevada more profitable, thereby expanding the mines and the market for Utah Valley's agriculture and small industries (Arrington, 1955:101).

The population increases at this time did not come directly from the building of the railroad, but rather from the growth of the economy as new markets were made possible. The railroad made possible the specialized territorial plants and industries which before were economically unsound (Arrington, 1955:102).

The opportunities created by the railroad for import and export brought church leaders to establish cooperative enterprises in the various communities of the county. In those organizations, the citizens pooled their labor, produce, and meager liquid resources. The intent of the cooperatives was to eliminate the exorbitant profits which could be demanded by private enterprises and to prevent domination by outside sources. Profits from the cooperatives was to be used to import machinery for the establishment of industries (Arrington, 1955:102).

Overpopulation in the Valley

The lack of available farmland continued to worsen the man-land ratio in the valley. Even though the county

added over 36,000 acres of improved farmland between 1880 and 1900, the expansion of the farmland and the further division of what were already considered small farms, left many farms with very limited water rights. This left many farms hard pressed in dry years to produce a successful crop (Wride, 1961:69).

In 1885, one official made the following observation:

> I find the [Utah Valley] settlements crowded up to their utmost capacity, land and water all appropriated, and our young people as they marry off have no place to settle near home--the resources of the people are exhausted, unless they go into manufacturing.
> (Deseret News, 1885:228)

The response of the church officials to the over-population and under-employment problem was two fold. First, groups of Utah Valley farmers, particularly newly married couples, were sent to colonize new areas. Second, restrictions placed on enterprise were removed; and several private operations as opposed to church-run enterprises were soon begun. Even though the leaders of the new enterprises were almost always Mormon, the church's influence on the valley's economy began to erode (Arrington, 1955:103).

A proliferation of independant private enterprises soon followed, which were outside the relm of church influence and control. Business experienced a boom; and among those organized during this period were banks, mercantile houses, utilities, mining enterprises, a lumber concern, a foundary and machine company, a publishing company, and an iron mining and manufacturing company. This boom, however,

was short-lived as the depression of the 1890's forced most of the business into bankruptcy (Arrington, 1955:104).

1890-1940

The period from 1890-1940 was one of economic change over. Before 1890, the principal income in the county was from agriculture. Between 1890 to 1925, the principal source of income was mixed between industry and agriculture. By 1925, industry exceeded agriculture as the principal source of income.

Agricultural Growth and Depression

In 1890, the commercial boom ended and the economy hit hard times. Agriculture, however, and most agriculturally related enterprises began their own boom period.

Much of the increase in agricultural production came as a result of the revitalized sugar beet industry and from the increase in irrigation water supplied by the Strawberry Reservoir project.

The Sugar Beet Industry. Utah's first successful sugar company was organized in 1889, and a sugar beet factory was planned for Lehi. When the factory was completed in 1891, it employed more than 100 men and operated at a capacity of 350 tons of sugar beets per day. This production made it the largest sugar beet factory in America at that time (Arrington, 1955:104). The success of the factory and of sugar beet production in the Utah Valley soon led to

the expansion of the refinery and the addition of cutting plants at Provo, Spanish Fork, Pleasant Grove, Springville, Payson, and at Sandy in Salt Lake County (Wride, 1961:73). Initially the crop was grown in the lake bottoms below Lehi and American Fork; but with its successful production, all parts of the valley were soon growing the crop. Acreage devoted to sugar beets increased each year so that by 1899, the 3,541 acres of land used for raising the sugar beets was greater than that devoted to any other row crop in the valley (Wride, 1961:75).

The Strawberry Reservoir Project. By 1900, farmers had utilized all of the water available from the streams flowing through the valley. With the increase in agricultural production, additional water for existing agriculture and any future development was becoming a serious concern (Arrington, 1955:105).

Soon after statehood was granted, an appropriation of three-thousand dollars ($3,000.00) was made by the legislature to determine the feasibility of two irrigation water sewage reservoirs. The study recommended a reservoir in the Strawberry Valley on the east side of the Wasatch Range. The state, however, did not have the funds for such a project, so attempts were made to interest the Reclamation Service in this project. The attempts proved successful; and in 1906, construction of the project commenced with completion of the project coming in 1913 (Wride, 1961:92).

The Strawberry Project supplied water to over 50,000 acres in the southern part of the county of which 10,000 acres were newly developed (Arrington, 1955:105). The results of additional water was a crop shift from alfalfa and small grains to additional acreages of sug r beets and more intensive vegetable crops.

In 1900, most vegetables were grown for local use. By 1920, more than 1,000 acres worth of vegetables were marketed out of state (Wride, 1961:94). This production resulted in the establishment of several canneries which, in some seasons, employed up to 1,200 persons (Layton, 1962:68).

Agricultural Depression. Abundant harvests continued, but agricultural prices peaked in 1919. Although the balance of the economy entered a period of high activity, the farmers experienced a depression of prices for their goods (Wride, 1961:107).

Besides the depression of prices, the valley's lack of a large market in comparison to other producing areas resulted in the decline of the sugar industry. In 1920, four sugar factories employed 600 men and processed over 250,000 tons of sugar beets. By 1936, the production had dropped to 23,000 tons; and three of the four sugar plants were closed with the fourth soon to follow (Arrington, 1955: 105).

Despite various attempts by the government and other agencies to relieve farmers from the agricultural depression,

nothing changed the situation to any large degree. In 1920, about one-third of the farms in the county were mortgaged. By 1930, more than 50 percent had a lien against them (Wride, 1961:111).

With the waning of the agricultural industry, many of the valley towns, such as Lehi, Pleasant Grove, Spanish Fork, and Payson, lost population between 1920 and 1930. Two major exceptions to the trend were Provo, which increased by over 4,000 people, and Springville, which increased by over 700 people.

Industrial Beginnings. In the 1920's, the first large industry not aided by the Mormon Church was built at Ironton. Ironton, which is located at the southern end of Provo, had no local iron, coal, nor a market. What it did have, however, was excellent rail connections; and due to the depressed agricultural situation, a ready work force. The plant employed about 350 workers.

A subdivision was platted in the Ironton area for the housing of the workers. As it turned out, however, most of the workers commuted from Springville or Provo. Layton calls this a non-effect industry as no movement was caused in land patterns (Layton, 1962:69).

Two satelite industries were begun as a result of Ironton and located in close proximity. One of the industries was the Pacific States Cast Iron Plant which is still one of the county's largest industries. For many years, it

was the only cast-iron-pipe foundry west of the Mississippi. It employs approximately 450 people (Arrington, 1955:106).

Other industries, although none were of the significant size of the Ironton and Pacific States plants, began to shift toward areas where employment was needed. As might be expected, the amount of industrial development paralleled the size of the community; in prior times the community paralleled the amount of agricultural production in its area.

Chapter 4

POPULATION GROWTH AND MOVEMENT 1940-1980

Major Influences of Growth

Although there have been many factors which have influenced people to come to the Utah Valley, the two largest and most influential in the Utah Valley have been Geneva Steel and Brigham Young University. These two have been factors, not only by themselves, but they have also influenced the growth of many other businesses and industries within the area.

Geneva Steel

It is unlikely that Utah Valley would have become the site for a large steel operation if it weren't for the concern of locating a steel plant inland during World War II (Layton, 1962:80). After announcement of the plant was made, a site was selected on the shore of Utah Lake just northwest of Orem. The site was at a junction of rail lines and had available water from deep wells as well as water from the newly constructed Deer Creek project (Layton, 1962:71).

The plant was constructed from 1942-43 and employed some 7,000 construction workers. Once the plant was finished, 5,000 employees were needed to operate it (Coffman, 1944:293).

Many of the employees came from the valley area. This had a profound effect on agricultural as well as industrial growth as many farmers, realizing the income opportunities of Geneva, became part-time farmers. This often involved going to less intensive crops and leasing of the farm ground (Wride, 1961:131). Employees came from all the communities in the valley as well as several outside. Table 5 lists the 1958 figures showing the residence of the Geneva Steel employees, and Table 6 shows the relative importance of Geneva Steel in 1980 when compared with the other leading industries in the county.

With 5,000 employees, the population directly affected by Geneva could approach 20,000 people. With other related industries considered, the effect would be even greater.

Table 5

RESIDENCES OF GENEVA EMPLOYEES
1958

Residence	Number of Employees
Alpine	34
American Fork	402
Lehi	232
Orem	453
Payson	166
Pleasant Grove	343
Provo	1834
Salem	32
Santaquin	70
Spanish Fork	227
Springville	492
Other County	81
Outside County	287

Source: Layton, 1962:73

Table 6

THE LARGEST MANUFACTURING EMPLOYERS
OF UTAH COUNTY 1980

Firm	Location	Number of Employees
U. S. Steel	Orem	5000-6999
Signetics	Orem	1300-1399
Pacific States Cast Iron Pipe Co.	Provo	300-399
Bayly Manufacturing	Pleasant Grove	200-299
Fritzi	Spanish Fork	200-299
Jolene Co.	Provo	200-299
McNally Mountain States Steel	Lindon	200-299
Red-E-Mix	A.F., Orem, Sp. Fork	200-299
Carlisle Mfg. Co.	Provo	100-199
Community Press	Provo	100-199
Hudon	Spanish Fork	100-199
Impulse Designs	Provo	100-199
Intermountain Giftmakers	Pleasant Grove	100-199
International Minerals & Chemical	Mapleton	100-199
Miniworld	Provo	100-199
Pittsburgh-Des Moines Steel	Provo	100-199
Powder River	Provo	100-199
Skyline Industries	Pleasant Grove	100-199
Utah Sportswear	Spanish Fork	100-199
Valtek	Springville	100-199
15 firms between		50-99
20 firms between		25-49
55 firms between		10-24
119 firms between		1-9

Source: Master Plan, 1981:90

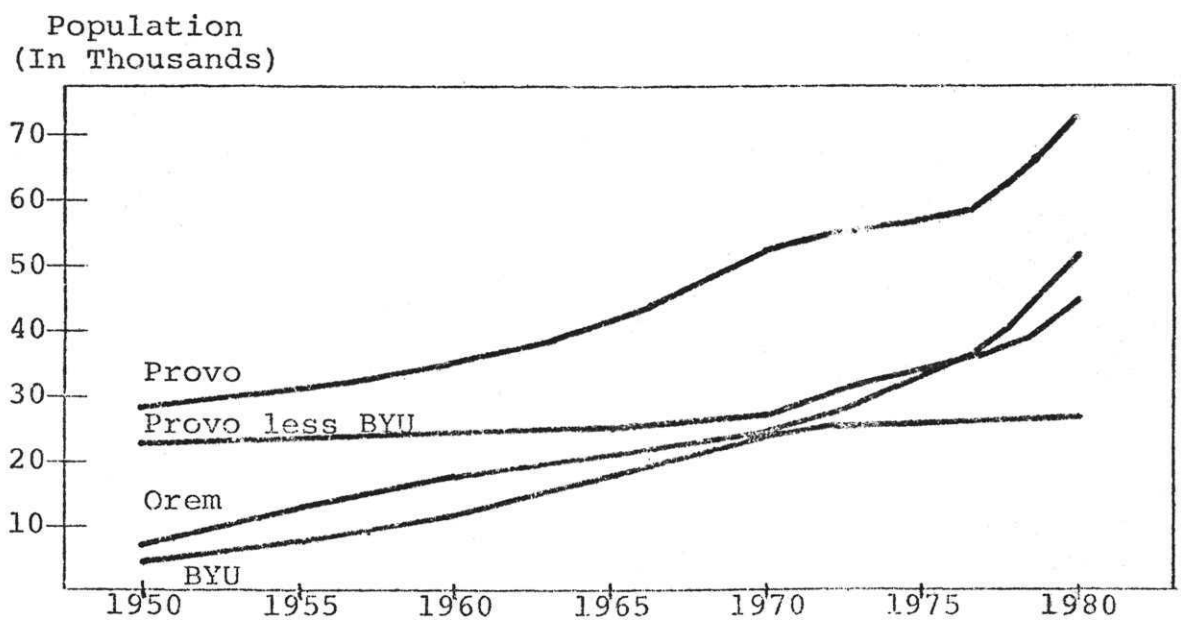
Brigham Young University

Brigham Young University has had a definite impact on the economic trends and the population trends of Utah County. After becoming a University in 1904 with a student body of 63, B.Y.U. grew to a student body enrollment of over 27,000 by the Fall of 1980.

Table shows a comparison of B.Y.U. growth with that of Provo and Orem. It should be noted that after the school's enrollment had doubled from 1950 to 1960 and doubled again from 1960 to 1970, controls were placed on the growth to stabilize the level of enrollment to around 25,000 students.

Table 7

B.Y.U. ENROLLMENT VERSUS PROVO AND OREM POPULATION GROWTH



Since the growth of Provo and Orem has continued to increase despite B.Y.U.'s stabilized enrollment, the table would seem to indicate that the relationship between the three

is not as strong as it may have been in past years. Much of the relationship, however, may still exist in other areas such as employment.

In 1966, Robert Parsons did a study on The Influence of Brigham Young University on the Economic Base of Provo City. In this study he concluded that B.Y.U.'s 4,800 employees supported 9,408 basic and non-basic jobs through income guaranteed by the University (Parsons, 1966:67). If the same reasoning exists, B.Y.U.'s present employment of 11,640 would now support over 22,800 basic and non-basic jobs in Provo.

Influences of Growth

Although it is not within the scope of this paper to analyze the many reasons for growth in Utah County, there are countless situations which occur that individually may not influence large numbers of people to locate in a specific area; but that, collectively, may play an important part in growth. These reasons include the desire to remain close to one's family, students remaining in the area following their schooling, the social environment of a smaller urbanized area, the perceived aesthetic qualities of the area, and the neighboring growth of the Salt Lake Valley.

Areas of Growth

For many years, most of the growth within the cities of the county took place on the lots contained in the dis-

tinctive grid patterns. Shortly after World War II, tract housing began to appear in Provo and American Fork, some of which was built to house the supervisory personnel of the steel plant (Layton, 1962:86). When it was noted that these areas didn't become slum areas as many felt they would, new subdivisions were built in many of the valley's cities.

As growth continued in the valley, its general direction was toward higher ground. For some communities, this meant away from the lake, while in others it also involved movement into the foothills. Layton lists the factors in the distribution of residential land in the valley as being related to landforms, zoning, urban services, and the attitude of the people; but goes on to say that the specific factor for most of the tract developments was the willingness of the owner to sell his property (Layton, 1962: 89-91).

The 1970's was a period of quick growth for the valley. During this time, the county's population increased from 137,776 in 1970 to over 218,000 in 1980. Table 8 lists the population trends experienced in Utah County over the last 40 years. Table 9 lists the county's cities by yearly rank.

Large numbers of annexations occurred as the cities reached out many times in land grab fashion. Large areas of open fields were transformed into rows of houses as subdivisions were continuously approved in many cities. The end result was massive urbanization throughout the valley.

Table 8

POPULATION TRENDS
1940-1980

	1940	1950	1960	1970	1980
UTAH VALLEY					
NORTHERN AREA					
Alpine	444	571	775	1,047	2,649
American Fork	3,333	5,126	6,373	7,713	12,001
Cedar Hills	--	--	--	--	571
Highland	--	--	--	--	2,435
Lehi	2,733	3,627	4,377	4,659	6,685
Lindon	587	801	1,150	1,644	2,794
Pleasant Grove	1,941	3,195	4,772	5,327	10,669
Total Municipalities	9,038	13,320	17,447	20,390	37,804
Unincorporated	2,713	3,554	4,654	5,191	6,299
Total Area	11,751	16,874	22,101	25,581	44,103
CENTRAL AREA					
Orem	2,914	8,351	18,394	25,729	52,399
Provo	18,071	28,937	26,047	53,131	73,897
Total Municipalities	20,985	37,288	54,441	78,860	126,296
Unincorporated	3,152	2,511	3,100	2,395	1,170
Total Area	24,137	39,799	57,541	81,255	127,466
SOUTHERN AREA					
Elk Ridge	--	--	--	--	381
Mapleton	907	1,175	1,516	1,980	2,726
Payson	3,591	3,998	4,237	4,501	8,246
Salem	659	781	920	1,081	2,233
Santaquin	1,297	1,241	1,183	1,236	2,075
Spanish Fork	4,167	5,230	6,472	7,284	9,778
Springville	4,796	6,475	7,913	8,790	12,101
Woodland Hills	--	--	--	--	160
Total Municipalities	15,417	18,873	22,241	24,872	37,700
Unincorporated	4,242	4,961	4,117	4,559	6,748
Total Area	19,695	23,834	26,358	29,431	44,448
AREAS OUTSIDE UTAH VALLEY					
Total Municipalities	1,149	1,056	1,006	1,071	1,481
Total Unincorporated	686	353	295	438	608
Total Area	1,835	1,409	1,301	1,509	2,089
TOTAL COUNTY					
Municipal	46,381	70,320	94,935	125,193	203,281
Unincorporated	10,793	11,592	12,056	12,583	14,825
TOTAL	57,174	81,902	106,991	137,776	218,106

Source: Utah County Planning Commission

Table 9

POPULATION RANKING OF CITIES
IN UTAH COUNTY

City	'30	'40	'50	'60	'70	'80
Alpine	14	14	13	13	13	11
American Fork	4	5	5	5	4	3
Cedar Fort	15	16	16	16	16	19
Cedar Hills	--	--	--	--	--	17
Elk Ridge	--	--	--	--	--	18
Genola	--	15	15	15	15	15
Goshen	10	12	14	14	14	16
Highland	--	--	--	--	--	12
Lehi	6	7	7	7	7	8
Lindon	13	13	11	11	10	9
Mapleton	11	10	10	9	9	10
Orem	7	6	2	2	2	2
Payson	5	4	6	8	8	7
Pleasant Grove	8	8	8	6	6	5
Provo	1	1	1	1	1	1
Salem	12	11	12	12	12	13
Santaquin	9	9	9	10	11	14
Spanish Fork	3	3	4	4	5	6
Springville	2	2	3	3	3	4

Note: Blanks indicate town unincorporated at that time.

One major sign of residential growth is the development of new streets and subdivisions. Although streets and subdivisions are not necessarily developed with homes right away, in most cases the approved subdivision areas will eventually be the location of residential growth. Population density can vary greatly due to the number of units located on each lot and/or the size of the lots. In considering the thesis of this paper, the amount of growth is not as important as determining the place of growth.

This section, as it discusses each area of growth within the county, examines the residential growth areas by comparing patterns evident from the construction of new roads and streets. Tables also provide a summary of subdivision development by year, location, and by number of lots platted and developed.

Northern Area

Alpine. Alpine (see Tables 10 and 11, and Figures 1-3) is a town that remained quite rural in nature until the last decade. Even though its population is still small, by 1980 residential growth more than doubled its 1970 population of 1,047. Twenty-four of its twenty-five subdivisons were recorded during this time with twenty of those coming during the last five years.

Original subdivision growth occurred toward the foothills east of the original settlement area (see Number 1, Figure 2). Newer residential growth has taken place to the

Table 10

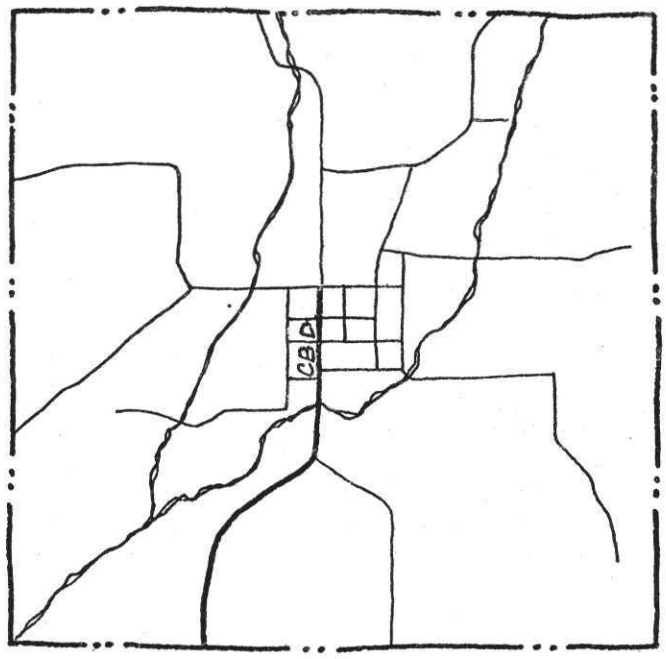
ALPINE, NUMBER OF SUBDIVISIONS
BY YEAR AND LOCATION

Location	1940-59	1960-64	1965-69	1970-74	1975	1976	1977	1978	1979	1980
T4S, R1E										
Sec. 24	-	-	-	-	1	1	-	-	1	-
25	-	-	-	2	-	1	-	1	-	-
T4S, R2E										
Sec. 18	-	-	-	-	-	-	2	1	-	-
19	-	1	-	2	2	2	2	2	3	-
30	-	-	-	-	-	-	1	-	1	-

Table 11

ALPINE, OCCUPIED LOTS/APPROVED LOTS
BY YEAR AND LOCATION

Location	1940-59	1960-64	1965-69	1970-74	1975	1976	1977	1978	1979	1980
T4S, R1E										
Sec. 24	-	-	-	-	1/5	23/23	-	-	0/63	-
25	-	-	-	23/17	-	9/9	-	4/6	-	-
T4S, R2E										
Sec. 18	-	-	-	-	-	-	18/48	7/12	-	-
19	-	-	-	23/30	13/13	33/46	8/9	5/6	17/41	-
30	-	1/20	-	-	-	-	5/5	-	0/29	-



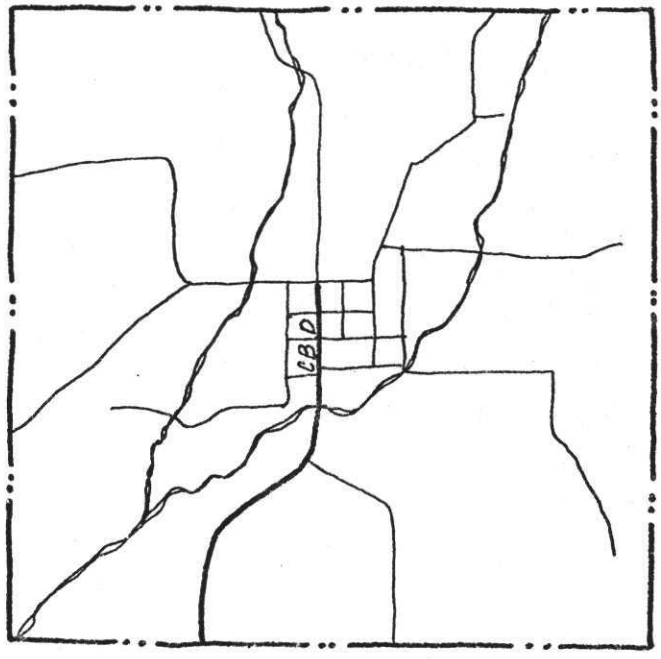
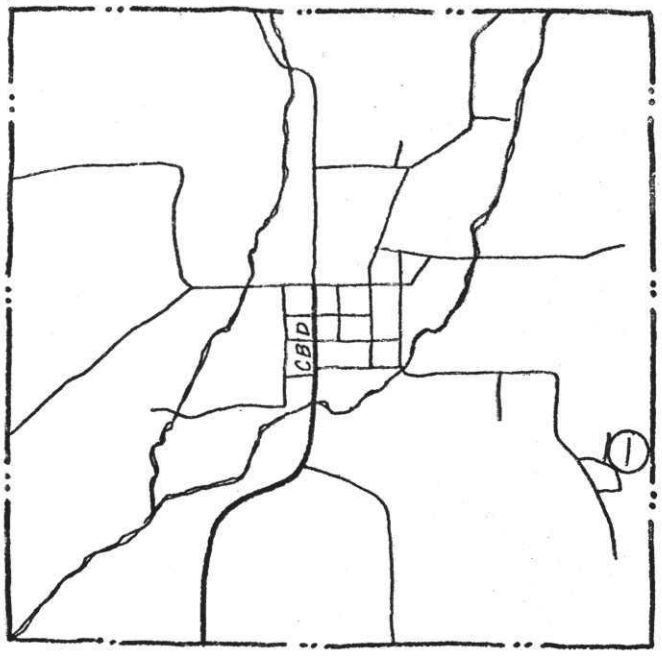


Figure 1. City Boundary and Street Pattern of Alpine City, Utah, 1940 and 1950



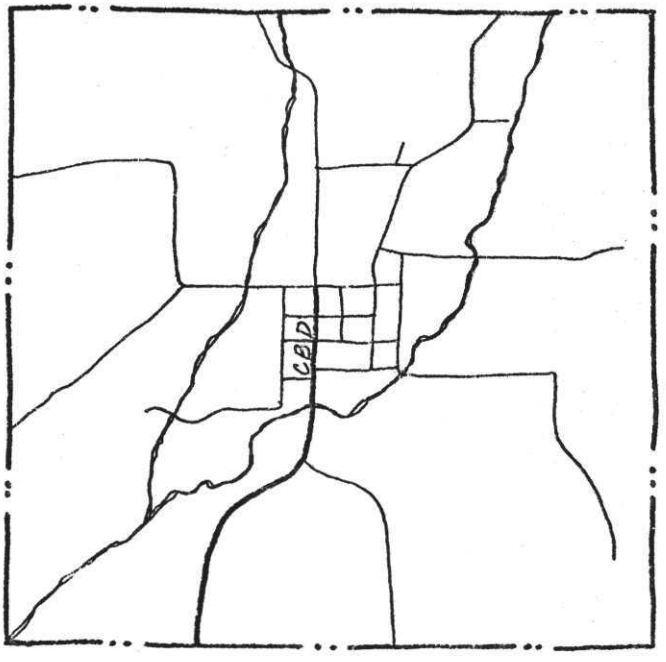


Figure 2. City Boundary and Street Pattern of Alpine City, Utah, 1960 and 1970

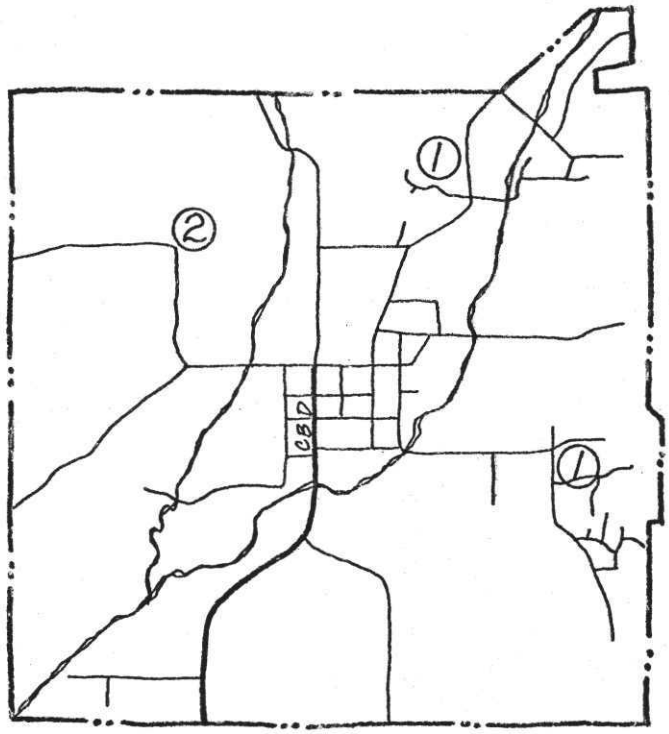


Figure 3. City Boundary and Street Pattern of Alpine City, Utah, 1980

east and to the north (see Number 1, Figure 3). The town's location in the extreme northeast corner of the valley, where it is framed by mountain peaks, gives it an aesthetic "alpine" appeal. Many of the new residences are higher income homes owned by commuters to the Salt Lake Valley who apparently are drawn to Alpine because of the rural, alpine setting.

Future growth should continue to take place in the northern and eastern areas as these are the main "aesthetic" areas of the town. Growth should also begin to the northwest (see Number 2, Figure 3) where a large subdivision has been platted.

Lehi. Lehi (see Tables 12 and 13, and Figures 4-6) was the sixth town in the valley to incorporate. It is located basically at the northern entrance to the valley.

The growth in Lehi has been the slowest, proportionately, of the northern communities. For many years, new growth took place on the interior lots of the city. By 1970, however, some growth away from the main area of town began to take place to the northeast (see Number 1, Figure 5).

The northeast continued to be the main area of development through the 1970's (see Number 1, Figure 6) when over 90 percent of the subdivisions in Lehi were platted. Another area of new growth occurred to the northwest (see Number 2, Figure 6) where over 60 new homes were built and to the west (see Number 3, Figure 6). As with the other cities bordering the low lake plains area, no large expansion has been made toward the lake.

Table 12

LEHI, NUMBER OF SUBDIVISIONS
BY YEAR AND LOCATION

Location	1940-49	1950-59	1960-69	1970-74	1975	1976	1977	1978	1979	1980
T5S, R1E										
Sec. 3	-	-	-	-	-	-	-	1	-	-
5	-	-	-	-	2	2	-	-	2	1
8	1	1	-	-	-	-	-	2	1	-
9	-	1	-	1	2	2	4	2	3	1
10	-	-	-	-	-	-	-	1	-	-
16	-	-	-	1	-	-	-	-	-	1
17	-	-	-	-	-	-	-	-	2	-
27	-	-	-	-	-	1	-	-	-	-

Table 13

LEHI, OCCUPIED LOTS/APPROVED LOTS
BY YEAR AND LOCATION

Location	1940-49	1950-59	1960-69	1970-74	1975	1976	1977	1978	1979	1980
T5S, R1E										
Sec. 3	-	-	-	-	-	-	-	0/23	-	-
5	-	-	-	-	23/23	39/39	-	-	13/16	8/8
8	25/26	20/20	-	-	-	-	-	7/16	7/24	-
9	-	8/10	-	30/35	17/17	24/26	29/63	4/11	4/26	-
10	-	-	-	-	-	-	-	5/20	-	-
16	-	-	-	11/14	-	-	-	-	-	2/3
17	-	-	-	-	-	-	-	-	3/44	-
27	-	-	-	-	-	4/4	-	-	-	-

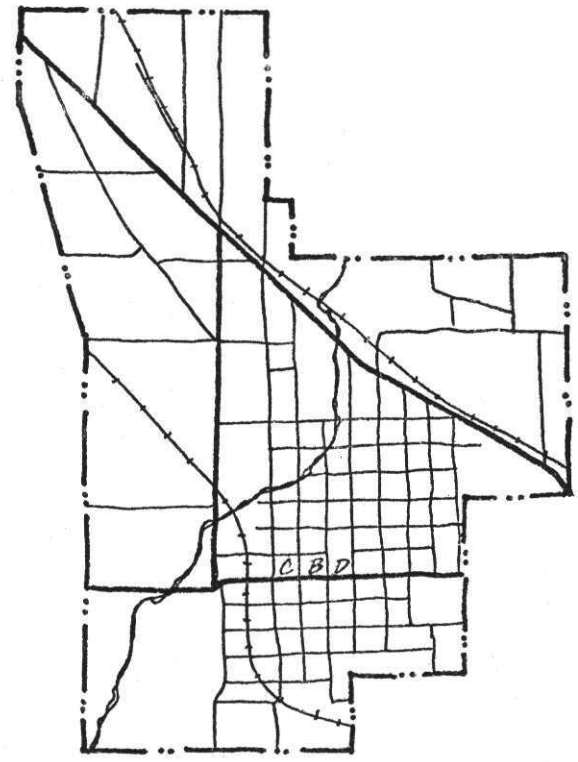
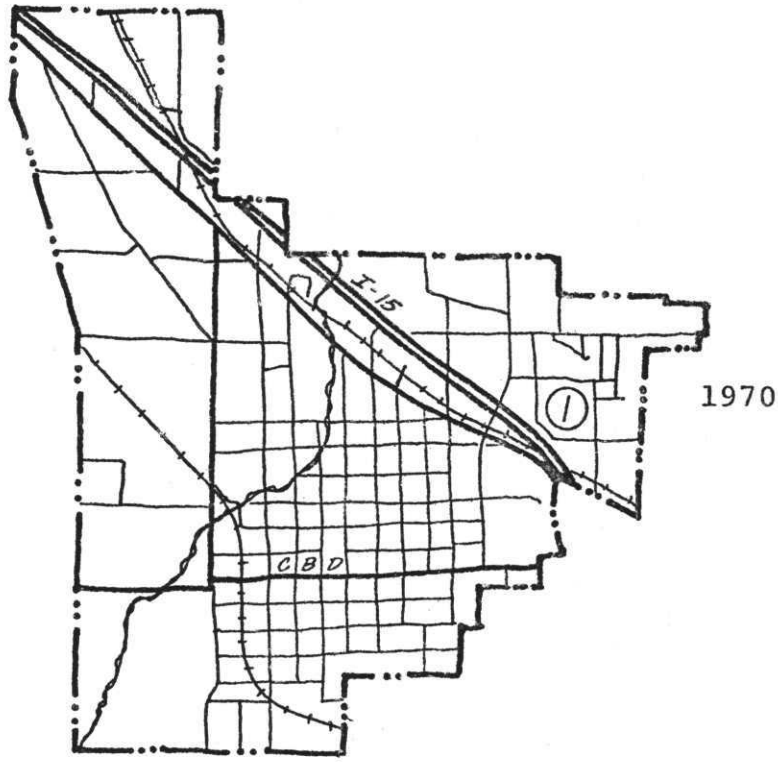
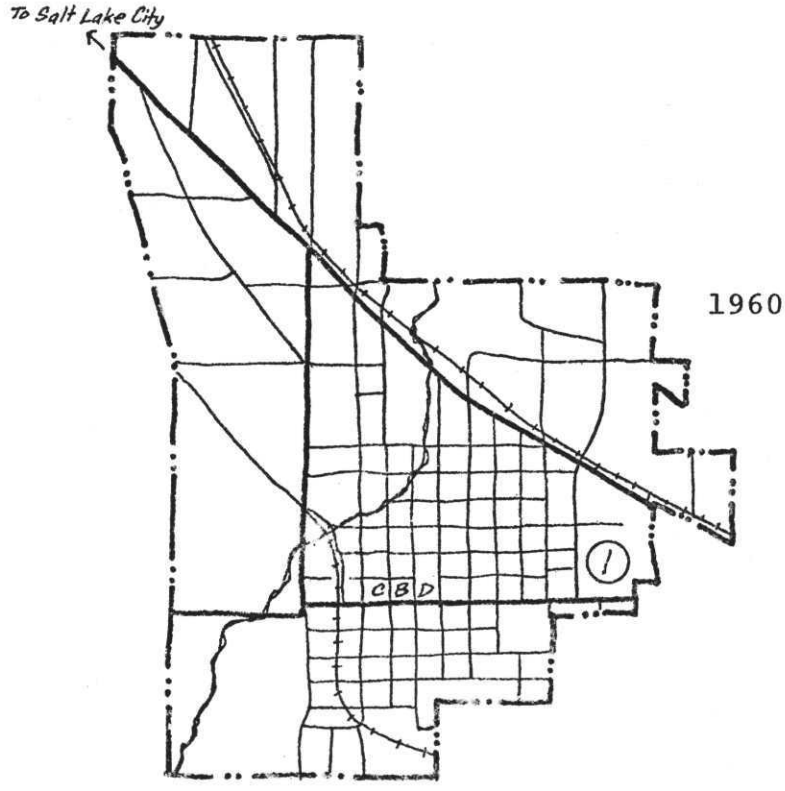


Figure 4. City Boundary and Street Pattern of Lehi City, Utah, 1940 and 1950



1970



1960

Figure 5. City Boundary and Street Pattern of Lehi City, Utah, 1960 and 1970

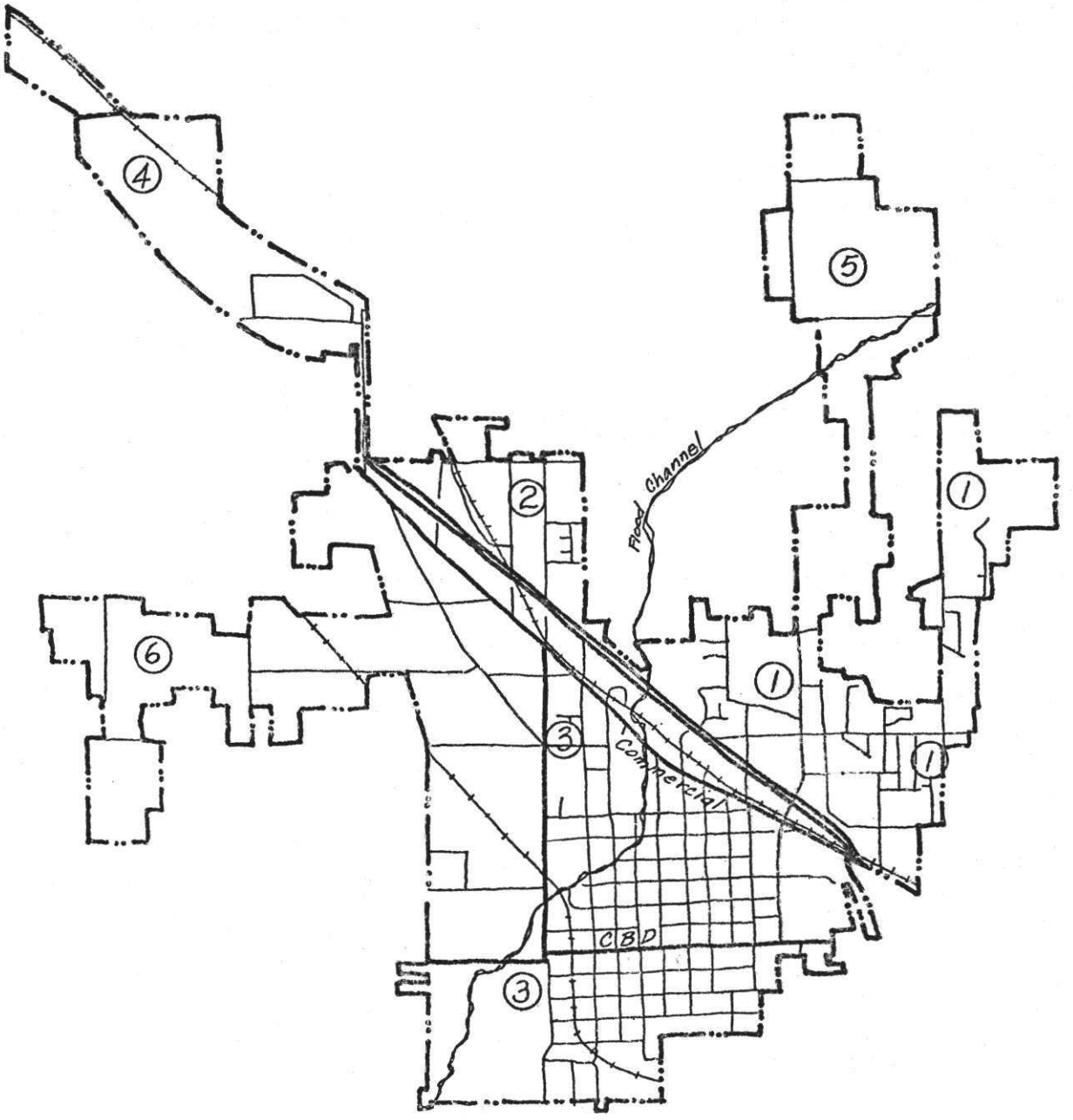


Figure 6. City Boundary and Street Pattern of Lehi City, Utah, 1980

Lehi was characterized by cherry stem annexations during the 1970's. Two of these were non-residential with one (see Number 4, Figure 6) being an industrial area and the other (see Number 5, Figure 6) being the area of the airport.

One larger annexation was made to the west (see Number 6, Figure 6) to facilitate the development of over 500 home sites. Reasoning expressed at the time was that this would provide Lehi with more people which, in turn, would give them more votes in the school district. Although no development other than the construction of a few rural homes has taken place in this area, several small areas have since attached to this annexation usually for the purpose of obtaining a building permit from the city.

Future residential growth should continue to the northeast where most of Lehi's higher income area is located, as well as the more easily serviceable higher ground. Growth to the west has the greatest possibility for large tracts of lower income housing.

American Fork. American Fork (see Tables 14 and 15, and Figures 7-9) is the largest city of the northern area. Overall, the city ranks fourth among those in the valley but has closed to within 100 persons of number three Springville.

Unlike many of the northern cities, American Fork began to grow outside of its original grid before the 1970's, although not in comparison to the 1970 growth.

Table 14

AMERICAN FORK, NUMBER OF SUBDIVISIONS
BY YEAR AND LOCATION

Location	1940-49	1950-54	1955-59	1960-64	1965-69	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
T5S, R1E																
Sec. 11	-	1	1	2	3	-	-	1	-	-	3	2	6	-	3	-
12	-	-	-	-	-	-	-	-	1	1	2	1	1	1	-	1
13	2	-	4	5	3	2	3	8	5	1	4	-	4	2	2	1
14	2	1	-	-	1	-	1	-	1	-	1	2	1	6	-	-
23	1	-	-	-	2	-	-	-	-	-	1	-	4	-	2	-
24	1	1	-	-	2	-	-	-	-	-	-	2	1	1	-	-

Table 15

AMERICAN FORK, OCCUPIED LOTS/APPROVED LOTS
BY YEAR AND LOCATION

Location	1940-49	1950-54	1955-59	1960-64	1965-69	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
T5S, R1E																
Sec. 11	-	15/18	49/51	22/24	26/27	-	-	31/31	-	-	71/105	16/12	45/93	-	11/43	-
12	-	-	-	-	-	-	-	-	25/31	5/8	22/22	10/10	16/14	3/3	-	0/8
13	48/48	-	46/48	65/72	40/40	43/43	30/30	113/114	66/70	5/5	52/52	-	75/82	8/8	46/49	0/3
14	36/36	64/64	-	-	11/11	-	17/17	-	15/15	-	7/7	19/21	1/5	43/59	-	-
23	82/82	-	-	-	17/17	-	-	-	-	-	4/4	-	45/62	-	62/65	-
24	55/55	19/19	-	-	15/15	-	-	-	-	-	-	23/24	4/4	2/8	-	-

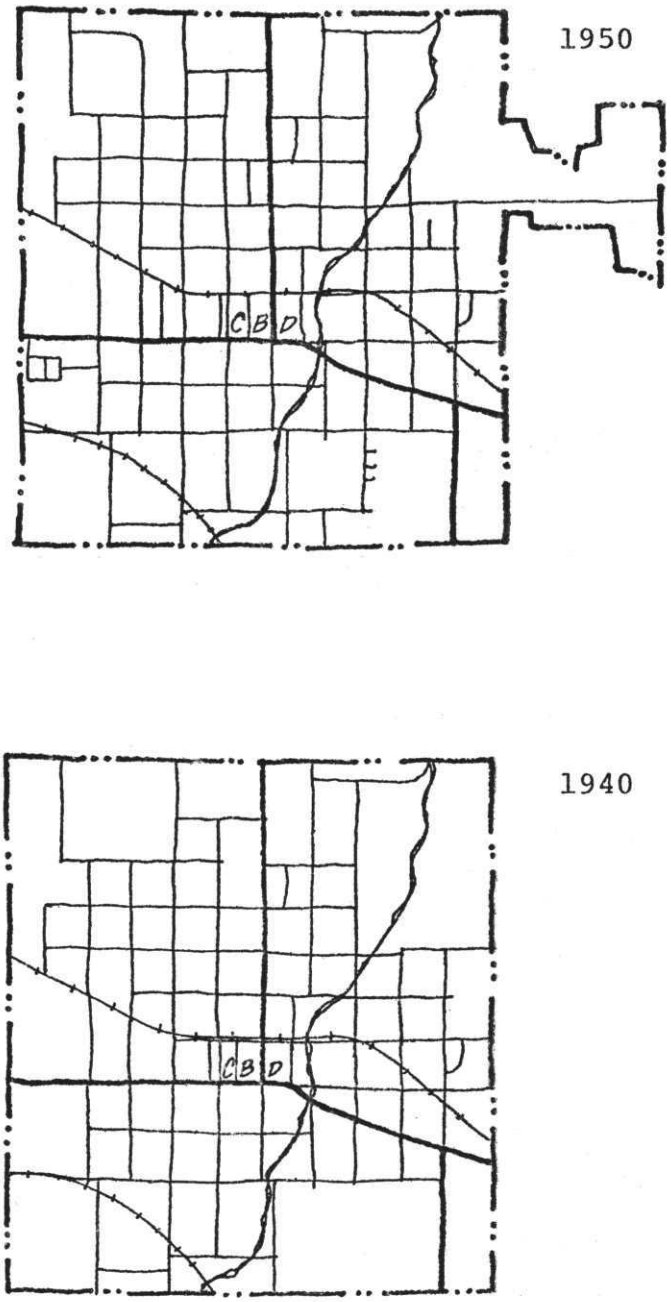


Figure 7. City Boundary and Street Pattern of American Fork City, Utah, 1940 and 1950

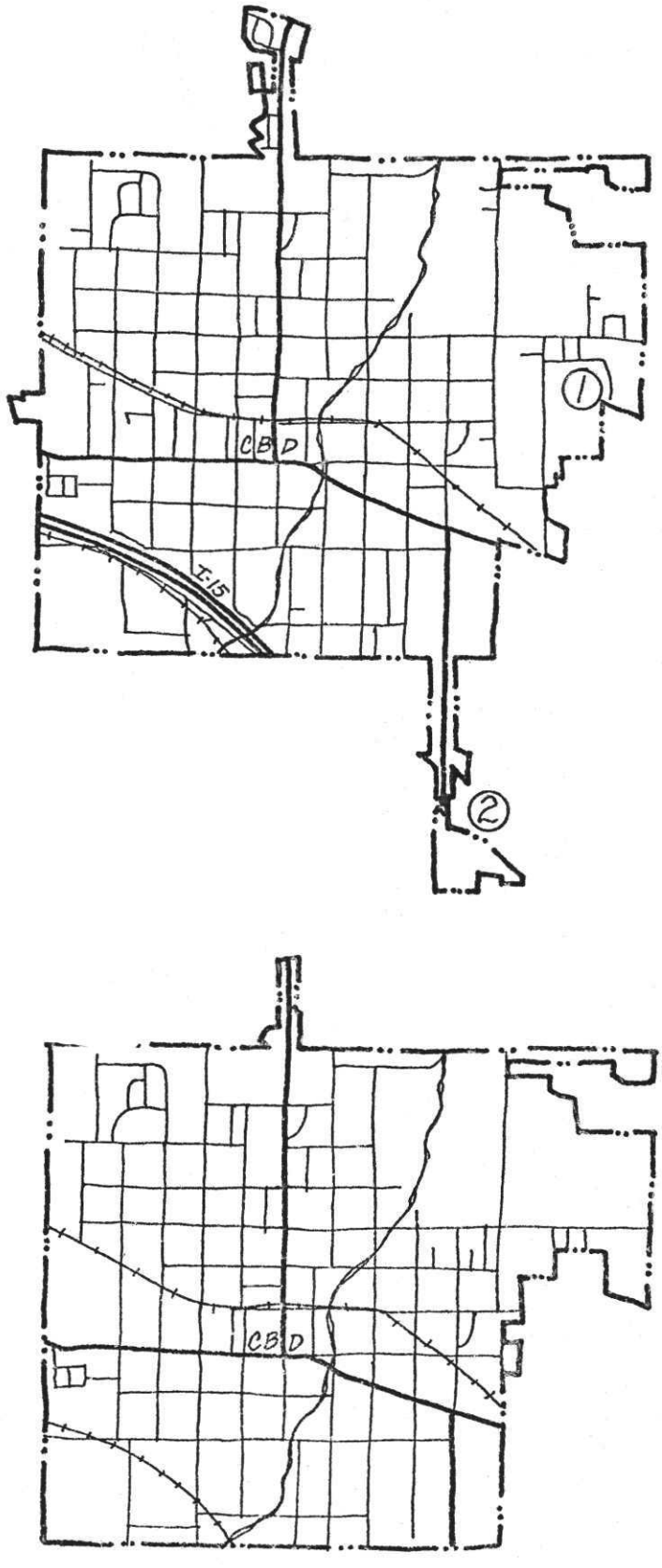


Figure 8. City Boundary and Street Pattern of American Fork City, Utah, 1960 and 1970

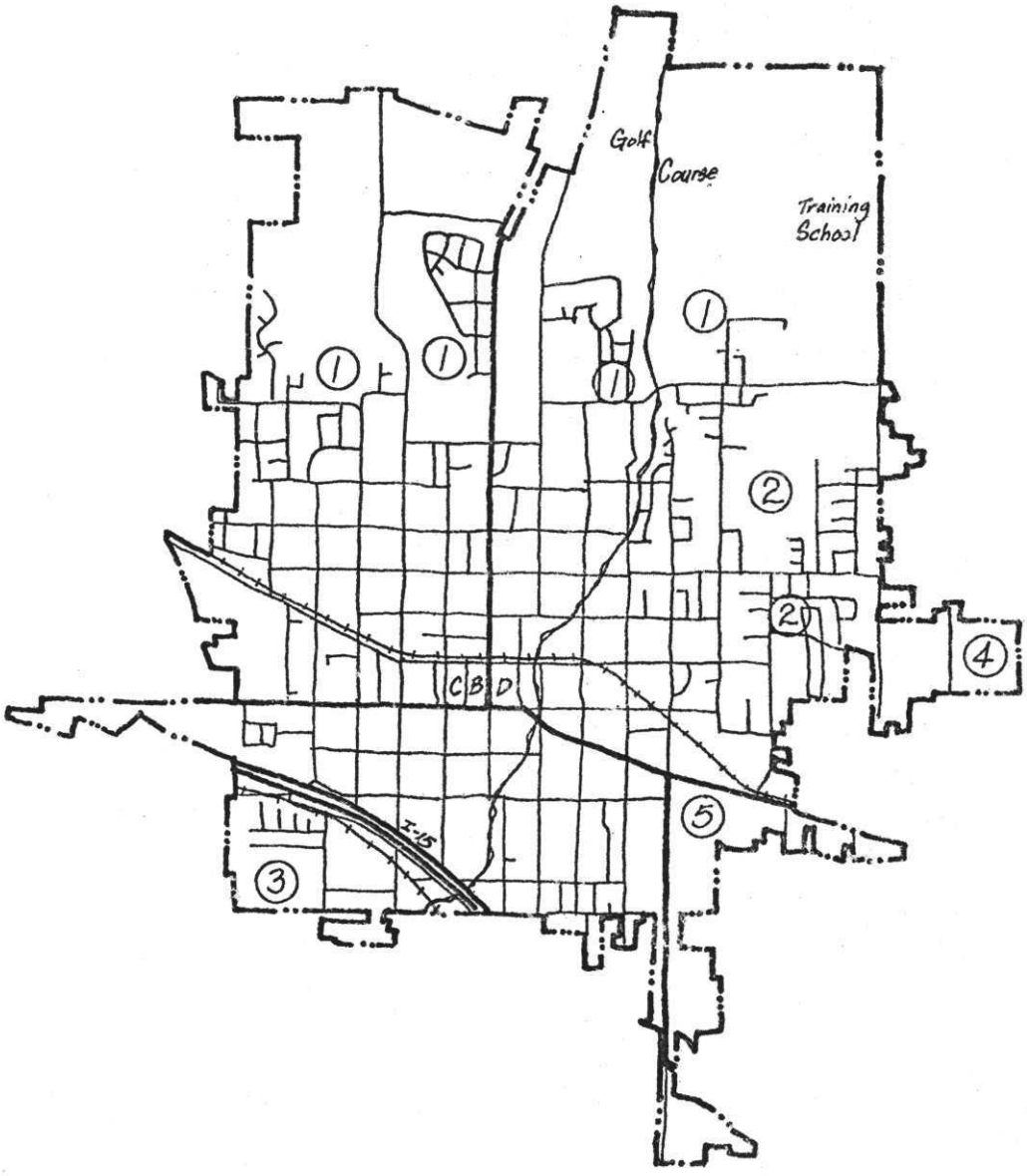


Figure 9. City Boundary and Street Pattern of American Fork City, Utah, 1980

American Fork actually had six subdivisions before 1950, with eight more being added before the 1960's. During the 1960's, growth expanded the city boundaries to the north and east (see Number 1, Figure 8). A linear annexation (see Number 2, Figure 8) also took place toward Interstate 15 for commercial and industrial purposes.

During the 1970's, growth continued to the north and east (see Numbers 1 and 2, Figure 9). Numerous subdivisions (approximately 78 out of 110 total) were recorded, and the population grew by 56 percent to 12,000 during this time.

Some southern expansion occurred southwest of I-15 (see Number 3, Figure 9) providing over 80 new homes. Other expansions (see Number 4, Figure 9) were for a new hospital on the east and along the old highway to the southeast (see Number 5, Figure 9) for commercial centers.

Future growth for Amercian Fork should take place to the northwest and to the east. The eastern growth has the greatest possibility. This is especially true if Cedar Hills disincorporates and annexes to American Fork on the northeast. Common water lines and sewer lines would then open much of the remaining Manila area to rapid urbanization.

Pleasant Grove. Of the northern communities, Pleasant Grove (see Tables 16 and 17, and Figures 10-12) experienced the most dramatic growth of the 70's, increasing from a population of 5,327 in 1970 to 10,669 in 1980. This increase of approximately 100 percent occurred for the most part within boundaries which existed in 1940.

Table 16

PLEASANT GROVE, NUMBER OF SUBDIVISIONS
BY YEAR AND LOCATION

Location	1940-49	1950-54	1955-59	1960-64	1965-69	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
T5S, R2E																
Sec. 17	-	-	-	-	-	-	-	-	-	1*	-	-	-	1*	2	-
18	-	-	-	-	-	-	-	-	-	-	-	-	2*	-	1	-
19	-	-	-	-	-	-	-	-	-	-	-	-	-	1*	1*	1
20	1	3	-	-	-	1	-	-	-	-	3	2	3	1	2	1
21	-	-	-	-	-	1	-	1	4	1	1	7	2	6	2	1
22	-	-	-	-	-	-	-	1	-	1	1	3	3	5	2	-
27	-	-	3	-	1	-	-	1	-	4	-	4	3	4	2	1
28	-	-	1	-	-	-	1	2	-	2	3	-	2	2	1	1
29	-	1	-	-	-	-	1	1	-	-	-	-	-	1	-	-

*County Subdivisions annexed into Pleasant Grove

Table 17

PLEASANT GROVE, OCCUPIED LOTS/APPROVED LOTS
BY YEAR AND LOCATION

Location	1940-49	1950-54	1955-59	1960-64	1965-69	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
T5S, R2E																
Sec. 17	-	-	-	-	-	-	-	-	-	18*/21	-	-	-	4*/42	10/25	-
18	-	-	-	-	-	-	-	-	-	-	-	-	28*/32	-	1/25	-
19	-	-	-	-	-	-	-	-	-	-	-	-	-	7*/15	2*/3	1/1
20	8/8	43/43	-	-	-	14/15	-	-	-	-	57/58	18/21	7/28	8/8	16/16	6/13
21	-	-	-	-	-	12/18	-	8/11	33/38	8/8	4/4	36/52	25/42	41/146	0/26	-
22	-	-	-	-	-	-	-	10/10	-	5/5	2/2	9/10	26/35	23/71	1/19	-
27	-	-	66/77	-	16/17	-	-	21/23	-	37/37	-	82/106	56/108	9/27	11/31	-
28	-	-	27/29	-	-	-	18/18	25/25	-	19/19	17/17	-	56/57	17/20	-	2/2
29	-	42/42	-	-	-	-	18/18	61/61	-	-	-	-	-	13/20	-	-

*County Subdivisions annexed into Pleasant Grove

Figure 10. City Boundary and Street Pattern of Pleasant Grove City, Utah, 1940 and 1950

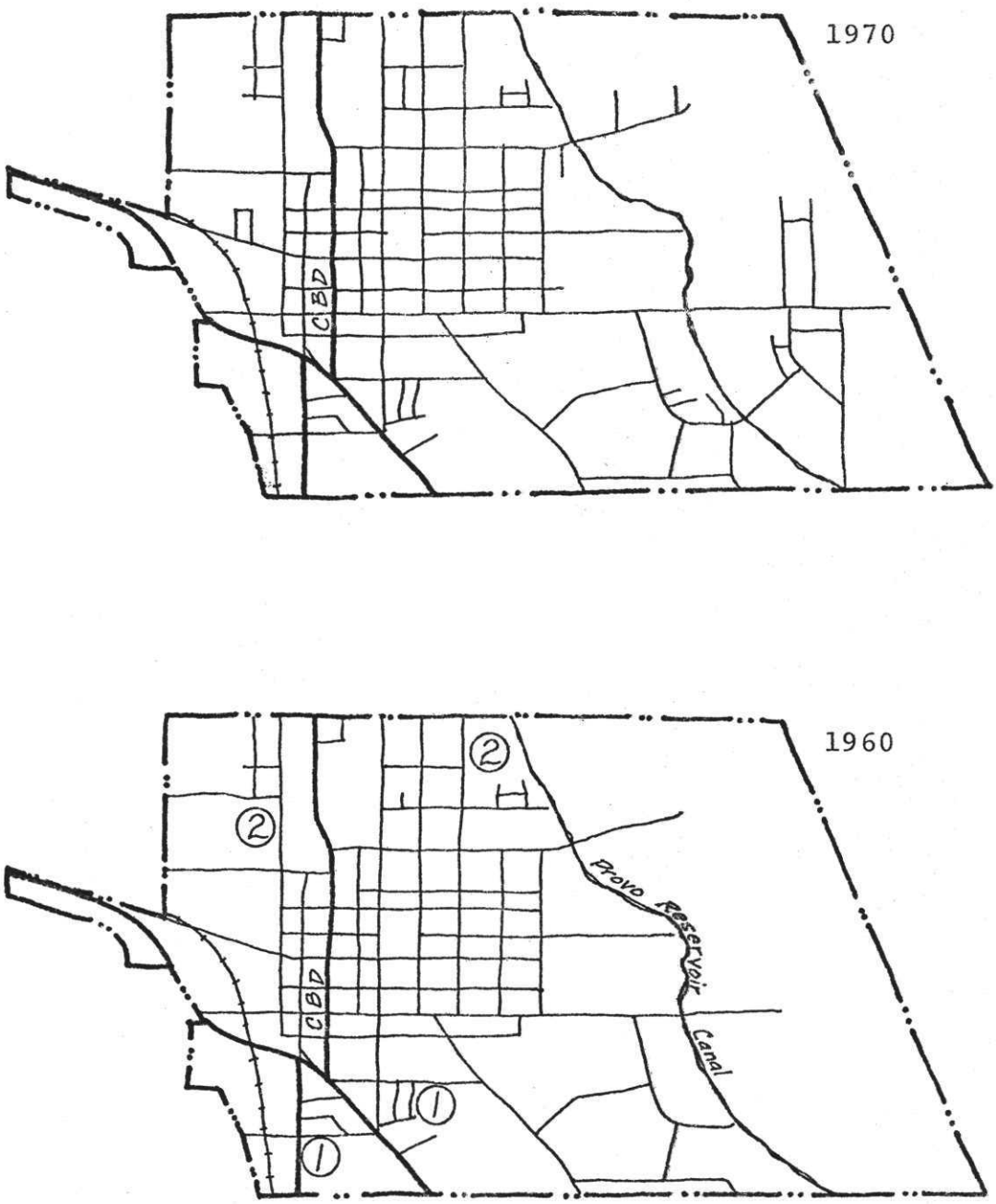


Figure 11. City Boundary and Street Pattern at Pleasant Grove City, Utah, 1960 and 1970

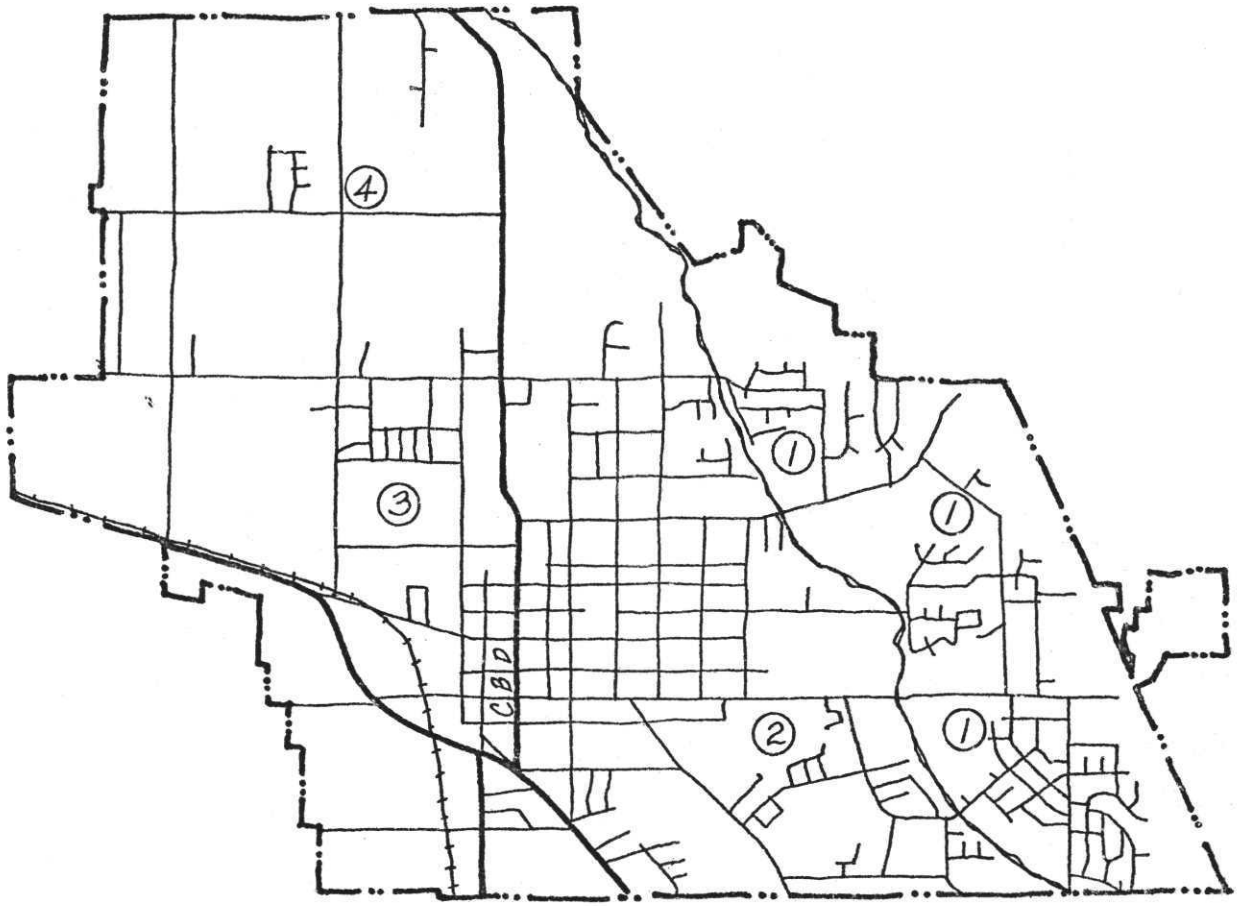


Figure 12. City Boundary and Street Pattern of Pleasant Grove City, Utah, 1980

Like American Fork, Pleasant Grove recorded several subdivisions during the 1950's. These occurred, for the most part, to the south (see Number 1, Figure 11) and to the north (see Number 2, Figure 11) of the original grid of the city.

Later growth during the 60's and 70's began into the foothills east of the city with over 60 percent of the subdivisions occurring east of the Provo Reservoir canal (see Number 1, Figure 12). Other areas of growth during this time were around the high school (see Number 2, Figure 12) where an elementary school and city park have also been built, and to the northwest of the original grid area (see Number 3, Figure 12).

In 1979, a large annexation was made to the north of Pleasant Grove (see Number 4, Figure 12) which took in several existing county subdivisions in the Manila area. This increased Pleasant Grove's population by around 500 people, but it also opened up a large area for future growth in Pleasant Grove. Unless Cedar Hills was to disincorporate and annex into American Fork, Pleasant Grove has reached, for the most part, its ultimate size. Some land may still be annexed to the southwest, but his would most likely be for industrial purposes.

Lindon. Except for the newer post-1970 communities, Lindon (see Tables 18 and 19, and Figures 13 and 14) was one of the three areas in the valley not settled in the common grid pattern. The area was settled mainly by farmers expanding southward from Pleasant Grove.

Table 18

LINDON, NUMBER OF SUBDIVISIONS
BY YEAR AND LOCATION

Location	1975	1976	1977	1978	1979	1980
T5S, R2E						
Sec. 28	-	-	2	1	-	-
29	-	-	-	1	-	-
33	-	1	1	2	-	1
34	-	1	1	1	1	-
35	-	-	-	2	4	-
T6S, R2E						
Sec. 4	-	-	-	2	-	-

Table 19

LINDON, OCCUPIED LOTS/APPROVED LOTS
BY YEAR AND LOCATION

Location	1975	1976	1977	1978	1979	1980
T5S, R2E						
Sec. 28	-	-	26/34	2/4	-	-
29	-	-	-	11/17	-	-
33	-	7/13	6/18	13/35	-	3/20
34	-	31/36	7/10	6/16	0/19	-
35	-	-	-	19/40	2/67	-
T6S, R2E						
Sec. 4	-	-	-	0/28	-	-

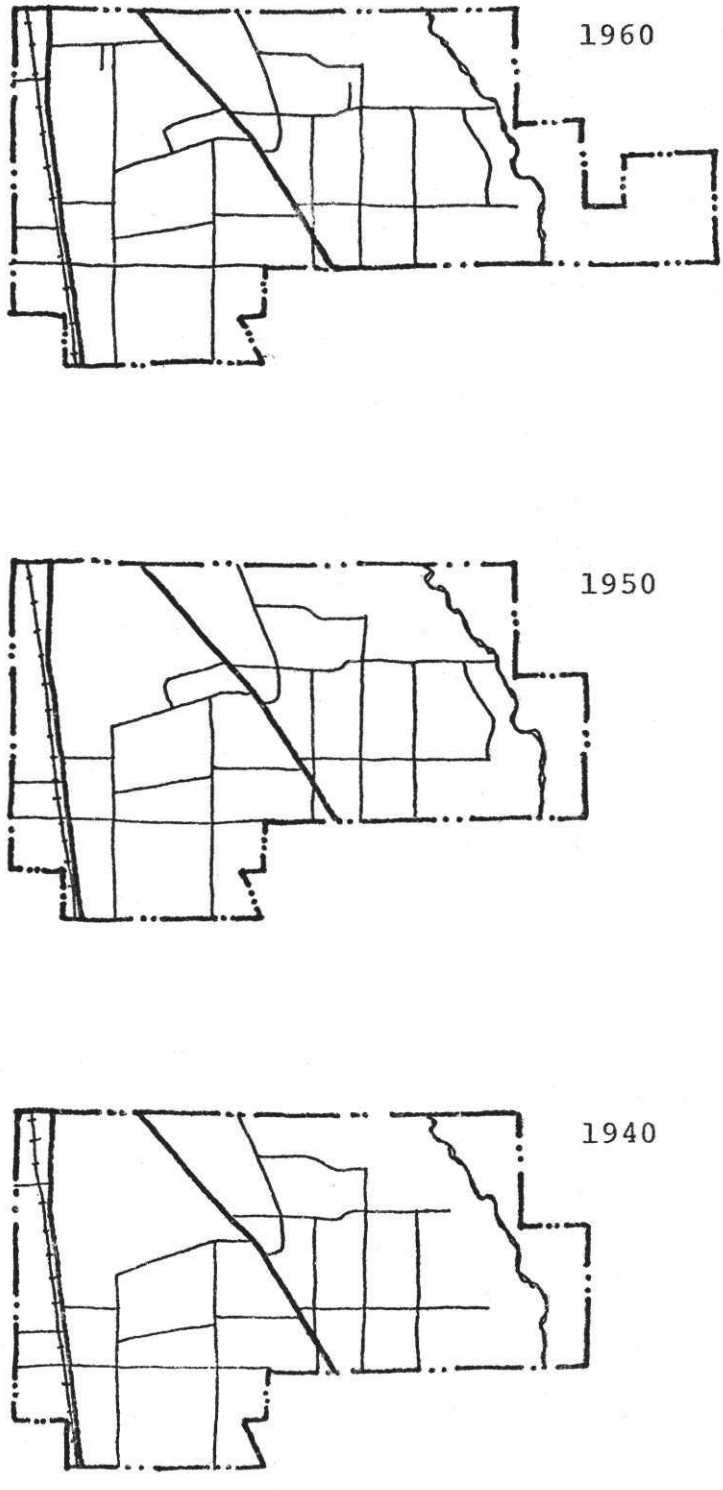


Figure 13. City Boundary and Street Pattern of Lindon City, Utah, 1940, 1950, and 1960

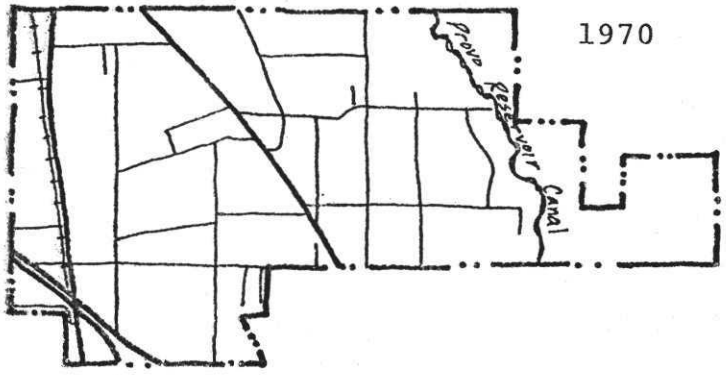


Figure 14. City Boundary and Street Pattern of Lindon City, Utah, 1970 and 1980

Due to the local desire to keep the area rural, population growth has been slow even though the area exists between two of the fastest growing communities in the county. Lindon's growth during the 1970's was the lowest of any community in the northern area of the county.

Even though the growth has been slow, signs of activity did occur during the latter half of the 1970's. Major annexations were made to the west and east and all of Lindon's 21 subdivisions were recorded during this time. Except for some development in the foothills (see Number 1, Figure 14), annexation to the east was made to protect spring areas. Annexations to the west were primarily for industrial purposes.

Future residential growth should occur, for the most part, in the areas of the city which existed prior to the 1970 annexations. If an industrial base is established to the west, growth could occur much more rapidly than in the past.

Cedar Hills. Cedar Hills (see Tables 20 and 21, and Figure 15) is the newest community in the northern area, having been incorporated in October of 1977. At the time of incorporation, the community consisted of about 120 people in 30 homes. The population from the 1980 preliminary figures lists the present population as 575 in 139 housing units.

Cedar Hills, in the years following incorporation, has annexed land mostly to the southeast which has more than doubled their original land size. One annexation which was

Table 20

CEDAR HILLS, NUMBER OF SUBDIVISIONS
BY YEAR AND LOCATION

Location	1940-74	1975	1976	1977	1978	1979	1980
T5S, R2E							
Sec. 6	-	1	2	2	5	-	-
8	-	1	-	-	-	-	-

Table 21

CEDAR HILLS, OCCUPIED LOTS/APPROVED LOTS
BY YEAR AND LOCATION

Location	1940-74	1975	1976	1977	1978	1979	1980
T5S, R2E							
Sec. 6	-	50/74	18/35	18/50	0/89	-	-
8	-	7/10	-	-	-	-	-

Table 22

HIGHLAND, NUMBER OF SUBDIVISIONS
BY YEAR AND LOCATION

Location	1940-54	1955-59	1960-64	1965-69	1970-74	1975	1976	1977	1978	1979	1980
T4S, R1E											
Sec. 26	-	-	-	-	-	-	-	-	1	-	1
34	-	-	-	-	-	-	-	1	-	-	-
35	-	-	-	1	-	1	4	5	3	1	-
36	-	1	1	1	4	-	3	2	1	-	-
T4S, R2E											
Sec. 31	-	-	-	-	1	-	-	-	-	1	-
T5S, R1E											
Sec. 1	-	-	-	-	-	-	-	3	1	1	1
2	-	-	-	-	1	-	-	1	-	-	-
3	-	-	-	-	2	-	1	-	-	-	-

Table 23

HIGHLAND, OCCUPIED LOTS/APPROVED LOTS
BY YEAR AND LOCATION

Location	1940-54	1955-59	1960-64	1964-69	1970-74	1975	1976	1977	1978	1979	1980
T4S, R1E											
Sec. 26	-	-	-	-	-	-	-	-	2/7	-	1/8
34	-	-	-	-	-	-	-	20/41	-	-	-
35	-	-	-	7/8	-	8/8	37/52	48/74	14/33	13/16	-
36	-	18/42	8/14	17/19	58/76	-	23/23	15/24	1/1	-	-
T4S, R2E											
Sec. 31	-	-	-	-	16/17	-	-	-	-	2/51	-
T5S, R1E											
Sec. 1	-	-	-	-	-	-	-	30/90	1/40	1/21	0/10
2	-	-	-	-	28/30	-	-	24/25	-	-	-
3	-	-	-	-	15/21	-	17/19	-	-	-	-

Table 24

MANILA, NUMBER OF SUBDIVISIONS
BY YEAR AND LOCATION

Location	1940-64	1965-69	1970-74	1975	1976	1977	1978	1979	1980
T5S, R1E									
Sec. 2	-	-	-	-	-	1	2	-	-
T5S, R2E									
Sec. 5	-	-	1	-	-	-	-	-	-
6	-	-	-	-	-	-	3	1	-
7	-	1	-	-	-	-	-	-	-
8	-	-	-	-	-	-	-	1	-
18	-	2	-	-	-	-	-	-	-

Table 25

MANILA, OCCUPIED LOTS/APPROVED LOTS
BY YEAR AND LOCATION

Location									
T5S, R1E									
Sec. 2	-	-	-	-	-	$\frac{6}{6}$	$\frac{19}{41}$	-	-
T5S, R2E									
Sec. 5	-	-	$\frac{4}{5}$	-	-	-	-	-	-
6	-	-	-	-	-	-	$\frac{28}{97}$	$\frac{7}{8}$	-
7	-	$\frac{6}{6}$	-	-	-	-	-	-	-
8	-	-	-	-	-	-	-	$\frac{4}{4}$	-
18	-	$\frac{11}{17}$	-	-	-	-	-	-	-

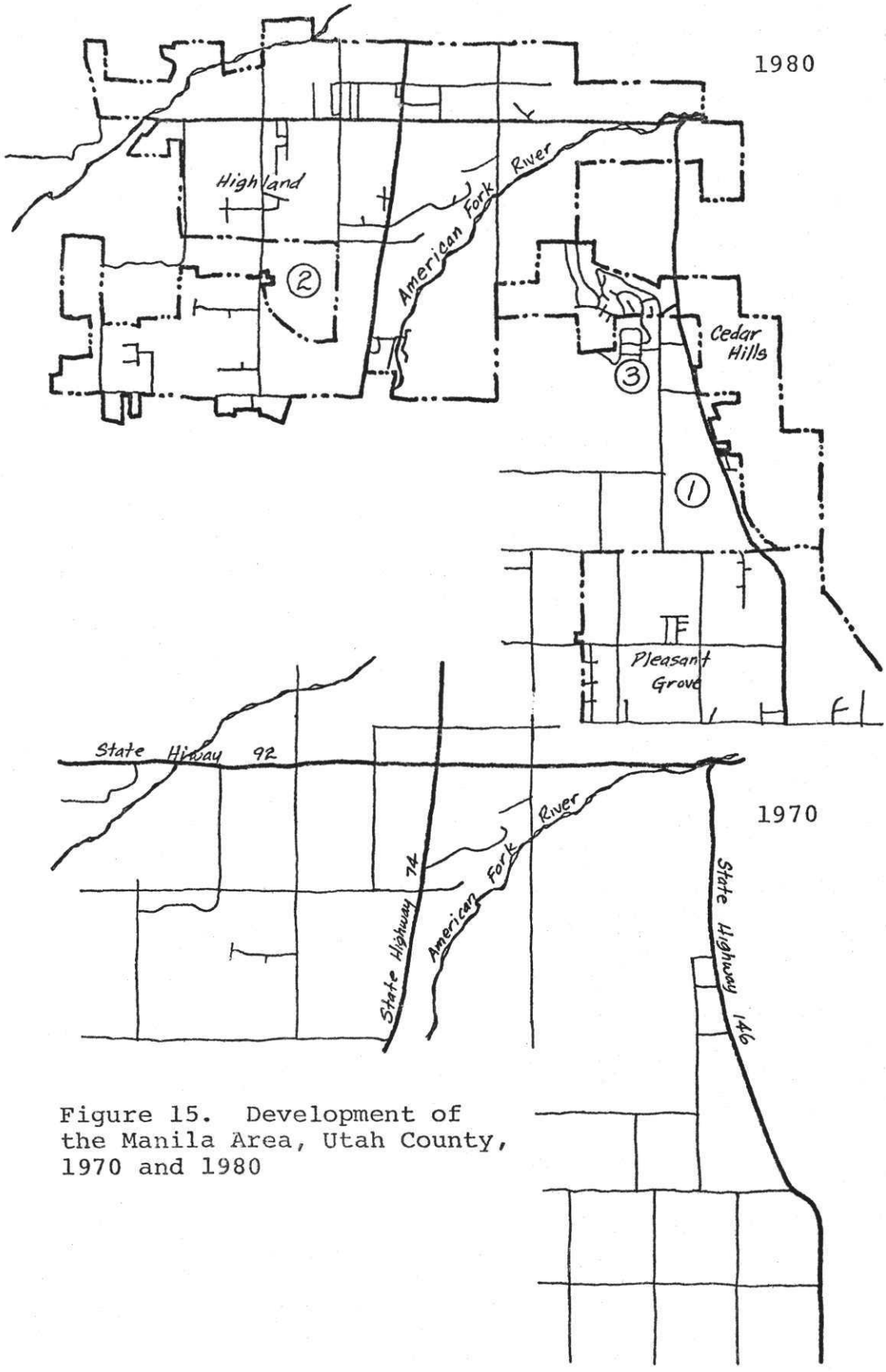


Figure 15. Development of the Manila Area, Utah County, 1970 and 1980

made southward into the Manila area is under challenge and is presently before the State Supreme Court (see Number 1, Figure 15).

Present problems mainly with city finances has caused the city to reconsider its incorporation. Future alternatives being considered include disincorporation, annexation to American Fork, annexation to Pleasant Grove, or remaining as is. If Cedar Hills remains incorporated, its future growth will most likely occur in the foothills along the eastern side of the town. Further growth may also include that area of Manila presently in litigation.

Highland. Highland (see Tables 22 and 23, and Figure 15) was incorporated in July of 1977. The incorporation and subsequent annexations have taken in many previously developed county subdivisons. The area also takes in the greater part of the Highland Water Company.

The major reason for incorporation of Highland was to preserve the large lot density of the area. Newer county regulations would have allowed for developments on quarter acre lots whereas past developments had been on lots at least one acre in size.

Future growth should occur within the present corporate limits. Future annexations will most likely include the peninsula of county land existing in the southwest portion of the town (see Number 2, Figure 15).

Manila. Due to the basic wall to wall condition of the community boundaries in the northern area, the only true county residential area is that at Manila (see Tables 24 and 25, and Figure 15). The Manila area is completely surrounded by communities with American Fork and Highland on its west, Cedar Hills on its north and east, and Pleasant Grove on its south.

In the recent past, this area was the major area of unincorporated county subdivision growth. The 1979 Pleasant Grove annexation took in most of the area which contained the county subdivisions. One remaining area bordering Cedar Hills (see Number 3, Figure 15) contains over 100 lots with about 30 homes presently existing there.

Future growth in the area should continue even with the undecided future of Cedar Hills. If Cedar Hills were to disincorporate, development would most likely continue in this area because of its water system. If Cedar Hills annexes to American Fork or Pleasant Grove, the remaining Manila area would likely be included within that annexation and develop within its new boundaries.

Central Area

Orem. Orem (see Tables 26 and 27, and Figures 16-20), since 1940, has changed quickly from a rural type community to one of rapid urban growth. Much of the impetus for the original surge of growth was supplied from the Geneva Steel plant which located directly to the west of the city.

Table 26

OREM, NUMBER OF SUBDIVISIONS
BY YEAR AND LOCATION

Location	1940-44	1945-49	1950-54	1955-59	1960-64	1965-69	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
T6S, R2E																	
Sec. 2	-	-	-	1	-	-	-	-	-	-	-	2	-	7	6	4	-
3	-	2	-	-	-	-	-	1	4	2	2	7	10	15	11	3	6
4	-	-	-	-	-	-	-	-	2	2	3	4	1	4	3	4	1
9	-	1	5	-	-	-	1	-	-	1	1	-	11	5	8	2	2
10	2	-	2	4	-	1	2	3	-	2	2	4	6	5	11	5	1
11	3	2	4	7	2	3	6	5	13	9	5	8	7	11	5	3	-
12	-	-	-	-	-	-	-	1	3	12	14	7	4	5	1	4	1
13	-	-	-	-	-	6	2	-	-	-	1	-	2	3	8	1	3
14	-	3	2	10	7	13	5	7	10	6	4	-	7	-	3	5	-
15	2	-	2	3	-	3	2	1	3	1	3	1	2	1	7	3	5
16	-	1	-	1	-	-	-	-	-	-	8	3	5	9	6	1	-
20	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1	-
21	-	-	1	-	-	-	1	1	-	1	2	1	1	1	2	1	1
22	-	1	-	7	-	3	1	4	11	1	5	4	6	3	7	4	3
23	1	-	6	5	2	9	2	-	2	5	5	4	6	2	4	1	-
24	-	-	-	-	2	1	-	-	-	-	-	3	2	4	1	1	1
25	-	-	-	-	1	1	-	-	-	-	-	-	-	-	1	-	-
26	-	6	2	7	5	9	1	2	3	4	-	1	4	2	1	-	-
27	-	1	-	1	-	5	-	-	1	4	2	5	6	5	5	2	6
35	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-

Table 27

OREM, NUMBER OF SUBDIVISIONS
BY YEAR AND LOCATION

Location	Average No. of Lots
T6S, R2E	
Sec. 2	26
3	13
4	13
9	14
10	17
11	14
12	10
13	16
14	15
15	17
16	16
20	54
21	17
22	15
23	15
24	17
25	39
26	19
27	11
35	20

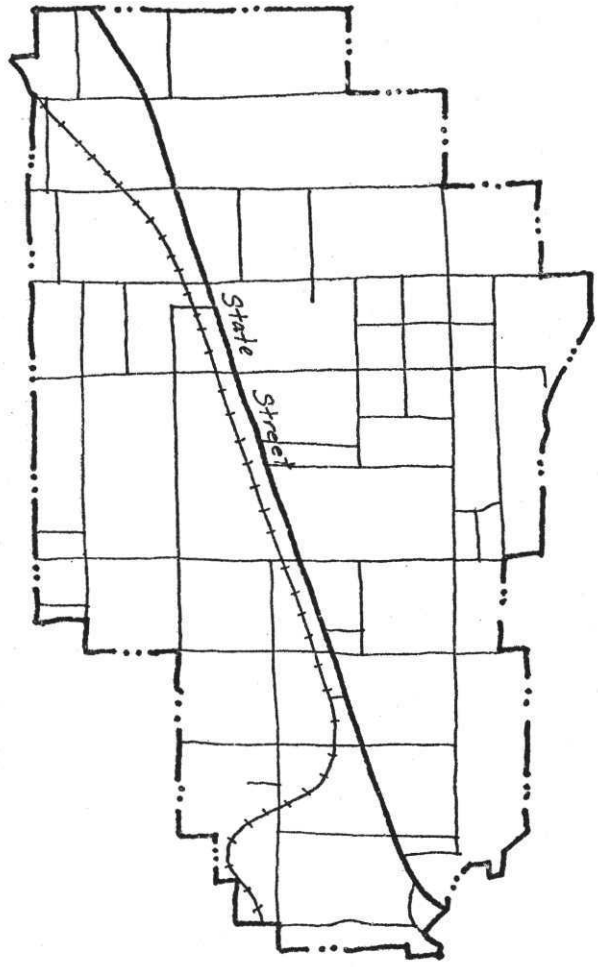


Figure 16. City Boundary and Street Pattern of Orem City, Utah, 1940

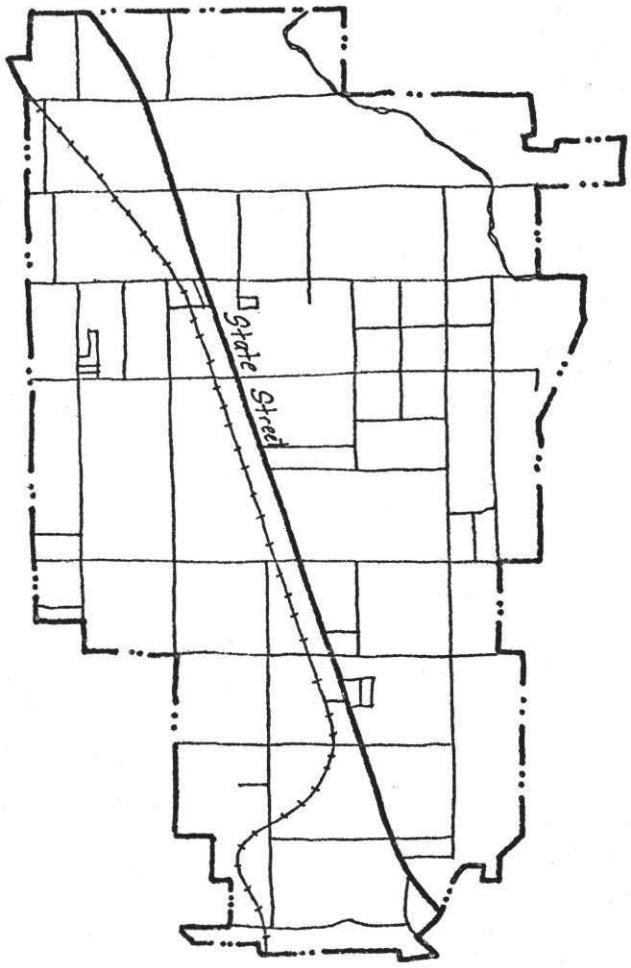


Figure 17. City Boundary and Street Pattern of Orem City, Utah, 1950

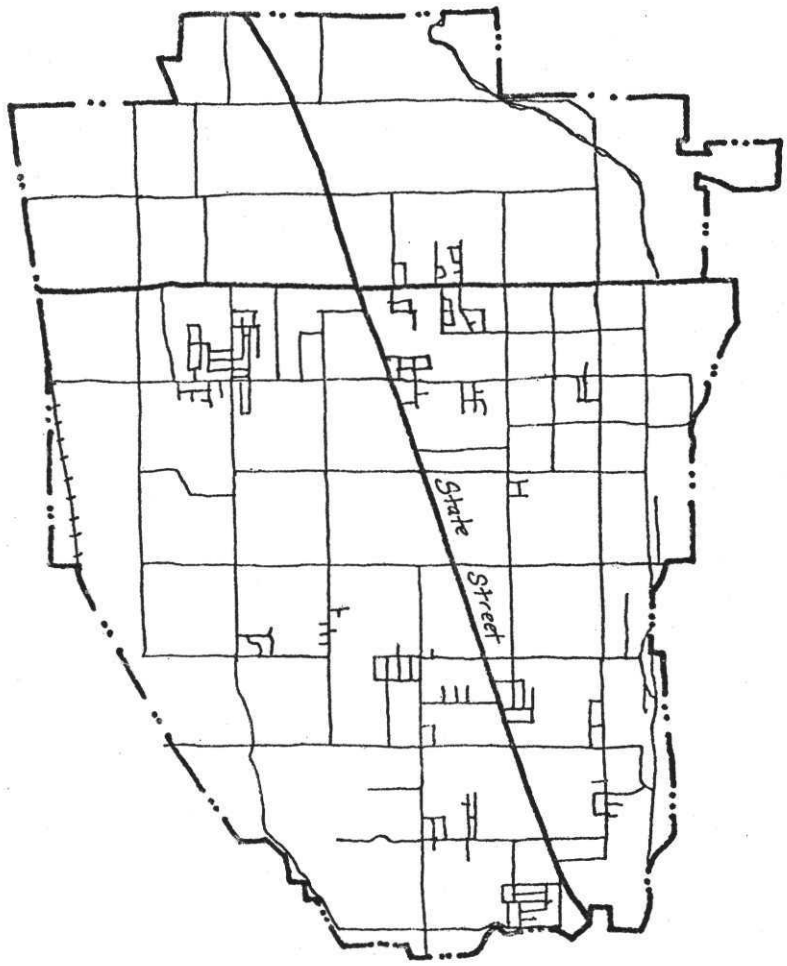


Figure 18. City Boundary and Street Pattern of Orem City, Utah, 1960

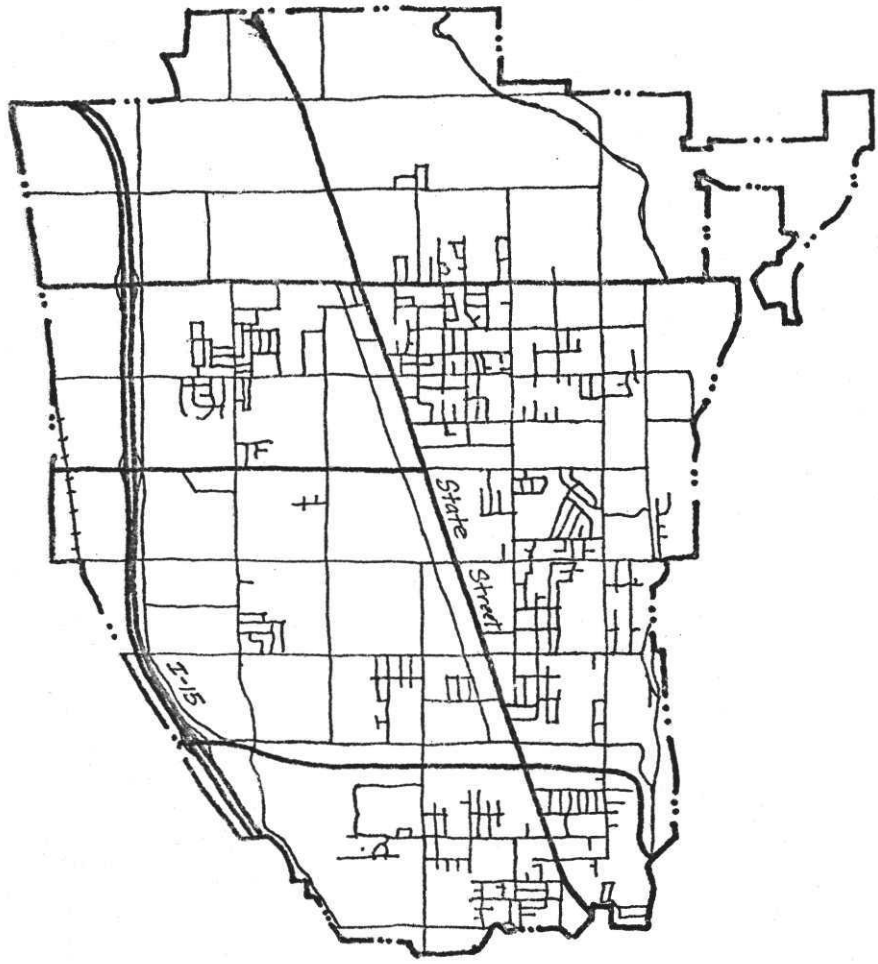


Figure 19. City Boundary and Street Pattern of Orem City, Utah, 1970

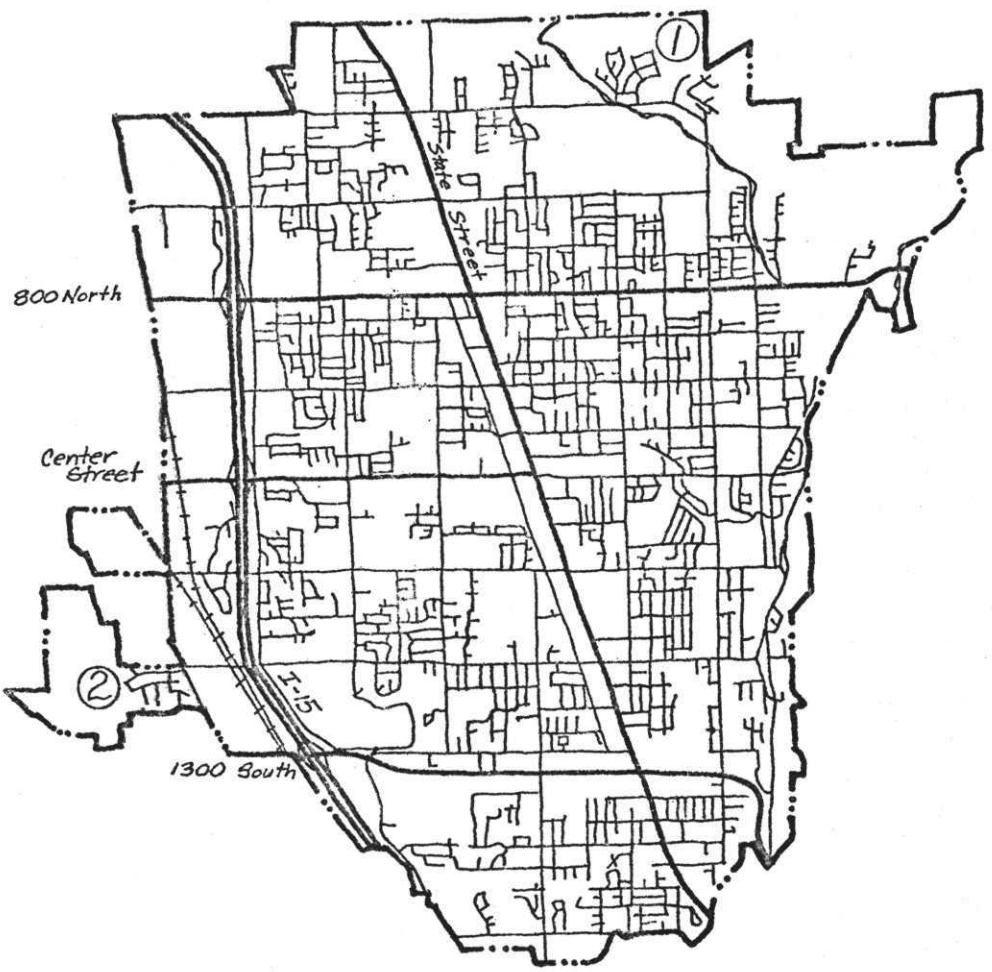


Figure 20. City Boundary and Street Pattern of Orem City, Utah, 1980

Due to the large development of orchard lands and other farm ground within the city limits, Orem's subdivision growth is dispersed somewhat haphazardly throughout the city. With Orem having no real city center area, growth is occurring, for the most part, where land can be obtained for the least cost.

Orem's greatest amount of growth, as with the other cities of the valley, occurred during the period of the 1970's. During this time, the city population more than doubled to its 1980 size of 52,399.

Growth in Orem was especially intense during the latter half of the 1970's. George Shaw, in his paper on Orem land use in 1975, lists the developed acreage as 40.5 percent of the total area of the city. Since that time, residential area alone has increased from 9,720 residential units to over 14,800. Noticeable changes occurred in the area north of 800 North (1,387 units to 3,144 units), the area west of State Street between Center Street and 1300 South (1,617 units to 2,857 units), and the area east of State Street between 800 North and Center Street (1,731 units to 2,534 units).

For the first time in Orem City's history, additional land was annexed for residential growth. This occurred in the foothills, northeast of the city (see Number 1, Figure 20) and in agricultural land west of the city (see Number 2, Figure 20).

Future growth in Orem will most likely continue in much the same manner as in the past with vacant and orchard areas being filled in by subdivisions. Residential annexations may occur in the agricultural area to the west if present development there proves successful.

Provo. Provo (see Tables 28 and 29, and Figures 21-25) was the first community settled, and it has always been the largest in terms of population. Many reasons can be given for its dominant position in the valley. Layton refers to some of them as: (1) Provo was the local headquarters for the Mormon Church; (2) Provo is the county seat; (3) Provo has the largest supply of both culinary and agricultural water; (4) Brigham Young University's size and influence on growth; and (5) Provo's relatively early industry as characterized by the Ironton Plant (Layton, 1962:139).

In terms of low density residential growth, Provo's areas of greatest development have been toward the higher ground of the bench areas. This is true as far back as 1940 when new developments tended to be located to the east of the existing city (see Number 1, Figure 21) and away from the lower agricultural lands to the southwest.

As Brigham Young University grew (see Number 1, Figure 23), so did the subdivisions in its neighborhood (see Number 2, Figure 23). The growth to the north began to take in the Edgemont area which, prior to annexation by Provo, was the leading area of growth in the unincorporated county.

Table 28

PROVO, NUMBER OF SUBDIVISIONS
BY YEAR AND LOCATION (NORTH HALF)

Location	1940-44	1945-49	1950-54	1955-59	1960-64	1965-69	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
T6S, R2E																	
Sec. 13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
24	-	-	-	-	-	-	-	-	-	-	1	-	-	-	4	2	1
25	-	-	-	-	-	9	1	1	-	2	-	-	-	-	2	-	-
34	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
35	-	1	-	4	6	8	3	7	8	3	7	3	4	3	4	4	1
36	1	5	3	5	1	-	1	-	-	1	1	1	1	2	1	4	1
T6S, R3E																	
Sec. 18	-	-	-	4	1	3	-	-	1	1	1	-	-	1	2	-	-
19	-	-	4	3	4	8	-	4	2	1	1	2	5	6	1	3	-
20	-	-	-	-	1	1	1	-	-	1	-	1	-	1	-	-	-
29	-	-	-	1	1	1	1	-	-	-	-	2	-	-	-	1	-
30	-	1	7	13	8	8	2	2	1	2	4	2	3	3	6	-	-
31	-	2	4	3	3	-	-	-	-	-	-	-	-	1	-	2	1
32	-	1	1	4	2	6	-	1	2	-	-	-	1	3	1	2	-

Table 29

PROVO, NUMBER OF SUBDIVISIONS
BY YEAR AND LOCATION (SOUTH HALF)

Location	1940-44	1945-49	1950-54	1955-59	1960-64	1965-69	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
T7S, R2E																	
Sec. 1	5	1	-	-	-	-	-	-	-	1	-	-	1	-	-	1	-
2	2	-	-	9	2	4	1	1	-	2	-	-	1	5	2	2	-
3	-	1	-	-	-	-	-	-	-	-	-	1	4	5	4	-	-
10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
11	-	-	-	-	-	1	-	1	1	1	1	2	-	1	1	-	-
12	-	-	-	-	-	-	-	-	2	1	-	1	1	3	3	4	-
13	-	-	-	-	-	-	-	-	-	2	-	4	-	3	6	2	-
T7S, R3E																	
Sec. 5	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6	8	2	1	2	2	-	-	-	-	-	-	-	-	2	-	2	1
7	3	-	-	-	1	-	-	-	-	-	-	-	1	-	-	1	-
8	-	-	-	3	5	3	-	-	1	-	-	-	-	-	1	1	-
17	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	1	-
20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

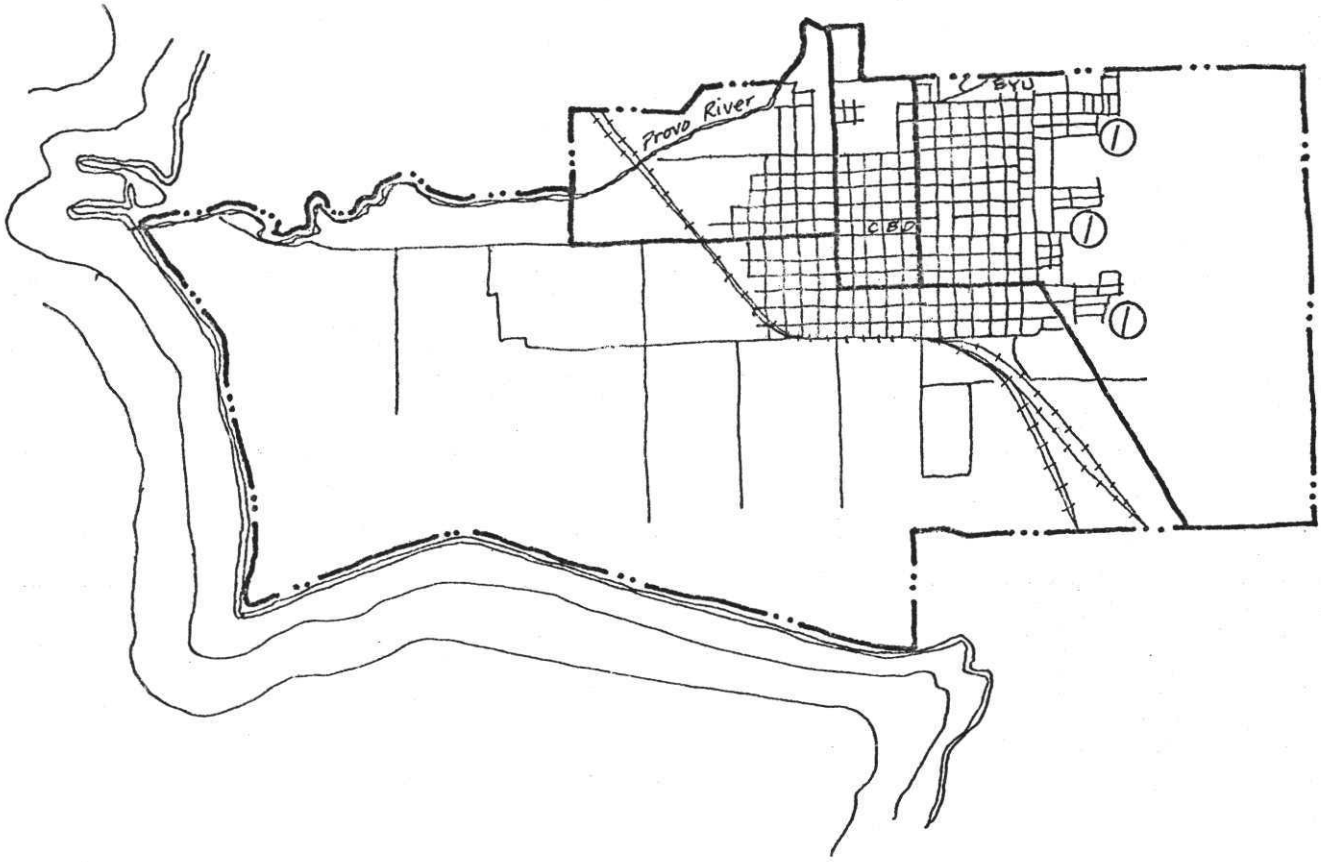


Figure 21. City Boundary and Street Pattern of Provo City, Utah, 1940

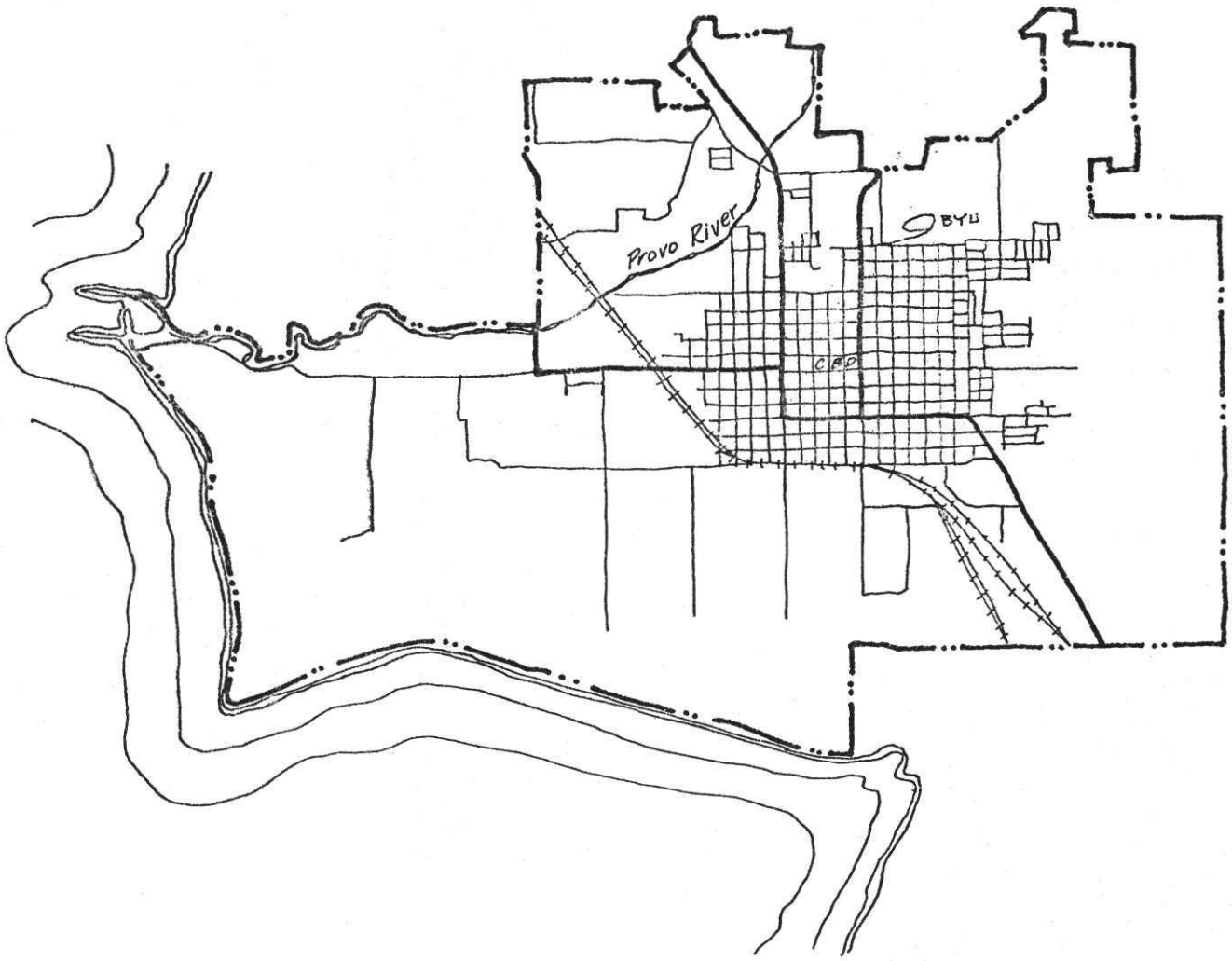


Figure 22. City Boundary and Street Pattern of Provo City, Utah, 1950

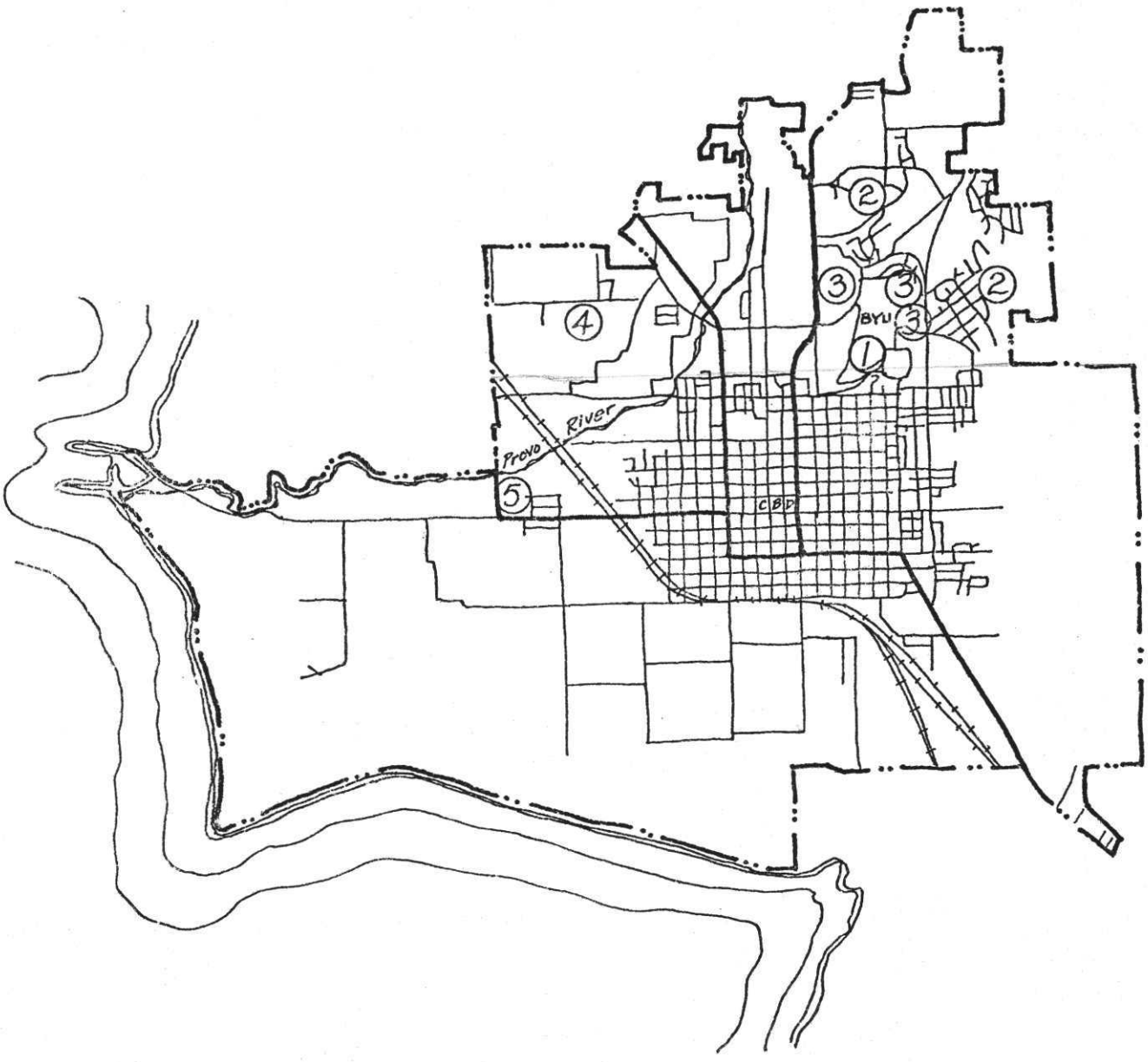


Figure 23. City Boundary and Street Pattern of Provo City, Utah, 1960

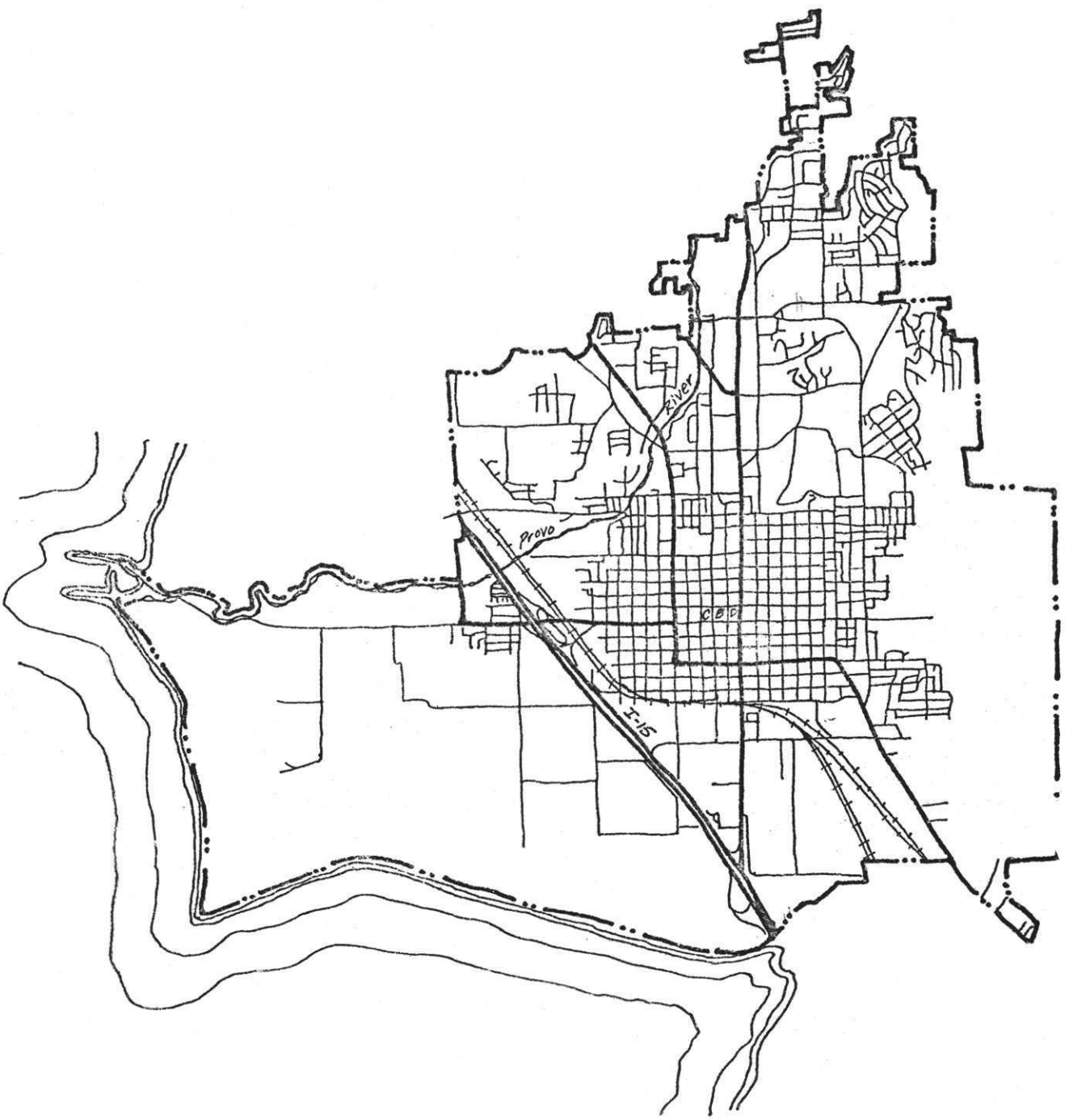


Figure 24. City Boundary and Street Pattern of Provo City, Utah, 1970

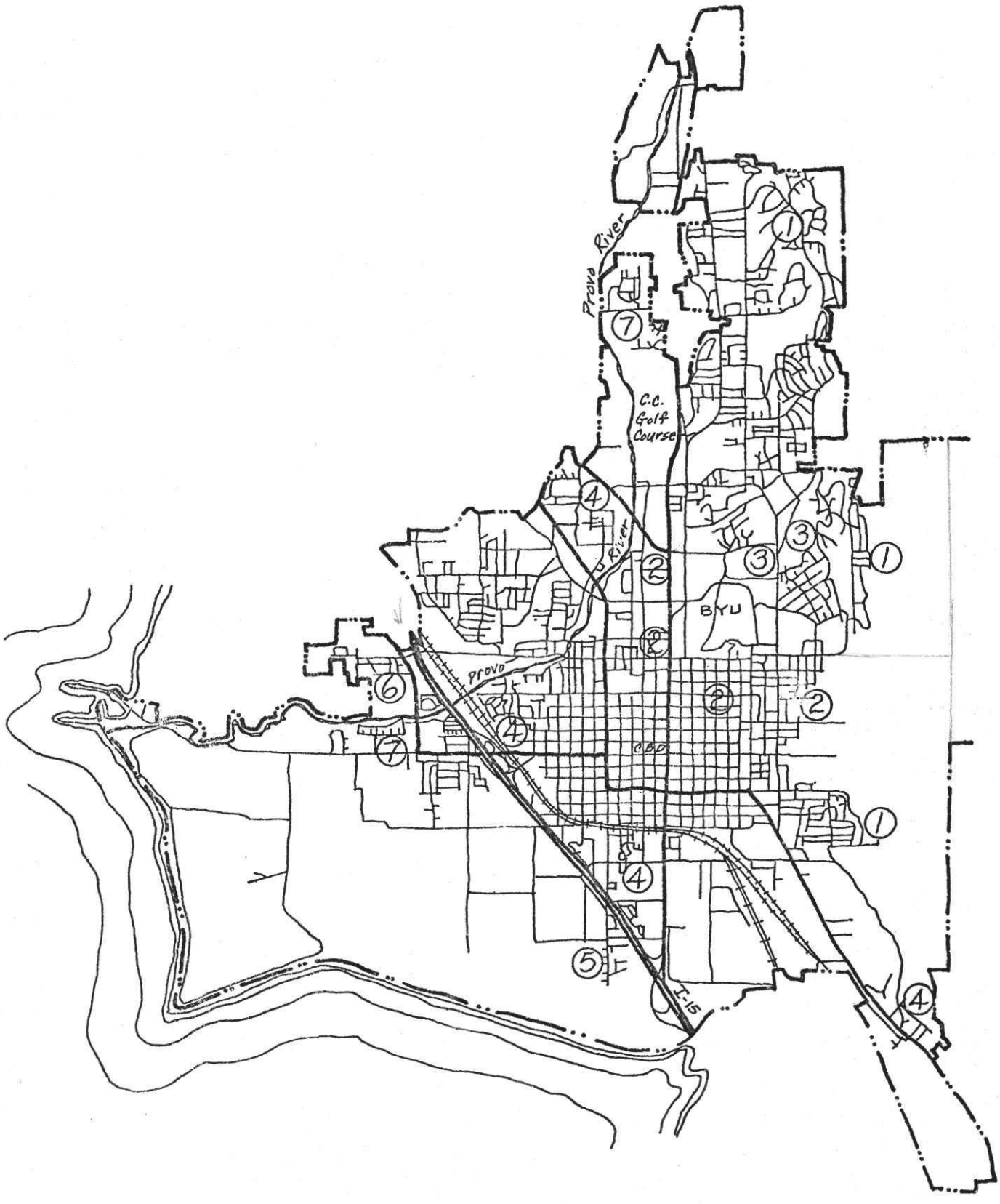


Figure 25. City Boundary and Street Pattern of Provo City, Utah, 1980

Although Edgemont had been developing in the county, the clay content of the soil created many septic problems. This was a major factor of annexation. Pro-annexation areas often corresponded to those areas of tight soil (Layton, 1962:92). Growth also began to occur in the Grandview area on the northwest (see Number 4, Figure 23) and along Center Street to the west (see Number 5, Figure 23).

During the 1950's and 60's, growth was not only occurring in new areas along the foothills; but it was also occurring within the grided section of town near the university. In these sections, higher density units were being built to handle the increase in student population. Brigham Young University also constructed several new dormitories and other student housing during the mid and late 50's as well as into the 60's (see Number 3, Figure 23).

Through the 60's and 70's, patterns that had begun in the earlier decades continued to develop. Growth continued northward taking in the entire Edgemont area and beyond. Higher income residential growth continued to flourish in the foothills (see Number 1, Figure 25).

Higher density growth continued to grow in the B.Y.U. neighborhoods to the west and south (see Number 2, Figure 25) as well as on campus itself where, again, new dorms and married student housing were erected (see Number 3, Figure 25). Multiple-unit housing also developed outside of the B.Y.U. neighborhoods. Areas to the west, south, and southeast of Provo (see Number 4, Figure 25) contain duplexes, four-plexes, and other such higher density dwellings.

New areas of moderately priced single family housing were begun to the south (see Number 5, Figure 25) and to the west (see Number 6, Figure 25). New higher income areas also began to develop along the newly recognized amenity of the Provo River (see Number 7, Figure 25).

Due to Provo City's physically enclosed position, future growth should be confined mostly to its present boundaries. Some development will also likely occur in the remaining county areas between Orem and Provo following their likely annexation into Provo.

Provo's large annexation to the east (not shown) was made to facilitate and control development of a ski area. Plans for the resort call for the establishment of villages in the mountains within the annexation. If the development proceeds as planned, year round housing will be added to the area; but these units will most likely be time-share and, therefore, not provide year round residents.

The higher income areas should continue to develop along the bench and foothill areas as well as in much of the remaining river botton area. Lower income areas may push out more into the higher water table areas to the southwest. Some lower income residential annexation may occur to the west as an extension of newly developed areas.

Southern Area

Springville. Springville (see Tables 30 and 31, and Figures 26-28) is the largest city in the southern valley area.

Table 30

SPRINGVILLE, NUMBER OF SUBDIVISIONS
BY YEAR AND LOCATION

Location	1940-49	1950-54	1955-59	1960-64	1965-69	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
T7S, R3E																
Sec. 28	-	-	2	-	-	-	-	-	-	-	-	-	-	5	-	1
33	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
34	-	-	7	3	2	1	-	3	1	1	1	1	1	1	2	1
35	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T8S, R3E																
Sec. 2	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
3	2	1	1	-	1	-	-	-	-	-	-	2	3	2	3	2
4	-	-	1	-	-	-	-	1	3	-	2	1	1	1	-	1
9	-	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-

Table 31

SPRINGVILLE, OCCUPIED LOTS/APPROVED LOTS
BY YEAR AND LOCATION

Location	1940-49	1950-54	1955-59	1960-64	1965-69	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
T7S, R3E																
Sec. 28	-	-	26/26	-	-	-	-	-	-	-	-	-	-	79/122	-	2/2
33	30/30	-	11/12	-	-	-	-	-	-	-	-	-	-	-	-	-
34	-	-	145/190	33/37	14/17	17/17	-	39/42	9/12	10/10	7/7	11/14	6/11	2/12	18/33	3/3
35	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0/51	-
T8S, R3E																
Sec. 2	-	-	-	-	-	5/7	-	-	-	-	-	-	-	-	-	-
3	182/189	14/18	1/9	-	6/8	-	-	-	-	-	-	15/27	21/32	19/35	20/77	5/27
4	-	-	17/17	-	-	-	-	7/7	20/20	13/13	21/21	-	16/25	1/6	-	1/1
9	-	-	-	-	-	-	-	-	-	-	-	-	-	40/73	-	-

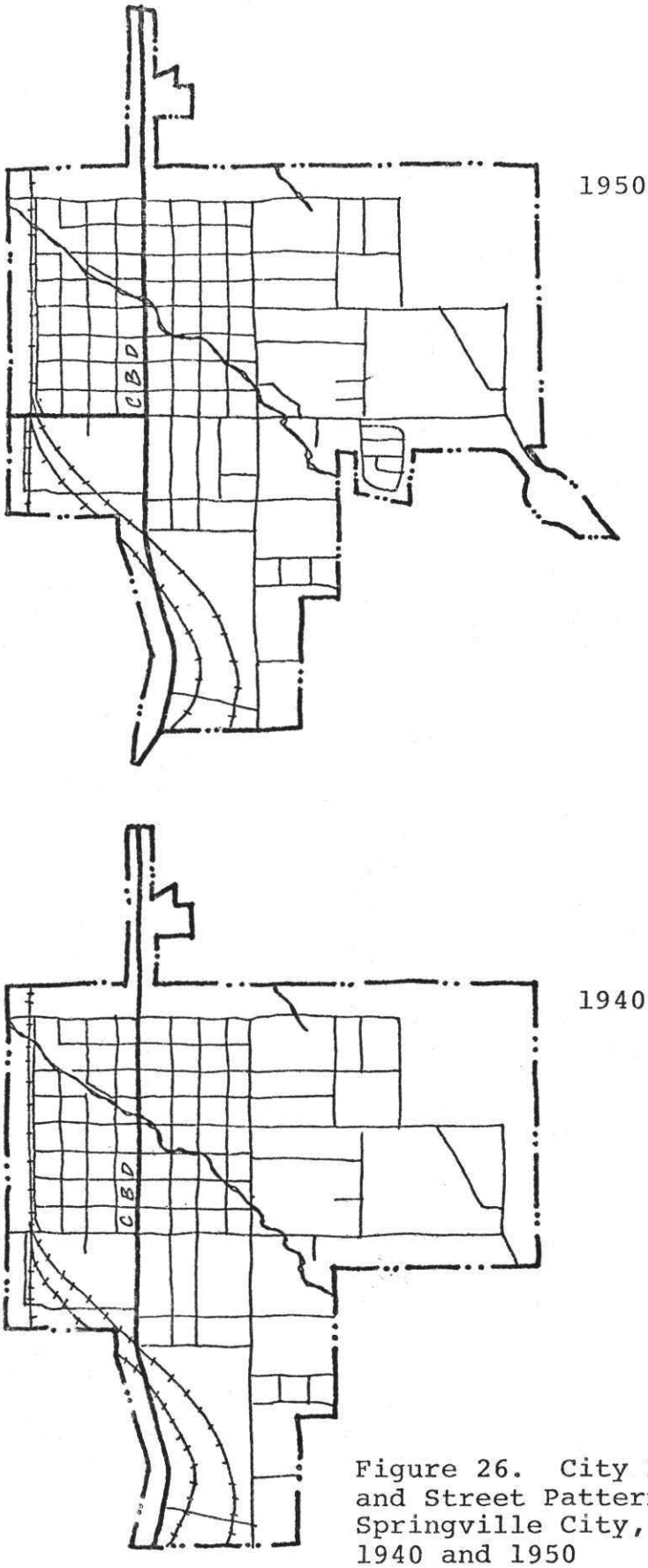


Figure 26. City Boundary and Street Pattern of Springville City, Utah, 1940 and 1950

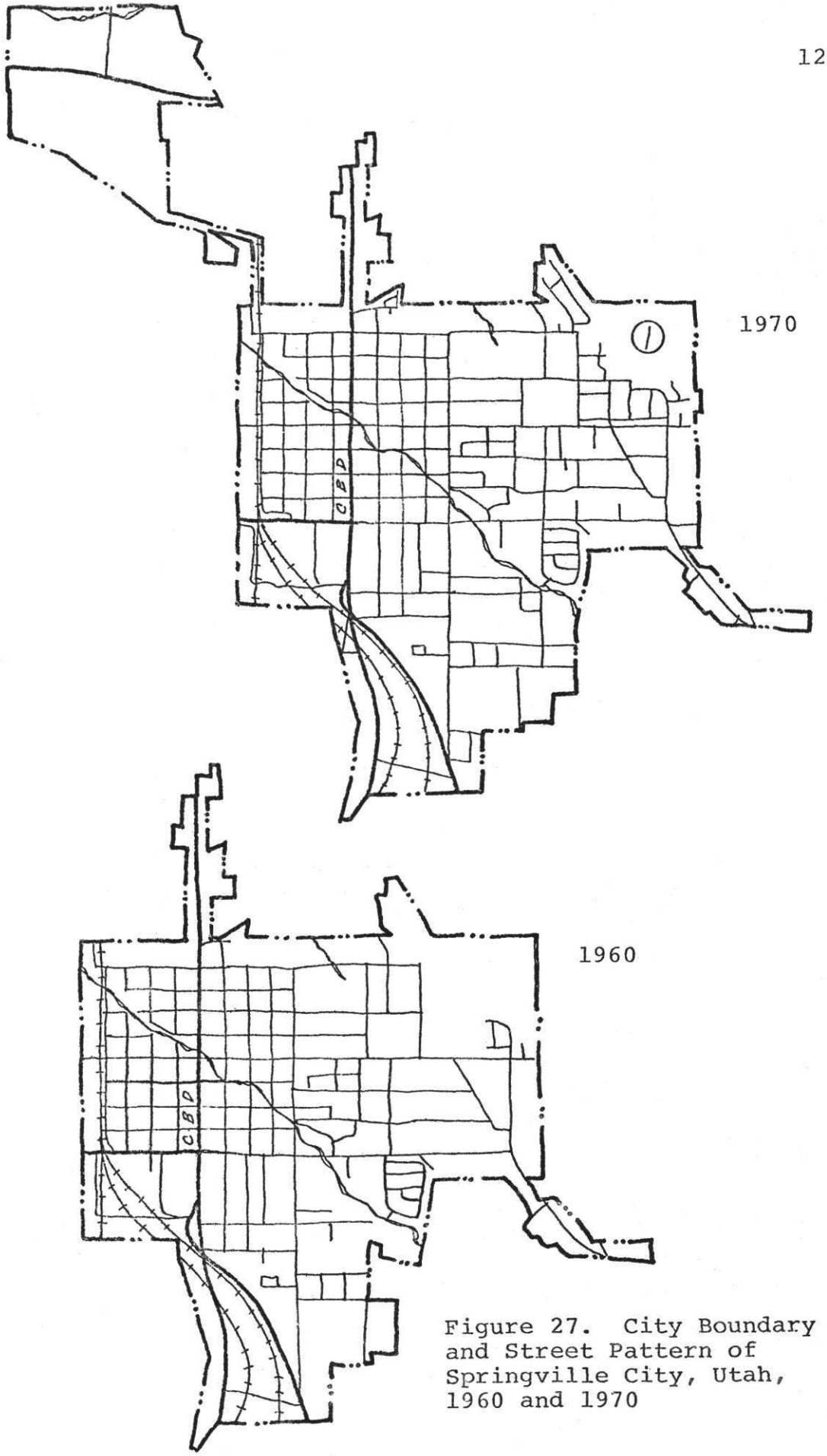


Figure 27. City Boundary and Street Pattern of Springville City, Utah, 1960 and 1970

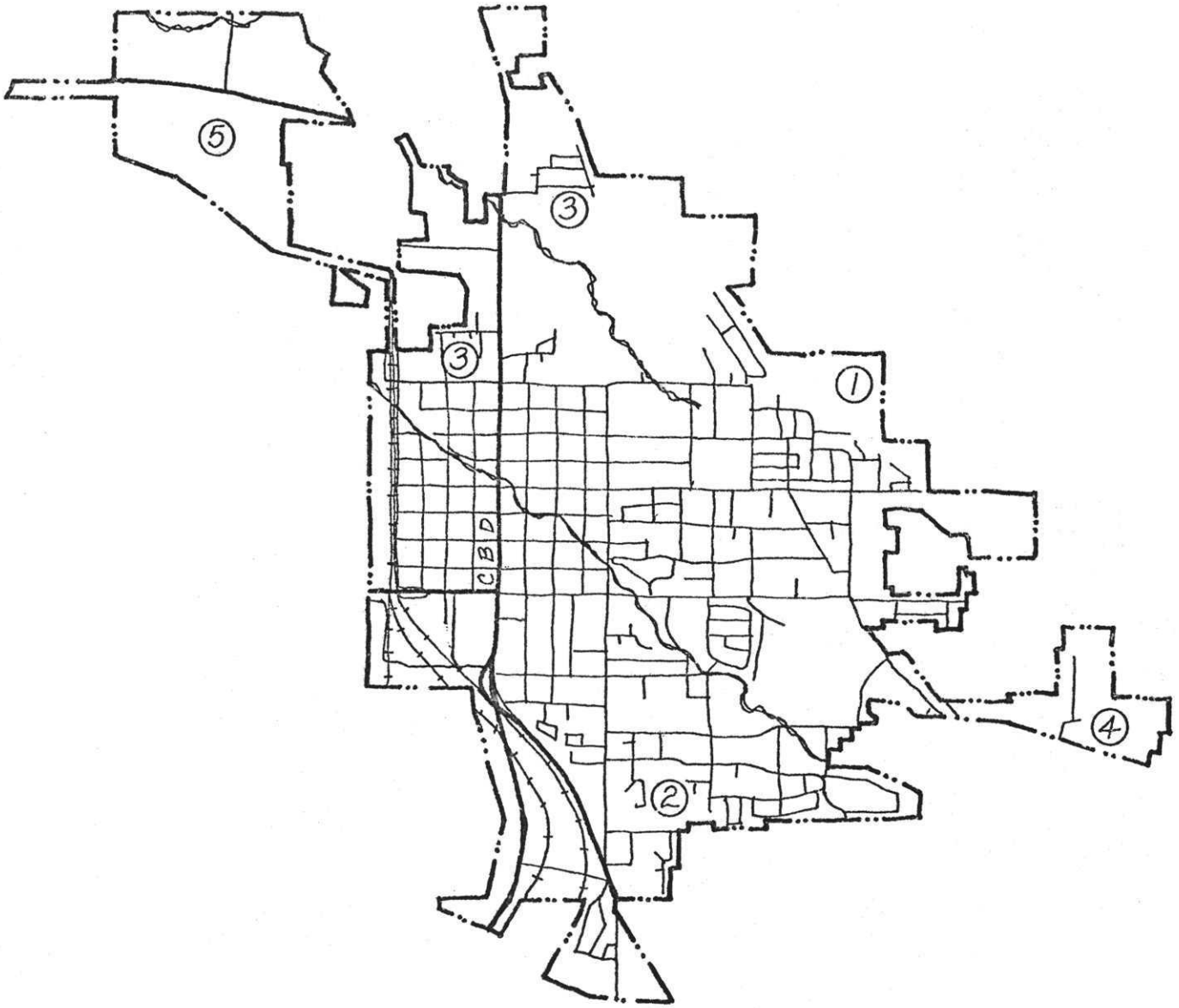


Figure 28. City Boundary and Street Pattern of Springville City, Utah, 1980

In many ways, especially in social make up, the Springville area associates more closely with the central area than it does with the other communities to the south. Its association with the southern area is due, however, to the residential break between Provo and Springville.

Springville has experienced a somewhat steadier growth than many of the valley's other communities. Unlike many of the communities, close to 30 percent of its subdivisions were approved before the rush of the 1970's. Like many communities, however, most of its growth has occurred eastward toward the foothills (see Number 1, Figures 27 and 28).

During the 1970's, growth also moved southward into the Hobblecreek river bottoms (see Number 2, Figure 28) and northward (see Number 3, Figure 28). Some annexation and development also occurred in the area toward Hobblecreek Canyon (see Number 4, Figure 28). The area to the northwest (see Number 5, Figure 28) is being developed as an industrial park area.

Future residential growth for Springville will probably continue along the foothill area. Areas to the west may develop in the future if the city decides to annex in that direction for other than industrial and commercial purposes. A high water table in the western area, however, makes residential growth difficult.

Mapleton. Mapleton (see Tables 32 and 33, and Figures 29-31) is like Orem and Lindon in being an agricultural

Table 32

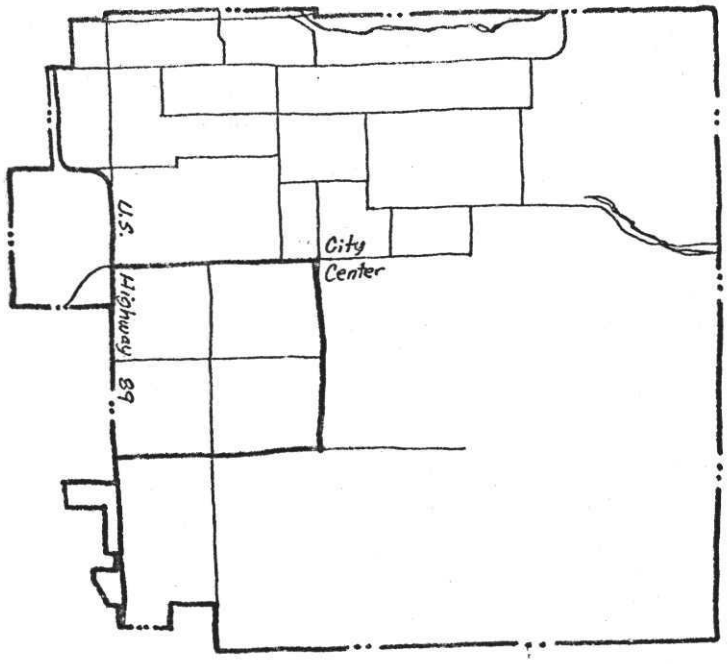
MAPLETON, NUMBER OF SUBDIVISIONS
BY YEAR AND LOCATION

Location	1940-49	1950-59	1960-69	1970-74	1975	1976	1977	1978	1979	1980
T8S, R3E										
Sec. 1	-	-	-	-	-	-	-	-	-	1
2	-	-	-	-	-	1	-	-	-	-
10	-	-	-	1	-	-	-	-	-	-
11	-	1	-	-	-	-	-	-	1	1
14	-	-	-	-	-	-	-	-	-	1
22	-	-	-	1	-	-	-	-	-	-

Table 33

MAPLETON, OCCUPIED LOTS/APPROVED LOTS
BY YEAR AND LOCATION

Location	1940-49	1950-59	1960-69	1970-74	1975	1976	1977	1978	1979	1980
T8S, R3E										
Sec. 1	-	-	-	-	-	-	-	-	-	$\frac{3}{9}$
2	-	-	-	-	-	$\frac{6}{24}$	-	-	-	-
10	-	-	-	$\frac{5}{10}$	-	-	-	-	-	-
11	-	$\frac{25}{25}$	-	-	-	-	-	-	$\frac{2}{3}$	$\frac{0}{13}$
14	-	-	-	-	-	-	-	-	-	$\frac{3}{31}$
22	-	-	-	$\frac{6}{15}$	-	-	-	-	-	-



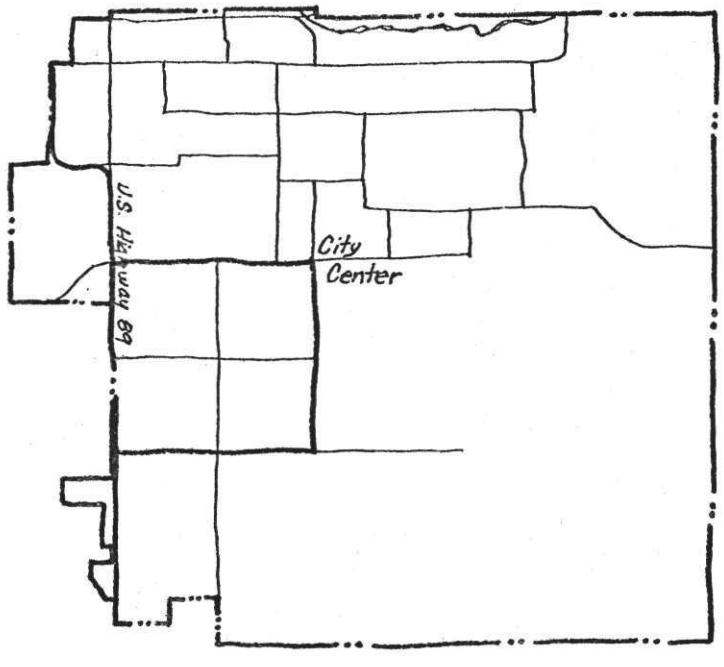
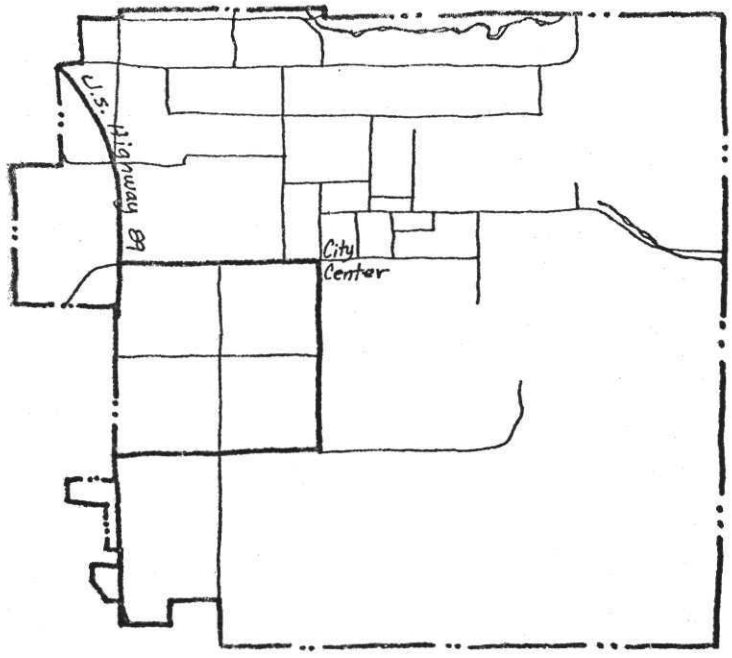


Figure 29. City Boundary and Street Pattern of Mapleton City, Utah, 1940 and 1950



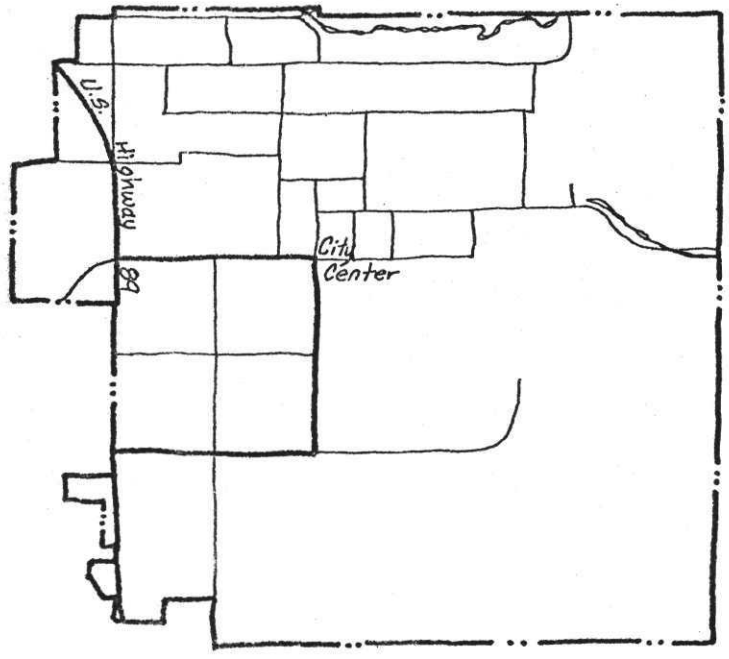


Figure 30. City Boundary and Street Pattern of Mapleton City, Utah, 1960 and 1970

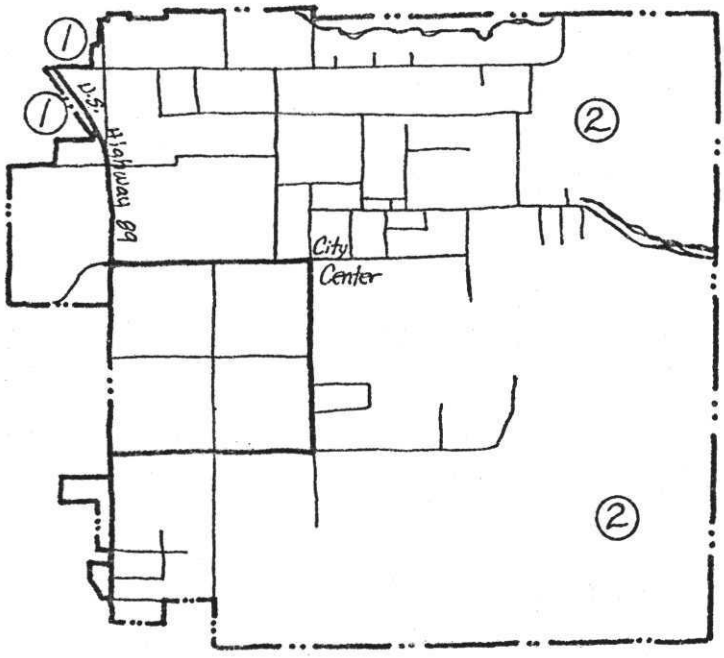


Figure 31. City Boundary and Street Pattern of Mapleton City, Utah, 1980

area that settlement later moved into. Its large grid pattern mostly follows section and quarter section lines.

Mapleton, like Lindon, has made efforts to keep the area rural in nature. Unlike Lindon, Mapleton has no industrial area. Also, unlike any other city in the county, Mapleton's boundaries have actually diminished over the years. Several disincorporations of small areas on the northwestern edges of the town (see Number 1, Figure 31) have occurred.

All of Mapleton's eight recorded subdivisions except one have occurred during the 1970's. Much of the growth which has occurred in the latter years is in higher income residences.

Future growth in Mapleton should continue to occur throughout the city, except along its eastern third which is somewhat mountainous (see Number 2, Figure 31). Due to Mapleton's already large boundaries, little annexation, if any, should take place.

Spanish Fork. Spanish Fork (see Tables 34 and 35, and Figures 32-34), which was once the fourth largest city, is now ranked sixth. Its growth over the years has been relatively steady; and until recently, relatively logical.

Spanish Fork's growth up until 1974 was occurring within its original grid pattern or in close proximity. New subdivisions to the southwest and the southeast were fairly small and were logical extensions from the grid network of streets (see Number 1, Figure 33).

Table 34

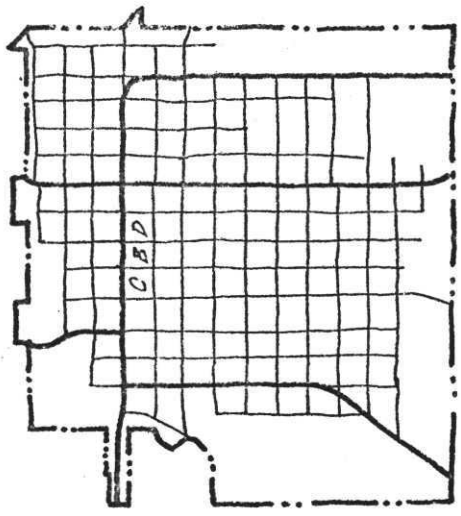
SPANISH FORK, NUMBER OF SUBDIVISIONS
BY YEAR AND LOCATION

Location	1940-49	1950-59	1960-69	1970-74	1975	1976	1977	1978	1979	1980
T8S, R1E										
Sec. 13	-	-	1	-	1	1	1	1	-	-
24	1	-	-	-	-	-	-	-	-	-
T8S, R3E										
Sec. 18	-	-	-	-	-	-	-	2	2	-
19	-	2	-	1	-	-	2	-	-	1
20	-	-	-	2	4	1	3	1	-	-
29	-	-	-	-	-	-	3	3	1	-
30	-	-	-	-	-	-	4	3	3	1
33	-	-	-	-	-	-	-	-	-	1

Table 35

SPANISH FORK, OCCUPIED LOTS/APPROVED LOTS
BY YEAR AND LOCATION

Location	1940-49	1950-59	1960-69	1970-74	1975	1976	1977	1978	1979	1980
T8S, R1E										
Sec. 13	-	-	19/19	-	13/13	15/15	12/12	15/23	-	-
24	24/24	-	-	-	-	-	-	-	-	-
T8S, R2E										
Sec. 18	-	-	-	-	-	-	-	8/15	1/9	-
19	-	79/84	-	6/6	-	-	16/21	-	-	3/16
20	-	-	-	44/44	121/121	8/10	64/75	13/24	-	-
29	-	-	-	-	-	-	35/48	25/39	3/12	-
30	-	-	-	-	-	-	49/55	23/46	8/42	3/3
33	-	-	-	-	-	-	-	-	-	0/43



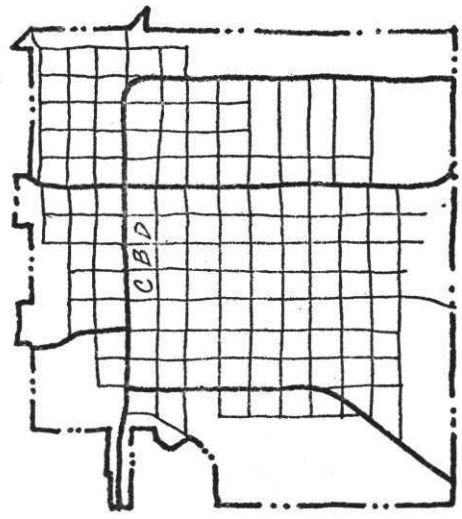
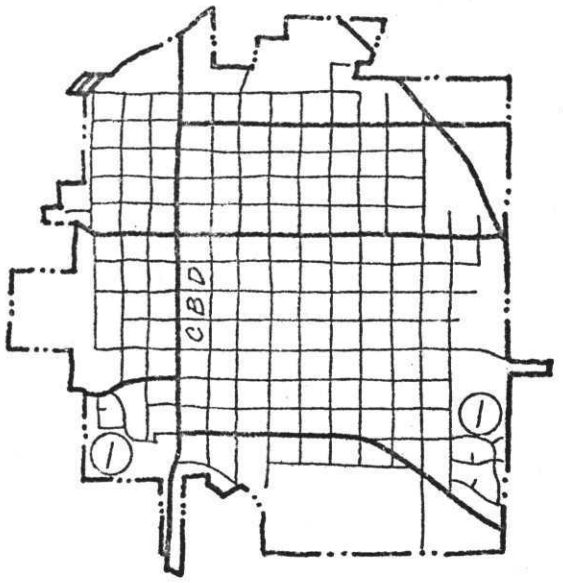


Figure 32. City Boundary and Street Pattern of Spanish Fork City, Utah, 1940 and 1950



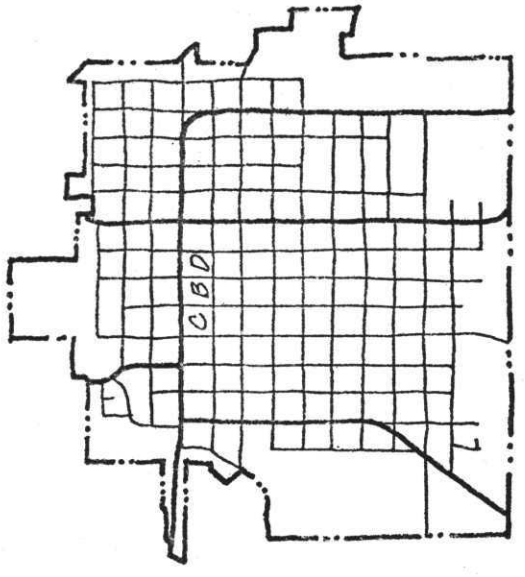


Figure 33. City Boundary and Street Pattern of Spanish Fork City, Utah, 1960 and 1970

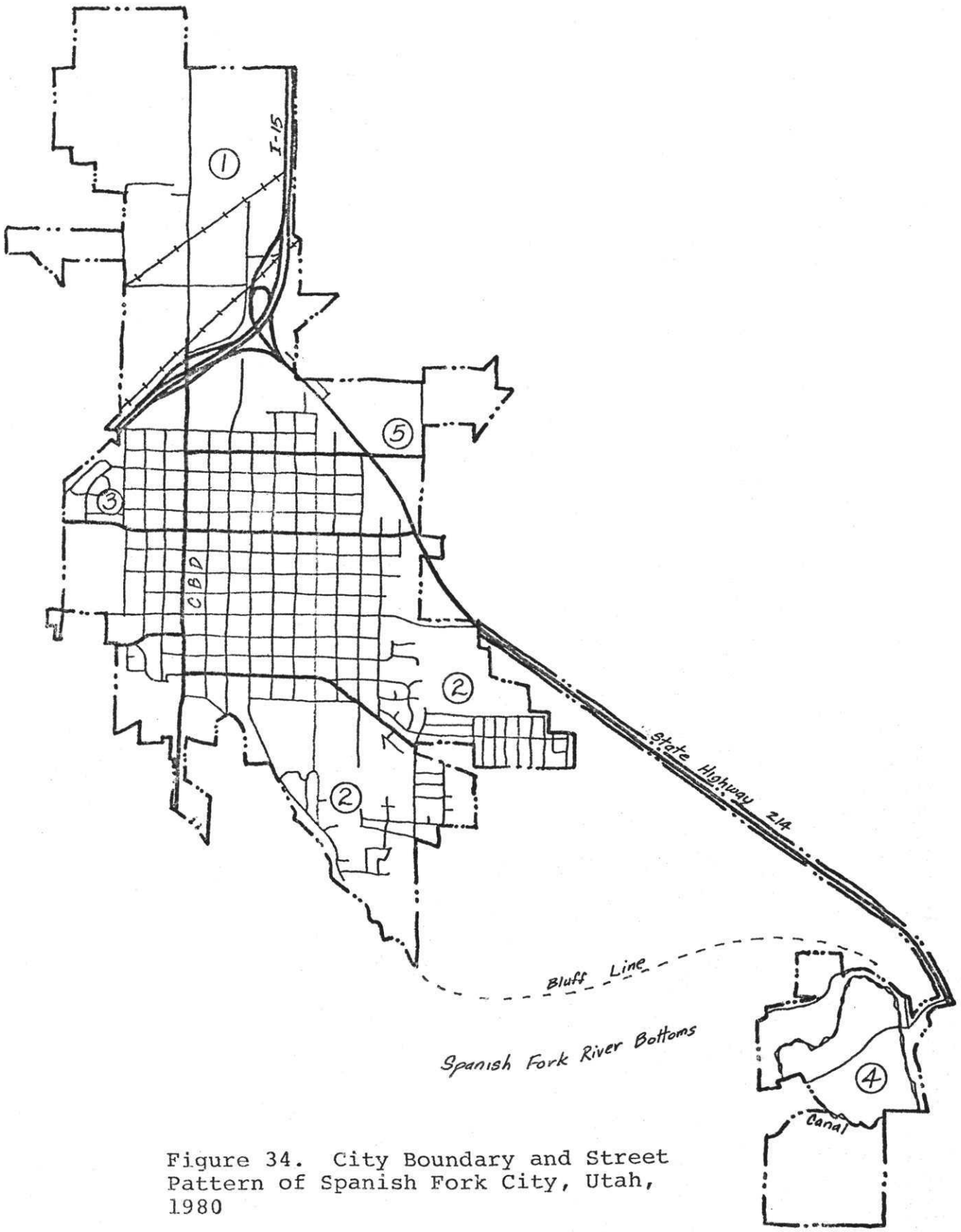


Figure 34. City Boundary and Street Pattern of Spanish Fork City, Utah, 1980

In the 1970's, Spanish Fork moved away from its box-like boundaries of earlier years. Large annexations to the north provided area for industrial uses in close proximity to I-15 (see Number 1, Figure 34), while annexations to the southwest provided new areas of residential growth (see Number 2, Figure 34). A small annexation on the west to the freeway (see Number 3, Figure 34) added approximately 55 new homes.

In the true spirit of cherry stemming, an annexation was made in January of 1980, which runs three miles down a highway to take in a city park, golf course site, and other city land. Funds for the golf course construction came from the sale of a part of the city land. The land sold was then subdivided for home sites (see Number 4, Figure 34). This annexation is presently being challenged in the courts, and present development of the home sites depends heavily on the court's decision.

Future growth in Spanish Fork should occur mainly toward the southwest. Other growth may occur to the east and northeast as a result of a new commercial area located within the present city boundaries on the northeast side (see Number 5, Figure 34). Growth to the west could occur as far as the freeway. Growth to the north is unlikely as this is toward the lake and a high water table. Growth to the south is unlikely as this would be a drop in elevation into the Spanish Fork river bottoms area.

Table 36

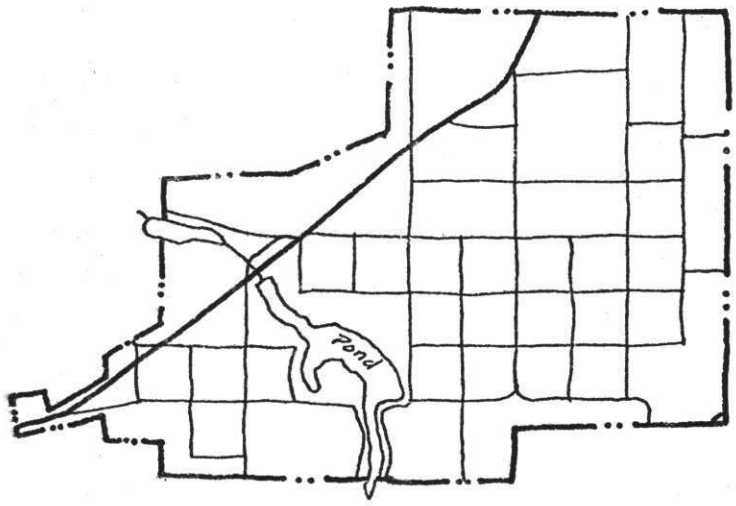
SALEM, NUMBER OF SUBDIVISIONS
BY YEAR AND LOCATION

Location	1940-69	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
T9S, R2E												
Sec. 1	-	-	-	-	-	-	-	1	-	2	-	-
11	-	1	-	-	1	-	2	1	1	-	-	-
12	-	-	-	1	-	2	-	-	2	1	-	-

Table 37

SALEM, OCCUPIED LOTS/APPROVED LOTS
BY YEAR AND LOCATION

Location	1940-69	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
T9S, R2E												
Sec. 1	-	-	-	-	-	-	-	6/6	-	12/22	-	-
11	-	12/16	-	-	9/10	-	26/26	12/14	6/6	-	-	-
12	-	-	-	-	-	26/26	-	-	23/24	13/13	-	-



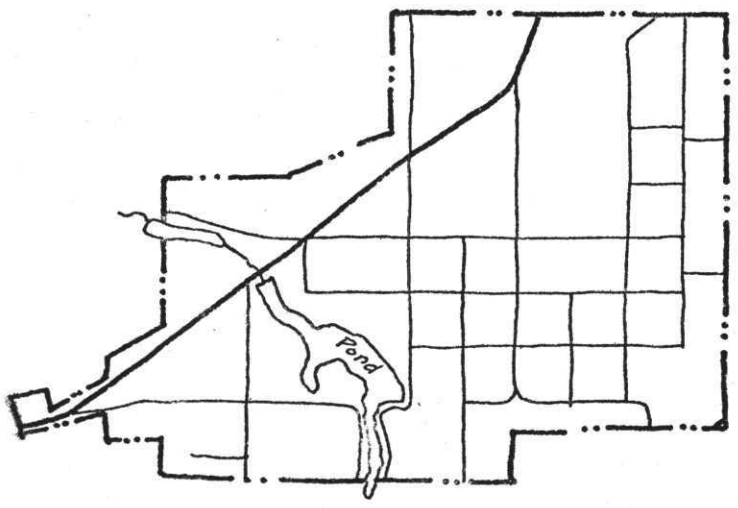


Figure 35. City Boundary and Street Pattern of Salem City, Utah, 1940 and 1950

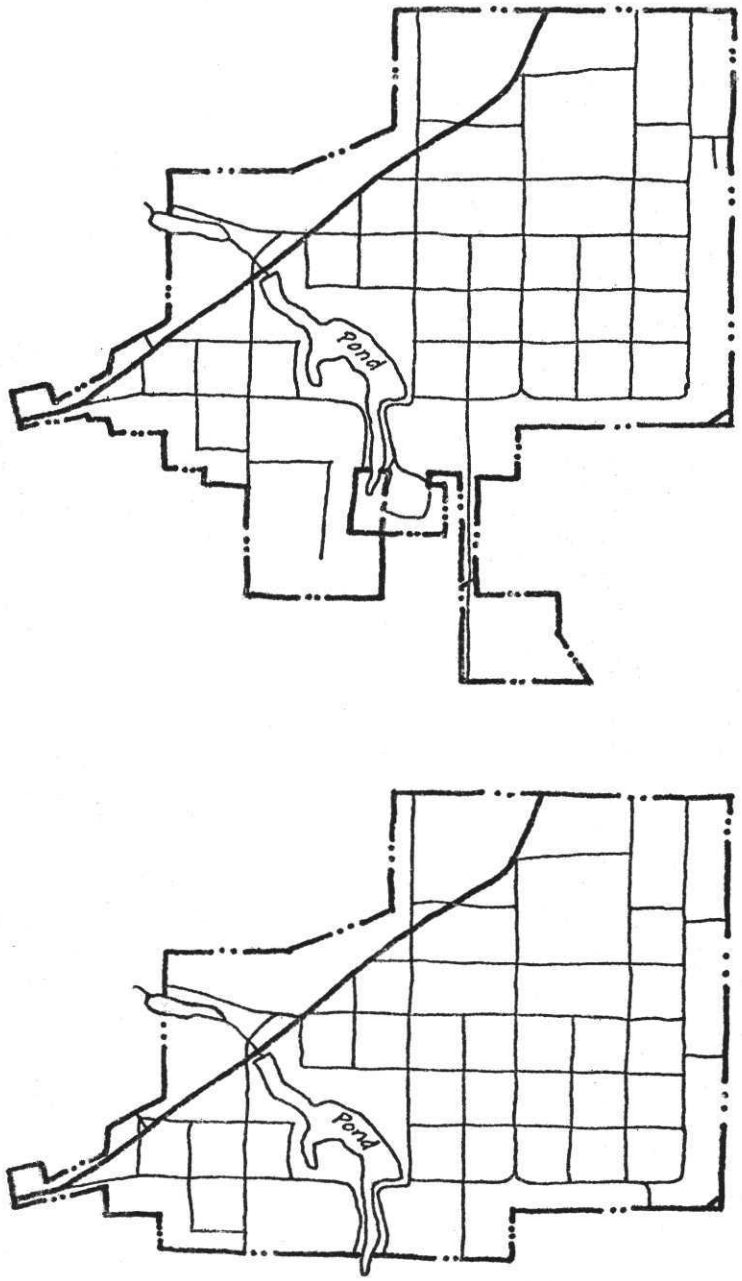


Figure 36. City Boundary and Street Pattern of Salem City, Utah, 1960 and 1970

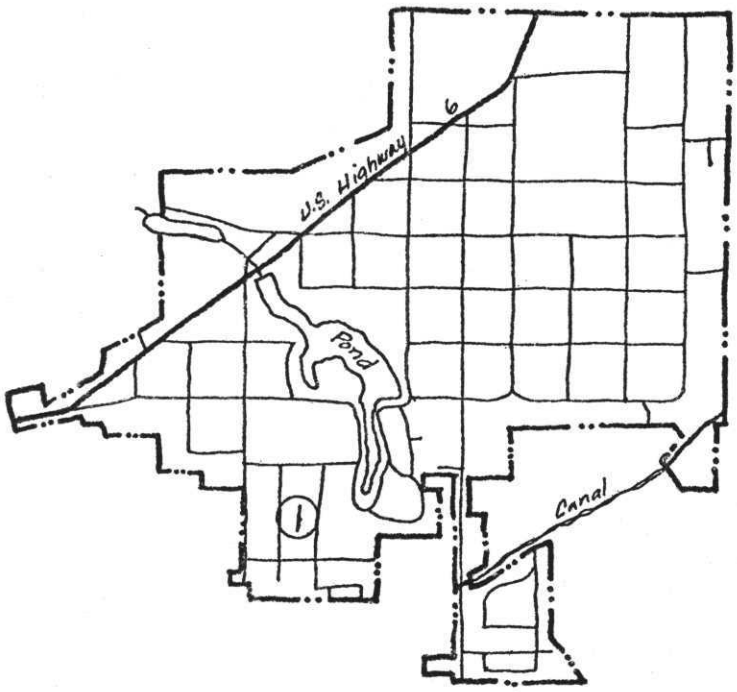


Figure 37. City Boundary and Street Pattern of Salem City, Utah, 1980

Table 38

ELK RIDGE, NUMBER OF SUBDIVISIONS
BY YEAR AND LOCATION

Location	1940-69	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
T9S, R2E												
Sec. 23	-	-	1	-	1	-	-	-	3	2	-	-
26	-	-	-	-	-	-	-	-	1	-	2	-

Table 39

ELK RIDGE, OCCUPIED LOTS/APPROVED LOTS
BY YEAR AND LOCATION

Location	1940-69	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
T9S, R2E												
Sec. 23	-	-	30/74	-	26/40	-	-	-	17/39	6/60	-	-
24	-	-	-	-	-	-	-	-	7/35	-	5/14	-

Table 40

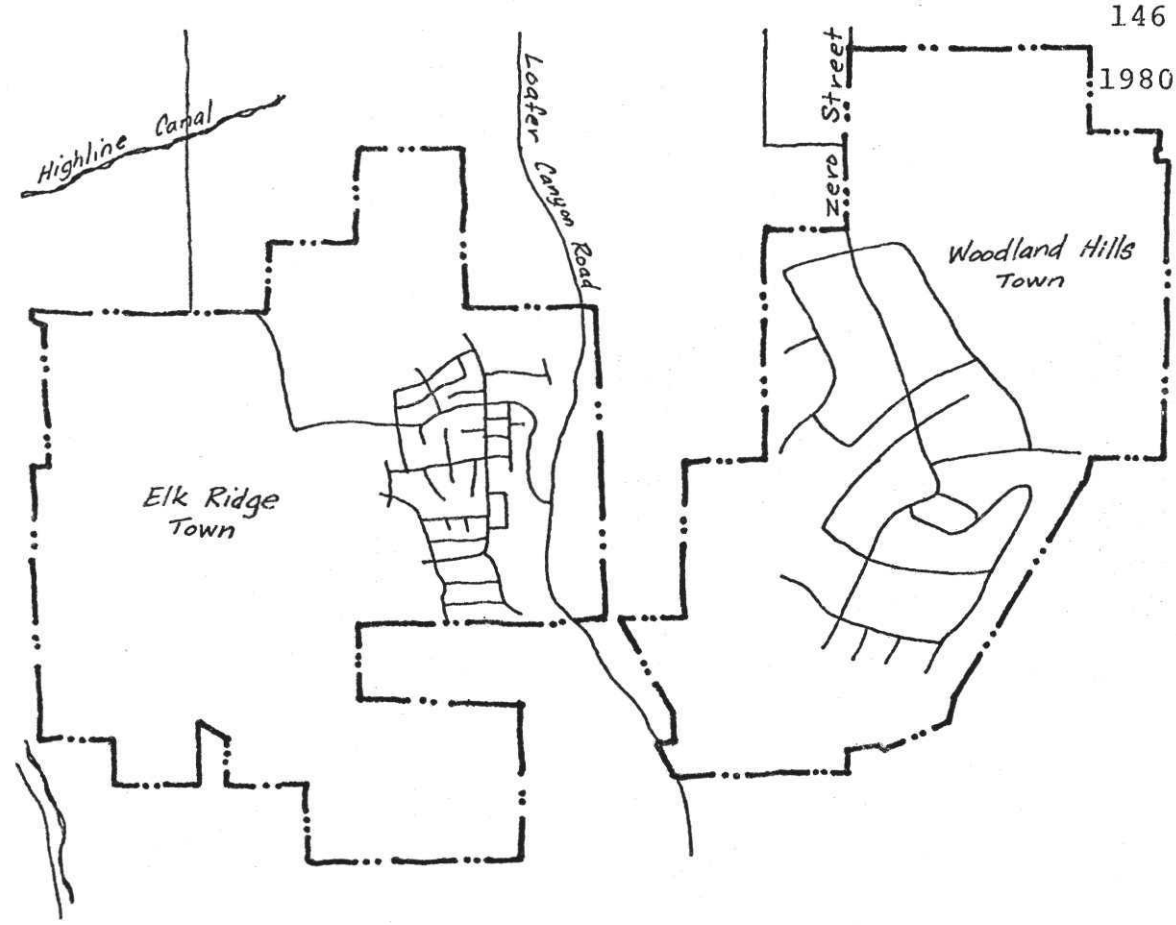
WOODLAND HILLS, NUMBER OF SUBDIVISIONS
BY YEAR AND LOCATION

Location	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
T9S, R2E Sec. 24	1	-	-	-	1	-	-	-	-	-	-

Table 41

WOODLAND HILLS, OCCUPIED LOTS/APPROVED LOTS
BY YEAR AND LOCATION

Location	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
T9S, R2E Sec. 24	$\frac{21}{85}$	-	-	$\frac{13}{125}$	-	-	-	-	-	-	-



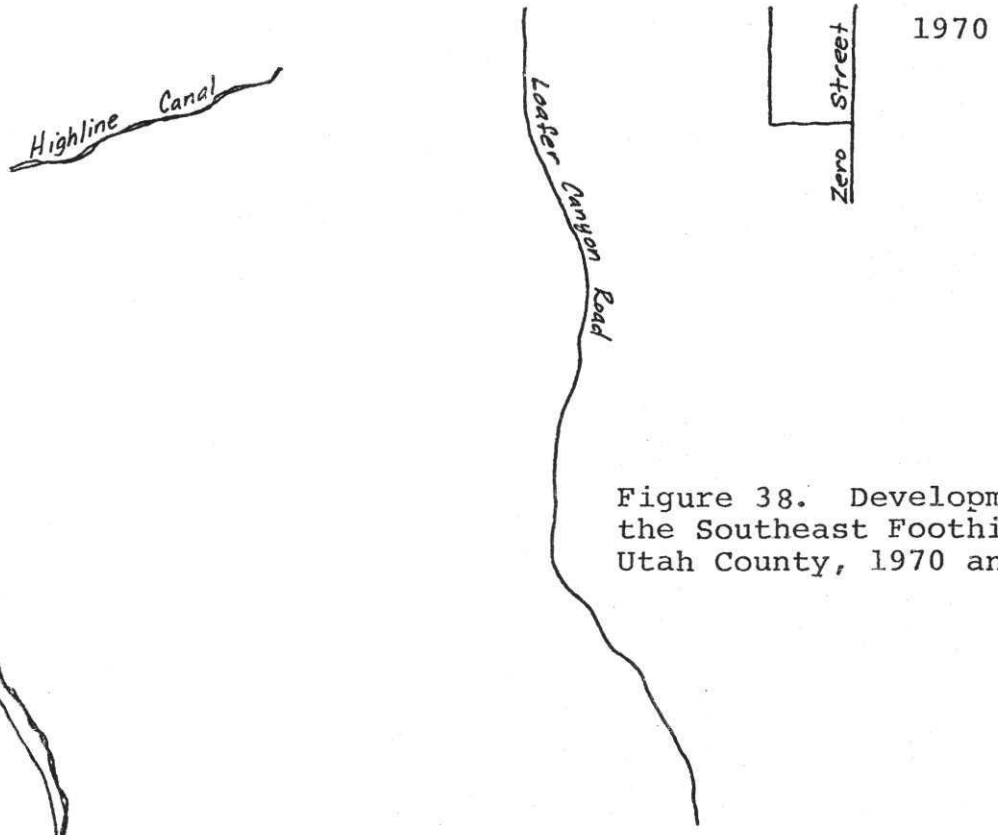


Figure 38. Development of the Southeast Foothills, Utah County, 1970 and 1980

Salem. Salem (see Tables 36 and 37, and Figures 35-37) is located in an area south of Spanish Fork and east of Payson. In terms of population, it is a rural town; and its layout is very identifiable as a Mormon village.

As in most of the Utah Valley communities, annexation, although minimal, has occurred toward higher ground to the south. Twelve of its sixteen subdivision plats have also been filed in these higher areas (see Number 1, Figure 37) resulting in 144 new residential lots.

Future growth for Salem could occur in almost any direction except toward the lowlands to the northwest. If existing patterns are followed, growth will be to the south and southeast toward the canals.

Elk Ridge. At the time of incorporation in 1976, Elk Ridge (see Tables 38 and 39, and Figure 38) was known as Salem Hills. Preliminary 1980 census counts give the population as 381 with 99 housing units. Over 150 undeveloped home sites remain from the original Salem Hills' plats.

The developed area of Elk Ridge is located almost completely in the eastern side of the town. Future growth will most likely take place immediately to the west of existing development as this is the most gradual slope. Some growth may also continue south into the foothills.

Woodland Hills. Woodland Hills (see Tables 40 and 41, and Figure 38) is the county's newest town having been created in December of 1979. At the time of incorporation, the town

consisted of 152 people in 31 homes. The 1980 preliminary census figures, which gives the population as 63 in 15 homes, is in error.

Woodland Hills was begun in 1970 as a Planned Unit Development in the county. Lot sizes were larger due to county standards relating to the terrain of the area. The two major plats of Woodland Hills were both recorded in 1973.

In 1979, owners of several lots and the developers of the project, who still owned several of the unsold lots, requested a vacation of the original plat to allow for a reduction in lot size. Under state law, a city or town is governed by different enabling legislation; and since the county refused for several reasons to vacate the plats, the end result was incorporation. Since the time of incorporation, several plats have been recorded splitting many of the original lots. The original number of 211 lots has presently been increased to 236 residential lots.

Future growth of Woodland Hills outside the original plats would most likely take place to the northeast. Growth to the east or south is impractical at present due to the steepness of the terrain.

Payson. Payson (see Tables 42 and 43, and Figures 39-41) has experienced the most rapid growth of any of the communities in the southern area. After very modest increases from 1940 to 1970, the population increased from 4,501 in 1970 to 8,246 in 1980.

Table 42

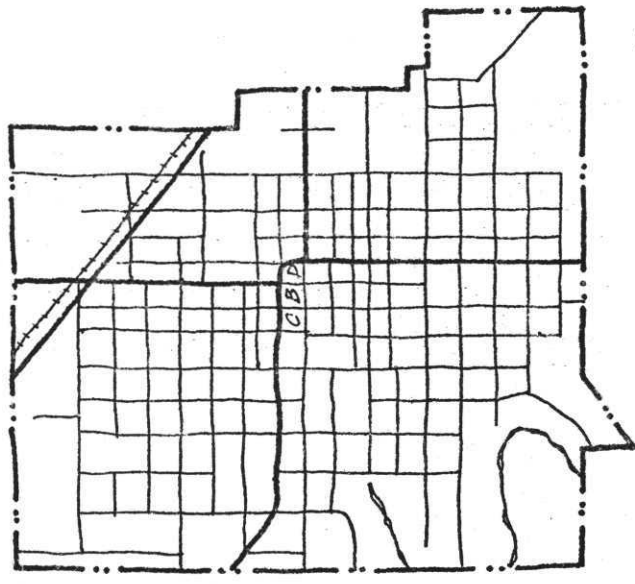
PAYSON, NUMBER OF SUBDIVISIONS
BY YEAR AND LOCATION

Location	1940-69	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
T9S, R1E												
Sec. 8	-	-	-	-	1	-	-	-	-	-	1	-
9	-	-	-	-	-	-	-	-	-	-	1	-
16	-	-	-	-	-	-	-	-	1	1	1	-
17	-	-	-	-	1	4	4	-	2	2	3	-
18	-	-	-	-	-	4	-	-	-	-	-	-
20	-	-	-	-	-	-	-	-	-	1	-	-

Table 43

PAYSON, OCCUPIED LOTS/APPROVED LOTS
BY YEAR AND LOCATION

Location												
T9S, R1E Sec. 8	-	-	-	-	31/31	-	-	-	-	-	3/4	-
9	-	-	-	-	-	-	-	-	-	-	28/32	-
16	-	-	-	-	-	-	-	-	8/12	5/8	0/10	-
17	-	-	-	-	21/21	101/101	53/53	-	18/20	23/29	2/21	-
18	-	-	-	-	-	26/36	-	-	-	-	-	-
20	-	-	-	-	-	-	-	-	-	10/20	-	-



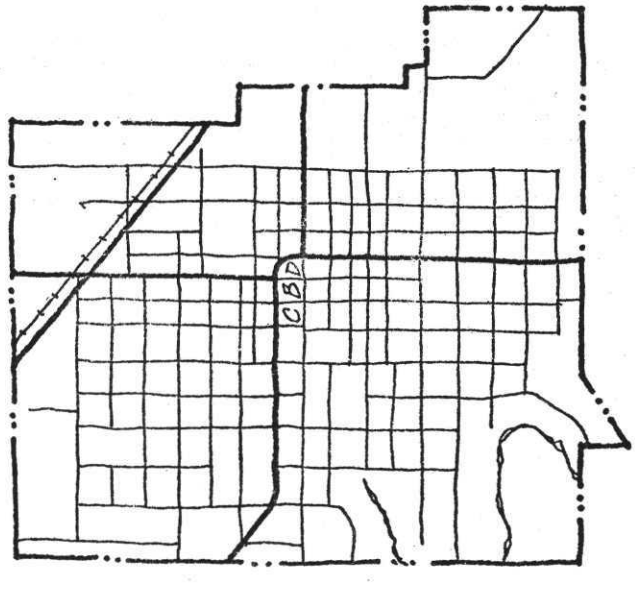
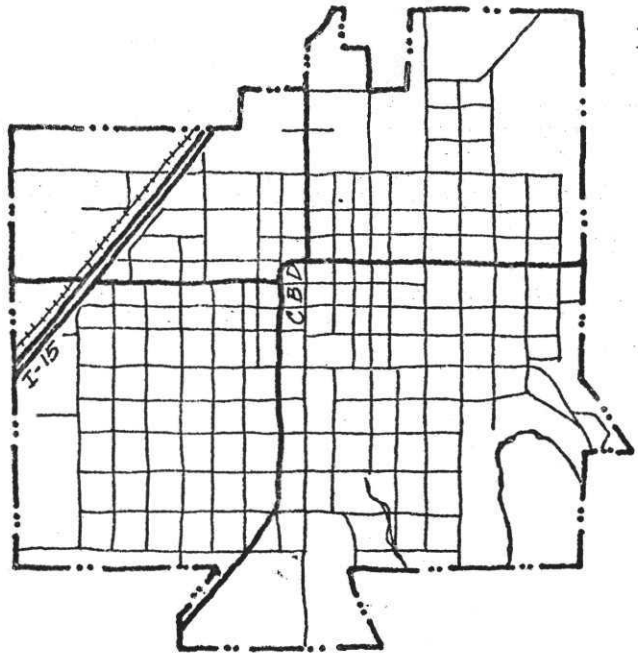


Figure 39. City Boundary and Street Pattern of Payson City, Utah, 1940 and 1950



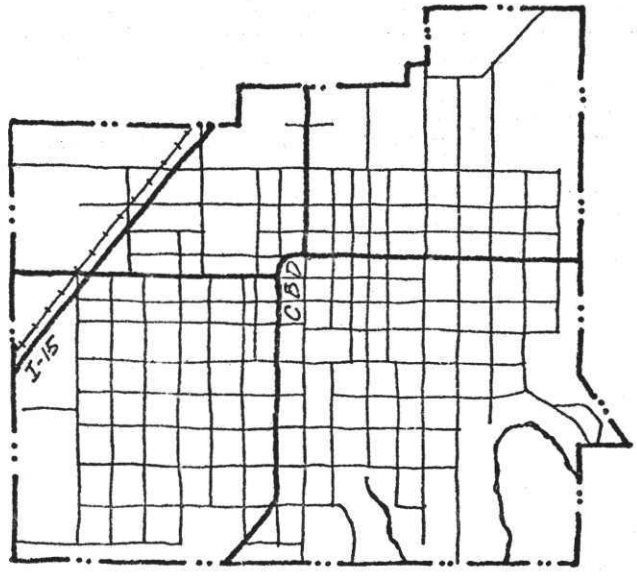


Figure 40. City Boundary and Street Pattern of Payson City, Utah, 1960 and 1970

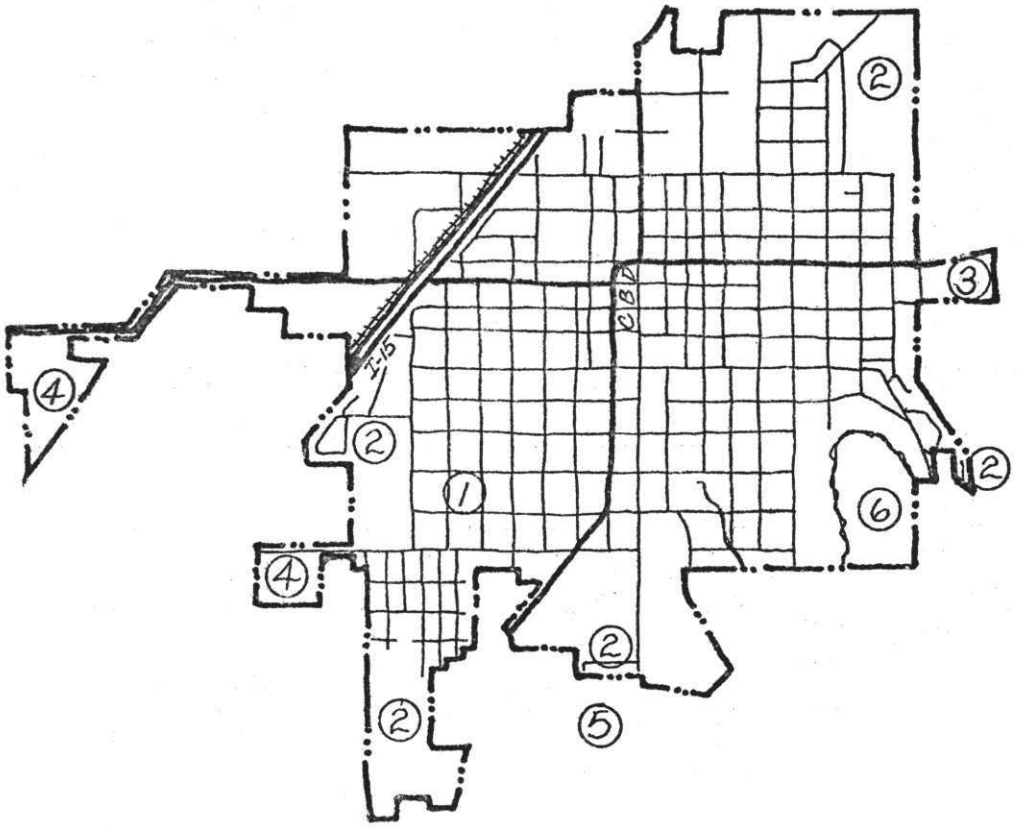


Figure 41. City Boundary and Street Pattern of Payson City, Utah, 1980

Payson, like most of the southern communities, has only recently grown outside of its grid patterns. Unlike the southern communities of Spanish Fork and Springville, however, Payson has not filled its grid areas before expanding outward. This is especially true in the southwest corner of the grid (see Number 1, Figure 41) where, until recently, very few homes existed.

Growth outward from the grid has occurred to the northeast, southeast, west, south, and southwest (see Number 2, Figure 41). The largest area of growth has been in the southwest area where over 140 homes have been built since 1970.

The only major annexation for residential development has been the area to the southwest. Other annexations have included land for a new hospital (see Number 3, Figure 41) and manufacturing areas (see Number 4, Figure 41).

Future growth should occur to the south away from the high school (see Number 5, Figure 41) and to the east near the high school. Growth to the southeast may occur more toward the east than toward the south due to steeper slopes. Growth may also occur toward the northwest, but this may be hampered by the freeway and future industrial growth.

Santaquin. If there is an area of no growth in the valley, Santaquin (see Tables 44 and 45, and Figures 42-44) would be the place to find it. Since 1940, Santaquin has grown by fewer than 800 people to its present population of 2,075.

Table 44

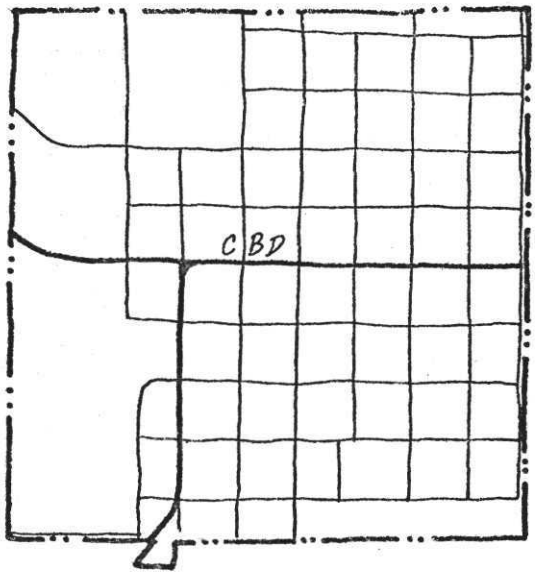
SANTAQUIN, NUMBER OF SUBDIVISIONS
BY YEAR AND LOCATION

Location	1940-74	1975	1976	1977	1978	1979	1980
T10S, R1E Sec. 1	-	1	2	1	-	-	-

Table 45

SANTAQUIN, OCCUPIED LOTS/APPROVED LOTS
BY YEAR AND LOCATION

Location	1940-74	1975	1976	1977	1978	1979	1980
T10S, R1E Sec. 1	-	$\frac{14}{15}$	$\frac{18}{26}$	$\frac{0}{11}$	-	-	-



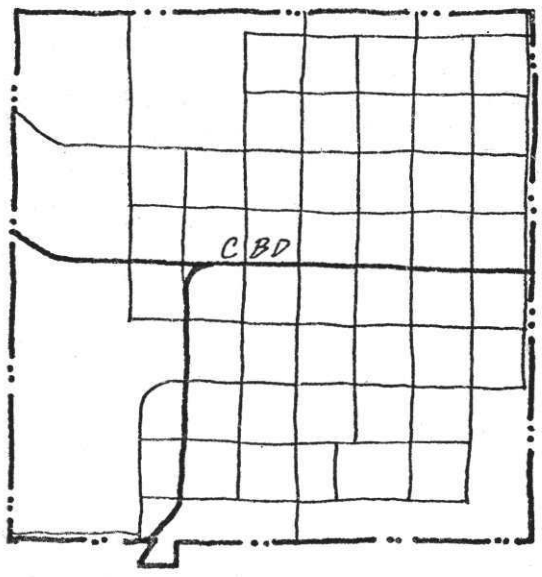


Figure 42. City Boundary and Street Pattern of Santaquin City, Utah, 1940 and 1950

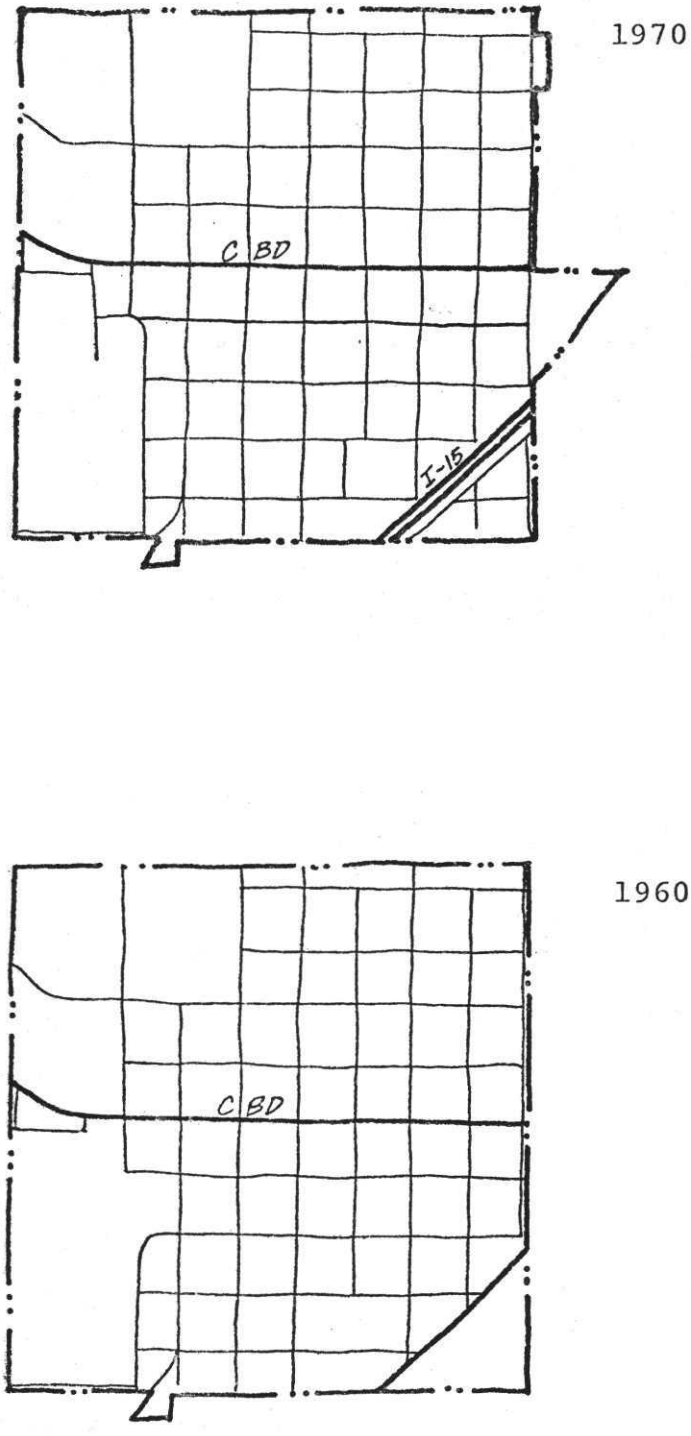


Figure 43. City Boundary and Street Pattern of Santaquin City, Utah, 1960 and 1970

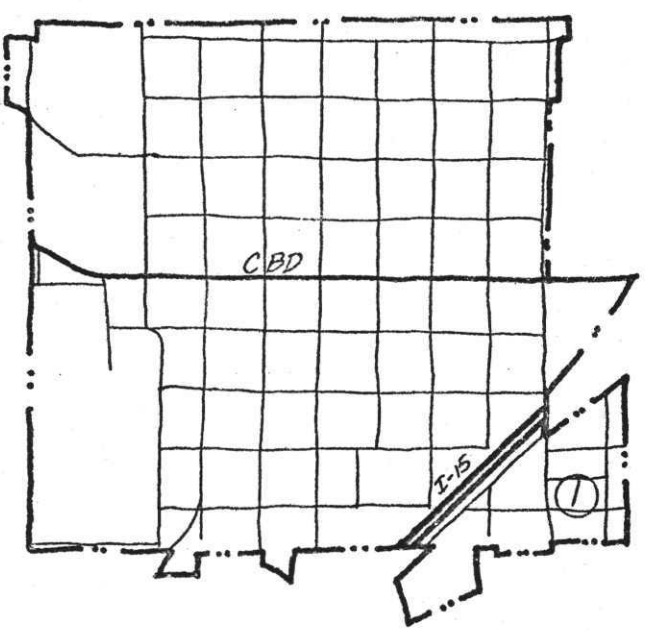


Figure 44. City Boundary and Street Pattern of Santaquin City, Utah, 1980

Reasons for the small growth which Santaquin has experienced can be explained mostly by its lack of water and its location at the extreme south end of the valley. From 1975 to 1980, four subdivision plats have been recorded for the entire community. The subdivisions, consisting of approximately 50 residential lots, have all been located in the southeast corner of town (see Number 1, Figure 44).

Santaquin is presently upgrading their water system which may make more growth possible in the future. Growth at that time may take place to the east as far as the freeway and possibly into the foothills as well as to the north. Orchards which exist in many of the areas surrounding Santaquin may guide the development to non-orchard areas.

Spring Lake. Spring Lake is an area between Payson and Santaquin which is zoned as a residential area in the county. In 1970, the area contained approximately 120 housing units with the total in 1980 being about the same.

The area has two water systems but neither is of a capacity for any large expansion. Future growth in this area may come only if Payson extends its limits southward into this area, or if the water systems are updated.

Other Areas. The unincorporated county areas of Benjamin, Lake Shore, Palmyra, West Mountain, and Haskleville have all experienced new growth. The amount of growth in these areas and the remainder of the unincorporated southern county areas has increased from 4,559 people in 1970

to 6,748 in 1980. This growth followed a period of relatively small growth from 1940 to 1970 when the population increased from 4,242 to only 4,559 residents.

Since the unincorporated areas are located mainly in agricultural areas, the increased growth has not been concentrated into one area. The growth and pressures for residential expansion in the unincorporated areas have been limited due to the desire for agricultural preservation and also due to the absence of any water system, except for that of Spring Lake.

Chapter 5

SUMMARY AND CONCLUSION

Layton made the observation in his land use study of the valley that the settlements with large water supplies began as larger communities, developed greater areas of irrigated land, and experienced a more rapid population growth. Those communities with limited water began small and have remained smaller in proportion to the other settlements (Layton, 1962:62).

Agriculture, which was dependent upon water, was the basis for most of the population growth and movement before 1940. The cultivated portion of the county, though not excessively large in size, has been very productive due to the positive factors of good soils, a mild climate, and, for the most part, ample irrigation water. The farmland is of such good quality that, when worked intensively, Utah County was, in years past, consistently listed as one of the top 100 counties in the nation in terms of agricultural production (Master Plan, 1981:83). Utah Valley's intensive agriculture, however, eventually proved to be unprofitable due mainly to the lack of a substantial nearby market (Arrington, 1955:106).

It is doubtful that the population of Utah County would have grown much past its 1940 numbers if agriculture

had remained as the basis for population growth. At this time, however, other factors such as industrial growth (in the form of the steel plant at Geneva) and a large educational institution became major contributors to the growth of the valley area.

Urban growth patterns, however, do not usually occur due to one or two large factors, but rather to a combination of several factors which are interrelated. In the case of Utah County, however, the one factor which always seems to combine with every other factor in determining growth movement is that of available water.

The thesis of the paper was that Utah County has been effective in controlling its growth by a policy of directing the population growth toward the cities. The conclusion is that this policy has indeed been effective due mainly to the control of urban services, specifically culinary water.

The only significant growth to occur in the county has been in those areas which have an existing, adequate water system, or in those areas where a water system was installed. This is also true of growth in many of the cities where growth has developed outward, only as culinary water has been made available. If the present growth policy of Utah County is to continue, keying the availability of water to those areas planned for development is necessary. If the county were to change its policy towards one of urbanization throughout the county, the development of a water system would be essential.

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POPULATION MOVEMENT AND GROWTH

IN UTAH COUNTY, UTAH

1940 to 1980

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M.S. Degree, December 1981

ABSTRACT

Utah County, Utah, and more particularly the Utah Valley area, has undergone an enormous change during the last forty years. Rapid growth and urbanization brings with it the problems of urban sprawl. Controlling this sprawl is determined often times by an effective growth policy. Mapping and analyzing growth patterns and trends is a useful method in determining the effectiveness of the "growth towards the cities" policy of Utah County. Research was conducted by using maps, air photos, and field work in locating the growth history of the county.

Growth has been influenced by several factors among which are the physical, climatic, and economic make up of the county. It has also been influenced by policies directed to control the growth, not necessarily as to numbers but as to location. These policies have been successful in locating the majority of the increasing urbanization within the cities where services can be provided more economically. Since the county and the cities can grow only where water is available, the major factor in the location of future growth will be the location of water.

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