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Willamina  
(1979a)

# WILLAMINA PLANNING ATLAS



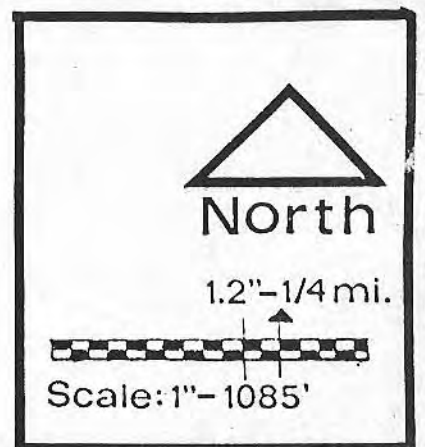
A BACKGROUND DOCUMENT  
FOR THE WILLAMINA  
COMPREHENSIVE LAND USE  
PLAN.

MAY, 1979



# CITY of WILLAMINA

- CITY LIMITS
- URBAN GROWTH BOUNDARY



## INTRODUCTION

The material in this Planning Atlas is a synthesis of the information gathered and discussed during the development of the Willamina Comprehensive Land Use Plan. The City's land use goals and policies, derived from this material, are found in the companion document, Comprehensive Land Use Plan: City of Willamina, 1979.

Arranged to show how the Statewide land use goals were considered during development of Willamina's Plan, this Atlas will serve as the information base from which to update the Plan.

Compilation of Atlas material was done by the Yamhill County Planning Staff, with the willing help of the Willamina Planning Commission, the Willamina Citizen Advisory Committee, the Willamina City Recorder, numerous state agency representatives, local utility representatives and other knowledgeable persons. County staff who worked on this Atlas include: Mike Brandt, Rich Faith, Ron Bunch, Roberta Young, Maggie Collins, Blaise Edmonds, Sara Leslie, Gene Williamson, Marsha Mackie, Tom Cunningham, Dee McKenzie, Gloria Banks, Sandra Lewis and Velma Schaffner.

The preparation of this document was financed in part through a comprehensive planning grant from the Department of Housing and Urban Development under the provisions of Section 701 of the Housing Act of 1954, as amended. May, 1979, Yamhill County Planning Department.

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## AGRICULTURAL LANDS

Agriculture is practiced in the Willamina planning area. Approximately 144 acres, or 30 percent of the City's land area, are devoted to some form of agricultural activity. Most of this land has SCS Agricultural Capability Class III soils with lesser amounts of Class II and IV soils. There are no Class I soils in the planning area.

The principal farm crops grown in the planning area are hay, grains and grass seed. These agricultural lands have been determined to be needed for the City's future urban development.

### Soils

Through weathering and other processes that act on parent material, soil is formed, thereby providing man, animals and plants with life support requirements. The characteristics of the soil depend upon the parent material, climate, plants, animals and time. Because many variables affect soil formation, soil types are numerous. Different soil types are, of course, suited for different uses. One soil may be highly suited for agriculture but, because of certain properties, it may be totally unsuitable as a building site. A soil may be flood-prone or susceptible to landslides, conditions that can be very costly or even impossible to overcome for building purposes, while posing only slight problems for agricultural uses. By determining the various properties of each soil, it is possible to determine for which use(s) each soil is best suited.

### Definitions

Agricultural Land Capability: Class II soils have moderate limitations that restrict their use.

Class III soils have severe limitations that reduce the choice of plants, require special conservation practices, or both.

Class IV soils have very severe limitations that reduce the choice of crops.

Class VI soils have very severe limitations that make them generally unsuited to cultivation and limit their use largely to pasture or range, woodland, or wildlife habitat.

There are no Class I or V soils present in the Willamina area.



Building Site Limitations: The ratings and limitations are for houses and other buildings that are not more than three stories high. The kind of sewage system is not considered in the evaluation of sites for residences.

Soils that have slight limitations for use as building sites for residences have slopes of less than 12 percent, are well drained or moderately well drained, and are not subject to flooding. Hard rock is at a depth of more than 40 inches.

Soils that have moderate limitations for this use are somewhat poorly drained and are not subject to flooding. They have a seasonal high water table, fair stability, or moderate shrink-swell potential in the subsoil. They have slopes of 12 to 20 percent. Moderately rated soils have limitations that normally can be overcome with planning, careful design, and good management.

Soils that have severe limitations for this use are poorly drained or are subject to flooding. They have poor stability, high shrink-swell potential, low shear strength, or high slide hazard. They have slopes of more than 20 percent. A severe rating indicates that the particular use of the soil is doubtful and careful planning and above average design and management is required to overcome the soil limitations.

There are ten soil groups (13 soil types) in the planning area. The important properties and limitations of each soil type are listed in Table 1 to serve as a guide for determining building suitability on the basis of soil characteristics.

#### Summary

About 95% of the Willamina planning area is in Class II and III soils which are considered to be potentially suitable land for agricultural purposes. However, these soils are also generally favorable for building sites, as is evidenced by the existing developments on them. The agricultural lands have been determined to be necessary for the future urbanization of the City to the year 2000. Until such time as these lands are needed, agriculture could serve as an interim land use within the City.

Some of these soils have certain limitations for residential development; as is noted above. Applicants for building permits within areas rated

as moderate or severe should be directed to the Soil Conservation Service of Yamhill County for additional information regarding soil management and land use.

Sources: Soil Survey of Yamhill Area, Oregon; U.S. Department of Agriculture, Soil Conservation Service, January, 1974.  
Polk County Soil Conservation Service Office.  
Yamhill County Planning Department.

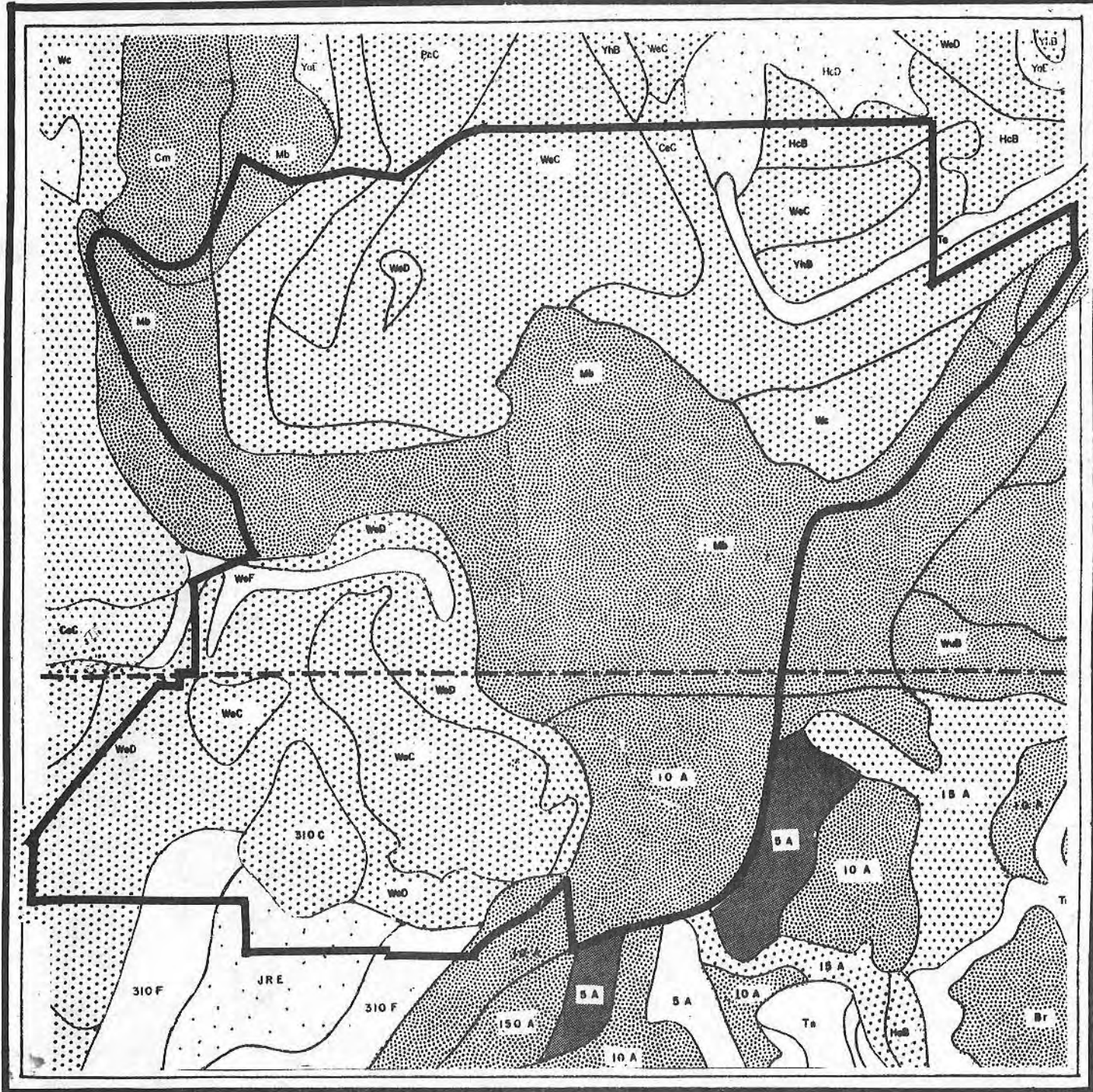
Table 1

CITY OF WILLAMINA  
SOIL FACT SHEET




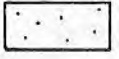

Soil Name	Percent Slope	Agricultural Land Capability Class	Building Site Limitation	Limiting Soil Characteristics	Percent of Willamina Planning Area
Bellpine Silty Clay Loam	3-12%	II	Moderate	High shrink-swell slope	3
Chehalam Silty Clay Loam	3-12%	III	Moderate	Somewhat poor drainage	6
Jory Clay Loam JRE	2-30%	IV	Slight to severe	Slopes	1
Hazelair Silty Clay Loams HcB HcD	2-7% 7-20%	III IV	Severe Severe	Poor drainage, high shrink-swell potential below surface layer	2 1
McBee Silty Clay Loam MB	0-2%	II	Severe	Flood hazard	33
Terrace Escarpments Te	20-40%	VI	Severe	High slide hazard	1
Willakenzie Silty Clay Loam WeC WeD WeF	2-12% 12-20% 30-45%	III III VI	Slight Moderate Severe	Slopes	31 11 2
Yamhill Silt Loam (moderately shallow) YNB	2-7%	III	Moderate	Shallow soils	2
Abiqua Silty Clay Loam	3-5%	II	Severe	High shrink-swell potential, low strength	1
McAlpin Silty Clay Loam	0-3%	II	Severe	Flood hazard	6

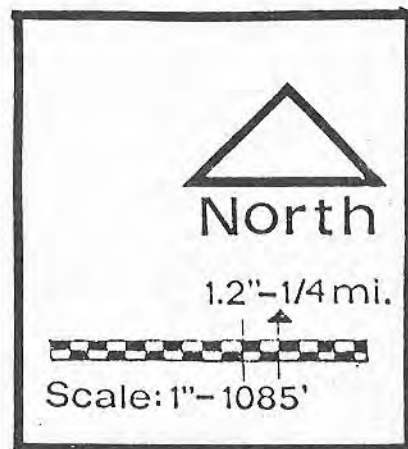
Sources: Soil Survey of Yamhill Area, Oregon; U.S. Dept. of Agriculture, Soil Conservation Service, January, 1974.  
Polk County Soil Conservation Service Office...  
Yamhill County Planning Department, 1974





# CITY of WILLAMINA SOILS

-  Class I
-  Class II
-  Class III
-  Class IV
-  Class V, VI, VII.





## FOREST LANDS

Approximately 27 acres (6%) of the City's land area are forested. The major stand of forest within the City is located between Willamina Creek and Lamson Street. Lesser stands of trees line Willamina Creek, the South Yamhill River and minor drainage swales in the northern section of the City.

Forest lands are also prevalent in the area surrounding Willamina. Patches of oak and Douglas Fir cover the hillsides to the north. The area immediately southwest of the City is covered by thick stands of fir trees.

Forest lands within the Urban Growth Boundary are considered to be urbanizable lands necessary for future development. These lands are envisioned to provide additional recreational areas for city residents and/or to serve as scenic homesites in the future.

OPEN SPACES, SCENIC AND HISTORIC AREAS  
AND NATURAL RESOURCES

Open Spaces and Scenic Views

The planning area has numerous sites which offer ideal open space settings and are desirable to preserve for this purpose. The most notable of these are the tree-lined Willamina Creek and South Yamhill River. The lands adjacent to these water bodies are within a recognized flood plain. These areas make possible a wide range of uses and functions for land that is normally considered impractical and unwise for urban development. For example, when left in a natural state such areas can be a visual asset to the City. They can serve as a wildlife refuge for fish, birds and small animals. They can provide recreational opportunities such as bicycle and hiking paths, and they can serve as an open space buffer between areas of urban settlement.

Another significant open space area is the wooded land between Willamina Creek and Lamson Street. A city park already comprises a portion of this site. The remainder is heavily wooded on steep slopes and is generally recognized for possible future park development.

Within the City there are large tracts of agricultural and vacant land. These are most prevalent in the northern section of the town. However, it should be noted that as a rural community, Willamina is surrounded by scenic farm land and open spaces which lend an overall pastoral setting to the City.

Other existing uses which provide open space in Willamina include school grounds, vacant lots and parks. Scenic views are offered by the Coast Range to the west and farmland vistas to the South.

Historic and Cultural Resources

The first settlement in the Willamina area occurred about 1846. The town took its name from the creek on whose banks it was founded. The creek was named after Willamina Maley, one of the first settlers in the area.

In 1879 both a grist mill and sawmill were constructed. The two mills were the beginning of the town of Willamina and, no doubt, were the reason the town came into being at all. The town was surveyed, laid out and recorded at the courthouse that same year. It grew steadily from that point on. Numerous shops and stores were added to the town as new residents settled in the community. The first school in the town was built in 1880 with a second being added in 1880. The first Church in Willamina was a Congregational Church built about 1887.

Willamina became an incorporated city in 1903. In 1907 the railroad was built from Sheridan to Willamina. That same year a brick plant was

started in the town. Originally known as the clay pit, the plant grew in size and employed many workers over the years. It became one of the finest plants in Oregon and was known as the Willamina Clay Products Company. The brick plant closed in 1974. The buildings and kilns were razed two years later.

In 1919 and 1923 major fires swept the commercial center of the town. The first fire burned more than a block of business establishments. The second destroyed nearly two blocks.

Despite Willamina's rich history, it has no sites or structures listed in the Statewide Inventory of Historic Sites and Buildings published by the Oregon State Historic Preservation Office. Citizens of the town have recognized the Andrew Kershaw House as worthy of historic status. Two nearby structures also considered to have historic significance are the Rock Creek School, northeast of the City, and Fendall School, up Willamina Creek from the town.

Source: Old Yamhill: The Early History of its Towns and Cities;  
Yamhill County Historical Society, 1976.

#### Mineral and Aggregate Resources

An inventory of mineral and aggregate resources for Yamhill County is scheduled to be completed in 1979 by the Department of Geology and Mineral Industries. Until this study is completed there is little information as to potential sources and sites.

At present no quarrying activities occur in the Willamina planning area. There are no known plans to develop aggregate resources on either the South Yamhill River or Willamina Creek.

#### Fish and Wildlife Resources

The major aquatic habitats within the Planning area include the South Yamhill River, Willamina Creek and Willamina Pond. The South Yamhill River and Willamina Creek are migration routes for coho salmon, winter steelhead trout, and cutthroat trout. Within the Willamina area, a limited amount of spawning and rearing by these species occurs. Consequently, the Willamina area of the South Yamhill River supports a small fishery for winter steelhead. However, Willamina Creek--upstream from the City--supports a major fishery for steelhead. In order to maintain this fishery, the Department of Fish and Wildlife plants 25,000 juvenile steelhead annually in Willamina Creek.

Some cutthroat trout are found within the South Yamhill River and Willamina Creek the year-round. Populations are highest during the spring months, when most angling occurs. A few hatchery rainbow will be found in the South Yamhill River during the spring. These rainbow drift into the South Yamhill from releases made in Mill and Agency Creeks.

Nongame species inhabiting the South Yamhill River and the lower reaches of Willamina Creek include: largescale sucker, northern squawfish, dace, reidside shiner, sculpin and Pacific lamprey.

Willamina Pond is stocked in April with 3,000 rainbow trout. In addition to trout, the pond contains: largemouth bass, black crappie, and yellow perch. The pond receives heavy angler use during the spring primarily for trout. During the remainder of the year, angler use ranges from low to moderate with warm-water game fish comprising the bulk of the catch.

#### Energy Resources

The Willamina planning area has no reserves of fossil fuels - such as petroleum, coal or natural gas - that are known to be commercially feasible. By contrast, the development of its renewable energy resources looks much more attractive.

Preliminary assessments indicate that low-head hydro power is available on the South Yamhill River as far upstream as Grand Ronde, as well as on the Willamina Creek. Low-head hydro is defined as water flow that is sufficient to generate 200 kilowatts of electricity, or roughly the needs of 200 families. Since installations to generate this quantity of power are sized for communities or small industries, it follows that hydro power is also available in Willamina for less demanding applications.

Wind power is another potential energy source in and around Willamina. Moderate to strong winds have been reported in the area. At this time there are two wind mills and one anemometer in operation around the planning area. Wind power suitable for application is likely to occur in the Coast Range corridor, in up creek valleys and along ridges. To the extent that Willamina receives strong winds through the Coast Corridor, the power derived from these wind sites is likely to be sufficient to address household heating needs, water pumping and other mechanical applications.

Unlike wind, which varies in velocity, space and time, solar power is available uniformly over the area. The Willamina vicinity boasts no less than seven solar buildings either under construction or planned. In a well designed and insulated house, energy from the sun can meet up to 60% of the household heating needs at little extra initial cost. This amounts to roughly 45% of the total energy budget of the home. In addition to residential settings, commerce and industry structures also can be designed to take advantage of solar energy for heating, lighting and cooling.

Wood is perhaps the most recognized energy resource in Willamina. Wastes from the mills can be converted to a number of solid fuels, including sawdust for homes and boilers and pellets for commercial use. As a liquid fuel that is more readily transported, wood lends itself to technical processes that convert it to alcohol or oil. Demonstration plants in California prove that wood wastes can be converted to natural gas at a price that is lower than the natural gas we now import.



In general, the potential for cogeneration exists among wood product industries in the planning area. Cogeneration involves applying the waste stream from these industrial operations to drive turbines for electrical generation.

Other renewable energy resources in Willamina be largely untapped in the form of solid waste, sewage waste and unnecessary use of electricity and fossil fuels.

Source: Yamhill County Energy Office, March, 1979.

## AIR, WATER AND LAND RESOURCES QUALITY

### Air Quality

Air quality standards have been adopted by the Federal and State Government to protect the health and public welfare from known adverse effects of air pollution. There are two divisions within the standards, primary and secondary. The primary standards are to protect the public health and the secondary standards are to protect the public from effects such as visibility reduction, soiling, nuisance and other forms of damage. McMinnville has the nearest air monitoring station and its air quality is well within the Federal and State standards. It can be safely assumed that the air quality of Willamina is also well with Federal and State standards.

However, due to topographic and meteorological conditions, this area, as well as the entire Willamette Valley experiences temperature inversions. Basically, inversions prevent the rising of air currents, thus trapping them near the ground; and by preventing airborne materials from escaping, causes air pollution. Without careful observation and monitoring of air pollutant sources in this area, there is a potential for serious pollutant problems to occur.

This is particularly true in Willamina's case since the City is bounded by the Coast Range foothills to the west. Cold air masses moving over the coast have the potential for creating serious inversion problems by preventing the warm valley air from rising.

During certain periods of the year local agricultural activity, particularly open field burning and tilling, generates suspended particulate matter, which, for a period of time can reduce visibility and be quite irritating. It also can be hazardous to people suffering from respiratory illnesses. Overall, though, the local agricultural pollutant contribution is rather insignificant.

Industrial activity has the potential of creating localized air pollution problems because of Willamina's geographic location. However, air pollution problems due to industrial activity have been historically low. Activities in the planning area that monitor source emissions for the Department of Environmental Quality are Willamina Lumber Company, Champion International, and Morton Alder Mill.

### Water Quality

Water quality within the area is quite good. Willamina Creek and the South Yamhill River exhibit no major pollution problems; however, water quality is occasionally impaired by soil erosion, urban storm runoff, and seepage of chemical fertilizers and pesticides from nearby agricultural lands. Source emissions from industrial activities in the planning area are monitored by the Oregon Department of Environmental Quality to determine compliance with state and federal water pollution standards.

### Geology

Several geologic formations are found in the Willamina planning area. There are three major types: 1) intrusive volcanic, which is sometimes referred to as the Nestucca Formation; 2) marine sedimentary, or the Yamhill Formation; and 3) alluvial deposits. Important subgroups are non-marine terrace deposits and landslide debris.

The hills upon which Willamina has developed are a mixture of intrusive volcanic and marine sedimentary rocks. These formations consist of dark-gray tuffaceous shale and siltstone and thin-bedded sandstone with interbedded basalt and an occasional limestone lense.

The alluvial deposits are found along the flanks of the South Yamhill River and Willamina Creek. These are the newest formations and, as such, are unconsolidated or semi-consolidated.

Generally these types of formations are dense and have a low permeability. The transition of ground water to wells and springs is slow and sporadic and precludes the opportunity for major aquifer development.

### Topography

The terrain within the planning area alternates between flat bottom lands to steeply sloped hillsides. Elevations range from 220 feet along the creek and river to over 400 feet in the extreme southwest corner of the City. Slopes are predominately under 10 percent, but areas of excessive slopes (over 20%) are scattered throughout the planning area.

The major drainages are Willamina Creek which runs in an easterly direction through the center of town and the South Yamhill River which forms the eastern city limits.

## NATURAL HAZARDS

The only identifiable natural hazards found in the Willamina area are due to flooding, soil hazards, and steep slopes. Approximately 45 percent of the planning area is subject to some form of natural hazard. Most of this area is within the 100-year flood zone and has already been largely developed. Lands subject to natural hazards show severe building limitations and should be extensively evaluated to adequately plan for future growth.

### Flood Plains

Flood plains are those areas which are dry during some seasons of the year but may be covered with water when heavy rain, melting snow, or other conditions cause adjacent rivers, streams, or lakes to overflow their banks. The determination of the extent of this overflow is the first consideration in planning for the use and control of such areas. This overflow area, or flood hazard area of Willamina has been mapped for the National Flood Insurance Administration. By 1980 this map should be refined to include precise elevations and flood insurance rates. Until that time the special flood hazard area map prepared by the Yamhill County Planning Department should serve as the official flood hazard map for the Willamina area. This map is available for inspection at City Hall.

Approximately 30 percent of the City of Willamina lies within the identified flood hazard areas of Willamina Creek and the South Yamhill River. Much of this area is already developed and runs the risk of potential future flooding. Any use of flood hazard areas should be carefully evaluated before future development is allowed to occur.

### Soil Hazards

Of the thirteen soil types present within the planning area, seven soils, comprising about 45 percent of the land, are in the category of "severe" limitations for building construction. Two of these soils types are considered severely restrictive because they lie in the flood hazard zone. The characteristics which severely limit building on the other five soils include poor drainage, high shrink-swell potential in the subsoil, low shear strength, and high slide hazards.

### Steep Slopes

The steepest slopes in Willamina are found north of Willamina Drive and in the wooded area between Willamina Creek and Lamson Street. A third stretch of steep slopes extends along the north side of East Main Street. Slopes in excess of 20 percent exist in each of these areas. Steep slopes, while not necessarily a hazard themselves, are a factor to be considered when combined with soil characteristics.

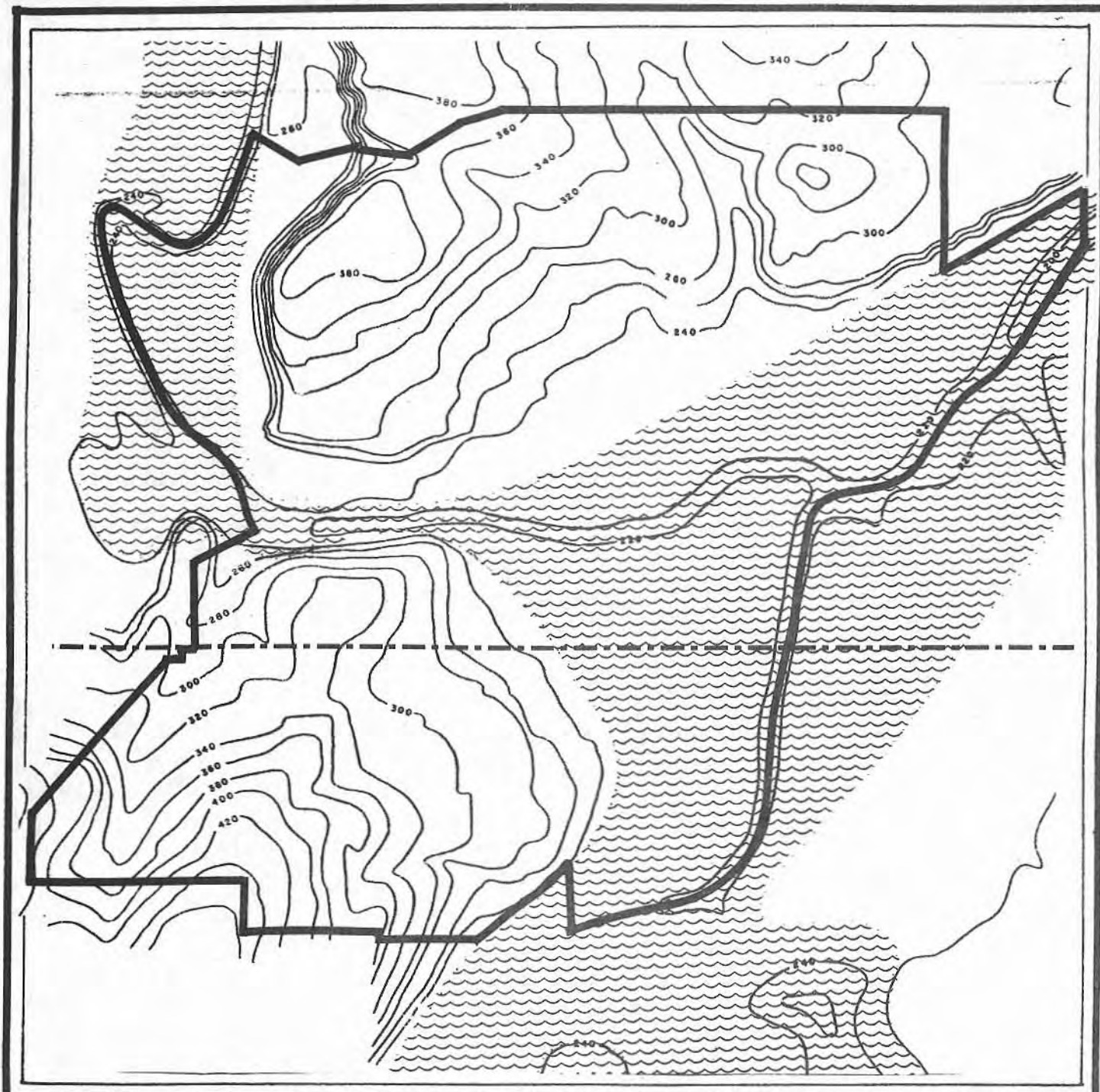
Building on steep slopes has implications not only in terms of public safety but of economics as well. This is especially significant in



today's housing market in which an increasing number of people can no longer afford to purchase a home. Design and construction costs must be taken into account when building on steep slopes. As the percentage of slope increases there is an increase in the cost of the structure.

Steep slopes also exhibit soil structure and structural geology problems. There exists a potential for roadway and structure collapse and landsliding to occur when soil and geologic structure have been modified and weakened by development.

Source: Yamhill County Planning Department, 1978.



# CITY of WILLAMINA

## TOPOGRAPHY/FLOOD PLAIN



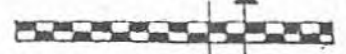
FLOOD HAZARD AREA (100 yr. flood plain line)

Contour lines measured in feet above sea level

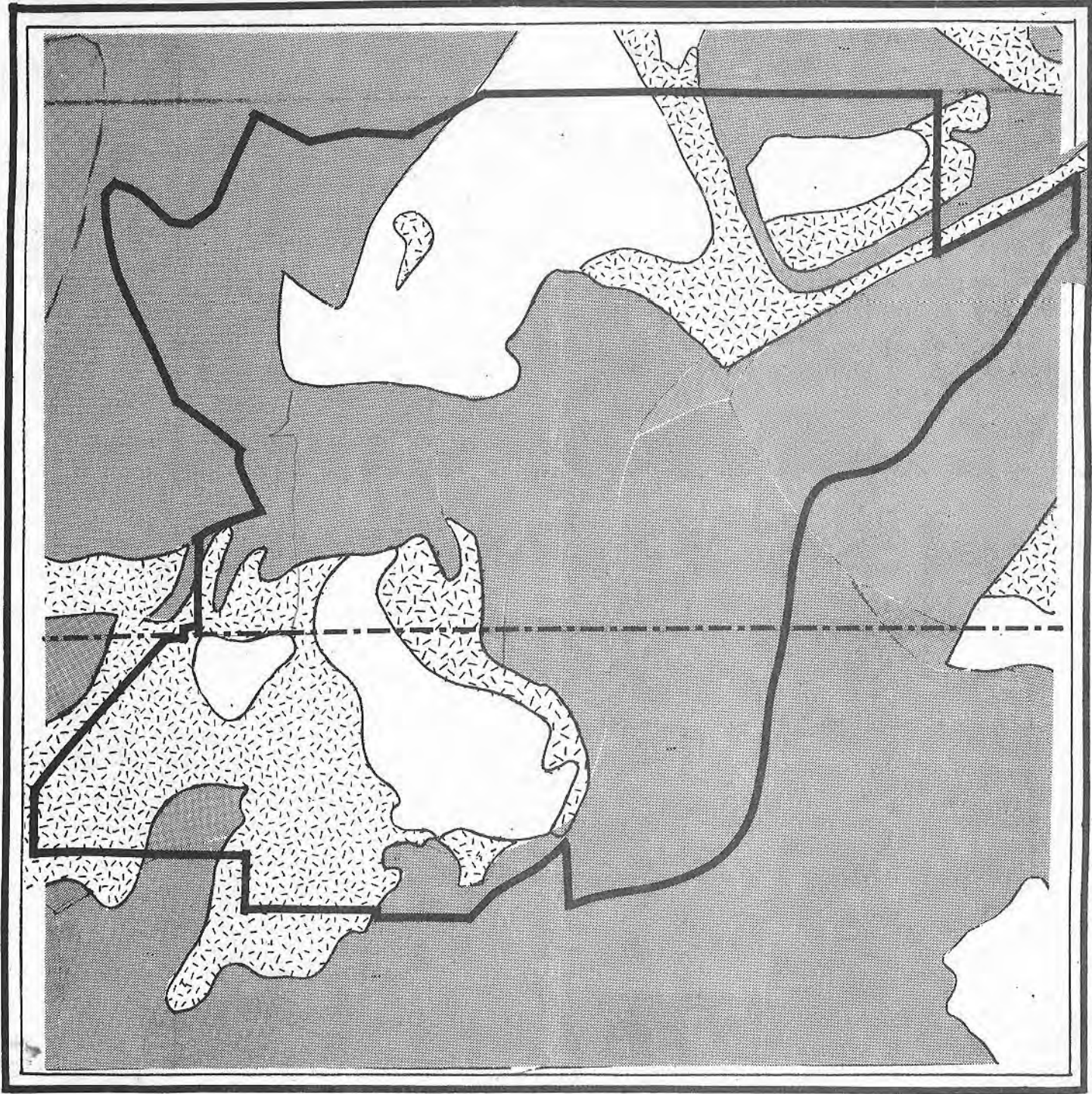


North

1.2"-1/4 mi.



Scale: 1"=1085'



# CITY of WILLAMINA

## BUILDING LIMITATIONS



**SEVERE LIMITATIONS**

Flood hazard

Slopes above 20%

Soils with qualities: high water table; severe shrink/swell; poor drainage; floor or slide hazard (or a combination of the above)



**MODERATE LIMITATIONS**

5 to 20% slopes  
Moderate soils



**SLIGHT LIMITATIONS**



North

1.2"-1/4 mi.



Scale: 1"=1085'



## ECONOMY OF THE CITY

Since its earliest days, the City of Willamina has been largely dependent upon agriculture and the lumber industry for its economic livelihood. In fact, the City's founding was brought about primarily by the establishment of two mills - one a sawmill, the other a grist mill - in the late nineteenth century. The Third Biennial Report of the Oregon Bureau of Labor issued in 1908 listed in the City's principal industries as stock-raising, dairying, and the growing of wheat and oats.

Timber and agriculture continue to heavily dominate the local economic scene today. Although these industrial activities occur, for the most part, outside the City, they have a direct impact on the City's overall economic health. Numerous support activities, such as retail trade and service establishments, are in existence to supply goods and services for those living and working in the surrounding area. Today, the City serves as a retail trade and service center for those engaged in agricultural and timber practices - the area's basic industries.

The major lumber products firms in the Willamina area are located immediately outside the City. The largest of these firms are Willamina Lumber Company and Champion International. A third lumber plant operated by Boise Cascade is located about a mile west of the City. Together these three companies employ approximately 600 workers. Several small logging companies are also based in Willamina or the immediate vicinity.

A recent inventory of the business establishments in the City revealed that one-third are in the retail sector and one-third are in the service sector. Other industrial sectors (according to Standard Industrial Classification Codes) represented by business establishments are construction, manufacturing, wholesale trade, transportation - communication, and finance-insurance-real estate.

The largest individual employer within the City is Willamina School District which provides 107 persons with jobs. The retail trade and service sectors together account for about 75 percent of the jobs offered within the City. The remaining jobs are scattered fairly evenly among six other industrial categories. If nearby lumber companies are taken into consideration the local job market is heavily concentrated in manufacturing.

Only ten percent of Willamina's work force (those working in the City but not necessarily residing there) is employed in basic industries - that is, in local businesses which produce goods or services for export out of the immediate area. Most export industries in the Willamina area are related to timber products and these lie outside the City. Within the City only a handful of small business operations could rightfully be considered as basic industries. These are primarily within the manufacturing and transportation sectors.



Occupational characteristics of Willamina residents can be obtained from a 1976 community survey. The question concerning primary occupation of the household's principal wage earner produced the following results:

Lumber industry	32%
Professional/managerial	10%
Other blue collar	5%
Construction	4%
Clerical/retail	4%
Education	1%
Other white collar	1%
Retired	39%
Unemployed	3%

The above data confirms the City's dependence on the lumber industry. It shows that one-third of the City's principal wage earners are employed in this industrial sector. Retired persons comprise a rather large percentage of the households in the City. The unemployment rate of 3 percent was far below the County's 9.6 percent average unemployment rate for 1976.

Additional data obtained in the survey show that 65 percent of the community's principal wage earners work in the City. (Lumber companies immediately adjacent to the city are probably included in this percentage figure). Of those working outside the City about 8 percent are employed in McMinnville while the remaining 27 percent work in other places.

Median family income for Willamina can be derived from a housing survey conducted by the Mid-Willamette Valley Council of Governments in 1976. The information from this survey revealed that the City's median family income was \$9,588. This figure ranked well below both the County and State medians which were \$12,872 and \$13,750 respectively. However, compared to other small cities in Yamhill County, the City's median family income fell in the mid-range.

Public opinion concerning the local economy can be obtained from the 1976 community survey. The following are responses from that survey:

- 44% of the respondents thought heavy industries should be encouraged inside the City.
- 89% felt light industries should be encouraged.
- 38% would like to encourage the City to be a residential community for people working elsewhere.
- 34% want to see it as a community in which retired people from other areas are encouraged to move.
- 93% thought the City should be a community for people who work in Willamina.
- 73% of the respondents expressed the need for some new non-industrial employment opportunities (services, retail trade, etc.).

- 38% felt that shopping and residential needs in the community are adequately being met.

### Commercial Development

The existing commercial core of Willamina is located along the old route of Highway 18 which is the major transportation corridor of the City. The level of commercial outlets in the City appears to provide a basic level of services. The results of the community attitude survey indicated that a greater variety of stores needs to be located in Willamina over time. The City will continue to be the major retail center for the westernmost part of Yamhill County and part of Polk County. Yet, Willamina will face increasing competition from Sheridan, McMinnville, Dallas and, for major items, Salem.

Traffic congestion is a major problem in the commercial core especially during peak traffic periods. At present much of Main Street is used for parking, greatly reducing the travel lanes and increasing traffic hazards. There is a large parking lot at the intersection of Main Street and Highway 18, but it is primarily devoted to the retail outlets surrounding the parking lot. The City and local business interests should explore the possibility of acquiring land for additional parking. It is further suggested that parking along Main Street not be allowed during peak traffic periods to help relieve traffic congestion.

The City, in cooperation with local business interests, may be interested in exploring possibilities of improving the downtown core. A Downtown Redevelopment Plan (DRP) could be developed. The emphasis of such a "mini-plan" should be to create an atmosphere of identity for the community, and to encourage the downtown area as a center of public and private activities.

The development and implementation of the DRP must be an effort by the entire community. However, the real effort and burden is the responsibility of the City government and local business interests. To start the process an advisory committee could be established composed of representatives of local business interests, City Planning Commission, City Council, and private individuals. The committee should be charged with the responsibility to formulate detailed proposals for the future development of the commercial core.

Sources: Economic Profiles of Yamhill County's Small Cities; Yamhill County Planning Department, November, 1978.  
City of Willamina Community Attitude Survey, 1977.

## RECREATION

Willamina currently has six city parks totalling about 15 acres. The smallest of these, commonly referred to as the triangle, is approximately .1 acre in size and is located at the point where State Highway 18 and Branson St. converge. The Garden Spot is a .5 acre city park located on Willamina Creek. It offers picnic tables and a large fire place. Miller Park is a .25 acre area adjacent to the City hall. It has playground equipment and restrooms. A one acre park is situated in a wooded area north of Lamson St. This park has no recreational facilities other than a shelter used by the Boy Scouts. Huddleston Park is approximately 9 acres in size located at the end of Adams St. and along the Willamina-Grand Ronde Railroad tracks. This park contains playground equipment, picnic facilities, restrooms and a fish pond. Oaken Hills Park is a 4.1 acre site recently donated to the City as part of the Oaken Hills Subdivision. This park site has not yet been developed.

Although none of the city parks have athletic fields, the general public is allowed limited use of school-owned sports facilities and athletic fields when school is not in session.

There are two county parks in the vicinity of Willamina. Blackwell Park is a 5.9 acre county owned recreational area which offers picnicing, swimming, fishing and camping. It is located 4.5 miles north of the City on Willamina Creek. Stuart Grenfell Park is about 2.5 miles east of Willamina and also provides picnic facilities, swimming, fishing and camping.

According to standards released by the Parks and Recreation Branch of the Oregon Department of Transportation, a city-wide park should be 2-1/2 acres per 1,000 people. With an estimated 1979 population of 1600, Willamina's 15 acres of park land easily satisfy this standard. In addition, there is sufficient park land to meet the needs of the City's projected population to the year 2000.

Should the City desire to acquire or develop additional park and recreational facilities there are primarily three funding alternatives available to it. The City can either: (1) seek outside agency funding, (2) seek local methods of funding through tax levies, bond issues or other measures; or (3) require additional park lands in future subdivisions.

### 1. Outside Agency Funding

Yamhill County annually receives Heritage Conservation and Recreation Services (H.C.R.S.) funds to be used for park and recreation projects. These funds are available to local municipalities on a competitive basis. The City of Willamina also has available to it the County's share of state gas tax monies to be used for the construction and maintenance of bicycle paths. This could also serve as a worthwhile recreational project for the City.

2. Local Measures

Given that the City has sufficient park lands to meet the needs of its present and future population, special tax levies or bond issues for the acquisition of additional park and/or recreational facilities would not seem to be a likely funding source.

3. Revised Subdivision Ordinance (Park space requirements)

The City may find its best opportunity for setting aside additional park space through its subdivision ordinance.

Source: Yamhill County Planning Department, 1978.



POPULATION AND HOUSING

Population

Willamina's past population growth has been consistent with population trends in other small cities of Yamhill County. Except for a decline in population during the 1950's, the City has experienced steady growth. The period between 1940 and 1950 was one of very active growth. From 1960 to 1970, the City grew at an average annual rate of 2.5 percent. According to Portland State University Center for Population Research and Census, the growth rate between 1970 and 1978 is estimated to be slightly higher than this.

Table 2. Selected Population Figures  
City of Willamina

<u>Year</u>	<u>Population</u>	<u>Percent Increase</u>
1940	667	--
1950	1,082	62
1960	954	-12
1970	1,193	25
1975	1,355	14
1976	1,375	1
1977	1,440	5
1978	1,445	.5

Source: Decennial Census Data and Portland State University Center for Population Research and Census, Population Estimates.

The most recent population estimates released by PSU place Willamina's population at 1,445. This figure represents the estimated population as of July 1, 1978. Housing data used in deriving this figure was collected prior to July, so that the estimate more accurately represents the population to the early part of the year.

A major building boom in Willamina since the summer of 1978 has increased the City's population considerably above the P.S.U. estimate. Development of subdivisions totalling 85 additional units has been in progress since the summer of 1978. At the time of a housing inventory conducted by the Yamhill County Planning Department in December, 1978, fifty units were already completed or under construction. The inventory revealed that approximately 578 housing units exist in the City. Excluding the recently constructed homes in the new subdivision, only five vacant dwelling units were found in the City. Information provided by the developer revealed that each new housing unit was sold and scheduled for occupancy upon completion. Therefore, by applying Willamina's 1970 average household size of 2.76 to the 573 occupied dwelling units determined to exist in the City at the time of the housing inventory, Willamina's 1978 population would amount to 1,581 persons.

The outlook for 1979 is a continuation of major residential developments in Willamina. It is estimated that the remaining 35 units of the sub-

division will likely be constructed in the coming year. In addition to these, the following housing developments have received formal approval by the City and are expected to be constructed by the end of 1979: a 16-unit subdivision; a 24-unit apartment complex; and a 15-35 unit mobile home park. Thus, the City can expect approximately 100 new housing units in 1979. At an average household size of 2.76, this would mean an additional 276 people coming into the City. This would bring the City's 1980 population to an estimated 1,857 people.

Due to the extensive housing development and subsequent growth, in the last year, existing population projections for the City of Willamina seem to be highly unrealistic. For instance, the expected 1980 population of 1,857 virtually equals the projected 1995 population set by the Yamhill County Planning Department, and it exceeds the projected 1990 population prepared by the Mid-Willamette Valley Council of Governments. In order to compensate for the recent growth spurt, adjusted population projections are clearly needed.

### Revised Population Projections

Willamina's recent growth spurt is expected to diminish upon completion of the newly proposed residential developments. It is generally felt that these housing projects will help meet a serious housing shortage that has existed for many years. As the site of several large wood products industries, the Willamina area provides employment for many Polk and Yamhill County residents. Many of these have sought housing in Willamina, thus placing a high demand on this commodity. The recent housing boom is a move to address this long-standing demand. It is believed that completion of the developments will supply the sufficient housing units to satisfy this pent-up demand. Consequently, population growth is expected to drop significantly after 1980.

In establishing new population projections for Willamina a high, middle and low range can be set. These are based upon three different projected growth rates. The high range uses an average annual growth rate of 2.5 percent. This represents the historical trend from 1960 to 1978. A 1.9 percent growth rate is used as a mid-range. This figure represents the average annual growth rate according to the Mid-Willamette Valley Council of Governments population projections. The low range is set at 1.6 percent and represents the average annual growth rate established in population projections made by the Yamhill County Planning Department last year. Table 3 shows revised population projections to the year 2000.

Table 3. Revised Population Projections

	City of Willamina				
	1980	1985	1990	1995	2000
Yamhill County Planning Department	1,504	1,639	1,747	1,860	1,956
Mid Willamette Valley Council of Government	1,510	1,640	1,770	1,910	2,050
Revised					
Low Range (1.6% growth rate)		2,005	2,165	2,338	2,525
Mid Range (1.9% growth rate)	1,857	2,033	2,226	2,437	2,668
High Range (2.5% growth rate)		2,089	2,350	2,644	2,974

#### Summary

In light of recent housing developments, Willamina has been experiencing rapid population growth. Construction of fifty new single-family homes in the latter half of 1978 increased the City's population by an estimated 138 people or approximately 10 percent over the P.S.U. population estimate for that year. Plans for construction of about 100 additional housing units in the City by the end of 1979 suggests a population increase of another 276 people during this year. Based upon these new housing starts Willamina's population can be expected to reach 1,857 by 1980.

Upon completion of the proposed residential developments, Willamina's growth rate is expected to decrease sharply. Employment opportunities in the area are not anticipated to increase significantly due to either stabilization of or possible decline in the forest products industry during the next 20 years. A stabilizing of Willamina's economy should result in a slow down of the community's growth rate. For this reason, the low range projections are considered a reasonable estimate of the City's future population. Therefore, the City's population by the year 2000 is expected to be 2,525.

#### Housing Inventory

A housing survey, conducted in December, 1978, revealed that approximately 578 housing units exist in the City of Willamina. Of these, 495 are single-family units (86%); 69 are multi-family units (12%); and 14 are mobile homes. Excluding recently constructed homes, only five vacant dwelling units were found to exist in the City. This vacancy rate of less than 1 percent, indicates a severe limitation in housing choices among city residents.

A citizen attitude survey, which was conducted in early 1977, indicated

that 85 percent of city respondents felt there was little or no housing choices for new residents. In determining the type of housing most needed in the community, the following findings were obtained:

Homes to Rent	64%
Homes to Buy under \$20,000	52%
Homes to Buy from \$20,000- \$30,000	39%
Mobile Homes	37%
Apartments	31%
Duplexes	23%

NOTE: Figures depict multiple choices.

Citizens were asked what their reaction would be in allowing mobile homes as a viable housing alternative. Only 7 percent of City respondents felt that mobile homes and mobile home parks should be discouraged. Sixty-eight percent felt that mobile home parks should be allowed in the City, but only with high standards regarding parking, sanitation, landscaping and the like.

#### Housing Trends

Willamina's housing stock has increased by about 32 percent since 1970. Approximately 40 percent of these additional units were added during 1978. As Table 1 indicates, the majority of new housing added since 1970 has been single-family units. In terms of individual percentage increase, mobile homes have shown the greatest rise, having doubled over the past eight years. However, mobile homes represent only 5 percent of the total number of units added since 1970, while multi-family units represent 17 percent of additional units; and single-family units account for 78 percent of all units added to Willamina's housing stock since 1970. The vacancy rate has shown a significant drop in the past eight years.

Table 4. HOUSING STOCK GROWTH

	1970 <sup>1</sup>		1978 <sup>2</sup>		Percent Increase of Housing Type (1970-1978)
	No.	Percent of Total Housing Stock	No.	Percent of Total Housing Stock	
Single-family	386	88.1	495	85.6	+28.2
Multi-family	45	10.2	69	11.9	+53.3
Mobile home	7	1.7	14	2.5	+100.0
TOTAL	438	100.0	578	100.0	+31.9
Vacant	21	4.8	5	0.8	-76.2

<sup>1</sup>1970 Census Data

<sup>2</sup>Windshield Survey, December, 1978.



The owner-renter split among Willamina's housing stock has changed substantially since 1970. In that year, owners occupied 62.8 percent of the housing units, and 32.4 percent were renter-occupied. According to a recent mail-out survey taken by the City, 83.5 percent of the housing stock is owner-occupied while only 16.5 percent is rented. These figures confirm the need for additional rental units in the City.

#### Housing Conditions

The age of the housing stock in Willamina is characteristic of most other communities in Yamhill County. Many of the housing units in the City were constructed prior to 1940. This may account for the rather large percentage of dwelling units which were found to possess physical defects. According to the housing survey conducted in December of 1978, the following housing conditions were found to exist in Willamina:

	Percentage
Not defective	25%
Slightly defective	20%
Intermediately defective	44%
Critically defective	11%

These figures indicate that there is a definite need for the repair and/or replacement of housing units in Willamina.

#### Housing Projection

The revised projected population for Willamina to the year 2000 has been placed at 2,525 people. This is an increase of 944 people or 60 percent over the 1978 estimated population of 1,581. At an estimated average household size of 2.76 persons, approximately 342 additional dwelling units will have to be provided by the year 2000. This is an average of about 10 additional units annually, but as mentioned earlier about 100 dwelling units are planned for construction in 1979. The 342 figure is only an estimate based on the population projection and the existing average household size for the City of Willamina. The actual number of dwelling units will vary depending upon such factors as the local economy, social attitudes, and the availability of home financing. The amount of land necessary to accommodate such growth will also vary, depending upon what housing mix and densities the City allows.

One of the major concerns of the City should be to allow an adequate choice of housing for both its present and future residents. Special attention should be given to the housing needs of the elderly, the low income, and the handicapped. With the rapidly accelerating costs in the housing market, it is important to establish housing policies which will ensure that housing needs will be met.

PUBLIC FACILITIES AND SERVICES

Education

Education is an integral part of any urban community. The provision of educational services aids the community in many ways. In choosing a community to reside in, the quality of education is often a major determining factor for families who are relocating. When schools are not in use for instructional purposes, educational facilities can be used for civic and organizational activities. Maximum utilization of school buildings is also cost efficient and energy conserving. This is a very important consideration since the majority of property tax dollars go toward education.

Educational services for the community of Willamina are provided by School District 30. The area served by the school district is about 259 square miles and includes the community of Grand Ronde.

There are presently three schools in District 30; two are located in the City of Willamina, one is an elementary school servicing grades Kindergarten through 8th; the other is a high school that serves grades 9 through 12.

The high school was constructed in 1939 and improvements were made in 1954. It has an approximate capacity of 325 students. With an existing enrollment of 280, the school is operating under capacity.

The elementary school was constructed in 1949 with expansions occurring in 1956. The bulk of the school was destroyed by fire in January, 1979. Since then, the elementary school has been operating in shifts and is utilizing other local facilities until a new school can be built. Before the fire, the school had an enrollment of 587 students which was well above its estimated capacity of 500 students.

Willamina School Enrollment

November 1978

<u>School</u>	<u>Enrollment</u>
Willamina Elementary (K-8)	587
Willamina High School (9-12)	280
Grand Ronde Elementary (1-8)	160
	<hr/>
TOTAL	1,027

Prior to the elementary school fire, the Willamina School District had been investigating the need for expanding existing facilities. A committee had been examining alternative areas within the City for a future school site. At that time, it was not certain whether a new high school or elementary school should be built.

More recently, the School District has proposed a \$7.3 million bond issue for voter approval this year. If passed, the bond issue will make possible construction of a new kindergarted through fifth-grade elementary school and a four-year high school. These will replace

the Willamina Elementary School and the current high school, which will be converted to a middle school for grades six through eight.

Both new schools would be built on the same site. The school district has begun acquisition of a 40 acre parcel across from U.S. Plywood on Highway 18B. The district hopes to have the new schools completed by September 1980.

Other educational opportunities are available to the residents of the community. There are two private Liberal Arts Colleges in the County; Linfield College in McMinnville and George Fox College in Newberg. Chemeketa Community College, which is located in Salem, offers selected courses in Willamina and has a district office in McMinnville.

Sources: School District 30  
News-Register article, March 14, 1979, pp. 1 & 3.

#### Solid Waste

Solid waste management is a regional as well as local responsibility. Yamhill County is part of the Chemeketa Solid Waste Region. In 1978 a region plan was adopted by the Chemeketa Solid Waste Region but has not been adopted by any of the County's local governments. The plan addresses alternatives for regional disposal and recycling systems but has no implementation provisions.

Sanitary Service of Sheridan provides the solid waste disposal service for the City and the immediate area. The service is provided through a ten year renewable contract. Service rates are submitted to the City Council for approval. The current residential rate is \$3.75 a month for one can a week, and \$2.50 for every additional can per week, and \$1.25 for occasional can pickup. For container pickup the Sanitary Service charges \$15.00 per cubic yard for container pickup, and \$21.00 per cubic yard and one-half container pickup. Every customer has the option to buy or rent the container. Presently, container rental is \$6.90 per month. The only service the Sheridan Sanitary Service does not provide is drop box pickup.

The demand for solid waste is expanding. The Sheridan Sanitary Service has had to recently acquire a new truck. The Sanitary Service has had no problem servicing Sheridan and Willamina area, but has had some problem servicing the more outlying areas.

Refuse is picked up by truck and transported to the Whiteson Landfill site, 6 miles south of McMinnville, a County-owned site, operated by a private franchise. The landfill site is very near capacity and a new site will be needed by 1981.

Recycling solid waste materials reduces the volume of material to be disposed of, and conserves energy and material resources. Materials generally recycled are glass, ferrous and non-ferrous materials, plastics



and paper. Paper products constitute the largest percentage of solid waste materials. At this time there are two recycling efforts in the County. City Sanitary Service of McMinnville is doing some recycling at the Whiteson Landfill site. Cardboard, ferrous and non-ferrous materials are sorted from the incoming refuse. Equipment used in the recycling operations consists of a shredder and baler, a compactor unit and a tractor. In approximately a year's time, City Sanitary Service of McMinnville hopes to have a separate recycling service with the disposal service.

Yamhill Valley Recycling Center is a non-profit recycling center operating under the Portland Recycling Team. The center opened in June of 1977. Glass, paper, aluminum, tin, motor oil, rare and scrap metals are recovered at the center. All sorting is done manually and then transported to Portland for recycling or transferred to other destinations.

The Yamhill Valley Recycling Center has quite a substantial amount of support from county residents. In June 1977, 9 tons of material were sorted at the center and at this time an average of 50 tons of material is being sorted monthly.

Source: Sanitary Service of Sheridan, December, 1978.

#### Police Protection

Police protection is provided by the City of Willamina. The police chief, four full-time officers and three reserve officers provide the City with 24-hour protection. The City contracts with Yamhill County for use of the County jail facility. Police equipment consists of two vehicles.

There appears to be adequate police services at the present time. As the community grows, the department will need to be expanded.

#### Fire Protection

Willamina's fire protection is provided by a city volunteer fire department. The department consists of 38 firefighters including the chief and assistant chief. Equipment consists of eight firefighting vehicles.

The Willamina Fire District covers an area of approximately 60 square miles. The City's fire rating is 7, while the fire rating in the surrounding rural areas is 8, and in some places, 9. There are no special problems experienced by the department at this time, and fire protection appears to be adequate. As the community grows, the department will have to expand in order to continue effectively meet citizens' needs.

### City Government

The City is administered by a mayor-council form of government. The council is an elected 6-member body. A nine-member planning commission is appointed by the council.

Municipal services are provided through the following positions: one city recorder, one city secretary, five public works employees, one police chief, and four police officers. Part-time positions include: one fire chief, one assistant fire chief, one librarian, and three reserve police officers.

### Medical Services

There are two medical facilities in Willamina at the present time, as well as two dental offices. The medical facilities include the Willamina Clinic and the Family Clinic. The nearest available hospital facilities are in McMinnville. The McMinnville Community Hospital has 87 beds at the present time and expects to need additional beds by 1982-83. For ambulance service, Willamina contracts with Superior Ambulance Service of Sheridan on a yearly basis.

Additional health services are provided through the Yamhill and Polk County Health Departments. Home nursing, clinics, counseling, and a mental health program are just a few of their important services.

### Communications

The Willamina planning area is serviced by United Telephone Company. As of August, 1978, United Telephone serviced 740 residential customers and 107 business customers. Company representatives state that telephone service can be expanded as future growth occurs.

The Sheridan Sun serves as a source of local news. It has a total circulation of approximately 2,300. Other daily county and regional newspapers include the News-Register, published in McMinnville; the Oregonian, published in Portland; and the Statesman, published in Salem.

There are presently two radio broadcasting companies in McMinnville -- KCMC and KSLC-FM; plus a variety of stations from Portland and Salem that can be received locally. Television transmission comes from the Portland area. Six stations are available to local viewers and some closed circuit programming is available.

Willamina has had a post office since 1855. There is no mail delivery service in the City at this time. All residents pick up their mail at post office boxes.

Sources: Dave Dockham, United Telephone Company  
City Hall, Willamina

## Water Resources

The City of Willamina is located in an area of abundant water resources. Bordered on the west by Willamina Creek and on the south by the South Yamhill River, these bodies of water provide the City with municipal supply, multi-recreational opportunities, and many scenic areas. In addition, Willamina has access to municipal supply from Lady Creek about five (5) miles south of town.

### Groundwater Availability

The area in and around Willamina has insufficient permeable geologic formations to allow any major aquifer development. The hills are primarily of a marine sedimentary nature, overlying intrusive volcanic rock. These formations yield small quantities of highly mineralized water. Along the flanks of the South Yamhill River and Willamina Creek deposits of alluvials and Willamette silts are commonly found. These deposits are fine-grained, compact and relatively impermeable, seldom producing more than 10 gallons per minute. Consequently, the City of Willamina has had to rely on surface water to meet its municipal needs.

### Surface Water Usage

Willamina derives many benefits from its proximity to the South Yamhill River and Willamina Creek. Domestic supply from Willamina Creek, if properly developed, can be expected to meet the City's increasing demands well into the future. The City has cumulative rights to Willamina Creek in the amount of 3.0 cubic feet per second. The projected population of 2,525 for the year 2000 will require approximately 1.5 million gallons, or 2.5 cfs. (This figure includes a 2-1/2 day storage buffer as recommended by the Oregon Health Division).

The City also has rights on Willamina Creek to fill <sup>w/ water?</sup> an existing fish reservoir, Willamina Pond. The pond, located in Huddleston Park, is 4.5 acres and 7-8 feet deep. It provides local residents with seasonal catches of trout, bass, perch and crappie.

The South Yamhill River affords many recreational opportunities to the residents of Willamina with canoeing, fishing and swimming being the most common. Additionally, the river provides a means of transporting and diluting municipal wastes.

Some mention should be made of the City's 2.0 cubic feet per second of water right to Lady Creek. At one time Willamina relied entirely on Lady Creek for municipal supply but maintenance costs for the 5 miles of wood-stave transmission line and fluctuating low summer flows have rendered Lady Creek impractical as a major source of water.

Source: Willamina Water Resources Report, Gene Williamson,  
Yamhill County Watermaster, June, 1978.



## Water System

The history of Willamina's water system began prior to 1911. A small (by today's standards) diversion dam was built five miles south of town on Lady Creek and a wood stave transmission line was hand laid to the site of the City's present treatment plant. There, a 180,000 gallon storage reservoir provided for all the City's water needs. In 1940 a supplemental source of supply was located and developed on Willamina Creek. As Willamina's population continued to expand, the need for additional system storage became apparent and, in 1958, a 250,000 gallon steel reservoir was erected adjacent to the existing reservoir. A small treatment plant was also constructed at this site, utilizing the former concrete reservoir as a settling basin. In 1974, the system received a significant boost when the City's wooden distribution lines were replaced.

Willamina's ability to meet future water demands depends mainly on system storage. The Oregon State Health Department recommends that municipalities maintain a 2½ day storage supply to meet peak demands, emergency power outages and major line disruptions. The City's 250,000 gallon stored reserve is approximately one-half this recommendation with the present population. A projected population of 2,525 for the year 2000 would require approximately 1.5 million gallons of storage.<sup>1</sup>

In terms of supply, Willamina has cumulative rights to Willamina Creek in the amount of 3.0 cubic feet per second. Only about two-thirds of this amount will be required to meet year 2000 projected demands. In addition, there exists a possibility of extra water through the Grand Ronde Water Association.

<sup>1</sup>Usage figures for 1975 indicate that maximum per person per day demand was 214 gallons. This, plus national average yearly per person consumption increases of 1.1 would net the following formula for need:  $214 + 33 (1.1 \times 22 \text{ years to } 2000) = 247$   $247 \times 2525 \times 2.5 (2\frac{1}{2} \text{ days}) = 1,559,000 \text{ gals.}$

Source: Gene Williamson, Yamhill County Watermaster, Nov., 1978.

## Sewer System

Willamina's sewer treatment facility is a lagoon system which consists of two oxidation ponds. The system, which was constructed in 1968, treats an average of 353,000 gallons of effluent per day. The system was originally designed to service a population of 2,000. However, because of infiltration, and in order to meet the Department of Environmental Quality's standards, the working capacity of the system is barely able to service the present population.

The collection system consists of eight and ten-inch laterals arranged as a grid and operating by gravity. Leakage in the lines causes problems of infiltration and inflow. The City is currently engaged in a yearly correction program to curtail leakage. From the collection system the sewage is pumped under Willamina Creek to the treatment plant. Treated effluent is discharged into Willamina Creek.

The Environmental Protection Agency has approved a grant for the upgrading of the existing sewer facility. It is estimated that construction on the new lagoon will begin sometime in early 1979. The new facility is expected to service a population of 2,200. This is below the year 2000 revised population projection of 2,525. As the new sewage lagoon nears capacity, plans for expanding the treatment facility for or for constructing a new one will have to be made.

#### Storm Drainage

Willamina has a storm drainage system throughout the developed portions of the City. Approximately 95 percent of the storm drainage system consists of concrete pipes. The remaining 5 percent of the system is characterized by drainage swales. Most of the system is comprised of 12-inch diameter concrete pipes. A portion of the system drains into the South Yamhill River; the remainder drains into Willamina Creek.

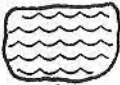

As more development occurs, the need for handling storm runoff increases also. The quantity of runoff increases, thereby the detrimental effects are increased. By continuing to require storm drainage facilities in new development areas, the problems associated with storm runoff can be alleviated.


Sources: Regional Water and Sewer Study; Phase 1: Inventory and Problem Identification, Mid Willamette Valley Council of Governments, September, 1973.  
Master Sewerage Plan (Draft), Mid Willamette Valley Council of Governments, October, 1977.



# CITY of WILLAMINA


## SEWER and WATER

- ..... WATER LINES
- SEWER LINES
-  SEWAGE LAGOON
-  WATER SUPPLY



North

1.2" = 1/4 mi.



Scale: 1" = 1085'

TRANSPORTATION

Automobile

Travel in Willamina is primarily by automobile; consequently, the greatest community demand, relevant to transportation, is for continued maintenance and paving of City streets. A total of approximately 8.1 miles of streets exist within the City. There are 18 north-south streets and 18 east-west streets in Willamina at the present time. Approximately 4 percent of the streets are not paved.

Traffic flow figures in Willamina are only available for state and federal roads. For comparative purposes, 1971 and 1976 traffic counts, for selected locations along major roads, are as follows:

SELECTED TRAFFIC VOLUMES -- 1971 AND 1976

Location	1971 Average Daily Traffic (all vehicles)	1976 Average Daily Traffic (all vehicles)	Change 1971-76
West Main Street			
0.02 mile south of Fort Hill Road	1,050	1,300	+250 (24%)
West City Limits	1,600	1,800	+200 (13%)
0.02 mile west of Willamina-Sheridan Hwy.	1,850	2,250	+400 (22%)
Willamina-Sheridan Highway (Hwy 18B)			
South City Limits	2,800	3,050	+250 (9%)
0.01 mile south of Polk St.	2,850	3,400	+550 (19%)
0.01 mile south of Main St.	4,600	5,000	+400 (9%)
0.01 mile east of W. Main St.	5,300	5,700	+400 (8%)
0.01 mile east of "C" St.	4,000	4,300	+300 (8%)
0.01 mile east of "E" St.	3,300	3,700	+400 (12%)
East City Limits	2,900	3,200	+300 (10%)

Source: Oregon State Highway Division, Traffic Volume Tables for 1971 and 1976.



Traffic Volumes on Willamina's major roads have steadily increased since 1971. As the population of Willamina and the surrounding areas increase, traffic volumes on the City's major roads is expected to rise.

#### Traffic Problems

Heavy truck traffic is the major transportation problem in the City of Willamina. The location of sawmills and other wood manufacturing operations in and around the City brings numerous log and chip trucks through Willamina. Main St. and the Willamina-Sheridan Highway are the principal routes used by trucks entering and leaving the City. The magnitude of the problem is borne out by a special traffic survey of Main St. conducted by the Willamina Police Department during an eight hour period (8 A.M. to 4 P.M.) in August, 1977. The survey produced the following traffic count:

170 chip trucks
542 log trucks
81 dump trucks
3,075 all other
<hr/>
3,867 Total

The City feels that a truck by-pass to handle truck traffic is the best method of alleviating this problem in the future. Reducing the volume of truck traffic through the City will also reduce the dangers of serious accidents to residents of the community. It will also result in a more pleasant downtown shopping area.

Other traffic problems that have been identified by the City chiefly pertain to poor street conditions. A program to maintain and upgrade the existing road network is generally needed to address this problem. The need for off-street parking to accommodate anticipated future commercial growth is another concern of the City.

#### Pedestrians

Although sidewalks do not exist along all streets in the City, walking is an important form of transportation. Lack of heavy traffic on side streets and relatively short distances between housing units and the town center, make walking an attractive transportation choice.

#### Bicycles

There are virtually no bicycle trails in the County and none existing within the City of Willamina. Bicyclists ride mainly on back streets, which are relatively safe. With the provision of safe and convenient bicycling facilities within the City, and as part of a Countywide system, an increasing number of bicycle owners might ride more often.

#### Railroad

Currently the rail line which exists in the City is used only for freight and it is likely that this situation will continue. The line

runs parallel to the South Yamhill River through the southeastern portion of the City. The tracks are generally bordered by the major industrial operations in the town and serve as a major transportation source for those operations. Other adjacent land uses include school grounds, public facilities, residential units and vacant parcels.

#### Airport

The nearest available air service is in the City of Sheridan. There are no regularly scheduled flights out of the airport, but local charter service is available. In addition to the charter service, flying lessons and parachute jumping instructions are provided through the air field.

#### Public Transit

At the present time the only localized public transportation available to Willamina is through the Yamhill Council on Aging. As of January 1, the YamCo Transit bus system dropped all service to Yamhill County cities except McMinnville and Amity because of low ridership.

The Yamhill Council on Aging, in cooperation with Yamhill County, has established a regular run to Willamina in place of YamCo. The Council on Aging bus will provide transportation for the elderly, handicapped, and others desiring transportation. Handicapped and senior citizens aged 60 and over ride the bus free. Non-seniors must pay 50c ridership fee one way.

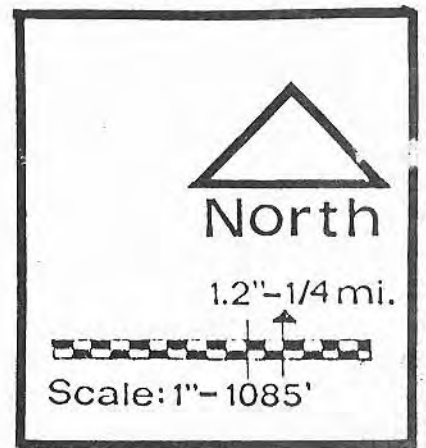
Greyhound Bus Lines also provides daily bus service to Sheridan. The bus services the town three times daily.



# CITY of WILLAMINA

## TRANSPORTATION

- ..... ARTERIAL STREETS
- - - - COLLECTOR STREETS
- ▨▨▨▨▨ MINOR STREETS



## ENERGY USE

Electricity, propane, heating oil, wood and natural gas are the fuel types that supply the energy needs of the City. With the exception of wood, the major fuels are imported into the County. Electricity is primarily generated from hydroelectric and thermal plants elsewhere in Oregon; and fuel oil comes from other parts of the United States and from foreign imports. With the exception of wood, which is a local resource, the purchase of other energy sources means money flowing out of the local economy.

### Electricity

Portland General Electric provides electricity to the community. As of July, 1978, there were 512 residents and 82 commercial customers.

Electrical consumption from July, 1977 to July, 1978

Total Residential Consumption	4.092 10 <sup>6</sup> /Kwh
Average Residential Consumption	7.992 Kwh/customer
Total Commercial Consumption	1,228 10 <sup>6</sup> /Kwh
Average Commercial Consumption	15.707 Kwh/customer

Residential customers of Portland General Electric pay a \$3.00 per month basic charge, plus per kwh rates as follows:

Winter (November-April)	2.477¢/kwh
Summer (May-October)	2.277¢/kwh

Commercial Demand Level #1 customers\* pay a basic charge of \$5.00 per month for three-phase power. The per kwh rates are as follows:

Winter:	2.643¢/kwh	First 5000 kwh
	1.794¢/kwh	Above 5000 kwh
Summer:	2.443¢/kwh	First 5000 kwh
	1.593¢/kwh	Above 5000 kwh

Commercial Demand Level #2 customers pay a basic charge of \$10.00 per month for single-phase of \$15.00 per month for three-phase plus 1.189¢/kwh plus the following:

Winter:	\$2.93/kw of demand in excess of 30 kw
Summer:	\$2.10/kw of demand in excess of 30 kw

As a general rule, there are two or three customers in Demand Level #2 in each community. Sewer and water plants, schools, grain elevators, and large manufacturing plants generally fall into this category.

\*Commercial Demand Level #1 rates apply when demand does not exceed 30 kw more than twice during the previous 13 months, or when 7 months or less of service demand did not exceed 30 kw more than once. Commercial Demand Level #2 rates apply when demand exceeds this limit.



### Propane, Heating Oil, Wood

Propane prices vary according to the distributor and also to the volume purchased. Following are approximate prices averaged from the information given by several County dealers.

1-19 gallons - 60¢/gallon                      over 20 gallons - 53¢/gallon

Heating oil prices also vary according to distributor and quantity purchased. An average price estimated from information given by several County distributors is about 47¢ per gallon.

Wood prices vary so widely--according to distribution, quantity and type of wood--that it is impossible to arrive at an average cost. In addition, many people cut their own wood or burn scrap and pay only the price of a permit and their own labor.

At this time, there is no information regarding the proportion of each energy type usage in the planning area. Local distributors do not keep records broken out by city for propane and heating oil use. It is assumed that propane, heating oil and wood contrivutes a significant portion of the needs in the community. Propane is commonly used as a cooking fuel, particularly in mobile homes. Heating oils are used in many older homes, and many older and newer homes are turning to the use of wood as a supplementary fuel.

### Natural Gas

Northwest Natural Gas Company has gas lines which serve Willamina. In 1977 there were 109 residential customers and 18 commercial customers.

#### Natural Gas Consumption for 1977

Total Residential Consumption	85,657
Average Residential Consumption	785.8
Total Commercial Consumption	42,394
Average Commercial Consumption	2,355.2

Residential customers of Northwest Natural Gas pay the following average rates for gas:

22.58¢/therm if supplying forced air furnace and water heater  
22.88¢/therm if supplying forced air furnace only

Commercial customers pay variable rates depending on their load factor.\*

20.79¢/therm for 100% load factor  
21.54¢/therm for 50% load factor  
23.72¢/therm for 20% load factor

\*Load Factor = estimated annual consumption (maximum daily load times 365)

### Household Energy Use

Approximately 78 percent of the household energy budget goes toward space and water heating. Based on recent fuel price forecasts developed by the Oregon Department of Energy, the costs for heating the home will continue to soar in the years ahead. For example:

	<u>If you paid in 1976</u>	<u>Without conserving energy what you can expect to pay in 1996</u>
Electricity	\$300	\$1,372
Natural Gas	\$300	\$1,768
Heating Oil	\$300	\$1,235

Oregon's direct residential energy use for 1977 is as follows:\*\*

Space Heating	62.4%	Clothes Drying	2.2%
Water Heating	16.0	Television	1.9
Refrigeration	4.4	Freezing	1.8
Cooking	3.9	Other	5.1
Lighting	2.5		

42 million BTU's per capita

\*\*Source: Oregon Department of Energy

This information was derived from a study of Oregon residential energy consumption which was done by the Oregon Department of Energy. It is assumed that household energy use is about the same proportions in all Oregon communities.

By observing the rapid projected cost increases for heating a home and the large percentage of the household budget that goes toward space and water heating, it can be easily seen that an ever-increasing portion of the household income will be going toward the basic need of heating the home. While this trend may not affect householders of financial means, it will no doubt cut into the buying power of the elderly people living on fixed or low incomes, and growing families.

Personal energy consumption was 45 percent of the total direct energy used in Oregon in 1977. Oregon's personal direct energy use for 1977 is as follows:\*

Private Auto	56.4%	Cooking	1.7%
Space Heating	27.2	Lighting	1.1
Water Heating	7.0	Clothes Drying	1.0
Refrigeration	1.9	Other	3.8

100 million BTU's per capita

The trend in energy usage in Willamina's residential sector seems to be toward all-electric homes. Portland General Electric installed electrical service in 143 homes in the Willamina/Sheridan service district in 1977.

Of these, 133 (93%) were heated electrically, 4 were heated with gas, 3 heated with oil, and 3 heated with wood. This percentage holds true for new homes within the city limits of Willamina as well, with 18 out of 20 new homes equipped with electric heat in 1977. It must be noted that in recent years Northwest Natural Gas has stepped up its promotional campaign, seeking to regain 60% of the new housing market.

Oregon's direct energy use by sector for 1977 is broken down the following way:\*

Transportation	39.1% (25.4% private, 13.7% other)
Residential	19.7
Industrial	29.5
Commercial	9.6

214 million BTU's per capita

The soaring cost of energy, coupled with the fact that the larger part of our energy comes from unrennewable sources, necessitates conservation efforts and the investigation of alternative sources of energy. In every facet of urban living, measures should be taken to utilize energy in a most efficient and conserving manner.

\*Source: Oregon Department of Energy.

#### Commercial Energy Use

The commercial sector accounts for about 10 percent of all energy used in Oregon.\* Most energy in commercial activity is consumed by end-uses which control the workers' environment. Therefore, energy used in the commercial sector is closely related to the number of people employed.

In Willamina, the commercial sector employs nearly 30% of the labor force (or less than 300 people)\*\* and uses approximately 23 billion BTU's of energy per year.

In Oregon as a whole, energy in the commercial sector is used as follows:

- 40% - heating and cooling (including hot water)
- 30% - lighting
- 30% - cooking, refrigeration, cold storage, office equipment

Because most energy is used to control the worker's environment, the energy saving opportunities available to the commercial sector overlap considerably those available to the residential sector. Commercial buildings can be weatherized, solar-oriented and landscaped for energy conservation just as can residential structures.

In addition commercial structures can be designed to make use of renewable fuels to supply space and water heating. Wood is an abundant fuel in

\* Oregon's Energy Future, Second Annual Report, Oregon Department of Energy, January, 1978.

\*\* Yamhill County Department of Planning and Development survey.

Source: Yamhill County Energy Office, August, 1978.

this area, and there are already several commercial buildings in Willamina heated with wood (Skyberg's Hardware, for example).

Solar energy is also sufficiently available to supply a good portion of space and water heating needs. There are many solar heated commercial buildings in western Oregon. (The Everhart Law Office in Newport is an example).

While lighting consumes 30% of commercially used energy statewide, this is undoubtedly a greater problem in large urban office buildings than in small commercial establishments. However, designing new commercial buildings so they make good use of natural lighting possibilities, and do not use excessive artificial lighting, will assure that Willamina's commercial sector can keep its expenses for energy to a minimum.

Additional opportunities for energy savings are available if commercial districts are located so that the majority of residents have non-motorized access to them. This may mean including small "neighborhood commercial" zones in existing and developing residential areas.



LAND USE AND URBANIZATION

At the present time the predominant land use within the city limits of Willamina is residential. Approximately 148 acres, or 31 percent of the City's land area, are devoted to residential uses. Agriculture comprises the second largest share of the City with 30 percent of the land area used for this purpose. About eight percent of the City consists of vacant land. A complete breakdown of existing land uses is presented in Table A.

Table 5. Existing Land Use  
City of Willamina

<u>Land Use</u>	<u>Acreage</u>	<u>Percent of Planning Area</u>
Residential	148	31
Agriculture (intensive, open, wooded)	144	30
Public Facilities (streets, schools, parks, public buildings)	107	23
Vacant	39	8
Miscellaneous (water, railroads, parking, utility, institutional)	19	4
Industrial	15	3
Commercial	4	1
TOTAL	476	

*Handwritten notes:*  
 183  
 183 - 78 = 105 not buildable  
 (Arrows point from 183 to the vacant and agriculture rows, and from 105 to the vacant row.)

Source: Updated land use survey by Yamhill County Planning Dept., January, 1979.

Industrial development in Willamina occurs mainly along the railroad tracks which run through the center of town and along its eastern boundary. Some industrial activities are also scattered among the commercial core area. Commercial development is largely confined to the downtown area along E. Main Street. A few commercial businesses are located along S. Main across the river from the commercial core. Vacant and agricultural lands are found on all sides of the city center with the majority of these lands located in the northern section of the City. Numerous vacant parcels are interspersed among residential developments.

Of the 476 acres within the City there are about 183 acres of vacant and agricultural land. Approximately 78 acres of this land show severe limitations because of soil characteristics, steep slopes or flood hazards.

Thus, the City has about 105 acres of vacant and agricultural lands potentially available for future development. In addition, of the 148

acres classified as residential on the existing land use map, there are roughly 30 acres which could be used for development due to oversized and underdeveloped lots. Development of this land would be contingent upon zoning requirements and the willingness of property owners to partition their land to permit additional development. Should such land division occur, there is a possible total of 135 acres in the City that is potentially available for future development. These findings are presented in the following table:

Table 6.	Buildable Land	
Vacant and agricultural land		183 acres
Those lands with severe building limitations	-	78 acres
Undeveloped land with less than severe building limitations		105 acres
Existing "residential" lands potentially available for future development	+	30 acres
Total land area without severe building limitations potentially available for future development		135 acres

#### Land Use Projections - Commercial & Industrial

Land use projections for various uses have been estimated based upon the City's projected population of 2,525 by the year 2000. These projections are based upon land averages derived from land use data for the cities of Amity, Carlton, Dayton, Lafayette, Sheridan, Yamhill and Willamina. These averages have been calculated as 0.018 acres/capita (new residents) for industrial use and 0.003 acres/capita (new residents) for commercial use. By applying these figures, the following are estimated commercial and industrial land use projections for Willamina:

	1979 <u>(Existing)</u>	2000 <u>(Additional Need)</u>	Total Land <u>In Use</u>
Industrial Use	15 acres	17 acres	32 acres
Commercial Use	4 acres	3 acres	7 acres

The City's present commercial (C-1) zone does not have enough undeveloped land to accommodate its projected commercial land needs. There are approximately 1.2 acres of vacant land in the commercial zone. However, the possibility of in-fill among the 8.4 acres of residential land in this zone would provide sufficient lands to meet future commercial needs over time.

The City's industrial (M-1) zone presently has about 3 acres of undeveloped land. Most of this land is located along the railroad tracks on the east side of town.

The amount of land which should be designated for future commercial and industrial uses is difficult to determine. Many factors, including the type of commercial and industrial activities desired by the City, will influence the actual amount of land necessary for each of these uses. The land use projections presented above provide the City with reasonable guidelines for use in the planning process.

Land Use Projections - Residential

Residential land use projections are equally difficult to assess. Numerous factors will affect the actual land needs of the City for accommodating its future residential growth. The most notable of these factors are the housing density and the housing mix. Table C presents examples of various residential land projections using selected housing densities and mixes. The projections are based upon the estimated need for 392 additional housing units in Willamina by the year 2000 as well as minimum lot size standards provided in the existing zoning ordinance.

Table 7. Alternative Residential Land Needs

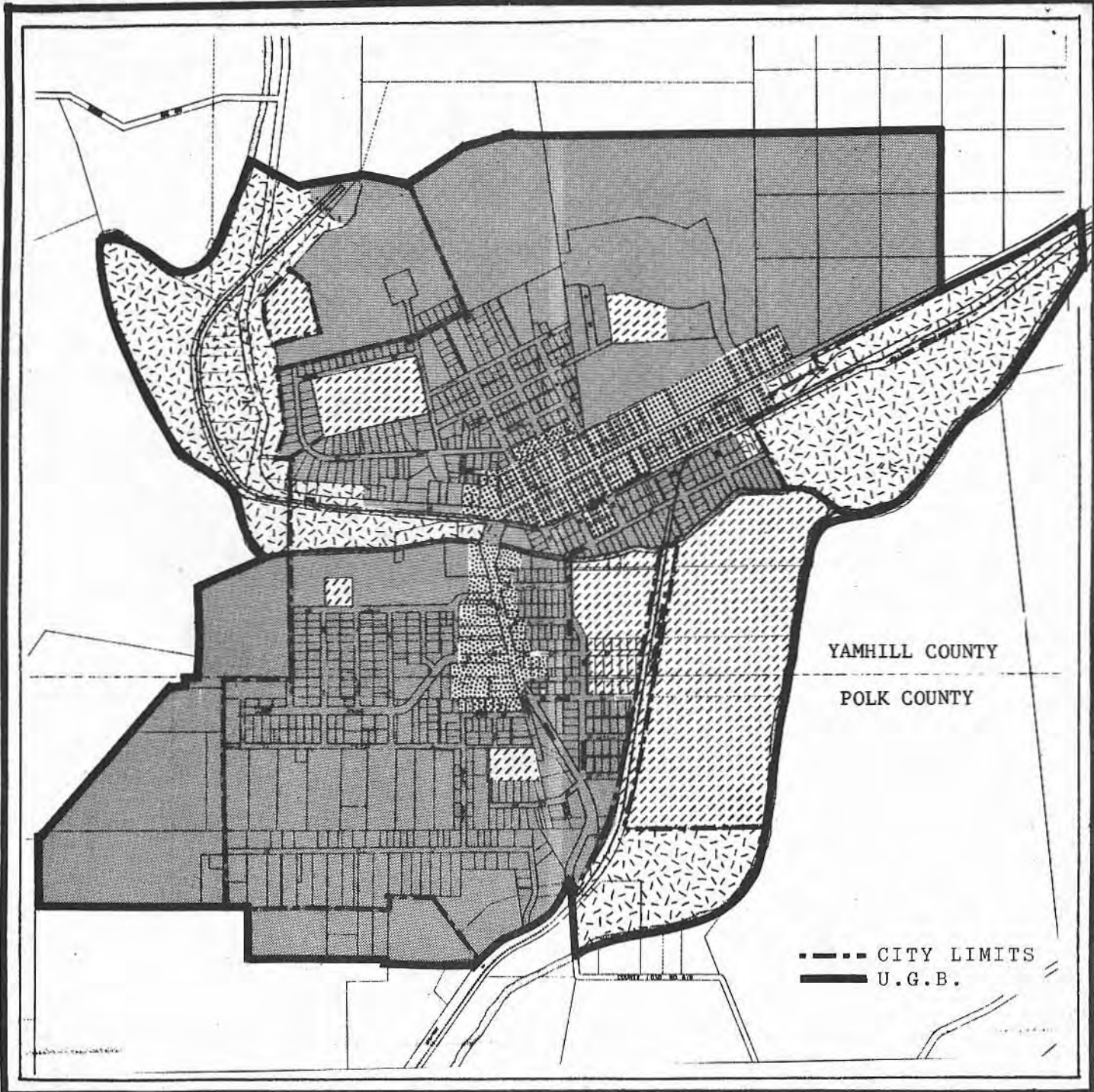
	City of Willamina											
	90% 5% 5%			80% 10% 10%			70% 15% 15%			60% 20% 20%		
	SF	Dup	MF	SF	Dup	MF	SF	Dup	MF	SF	Dup	MF
Acreage needed for Single-family Dwelling: 6 du/acre (7,000 sq. ft. min. lot size)		49.5		44.0			38.4			32.9		
Acreage needed for Two-family Dwellings: 14 du/acre (6,000 sq. ft. min. lot size)		1.2		2.3			3.5			4.7		
Acreage needed for Multi-family Dwellings: 20 du/acre (5,000 sq. ft. min. lot size)		.8		1.7			2.5			3.4		
Total Residential Acreage		51.5		48.0			44.4			41.0		
Acreage needed for Streets (25% of residential acreage)		12.8		12.0			11.1			10.3		
Total Acreage		64.3		60.0			55.5			51.3		

The table shows that future residential land needs could fluctuate by as much as 22 percent (11.5 acres) depending upon the housing densities and mixes selected. For the City to achieve even the highest projected land need (51.5 acres) would mean that all future housing units would have to be developed at the permissible minimum lot size. The likelihood of this occurring is remote, and it is expected that considerably more land will actually be utilized for future residential needs. Coupled with this, the additional lands needed for new streets will increase this figure even more.




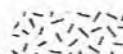

Land use projections for residential, commercial and industrial uses point to the need for as much as 72 acres of developable land by the year 2000. Inclusion of acreage necessary for streets, parks and public and private institutions will add considerably to this figure. <sup>How much.</sup> As noted earlier, the City has about 135 acres of undeveloped land which does not have severe building limitations. Much of this developable land consists of vacant and underdeveloped parcels in and around the existing residential area. In theory, there appears to be a sufficient amount of this land to accommodate the City's projected needs to the year 2000, provided large size residential lots are further developed. In fact, the City will need land outside the present city limits to accommodate growth to the year 2000.

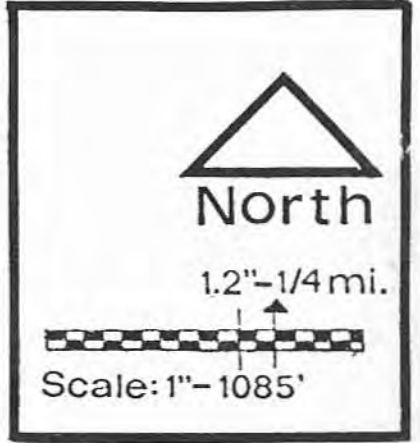
As pointed out in Table A, agricultural uses constitute a significant amount of land inside the City. For the most part, these areas are located on the outskirts of the City and away from areas of high residential development. These lands will be generally more costly to service than areas which are closer to existing residential development and public services. By establishing agricultural holding zones, these farm lands can be preserved until needed for urban uses. This measure will also serve to encourage utilization of vacant lands near existing developments. As additional residential lands are needed, the agricultural zones can be redesignated for urban use. This procedure should result in more orderly and efficient growth by promoting in-filling and maximum utilization of existing public facilities.

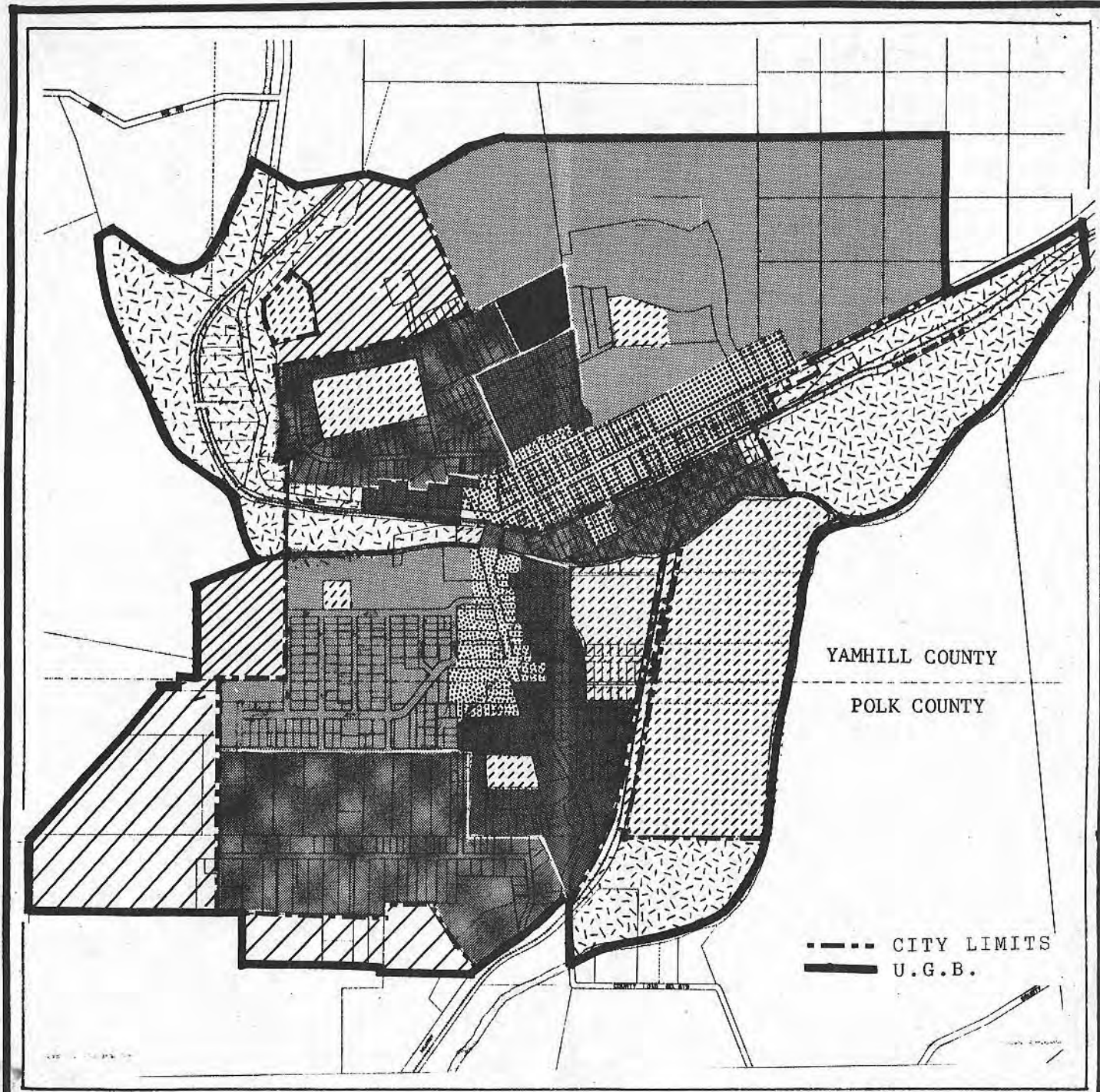




# CITY of WILLAMINA PLAN MAP

- |   |                        |   |                                   |
|---|------------------------|---|-----------------------------------|
|  | RESIDENTIAL            |  | PUBLIC ASSEMBLY<br>INSTITUTIONIAL |
|  | COMMERCIAL             |  | INDUSTRIAL                        |
|  | COMMERCIAL/RESIDENTIAL |   |                                   |

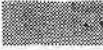


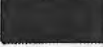




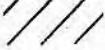



# CITY of WILLAMINA

## ZONING MAP



### RESIDENTIAL

-  R-1
-  R-2
-  R-3
-  R-4

### AGRICULTURAL/ FORESTRY

-  AF
-  AF-10
-  PAI PUBLIC ASSEMBLY INSTITUTIONAL
-  HI HEAVY INDUSTRIAL

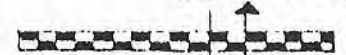
### COMMERCIAL

-  C-1
-  C-2



North

1.2"-1/4 mi.



Scale: 1"=1085'