Exhibit 2

Comprehensive Plan Appendix: Inventories

CITIZEN INVOLVEMENT and LAND USE PLANNING

Carlton has an adopted Citizen Involvement Program to ensure that the citizens of the city have an opportunity to be involved in all phases of the planning process. Due in part to the size of the community, the Planning Commission is broadly representative of both the geographic areas and interests related to land use. The mayor and council select the commission members by an open and well-publicized process. For this reason, the City designated its Planning Commission as the Committee for Citizen Involvement (CCI) and LCDC accepted this designation.

The ultimate purpose of the Citizen Involvement Program is to establish effective communication and involvement between governing officials and the citizens of the community. It is intended specifically to promote awareness of this opportunity and to provide channels of communication so that the public may express their views to appointed and elected officials. It also provides means whereby citizens are guaranteed an open response to those views.

As the designated CCI, the Planning Commission has had the major responsibility for the overall development of the Comprehensive Plan and for the implementation of a citizen involvement program. Major methods of communication used by the CCI to solicit widespread citizen involvement in the planning process have been news releases and meeting notices in local newspapers; and person-to-person contact.

The availability of the Comprehensive Plan and supporting documents at City Hall will serve as a means of educating and informing the local citizenry about planned future actions and policies by the City of Carlton. This will enable and provide for continued citizen involvement in the future.

In the conduct of quasi-judicial land use hearings, the notice requirements, and hearings procedures of Oregon Revised Statutes, Chapter 197, as modified by legislative and judicial actions from time to time should be followed.

NATURAL RESOURCES

Topography

Carlton occupies the "highland" between Hawn Creek and the North Yamhill River both of which flow south approximately 6 miles to enter the main stem of the Yamhill River. The terrain within the Carlton planning area is generally flat. Elevations range from 120 feet along the North Yamhill River to 200 feet in the center of the City. Slopes of 0-5 percent occur over about three-fourths of the area. 5-15 percent slopes are found over approximately one-fifth of the area. The remainder of the City has slopes greater than 15 percent. These are predominantly found along the western fringe of the City and along Hawn Creek (Figure 1).

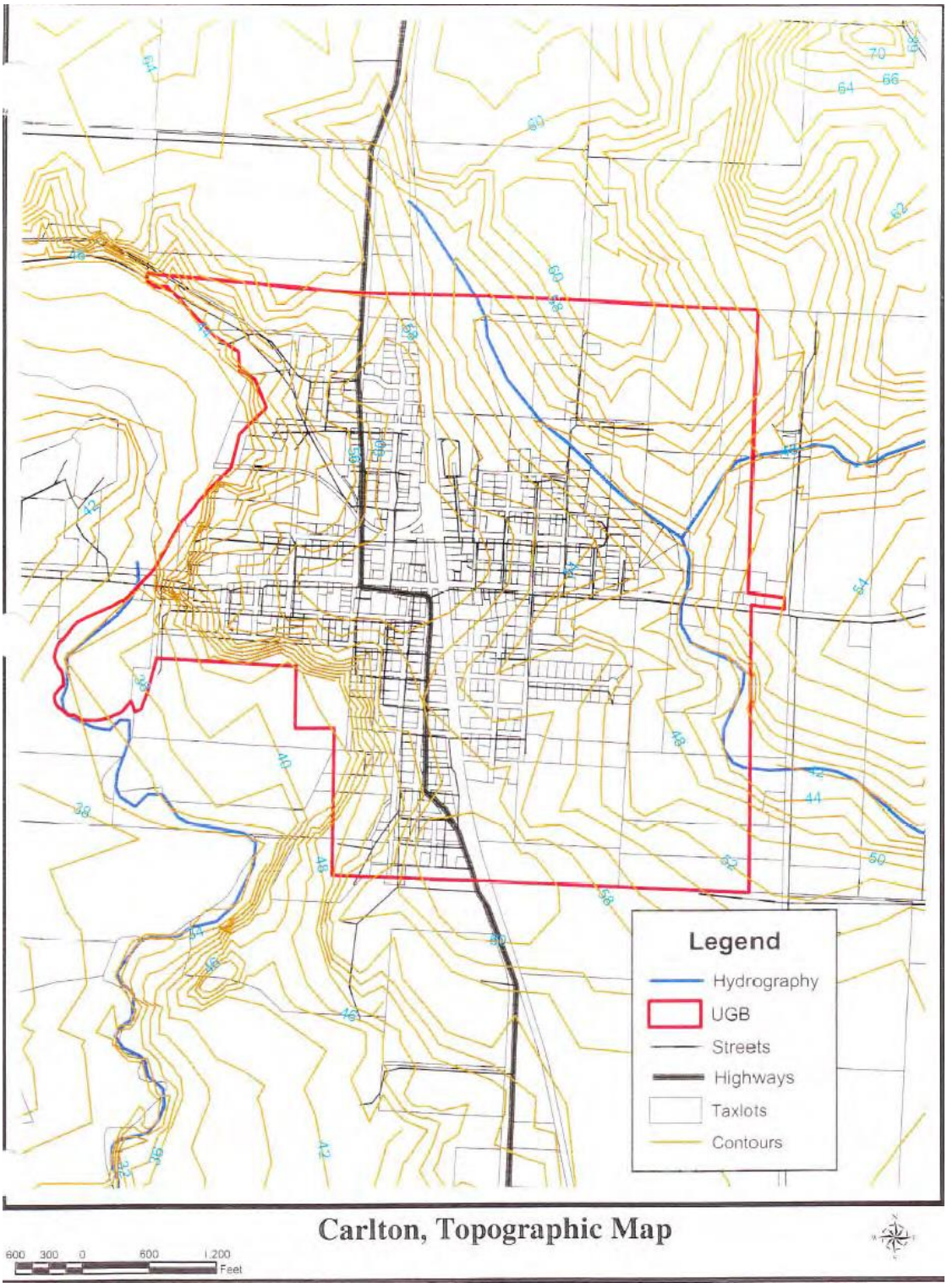
Geology

Alluvial deposits of Willamette Silt predominantly characterize the Carlton planning area. This formation includes bedded silt and fine sand with occasional layers of clay, and lenses of pebbly fine to medium sand with locally scattered granite and quartzite cobbles. The formation is approximately 50 feet thick in the center of the valleys and thins toward the valley edges. Generally, the formation has a low permeability resulting in a slow transition to wells and springs.

Deposits of a more recent young alluvium are also present in the Carlton area. This includes silt, sand, clay and peat of present floodplains. The average thickness is 20 to 30 feet. The young alluvium formation contains poorly drained swampy areas having a permanently high water table. Young alluvium consists primarily of alternating layers of sand and gravel blanketed by flood plain silts.

Finally, a narrow band of Yamhill formation deposits stretches along the western section of the City. This formation consists of a complicated mix of shale and basalts of volcanic origins. It displays generally low permeability characteristics.

Figure 1. Carlton Topographic Map



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 effect 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.

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 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, IV or V soils present in the Carlton area.

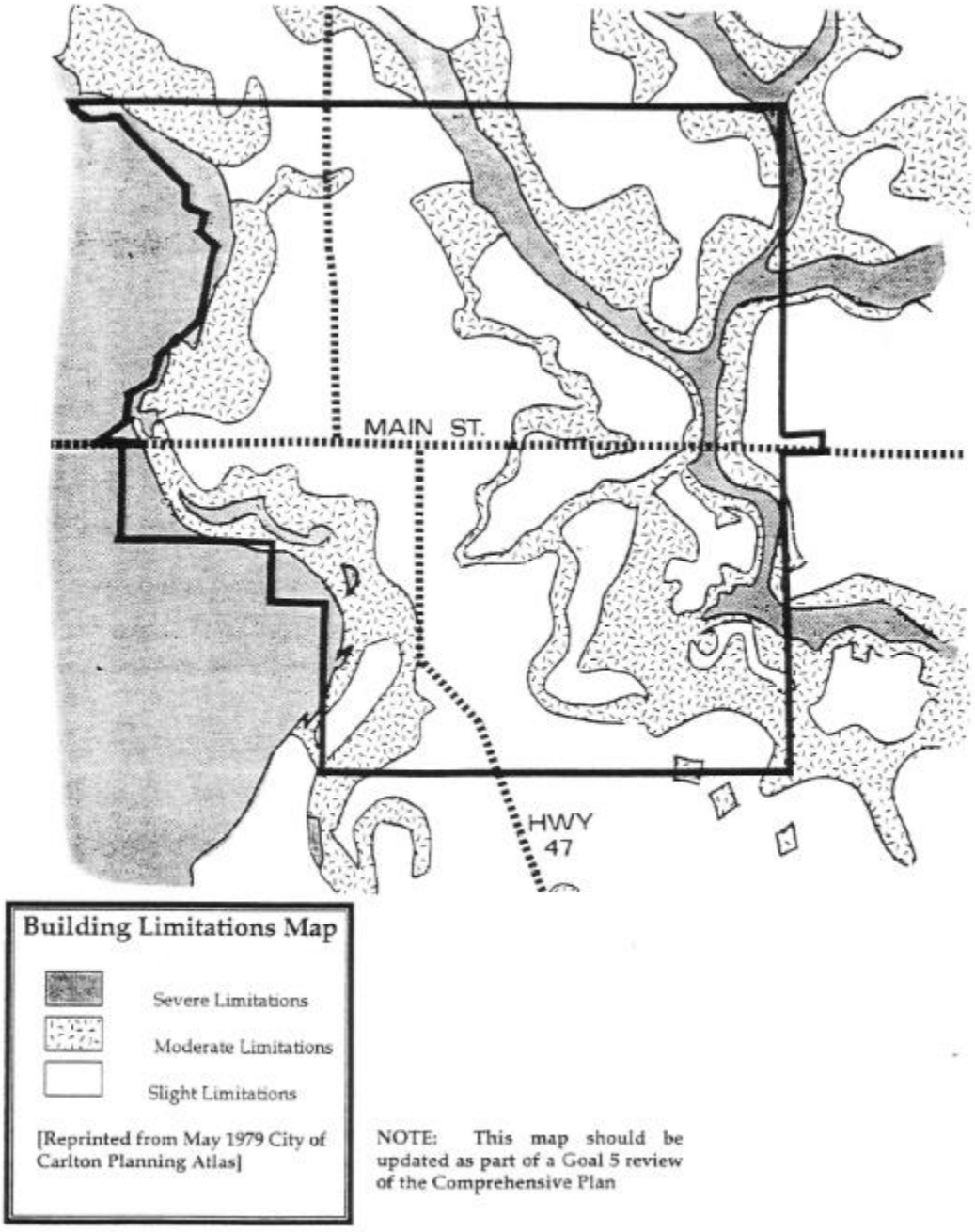
Building Site Limitations

The ratings and limitations are for houses and other buildings that are not more than three stories high (Figure 2).

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.

Figure 2. Building Limitations Map



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 seven soil types in the Carlton planning area (Figure 3). 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.

About 98% of the Carlton planning area is in Class II and III soils which are considered to be potentially suitable land for agricultural purposes. These lands are generally favorable for building sites, as is evidenced by the existing developments on these soils. The agricultural lands have been determined to be necessary for the future urbanization of the City beyond the year 2017. Until such times, as these lands are needed, agriculture could serve as an interim land use within the urban growth boundary.

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.

Figure 3. Carlton Soils and Class Map

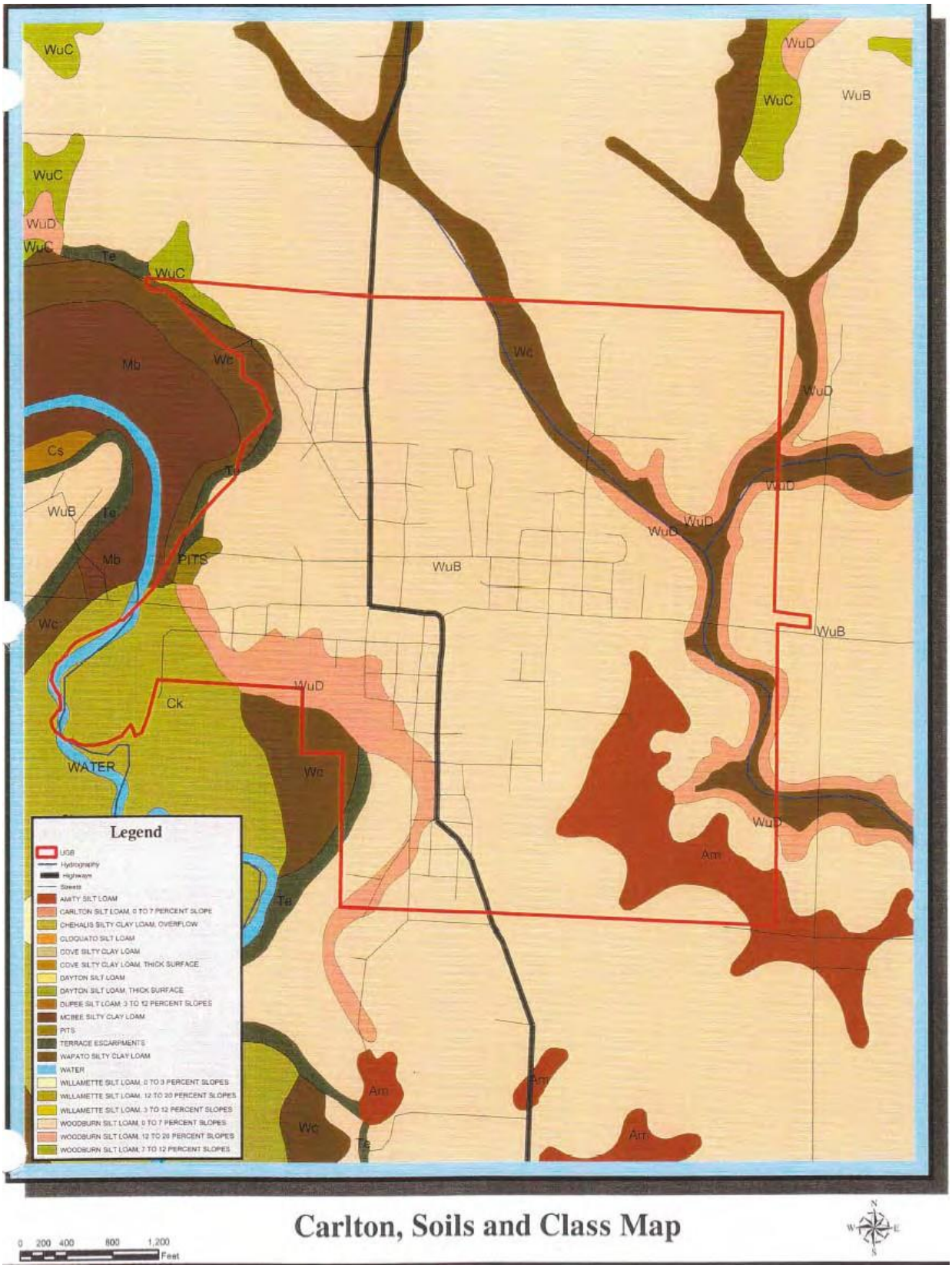


Table 1. Carlton Soil Fact Sheet

Soil Name	Agricultural Class	Building Site Limitations	Limiting Soil Characteristics	% of Carlton UGB Area	Existing Land Use
Woodburn Silt Loam **WuB**	IIw	Slight	None	74%	Urban Use (60%) Agricultural & Vacant (40%)
Woodburn Silt Loam **WuD**	IIIe	Moderate	Slopes	9%	Residential (20%) Agricultural & Vacant (80%)
Wapato Silty Clay Loam **Wc**	IIIw	Severe	High water table; Flood hazard	7%	Urban Use (10%) Agricultural & Vacant (90%)
Amity Silt Loam **Am**	IIw	Moderate	Somewhat poorly drained; seasonal high water table	5%	Urban Uses (20%) Agricultural & Vacant (80%)
Chehalis Silty Clay Loam **Ck**	IIw	Severe	Flood hazard	2%	Agricultural & Vacant
Terrace Escarpments **Te**	VIe	Severe	High slide hazard Slope of 20-40 percent	2%	Vacant
Woodburn Silt Loam **WuC**	IIe	Slight	None	1%	Agriculture

Sources: Soil Survey of Yamhill Area, Oregon
U.S. Department of Agriculture, Soil Conservation Service, January 1974.

Climate[1]

The nearest measurement location for climatic factors is the North Willamette Experiment Station (Elevation, 198') located at Aurora. In summary:

Temperature:

Lowest Monthly Average: 32°F - January
Highest Monthly Average: 80°F - August
Driest Month: July
Wettest Month: December

[1] Source: Oregon Climate Service, 1996 Special Reports (Climate Data).

Precipitation:

Average Annual Precipitation: 40.780"

Humidity:

Average July Afternoon Humidity: 57 %
Average January Afternoon Humidity: 84 %

Precipitation averages between 40-45 inches a year with less than 2% in the form of sleet or snow. Approximately three-quarters of the precipitation fall from November through March. Dry periods of 60 to 90 days in the summer with no measurable precipitation occur frequently.

The monthly temperature mean is 52.1°F. Daily temperatures in January range from 31°F to 44°F, and in July they range from 48°F to 83°F. Humidity values are not available locally. However, for Portland, January's average is 81% and July's is 66%. There is an average growing season of 170 days based on the last occurrence in spring and first occurrence in fall of a temperature of 32°F.

Agricultural Lands

Agriculture is widely practiced in the Carlton planning area. Approximately 280 acres, percent of the City's land area, are devoted to agricultural uses. All 280 acres are SCS Agricultural Capability Class II or III soils. [See, Soils]

Farm crops grown in the planning area range from grains and seed grasses to fruits, wine grapes, and nuts. Grazing lands also make up a significant share of the agricultural activity in the area.

Forest Lands

There are no forestlands in the City of Carlton or its immediate environs. There are a few large clusters of fir and oak trees scattered around the planning area. Trees and brush line the Yamhill River that runs along the western edge of the City, as well as portions of Hawn Creek on the North and East.

Open Spaces

There are areas within the City of Carlton that are desirable to preserve as open spaces. The most notable of these are the agricultural and undeveloped lands surrounding the urban core. However, it should be noted that as a rural community, Carlton is surrounded by scenic farmland and open spaces that lend an overall pastoral setting to the City.

Two small creeks run through the northeast section of the City. These merge and flow out of the southeast corner of the City. The land adjacent to these creeks is primarily used for agriculture, open and wooded space. These areas provide ideal open space settings.

An area that is particularly suited for open space use is the vacant land in the northwest section of the City. This sloping area once overlooked Carlton Lake that also served as a wildlife refuge. The lake was drained in 1972, but the prospect of it being re-established makes this lakeside area a potential site for park development. Other existing uses, which provide open space in Carlton, include school grounds, and City Parks. Scenic views are offered by the number of historic structures in the Community and by the Coast Range Mountains to the west of the City.

Mineral and Aggregate Resources

A study done by the Department of Geology and Mineral Industries in 1981 reported that there had been one quarry for sand and gravel in Carlton. The site was listed as inactive with no reserves of sand and gravel available. No other sources for minerals or aggregates are indicated by the report.

Energy Resources[2]

The Carlton planning area has no identified reserves of fossil fuels such as petroleum, coal, or natural gas. Nor does it have sufficient water resources for hydroelectric generation.

With respect to energy use as a localized natural resource, there is little data available to identify the importance of local energy resources within the planning area. Solar energy is a feasible energy source in this area and is presently utilized in other parts of the County. The use of solar energy is growing rapidly, and within the near future it could be fairly common in the planning area.

The topography of some parts of the City lends itself very well to solar energy use. The area from W. Grant Street south to the city limits falls a total of 60 feet in a linear distance of 500 feet, or a south slope of about 127. This area would be ideal for solar structures.

The area along the southwestern boundary of the City also has a slope of 12% or greater. Part of this slope extends to the west and part to the south. This area also offers ideal solar access.

[2] Source: Yamhill County Energy Office

The rest of Carlton is also relatively well suited to solar structures. There are no steep north slopes that could cause excessive shadow patterns. The basic block pattern of the City is on a north-south grid so that any street running east-west should have good solar access.

Wind power, like solar, is a potential energy source in the County. However, this source of energy is very site specific and no data has been collected regarding its direct application in Carlton.

Wood burning for heating purposes is the most common form of localized energy presently being used.

Fish and Wildlife Resources[3]

Fish habitats in the Carlton Planning Area are the North Yamhill River and Hawn Creek. The North Yamhill River is a large perennial stream with many long, deep pools interspersed with gravel bars. Hawn Creek often becomes intermittent along certain reaches by late summer. It is typically mud-bottom with limited areas of gravel for trout spawning. Channel alteration has occurred in the streams, resulting in a reduction in fish habitat.

Cold water game fish utilizing the North Yamhill River include: Coho salmon, winter steelhead trout, and cutthroat trout. The river serves as a migration route for these species and supports cutthroat trout throughout the year. Higher water temperatures during the summer preclude cold water game fish presence year round.

A small fishery occurs on the North Yamhill at Carlton for winter steelhead. Trout angling on the river takes place primarily in the spring.

Cutthroat trout from the North Yamhill River move into Hawn Creek during the fall and winter months. Small populations of cutthroat will remain in the stream throughout the year wherever sufficient flow is maintained.

Although not federally listed as “threatened or endangered,” winter steelhead and Willamette Valley cutthroat trout are each identified by ODFW as a “a stock of concern.” Owing to a variety of causes, winter steelhead numbers are down substantially throughout the Willamette basin and have recently been proposed for a state listing as “sensitive.” In regard to cutthroat trout, continued degradation and loss of stream habitat within the Willamette Valley, particularly within drainages along the eastern slope of the Coast Range, has led to a suspected decline in

[3] Updated to reflect information provided city by ODOFW letter dated May 1, 1997.

overall cutthroat abundance. The North Yamhill River, Yamhill River, and Hawn Creek downstream from Hawn Creek Reservoir are Essential Salmonid Habitat.

Nongame fish specifies found in both streams include: dace, sculpin, stickleback, redside shiner, carp, largescale sucker, and squaw fish. In addition, pacific lamprey and sand rollers are found in the North Yamhill River near Carlton. Pacific lamprey are listed by the state of Oregon as "sensitive" while sand roller have been classified as a "stock of concern" It is likely that both streams harbor several species of warm water game fish such as bluegill and bass.

Wildlife in the planning area consists primarily of small animals such as opossum, rabbits and muskrats, however, occasional sightings of other species including Red Fox have been reported. These generally inhabit the riparian edge of the river and creek but can also be found in areas where sufficient vegetative cover exists.

Numerous small birds and several game birds, such as pheasant, quail and Hungarian partridge inhabit the planning area plus occasional sightings of other species including Blue Heron. These are most commonly found in open space areas that offer some protective vegetation.

No threatened or endangered fish or wildlife species have been identified as living within the Carlton planning area at this time.

Wetland and Riparian Resources

The 2024 Statewide Wetlands Inventory [SWI] Map depicts several areas of mapped wetlands along Hawn Creek tributary in the eastern portion of Carlton.[4] Additional areas of un-mapped wetlands along with important riparian areas likely exist along both the North Yamhill River and Hawn Creek. Riparian vegetation is important to protect fish and wildlife habitat and to promote stream bank stability. For fish, riparian vegetation provides shade cover, helps to regulate temperature, and provides food sources. A disproportionate number of wildlife species also use riparian vegetation during at least a portion of their life cycle.

The North Yamhill River is contained along the westerly border of the City and is buffed from development potential by a City Park and the wastewater treatment plant. The Hawn Creek Drainage is in an area of the City that is predominately undeveloped at this time.

[4] Division of State Lands, National Wetlands Inventory Map 1994.

It is the responsibility of the city to notify the Division of State Lands [DSL] when certain development proposals occur on wetlands shown on SWI maps or, where developed, on a local wetland Inventory [LWI].

Water Resources[5]

The City of Carlton is located on the North Fork of the Yamhill River. Bordered on the east by the Red Hills of Dundee and on the west by the Coast Range, Carlton lies on the level- to-rolling valley floor between. This "valley floor" provides a major drainage basin for several tributaries of the North Yamhill River. Among these, Panther Creek is the most important to Carlton. Approximately eight miles west of Carlton on Panther Creek, the City maintains a 23 million gallon (MG) impoundment reservoir with design criteria to meet expected population demands to the year 2017. Willamette Industries, a private timber company, and U.S. Bureau of Land Management (BLM) own the Panther Creek Watershed. Logging activities coupled with major storm events has increased siltation within the impoundment reservoir. A survey of the surrounding geologic formations reveals that there are no major water bearing aquifers upon which the City could rely for supply. Well logs of the area around Carlton indicate that yields of 5 to 15 gallons per minute (gpm) are the average with a few yielding as high as 35 gpm. The predominant geologic formations of this area are:

Young Alluvium – found mostly along waterways, consisting primarily of alternating layers of sand and gravel. It is generally too thin and of too low permeability to yield large quantities of water.

Willamette Silts – permeability generally quite low, resulting in slow transition to wells and springs. It may sustain domestic use but is too slow to sustain irrigation.

Yamhill Formation – a complicated mix of shale and basalts of volcanic origins. It has low permeability and low yields.

The North Yamhill River forms Carlton's western boundary and provides water recreational opportunities throughout the year. Canoeing, fishing, and swimming are a few of the activities local residents reportedly enjoy. River flows fluctuate markedly through the year with summer flows averaging 3.8 cubic feet per second (cfs). A record high of 9,530 cfs was posted during the

[5] Updated to reflect results of a Study entitled: *City of Carlton, Panther Creek Watershed Protection.* Michael D. Henry. July 1997.

flood of 1955.[6] The Department of Fish and Wildlife has recommended that a minimum river flow of 10 cfs be maintained in the North Yamhill River to ensure protection of aquatic life. This flow is rarely achieved, however, as irrigation rights of record above Carlton amount to approximately 39.8 cfs.

The North Yamhill River, downstream of Carlton, is a "water quality limited stream" based on violations of state pH standards during low flows. This is an indicator of excess nuisance algal growth. Water bodies 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. The Oregon Department of Environmental Quality supervises water quality.

Carlton seems to be well situated in terms of water resources. Although the area lacks the necessary geologic formations to produce large groundwater supplies, surface water is plentiful and has been developed wisely. The impoundment on Panther Creek should provide an adequate municipal supply to the year 2017. The close proximity of the North Yamhill River provides excellent aquatic recreational opportunities. Care should be taken in all future planning to ensure the continued development and protection of these valuable assets.

The Federal Clean Water Act requires streams, rivers, lakes, and estuaries that appear on the 303(d) list be managed to meet State water quality standards. According to the 2022 EPA Approved Integrated Report, the North Yamhill River is impaired for the following parameters: flow modification, fecal coliform, dissolved oxygen, iron, and phosphorous. Hawn Creek (unassessed) is a tributary of the Yamhill River, which is impaired for the following parameters: fecal coliform, dissolved oxygen, temperature, iron, phosphorus, and methylmercury. The North Yamhill River, Yamhill River, and Hawn Creek downstream from Hawn Creek Reservoir are Essential Salmonid Habitat.

Carlton has been named as a Designated Management Agency (DMA) in the *2019 Willamette Mercury TMDL Implementation Plan* and assigned a 75% reduction from current levels of mercury in non-permitted urban stormwater. Significant portions of this load reduction must be achieved through changes in development practices. Specific requirements for DMAs can be found in the Water Quality Management Plan Table 13-11 and are outlined in the TMDL implementation plan.

[6] North Yamhill River Station (1419700) at Pike, Lat. 452210, Long. 1231515, approximately 8.7 miles above the Carlton and Smith Bridge.

The DEQ definition of wastewater includes both point and non-point sources. Wastewater from a point source comes from a discernable or discrete conveyance such as a pipe, ditch, or channel. Non-point source wastewater is from overland flow, which does not generally follow a defined channel, and includes stormwater. Water pollution in the Carlton results from both point sources and non-point sources.

Reduction of open space, removal of vegetative cover, and development that increases the amount of impervious surfaces can contribute significantly to increases in the volume and peak flows of stormwater and decreases in water quality.

Offsetting measures can reduce the negative effects of urban development on water quality and quantity. Examples include reduction of stormwater runoff or maximization of infiltration, inclusion of landscaped buffer strips adjacent to new development, protection of floodplains, preservation and improvement of streamside vegetation along watercourses and in wetlands, and other development best management practices (BMPs).

Historic and Cultural Resources[7]

Carlton had its earliest beginnings in 1844 when Peter Smith and his family settled on their land claim where the town of Carlton is now located. Over time the Smith farm became the site of the Methodist Episcopal Church and the Smith Church School.

In 1872, the Oregon Central Railroad completed construction of a rail line from Portland to St. Joe through this area. Mr. Wilson Carl, a resident of the area, persuaded the railroad company to make a flag stop in the little settlement. By about 1874 a station was built and the settlement became a regular train stop. Because of his efforts, the stop was at first designated as Carl's Town and later shortened to Carlton.

Once the rail stop had been established, the village of Carlton began to experience steady growth. Its first post office and general store were set up in 1874. In about 1875 Carlton School District No. 11 was formed and the first school was held in the Smith Church school building until the district could build its own schoolhouse. The district school was rebuilt or enlarged several times until construction of the present school in the 1950's.

[7] Source: *Old Yamhill: The Early History of its Towns and Cities,* Yamhill County Historical Society, 1976.

The town of Carlton formally incorporated in 1899. A mayor and city council were elected at that time. This was followed by enactment of ordinances for the protection of the citizens and the municipal concern for the improvement of city streets.

In 1904, a local businessman became interested in the lumber business and built a dam across the North Yamhill River to form the Carlton Lake for log storage. The first mill was built in 1906. To further these logging operations, the Carlton and Coast railroad was constructed to bring logs from the mountains to the mill. The ensuing expansion of the local logging industry brought prosperity to the City.

For many years, the state of Carlton's economy was to be dictated by the logging and mill industries. This period saw more businesses open in the area and two large hotels built. Carlton's first City Hall was built in 1913. Following destruction of the local saw mill by fire in 1914, the City's business community experienced a period of recession.

The city of Carlton continued to experience periods of "boom" and "bust". These cycles were associated with events connected to the logging industry. Major forest fires in 1933 and 1939 threatened to severely cripple the City's principle logging operations. Later fires destroyed mills in Carlton. They were rebuilt, but currently (2000) there are no longer any lumber mills in Carlton and there place has been taken by a new and thriving winery industry.

Reminders of Carlton's historic past are still evident in the community today.

- The Carlton State Bank and Savings building located on the northwest corner of Main and Pine is listed on the National Register of Historic Places.
- The property known as Westerlook Farm (the Charles Ladd Estate) built in 1912 is contiguous to the city limits. It is listed on the Statewide Inventory of Historic Sites and Buildings.
- Local historians agree that the wooden barn located on the southwest corner of Park and Taft is the oldest structure in Carlton proper. It was on the farm of John Wennerberg, an early benefactor to the town of Carlton.

Air Resources[8]

To protect the health and public welfare from known adverse effects of air pollution have adopted air quality standards, the Federal and State Governments. There are two divisions within

[8] Source: Oregon Department of Environmental Quality, 1978.

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 Carlton is also well within Federal and State standards.

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, cause air pollution. Without careful observation and monitoring of air pollutant sources in this area, there is a potential for serious short-term pollutant problems to occur.

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. However, air pollution problems due to industrial activity in the Carlton area have been historically low. One activity in the planning area that monitors source emissions for the Department of Environmental Quality is Madsen Grain Company, located within the City.

Noise Inventory

Within the Carlton Planning Area, significant noise pollutants do not exist. State Highway 47 has the highest potential for providing noise pollution; however, the normal traffic noise generated by motorists has not provided major problems for residents of the City. A good portion of the highway is surrounded by commercial use that is generally not as sensitive to noise levels as residences. In addition, traffic volumes are generally light during the evening hours.

NATURAL HAZARDS

The 2020 *City of Carlton Addendum to the Yamhill County Multi-Jurisdictional Hazard Mitigation Plan (NHMP)* to promote public policy and mitigation activities which will enhance the safety to life and property from natural hazards. The Addendum assessed Carlton's risk to six natural hazards that may occur in the city.

Drought

The City's primary water source is from Panther Creek Reservoir and Panther Creek. The City also has a water right permit for a potential source on Fall Creek and from the Willamette River via the Yamhill Regional Water Authority (although infrastructure is not yet developed to access this source).

State-wide droughts have historically occurred in Oregon, and as it is a region-wide phenomenon, all residents are equally at risk. Structural damage from drought is not expected; rather the risks apply to humans and resources. Industries important to Carlton's local economy such as agriculture and timber have historically been affected, and any future droughts would have tangible economic and potentially human impacts.

Earthquake

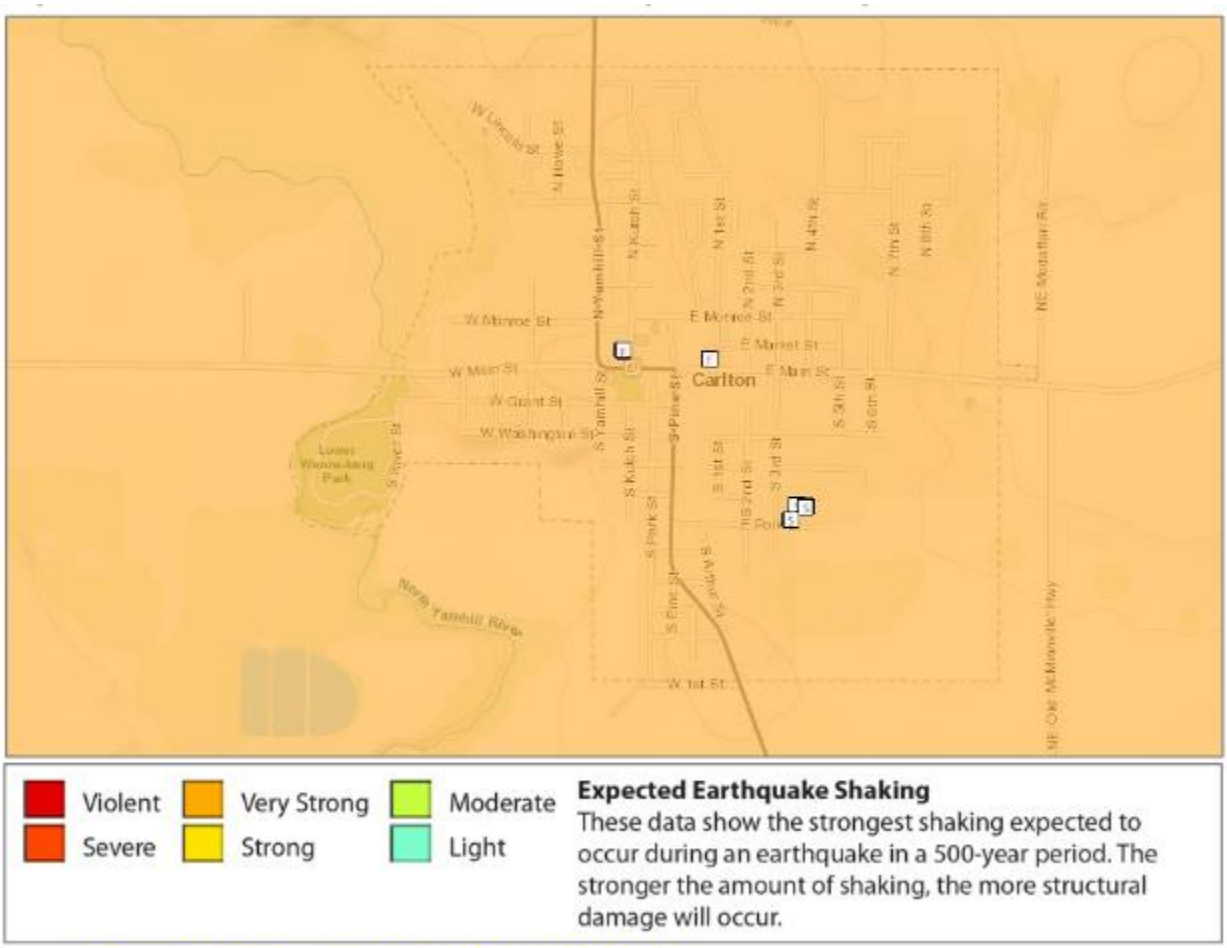
Social and geological records show that Oregon has a history of seismic events. Oregon has experienced damaging earthquakes in the historical past, and geologic evidence indicates that because of the city's increasing population and development, Oregon may expect earthquakes with even greater damage potential to occur in the future. South of McMinnville, near Dayton, there is a series of inferred faults (faults that extend underground from a visible fault) and concealed faults (completely underground faults). With its location in the Pacific Northwest, Yamhill County is susceptible to both intraplate and subduction zone earthquakes.

Within the Northern Willamette Valley that includes Yamhill County, two potential faults and/or zones can generate high-magnitude earthquakes. These include the Cascadia Subduction Zone and the Gales Creek-Newberg-Mt. Angel Structural Zone (including the Newberg Fault).

Cascadia Subduction Zone

Figure 4 displays relative shaking hazards from a Cascadia Subduction Zone earthquake event. As shown in the figure, the City is expected to experience very strong (orange) shaking in a CSZ event.

Figure 4. Cascadia Subduction Zone Expected Shaking



Source: Oregon HazVu: Statewide Geohazards Viewer (DOGAMI)

The city's proximity to the Cascadia Subduction Zone, potential slope instability, and the prevalence of certain soils subject to liquefaction, and amplification combine to give the city a high-risk profile. Due to the expected pattern of damage resulting from a CSZ event, the Oregon Resilience Plan divides the State into four distinct zones, and places Carlton within the "Valley Zone" (Valley Zone, from the summit of the Coast Range to the summit of the Cascades). Within the Northwest Oregon region, damage, and shaking is expected to be strong, and widespread - an event will be disruptive to daily life, and commerce, and the main priority is expected to be restoring services to business, and residents.

Crustal

Generally, an event that affects the County is likely to affect Carlton as well. Figure 5 shows a generalized geologic map of the Carlton area that includes the areas for potential regional active faults, earthquake history (1971-2008), and soft soils (liquefaction) hazard. The figure shows the areas of greatest concern within the City limits as red (high liquefaction hazard). The inset map shows the county including the Newberg Fault and hazard history.

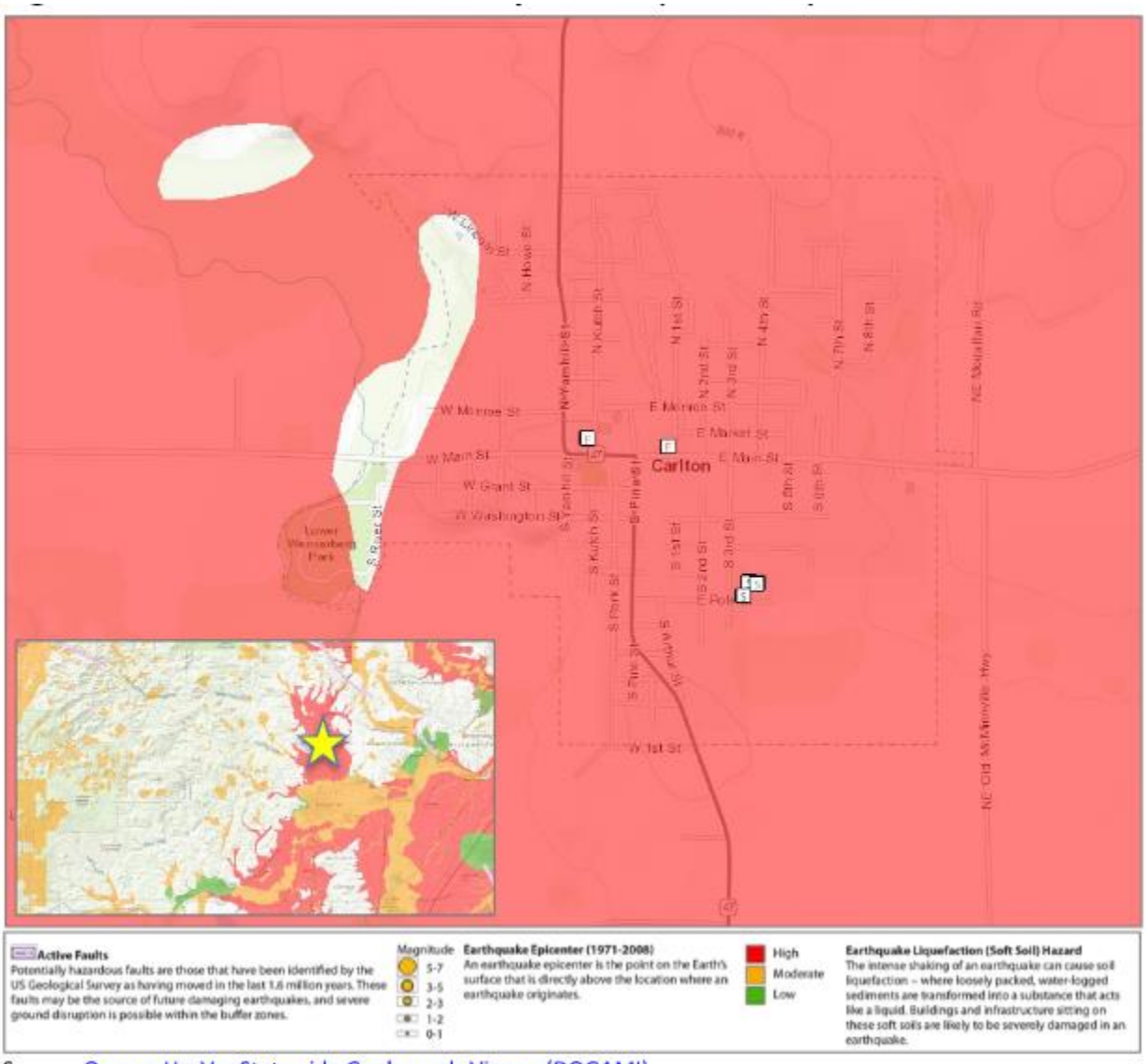
The western portion of Yamhill County is likely to experience higher levels of shaking than the eastern portion, as a result of its proximity to the Cascadia Subduction Zone. The City of Carlton is in the north-central portion of Yamhill County, in a region likely to experience strong shaking should a subduction zone or significant crustal earthquake occur. The city is also in an area prone to liquefaction (soft soils) during either a subductions zone or crustal earthquake event. Carlton is located more distant from crustal earthquake faults (the closest is the Newberg fault approximately 10 miles to the east) and has not experienced a damaging earthquake.

Ground movement is likely to cause damage to weak, unreinforced masonry buildings, and to induce small landslides along unstable slopes. As well as landslide, earthquakes can trigger other hazards such as dam failure and disruption of transportation and utility systems.

Panther Creek Reservoir and the city's water mains are vulnerable to seismic activity. There has been some erosion caused by tree removal activities by local landowners during the rainy season. There is a main 4.5 mile, 10-inch diameter transmission line to the city, and includes a 6-inch emergency connection to the McMinnville Water and Light main transmission line.

Utility systems will be significantly damaged, including damaged buildings, and damage to utility infrastructure, including water treatment plants, and equipment at high voltage substations (especially 230 kV or higher which are more vulnerable than lower voltage substations). Buried pipe systems will suffer extensive damage with approximately one break per mile in soft soil areas. There would be a much lower rate of pipe breaks in other areas.

Figure 5. Active Crustal Faults, Epicenters (1981-2008) and Soft Soils



Source: Oregon HazVu: Statewide Geohazards Viewer (DOGAMI)

Restoration of utility services will require substantial mutual aid from utilities outside of the affected area. Transportation systems (bridges, pipelines) are also likely to experience significant damage. There is a low probability that a major earthquake will result in failure of upstream dams.

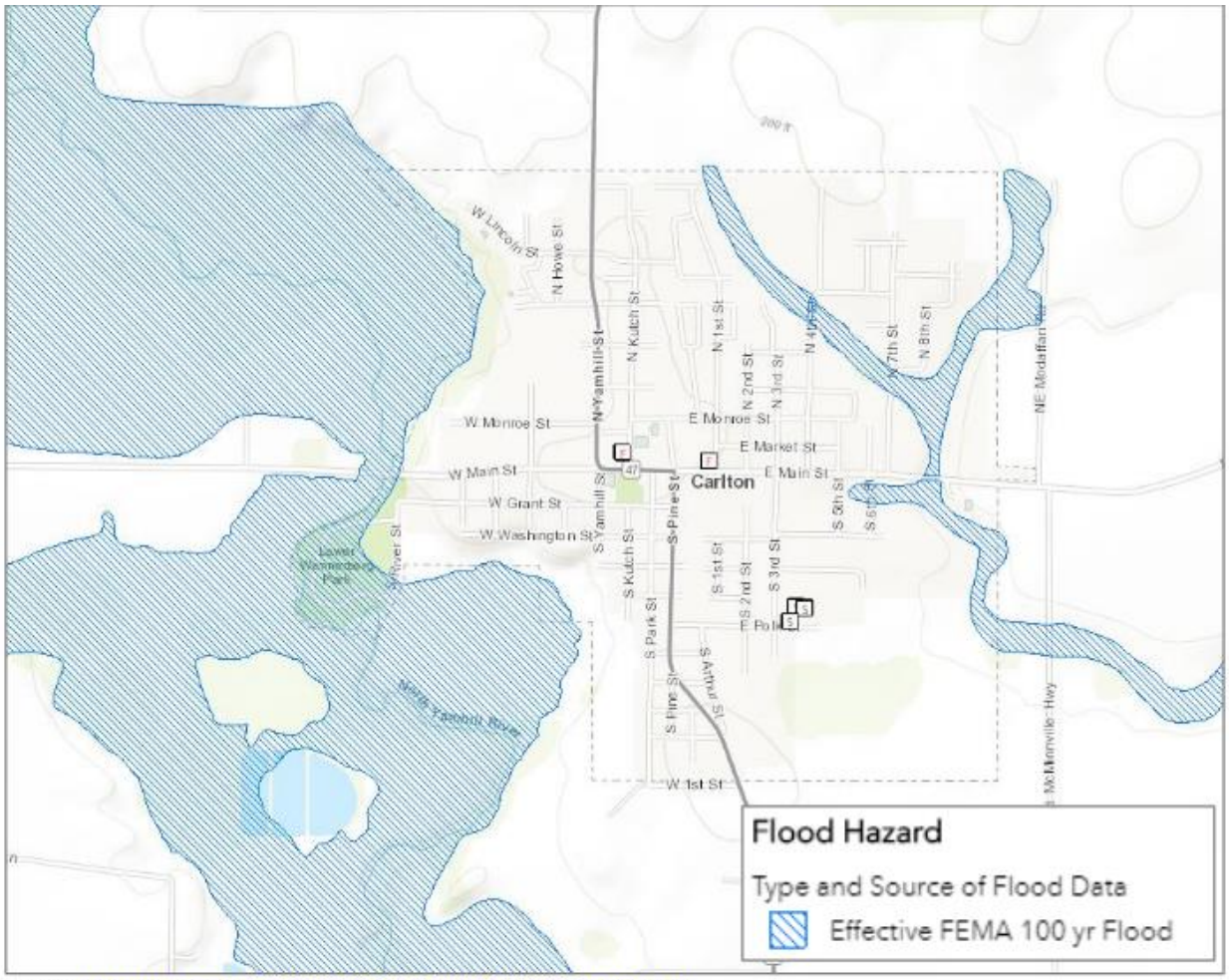
Approximately 59% of residential buildings were built prior to 1990, which increases the city's vulnerability to the earthquake hazard. Information on specific public buildings' (schools and public safety) estimated seismic resistance, determined by DOGAMI in 2007. Of the facilities evaluated by DOGAMI using their Rapid Visual Survey (RVS), none have a very high (100% chance)

collapse potential, three buildings, two at Carlton Elementary School and the Carlton Fire Station, have a high (greater than 10% chance) collapse potential.

Flood

Portions of Carlton have areas of floodplains (special flood hazard areas, SFHA). These include areas include the North Yamhill River along the city's west boundary and the Hawn Creek in the northeast section of the city, as shown in Figure 6.

Figure 6. Special Flood Hazard Areas



Source: Oregon HazVu: Statewide Geohazards Viewer (DOGAMI)

For mitigation planning purposes, it is important to recognize that flood risk for a community is not limited only to areas of mapped floodplains. Other portions of Carlton outside of the mapped floodplains may also be at relatively high risk from over bank flooding from streams too small to be mapped by FEMA or from local storm water drainage.

Floods can have a devastating impact on almost every aspect of the community, including private property damage, public infrastructure damage, and economic loss from business interruption. It is important for the City to be aware of flooding impacts and assess its level of risk. The City has been proactive in mitigating flood hazards by purchasing floodplain property.

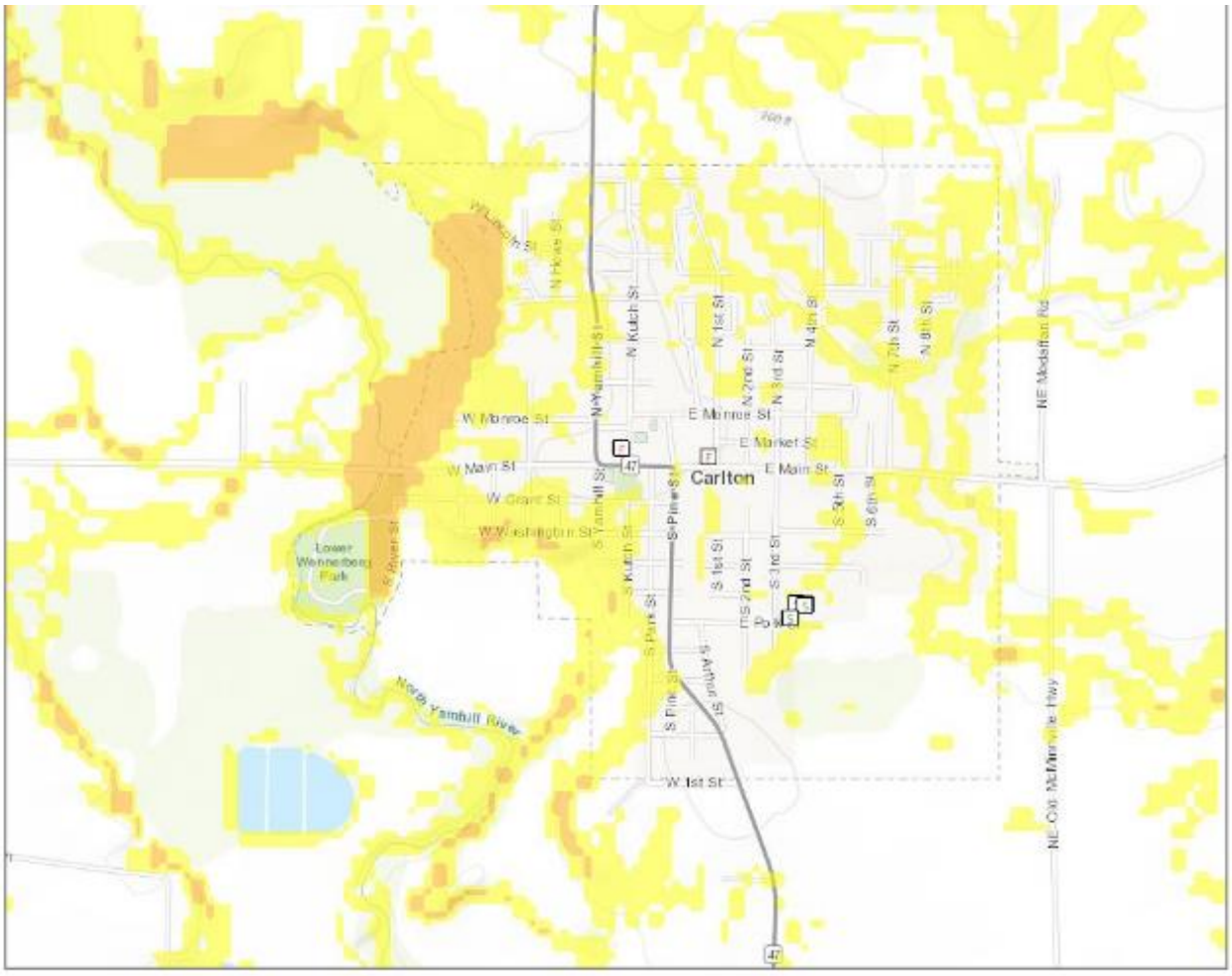
FEMA FIRMs were used to outline the 100-year and 500-year floodplains for the City of Carlton. The 100-year floodplain delineates an area of high risk, while the 500-year floodplain delineates an area of moderate risk. Most special flood hazard areas are within agricultural or open space use. Commercial development is generally located in the center of Carlton and is outside the special flood hazard area. The city's sewage lagoons are in an area susceptible to flooding from the North Yamhill River. A few residential properties to the east are susceptible to flooding of under one-foot flooding from Hawn Creek. Additionally, the city's water supply at Panther Creek Reservoir is within a special flood hazard area.

Landslide

Landslide susceptibility exposure for Carlton is shown in Figure 7. Approximately 5% of Carlton has very high or high, and approximately 33% moderate, landslide susceptibility exposure. Within the city, areas of higher landslide risk tend to be located adjacent to the North Yamhill River and Hawn Creek and indicate erosion potential. In general, the areas of greater risk are located outside of the city to the west. Note that even if a jurisdiction has a high percentage of area in a high or very high landslide exposure susceptibility zone, this does not mean there is a high risk, because risk is the intersection of hazard, and assets.

Rain-induced landslides, and debris flows can potentially occur during any winter, and thoroughfares beyond city limits are susceptible to obstruction as well. The most common type of landslides are slides caused by erosion. Slides move in contact with the underlying surface, are generally slow moving, and can be deep. Rainfall-initiated landslides tend to be smaller; while earthquake induced landslides may be quite large. All soil types can be affected by natural landslide triggering conditions.

Figure 7. Landslide Susceptibility Exposure



Low	**Landsliding unlikely.** Areas classified as Landslide Density = Low (less than 7%) and areas classified as Slopes Prone to Landsliding = Low.
Moderate	**Landsliding possible.** Areas classified as Landslide Density = Low to Moderate (less than 17%) and areas classified as Slopes Prone to Landsliding = Moderate OR areas classified as Landslide Density = Moderate (7%-17%) and areas classified as Slopes Prone to Landsliding = Low.
High	**Landsliding likely.** Areas classified as Landslide Density = High (greater than 17%) and areas classified as Slopes Prone to Landsliding = Low and Moderate OR areas classified as Landslide Density = Low and Moderate (less than 17%) and areas classified as Slopes Prone to Landsliding = High.
Very High	**Existing landslides** Landslide Density and Slopes Prone to Landsliding data were not considered in this category. Note: the quality of landslide inventory (existing landslides) mapping varies across the state.

Source: Oregon HazVu: Statewide Geohazards Viewer (DOGAMI)

Severe Weather

Severe weather can account for a variety of intense, and potentially damaging hazard events. These events include windstorms and winter storms. Because windstorms typically occur during

winter months, they are sometimes accompanied by flooding and winter storms (ice, freezing rain, and very rarely, snow). Other severe weather events that may accompany windstorms, including thunderstorms, hail, lightning strikes, and tornadoes are generally negligible for Carlton. The impacts caused by windstorms, including power outages, downed trees, heavy precipitation, building damages, and storm-related debris.

Severe winter storms can consist of rain, freezing rain, ice, snow, cold temperatures, and wind. They originate from troughs of low pressure offshore that ride along the jet stream during fall, winter, and early spring months. Severe winter storms affecting the city typically originate in the Gulf of Alaska or in the central Pacific Ocean. These storms are most common from November through March.

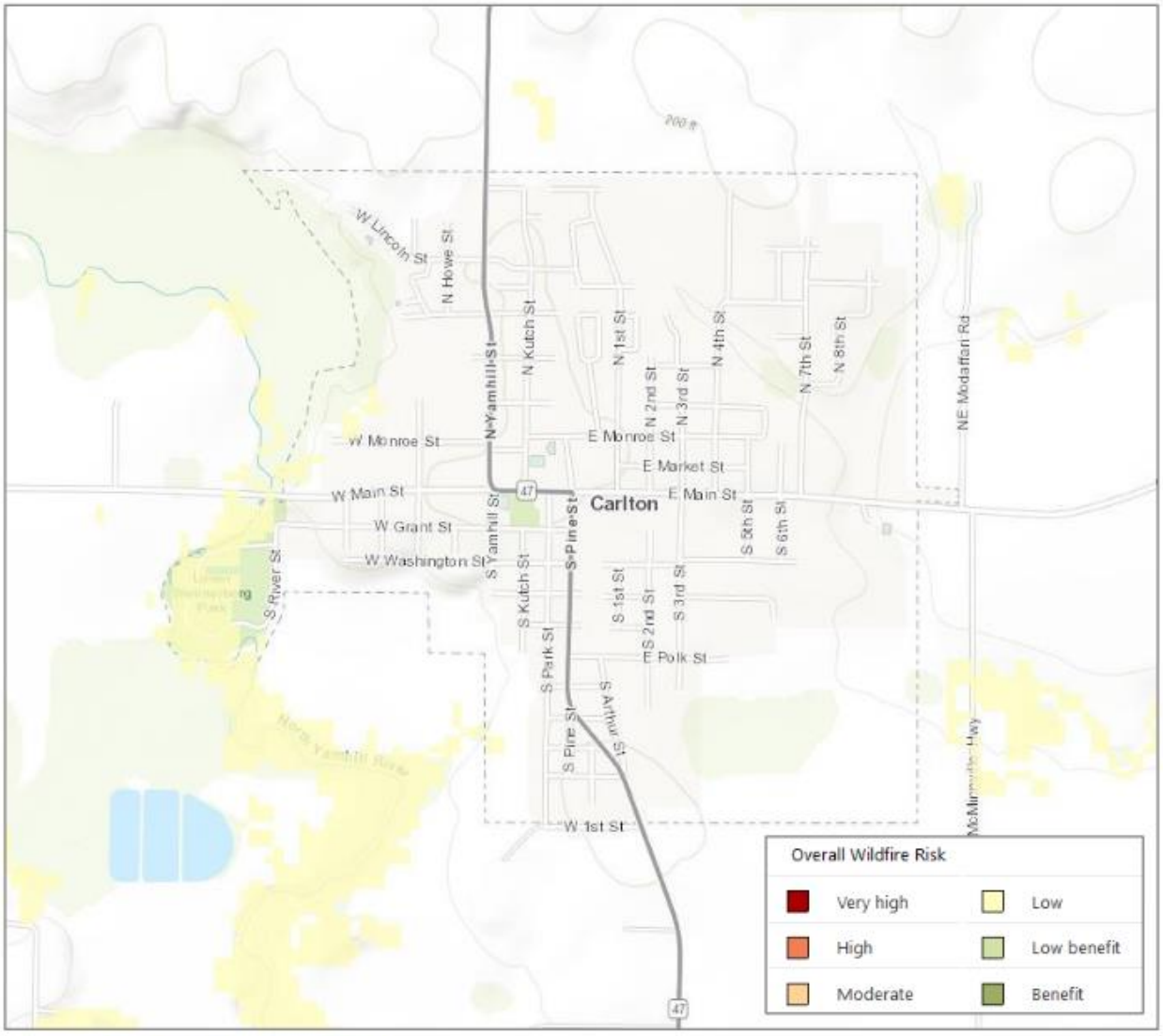
Volcanic Event

Generally, an event that affects the eastern portion of Yamhill County is likely to affect Carlton. Several volcanoes are located near Carlton, the closest of which are Mount Hood, Mount Adams, Mount Saint Helens, Mount Rainier, and the Three Sisters. Due to Carlton's relative distance from volcanoes, the city is unlikely to experience the immediate effects that eruptions have on surrounding areas (i.e., mud and debris flows or lahars). Although the City of Carlton is unlikely to experience lahars or lava flows, tephra (sand- sized or finer particles of volcanic rock that is ejected rapidly into the air from volcanic vents) drifts downwind from the explosions and can form a blanket-like deposit of ash. The eruption of Mount St. Helens in 1980, for example, coated the Willamette Valley with a fine layer of ash. If Mount Hood erupts, however, the city could experience a heavier coating of ash. Tephra is a public health threat, and can damage agriculture and transportation systems. Tephra can also clog drainage systems and create major debris management problems. Within Carlton, public health would be a primary concern, and keeping transportation routes open/accessible would be important as well.

Wildfire

The Yamhill County Community Wildfire Protection Plan (CWPP) was completed in August 2009 and revised in 2015. The location and extent of a wildland fire vary depending on fuel, topography, and weather conditions. Weather, and urbanization conditions are primarily at cause for the hazard level. Carlton has not experienced a wildfire within city limits. The city is surrounded by irrigated agricultural land. However, some wooded areas are a concern in the case of a wildfire event. Figure 8 shows overall wildfire risk in Carlton.

Figure 8. Overall Wildfire Risk



Source: Oregon Wildfire Risk Explorer, date accessed April 29, 2020.

There have been no wildfires in the city, however, several small wildfires have occurred west of the city in the regions near the city's water treatment plant and Panther Creek Reservoir. Wildland fires can be a problem in late summer to early fall and are usually caused by human activity (illegal brush burning, etc.)

The forested areas within and surrounding Carlton are interface areas. These areas outside of the city are characterized by varying housing structures (often large houses on small lots, some with shake roofs), natural, and ornamental vegetation, and topography that may increase the risk for wildfire spreading, particularly to the north and northeast.

Most of the city has less severe (low to none) wildfire burn probability that includes expected flame lengths less than four feet under normal weather conditions. However, conditions vary widely and with local topography, fuels, and local weather (including wind) conditions. Under warm, dry, windy, and drought conditions expect higher likelihood of fire starts, higher intensity, more ember activity, and a more difficult to control wildfire that will include more fire effects and impacts.

Carlton's fire response is provided by Carlton Fire District. The CWPP assesses wildfire risk, maps wildland urban interface areas, and includes actions to mitigate wildfire risk (all identified actions are outside the city limits). However, several identified projects are located near the city or within the city's watershed including moderate priority defensible space projects at the BPA and PGE substations located to the west of the city, and a high priority survey/defensible space project for the Panther Creek Area near the city's water reservoir. The City will update the wildfire risk assessment if the CWPP presents better data during future updates.

RECREATION

Parks and Recreation is a division within the Carlton Public Works Department. The City manages three public parks within the city limits. Wennerberg Park offers a disc golf course in the lower section of the park. Additionally, the City operates the Carlton Pool during the warm weather months of the year. Other recreation facilities include picnic facilities, a basketball court, three baseball diamonds, playground equipment, and three picnic pavilions.

Developed in 2019, the Carlton Parks Development Plan prepares Carlton for population growth and an increase in residential development. The city has experienced only moderate growth in recent years, but several large residential subdivision projects planned for the community will result in a steady increase in population in coming years. The Parks Development Plan includes a Capital Improvement Program for park facilities.

The purpose of the Plan is to identify park and recreation amenities that will meet the needs of the community. The Plan serves as a guide for future development of parks within the community. More specifically, the purpose of the Plan is to identify current and future park and recreation needs, park and recreation goals and policies, propose parks and recreation facility improvements designed to meet future needs, identify general areas where new parks facilities could be developed, develop costs estimates for proposed parks and recreation facilities improvements, and identify reimbursement and improvement system development charge (SDC) requirements.

ECONOMY

Statewide Planning Goal 9 (Economic Development) requires cities to provide an adequate supply of suitable sites for a variety of industrial and other employment uses. Carlton's economy has historically been based in the agricultural and forest industries. In the early 1900s, the area was identified as the state's "logging center". Over the years, Carlton has been home to several logging companies and the Carlton Manufacturing Company sawmill operations. Changes in the economy drove many lumber companies out of business and eventually led to the closure of the Carlton Manufacturing Company. Early agricultural activities were centered on hops, hay, pigs, and fruit and nut trees.

Traditional extractive industries continue to have a significant impact upon the local economy. Carlton is currently home to over nine wineries and a dozen horse farms. The city has also experienced recent growth in other industries such as the service, construction and trade, transportation and utilities sectors. Despite the recent diversification of the Carlton economy, the area continues to rely heavily upon McMinnville and other larger cities for the majority of its commercial and other service needs.

Summary of Economic Opportunities and Constraints

Carlton has a number of economic advantages that will help foster additional economic development over the planning horizon. The city has a high quality of life and is supportive of local businesses and efforts to improve the city's downtown area. The city is located in close proximity to local wineries and a number of visitor support services have developed in the city recently such as wine tasting rooms, restaurants and retail stores that attract wine tourist in the region. As the wine industry and general population continue to grow in the Carlton area, there will be an increasing need for establishments that provide support goods and services to the wine industry and the general population.

A major limitation to new commercial and industrial development is the City's water system, which currently cannot provide adequate fire flows. This is a critical limitation to overcome in order to encourage economic development within the Carlton area. Future economic opportunity in Carlton is also constrained by its proximity to McMinnville and lack of major highway or Interstate access. Due to these constraints, it is unlikely that the City will be able to attract large scale manufacturing firms or become a retail service center for the larger area. However, as

Carlton's population continues to grow, there will be an increased demand for convenience shopping.

Future Planning Implications and Recommendations

Economic trends and local comparative advantages support economic growth in the Carlton area over the next 20 years. While employment opportunities in the large-scale manufacturing sectors may be limited in Carlton, the City is in a prime location for attracting small scale manufacturers such as, wineries, and commercial visitor services, such as specialty retail shops, restaurants and lodging.

Total employment in Carlton is projected to reach 1,070 by 2027, an increase of 281 jobs from 2005. A review of the City's updated land inventory indicates the City has sufficient land of suitable sizes to accommodate projected commercial land needs. However, there is a shortage of approximately 10.8 acres of industrial land and a need to redesignate land for industrial purposes. Due to changing economic conditions over the planning horizon, the City should review the employment forecast and land inventory at least every five to ten years and make adjustments where necessary.

Additionally, in order for Carlton to reach its full economic potential, water system improvements are needed to enable new development to meet fire flow requirements. The City should also encourage further economic development by approving quality commercial and industrial developments, and supporting continued efforts to revitalize the downtown area to create a pedestrian friendly area that is inviting to visitors.

HOUSING

The 2000 Census identified 588 residential dwelling units in Carlton. Of these, 498 units, or about 85 percent, were single-family residential units (including both "stick-built" units and manufactured homes). The remaining 90 residential units were multi-family dwellings. Of the 540 occupied housing units identified in the 2000 Census, 407 or approximately 75 percent were owner-occupied units and the remaining 133 units were rental units. The Census identified 38 vacant units within the community for an overall vacancy rate of approximately 6.3 percent.

The housing needs model shows that 160 rental units are currently needed in Carlton. The rental unit market is comprised of both multi-family residences (apartments, duplexes, etc.) as well as

single-family dwelling units. Census and building permit data shows that 90 multi-family units are currently located in Carlton. The 2000 Census showed that approximately 67 percent of all rental units were multi-family residences and the other 32 percent of all local rental units were single-family residences. Using this percentage, as many as 43 single-family residences are currently used as rental units. Combined with the 90 existing multi-family units, the estimated supply of rental units in Carlton consists of 133 units where 160 units are needed. The estimated supply of rental housing units in Carlton does not meet the current need for rental units. An additional 27 rental units, consisting of 18 additional multi-family units and nine single-family dwelling units are needed to meet the current housing needs.

The 2027 population projection for Carlton is 2,379 persons. 906 dwelling units will be needed in Carlton by 2027 to accommodate this population. Of the 233 new residential units, an estimated 57 new rental units will be needed, assuming approximately 24.6 percent of the local housing market is comprised of rental units, as was the case in 2000. The analysis of new rental units assumes that approximately 67 percent of the rental market is comprised of multi-family residences, with the remainder comprised of single-family units. Based on this assumption, approximately 39 new multi-family residences and 18 additional single-family dwellings will be needed to meet the projected need for rental units in 2027. In addition, the number of rental units currently available is about 27 units (18 multi-family and nine single-family dwelling units), which is short of meeting the existing need. Consequently, in order to meet existing and projected need for such housing, a total of 57 new multi-family units will be needed over the next 20 years in addition to 176 new single-family dwelling units.

PUBLIC FACILITIES

Educational Services

Educational services are provided by the Yamhill-Carlton School District, which operates the Yamhill Carlton Elementary School, Intermediate School, and High School. The Yamhill Educational Service District (ESD), with headquarters in McMinnville, provides some additional alternative education programs. The Elementary School is located in Carlton, while the Intermediate and High schools are located in Yamhill. Alliance Academy is an alternative school in the Yamhill-Carlton School District that serves students and parents who want a home setting for their education.

City Government

Carlton was incorporated in 1899. The most current City Charter was adopted June 4, 1962. The Mayor, elected every two years, and six-member Council, elected to four-year terms, are the policy making body for the City. A seven member Planning Commission, appointed by the Council, serves as an advisory body to the Council and considers various land use applications. The current City Hall with administrative, public works and police officers was constructed in 1974. A new City Hall is currently under construction. Major functional areas of city government include fire protection, policing, water service, wastewater service, parks and swim pool, planning, and streets.

Fire Services

The Carlton Fire Department provides fire protection services for the City of Carlton, and on a contract basis, the surrounding Carlton Rural Fire Protection District. The total district encompasses an area of approximately 30 square miles. The department is a volunteer organization consisting of a Fire Chief and about 25 fire fighters.

Fire flows are provided through approximately 51 hydrants within the city and a significant number along the City of Carlton's rural water system. Many of the hydrants are located on 4" lines, which could mean the water quantity may be problematic at those locations.

The fire department is experiencing no current problems in providing adequate fire protection services for the district. The present firehouse facilities are adequate to house equipment currently in service but not the design (size) of newer equipment. With the replacement of existing fire equipment as it becomes obsolete, a need will exist for new or expanded firehouse facilities.

Police Services

Carlton's City Police Department consists of a Chief of Police, two (2) full time officer and six (6) reserve officers. Backup law enforcement services are available as required from the Yamhill County Sheriff's Department and the Oregon State Police. City officers are available to provide 24-hour service. The Primary Public Safety Answering Point (PSAP) serving Carlton residents with 9-1-1.answering and dispatch for the police, ambulance and fire services is provided through the Yamhill County Communications Agency (YCOM). Police service appears to be adequate at this time.

Streets

With the exception of State Highway 47 and Main Street from Hawn Creek east, all street maintenance and lighting are the responsibility of the City of Carlton. This system amounts to approximately 8.83 miles of public rights-of-way, 7.34 miles paved and 1.49 aggregate surfaced. Sidewalk maintenance is the responsibility of the property owner.

Emergency Services

The Yamhill County Emergency Services Advisory Committee administers the Yamhill County Ambulance Service Area Plan adopted on June 8, 1988. The plan allocates the Carlton area to the McMinnville Ambulance Service District. Working through the McMinnville Fire District Emergency medical response services are normally provided by EMT personnel and ambulances based at McMinnville Main Station, 175 E. 1st Street, a distance of approximately 7.25 miles from the City of Carlton. The approximate normal response time for 90% or more of the calls within the City of Carlton is 8 to 10 minutes.

Water Service

Water Supply System

The 2014 Carlton Water Master Plan provides a comprehensive evaluation of the city's water system with respect to its existing and future needs, identify improvements and associated costs necessary to meet those needs, and provide the City with a framework for the provision of water service through the year 2033. The master plan provides the City with a guide for short term and long term water system improvements and has been prepared as a reference document to assist the City as it evaluates the impacts of proposed development and land use on the water system.

The master plan accomplishes the following specific objectives:

- Establishes water system design and planning criteria
- Provides an inventory of the existing water system infrastructure
- Identifies current and future water system deficiencies on a prioritized basis
- Provides specific recommendations to the community and City Council for action
- Provides the City with a water system master plan that addresses the needs of both the City and regulating agencies

Existing Water System Inventory

The City operates and maintains the existing water system and delivers water to its consumer base utilizing Panther Creek/Carlton Reservoir as a source, a water treatment plant, and a network of

distribution pipes. Under normal operating conditions fire protection is provided by the 1 MG steel finished water storage reservoir.

Based on City records, Carlton's original water system was constructed in about 1911. The initial infrastructure appears to have included a 30 foot long, 3 foot high concrete dam across Panther Creek just downstream of the current reservoir dam and a 9 mile long pipeline into town. The 0.38 MG concrete storage reservoir is believed to have been constructed in the early 1900s. Early records for water treatment are not available, but a system was in place prior to 1984 when the predecessor to the current water treatment plant was built. In 2003 the water treatment plant was expanded and upgraded and the 1 MG steel reservoir was constructed.

The City's water supply piping consists of three main elements: (1) the Treatment Plant Finished Water Line, (2) the Meadow Lake Transmission Main, and (3) the distribution mains in town. The Treatment Plant Finished Water Line is just over 7 miles long and contains 10-inch and 12-inch steel pipe. The Meadow Lake Transmission Main is about 1.8 miles long and is primarily 10-inch Cast Iron, with just over 1,400 feet of 16-inch ductile iron pipe at the 1 MG steel reservoir and crossing the North Yamhill River bridge. The distribution system contains nearly 12 miles of pipe, over half of which is 6-inches or smaller, while the remainder is 8-12 inches in size. About 1/3 of the existing pipe is cast iron, 1/4 is PVC, and 1/4 ductile iron, with much of the remaining of an unknown type.

The City currently has a supervisory control and data acquisition (SCADA) system (located at the WTP) that allows for centralized monitoring and control of the system by the system operators from a centralized location (for those system components connected to the SCADA system). The 1 MG steel reservoir is the only location other than the water treatment plant connected to the SCADA system, receiving control valve signals and sending flow meter data.

Water Supply

Overall, the City is in comparatively good shape at this time with regards to water rights, but it has important work to do to strengthen its position by working towards certificating various currently permitted water rights. With regard to the availability and reliability of Carlton's water supply there are a couple of key concerns identified. These include the reliability of the Panther Creek/Carlton Reservoir water source and working towards a stronger position with respect to source redundancy.

The Panther Creek/Carlton Reservoir source serves the City well, but it is subject to at least two challenges that can reduce its reliability. One is the high sediment and silt loads that can occur in conjunction with major winter storms. The other is the occurrence of higher temperatures and algae blooms that are believed to be exacerbated by the significant silt accumulation in Carlton Reservoir. The algae blooms create biomass in the water which tends to foul the filters and reduce the time the filter can operate before a backwash is required.

Furthermore, the silt accumulation is believed to be extensive enough that the storage volume of the reservoir is likely reduced. The original storage volume is estimated to have been around 60 acre-feet. With a surface area of approximately 4 acres, an average depth of silt of only 3 feet would reduce the total volume by 12 acre feet, or approximately 20% of the reservoir volume.

Water Treatment

The City operates a direct filtration water treatment plant located about 3/4 of a mile downstream of Carlton Reservoir. Because Carlton's water source is surface water a significant number of regulatory requirements govern the necessary treatment before the water is passed on to consumers. Because of the range of concerns there is no one-step process that is capable of meeting all of the requirements. Therefore, treatment consists of a series, or train of steps, each designed to address specific concerns.

Overall, the existing water treatment plant is performing well and has the capacity to provide the necessary treatment for projected demands throughout the study period. The estimated maximum day demand in 2033 is 0.642 MGD (446 gpm). The plant capacity has three main limiting factors, the filters, the chlorine contact time, and the downstream distribution system.

Distribution System

The primary concern for Carlton's water distribution system is the lack of fire flow capacity. Lack of fire flow capacity is attributable to undersized pipes in the Meadow Lake Transmission Main and in the distribution main grid within the City Limits/UGB. Improvements to the transmission and distribution system will be required to meet projected demands or to address system reliability issues.

Water Storage

In most municipal distribution systems, the water system service pressure is determined by the elevation of the free water surface in the storage reservoirs serving the system. This is the case

for Carlton's water distribution system. Based on these numbers the existing finished water storage reservoirs fully meet the recommended storage volumes until 2020, and by the end of the planning period the deficit is only 124,000 gallons or 10% of the recommended total volumes. It should be noted that the recommended volumes are quite conservative, thus a deficit of 10% is not a significant concern.

As such the City should anticipate planning for additional storage capacity later in the planning period, but no immediate action is necessary with regard to designing or constructing a new finished water storage facility. While new storage infrastructure is not viewed as necessary, there are maintenance items recommended for the existing storage reservoirs. The recommendations note that reducing leaks will effectively add storage capacity and thus extend the timeframe before additional storage capacity is needed.

Wastewater System

The City of Carlton owns and operates its own wastewater collection, treatment and disposal system. Carlton's sewer system was originally constructed in 1911 and has been enlarged several times since then. The wastewater system currently consists of a gravity system; two pump stations, treatment plant, and river outfall. The system serves 670 single-family equivalent services, all within the incorporated city and urban growth boundary.

The collection system Is a conventional gravity system with two pump stations. The system is made up of approximately 35,000 feet of pipe, which vary in size from 6-inch to 16-inch. Most of the collection system was constructed before 1960. Over 17,000 feet of the collection system was constructed in 1928. The lines constructed in 1928 are vitrified clay and concrete with concrete-mortar joints. The majority of the other pipes are concrete with bell and spigot joints. Only 1,700 feet of the collection system is asbestos cement pipe.

Carlton's wastewater system includes two pump stations. The Hawn Creek Pump Station serves all of Carlton east of the railroad right-of-way. This pump station underwent a major reconstruction in 1995. The other pump station is at the wastewater treatment plant. The wastewater treatment plant is a two-lagoon system constructed in 1995. Floating aerators were then added to increase the treatment capacity of the plant. Treated water is disinfected with chlorine and discharged to the North Yamhill River. To meet dilution requirements the City can only discharge during the months of November through April.

A total Mass Discharge Limit (TMDL) has been established for the North Yamhill River. Because of this, the City will have difficulty obtaining future mass load increases as the demand on the system increases. It is likely that the City will need to dispose of more effluent through irrigation.

Storm Drainage System

According to the City of Carlton's *2002 Storm Drainage Master Plan*, the city rests atop a knoll whose ridges divide the city into four separate drainage patterns. Drainage from the western potions of Carlton flow to the northwest and southwest into the North Yamhill River. Drainage from the eastern portions of Carlton flow to the northeast and southeast into a tributary of Hawn Creek. The railroad right-of-way running through town roughly defines the east-west runoff and Monroe Street divides the north-south drainage.

The city's storm drainage systems are comprised of a series of roadside ditches or swales that often are discontinuous across individual properties. IN some areas, the swales contain storm water without allowing for the continuation of drainage across streets. Where passage exists, street culverts pass runoff through intersections into other ditch systems. In the downtown commercial district, a series of storm drain pipes and a catch basin collection system has been constructed. Newer storm drainage systems have been constructed in the last several years in the Webb Subdivision, clover Lawn Addition, Carlton Meadows, and the mobile home park.

Of major concern is the street runoff collected and discharged directly into watercourses. This places silts, oils, hazardous substances, and debris into them. The Endangered Species Act has made such discharge illegal for any creek that is deemed suitable for fish habitat and that is a tributary to the Willamette River.

The master plan includes a Capital Facilities Plan that identifies pipes needing upgrading and areas needing improvements. Storm drainage improvements are prioritized. High priority projects provide relief to areas that may become hazardous to traffic or pedestrians during flooding events or will relieve potential downstream flooding. Non-priority improvements provide service to areas that experience standing water where hazardous conditions are not as severe. Figure 9 shows a map of existing system elements and areas of suggested improvements, repair and/or replacement.

Energy Distribution System

Portland General Electric provides Carlton's electric power. As of 2000 there was a 3% electric power franchise in the City of Carlton. PGE indicates that there are no problems with the

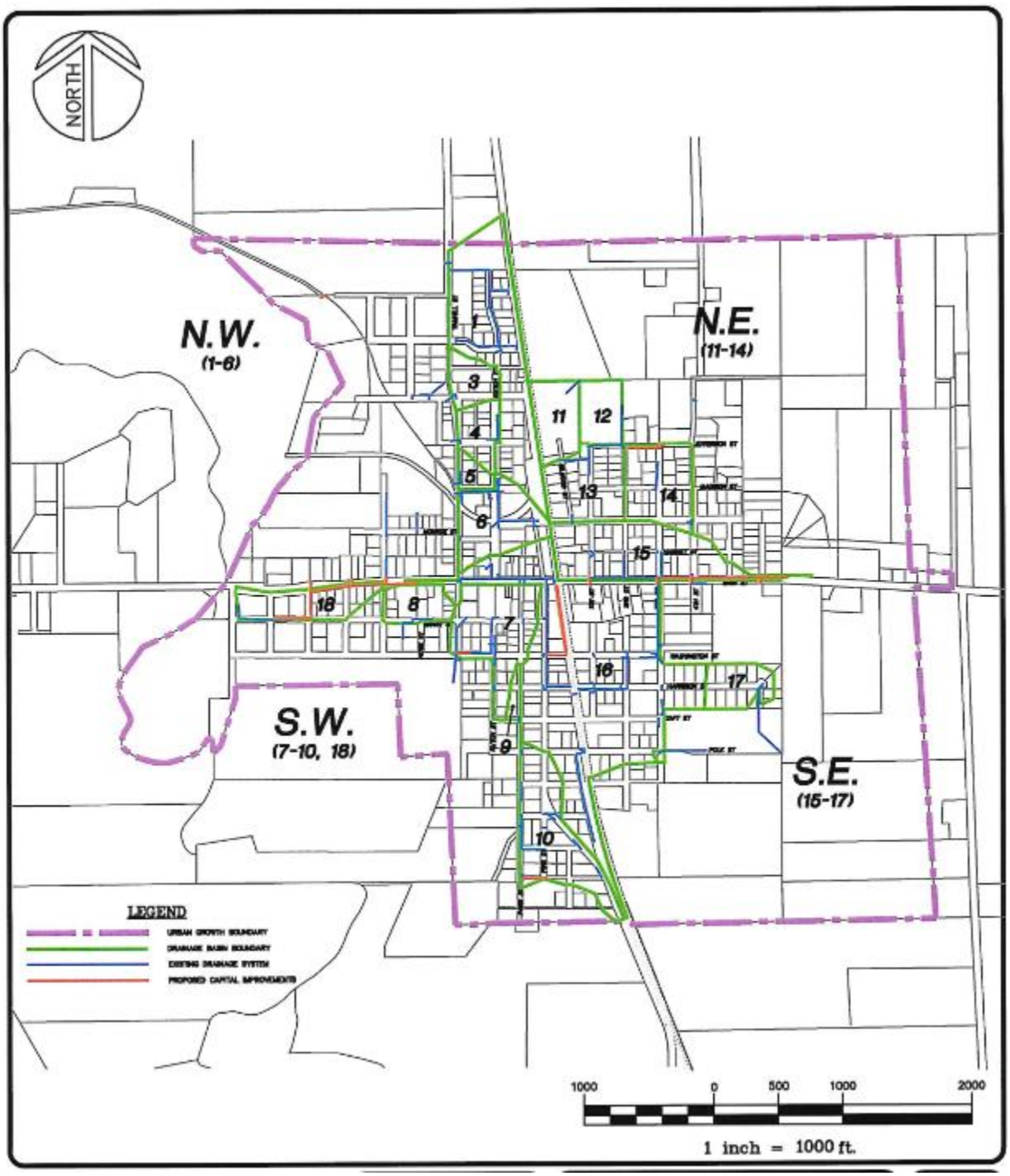
expansion of the system to meet expected growth trends. The City is not presently served by a natural gas distribution system.

Solid Waste Disposal

City Sanitary and Recycling Services of McMinnville provide the solid waste and recycling service for Carlton and the immediate area.

Refuse is picked up weekly by truck and transported to the Riverbend Landfill site, three miles south of McMinnville. City Sanitary and Recycling Services contracts with the Riverbend Landfill Company for disposal.

Figure 9. Storm Drainage System and Proposed Capital Improvements



City Sanitary and Recycling Service provides residential curbside recycling once a month, on the same day as garbage service. It also provides a variety of commercial recycling services including high-grade paper and cardboard pickup. City Sanitary and Recycling service provides promotional and educational services. The material that is recovered includes three colors of glass, some plastics, tin/steel cans, aluminum, magazines, newspaper, cardboard, and used motor oil.

Recycled materials are brought to a processing center on the City Sanitary and Recycling Service Campus in McMinnville. The material is sorted and marketed. Bulk/large item recycling is also available to the residents of Carlton at the Riverbend Landfill, as well as direct drop off of solid waste, for a fee.

TRANSPORTATION

Note: The City of Carlton is currently updating the Carlton Transportation System Plan (TSP). Upon adoption of the TSP, this section of the Comprehensive Plan Appendix will be updated in order to align the two documents.

The City of Carlton prepared and adopted an updated Transportation System Plan in May 2009. The TSP addresses the requirements of the Transportation Planning Rule (TPR), Statewide Goal 12, and key transportation issues identified by the City as part of the 2009 Transportation Plan Update. The Carlton TSP establishes the City's goals, policies and strategies for developing and improving the transportation system within the Carlton Urban Growth Boundary. The Carlton TSP serves as a twenty-year plan to guide transportation improvements and enhance overall mobility for vehicles, pedestrians and bicyclists throughout the city.

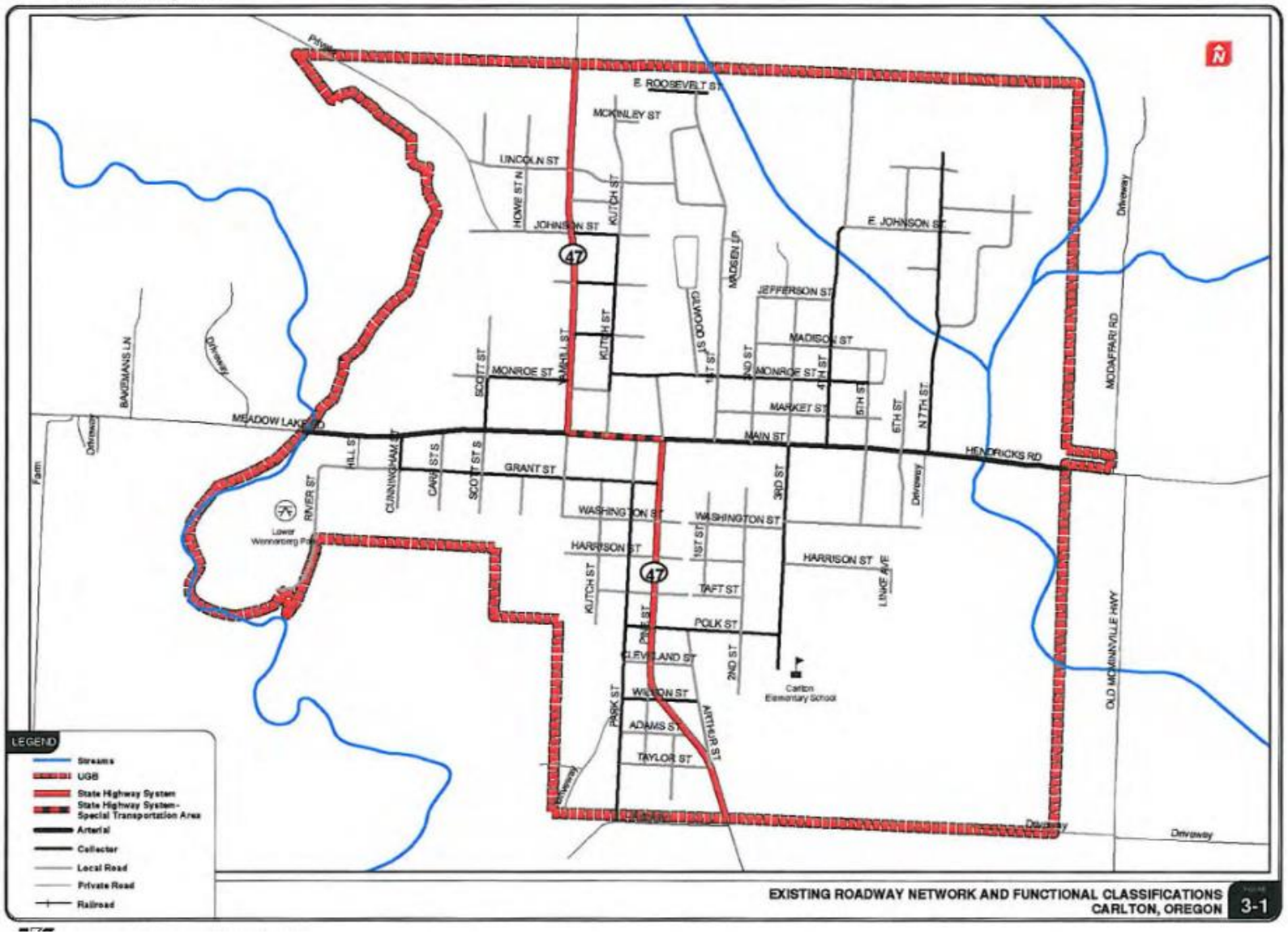
System Inventory

The transportation system inventory includes the street system as well as pedestrian, bikeway, public transportation, rail, air, water and pipeline systems. A copy of the updated street system inventory is available as an appendix in the 2009 TSP.

Roadway Functional Classifications

The roadway functional classification system groups city streets into categories based on the character of service they are intended to provide, as shown in Figure 10. Identification of the appropriate roadway functions is the basis for planning roadway improvements and establishing appropriate standards (right-of-way, roadway width, design speed).

Figure 10. Roadway Functional Classifications



Carlton has three (3) types of roadway functional classifications that are described as follows:

- Arterials – Intra- and inter-community roadways connecting community centers with major facilities. In general, arterials serve both through traffic and local traffic. Access should be partially controlled with infrequent access to abutting properties.
- Collectors – Streets connecting residential neighborhoods with smaller community centers and facilities as well as access to the arterial system. Property access is generally a higher priority for collector arterials; through-traffic movements are served as a lower priority.
- Local Access Streets – Streets within residential neighborhoods connecting housing (also can be commercial, industrial, etc.) with the arterial system. Property access is the main priority; through-traffic movement is not encouraged.

The following arterials were identified:

- Highway 47
- Main Street

The following collectors were identified:

- Johnson Street from Yamhill Street to Kutch Street
- Johnson Street from 4th Street to 7th Street
- Jefferson Street from Yamhill Street to Kutch Street
- Madison Street from Yamhill Street to Kutch Street
- Monroe Street from Scott Street to 5th Street
- Cunningham Street from Grant Street to Main Street
- Scott Street from Main Street to Monroe Street
- Grant Street from Cunningham Street to Pine Street
- Kutch Street from Roosevelt Street to Main Street
- 1st Street from Roosevelt Street to Main Street
- 3rd Street from southern terminus to Main Street
- 4th Street from Main Street to Johnson Street
- 7th Street from Main Street to northern terminus
- Park Street from south city limits to Grant Street
- Polk Street from Park Street to 3rd Street
- Roosevelt Street from western terminus to 1st Street

- Wilson Street from Pine Street to Arthur Street

A summary of the current conditions and future deficiencies of the transportation modes serving Carlton is as follows:

Roadway Network

- Intersection Operations: All of the unsignalized study intersections in Carlton currently operate acceptably and are forecast to continue to operate acceptably in 2030.
- Roadway Segment Operations: All of the Highway 47 roadway segments in Carlton currently operate acceptably and are forecast to continue to operate acceptably in 2030.
- Roadway Deficiencies: The following roadway deficiencies have been identified:
    - There are only four crossings of the Union Pacific railroad right-of-way that runs north and south within the city. This creates many east-west discontinuities in the otherwise continuous roadway network grid.
    - The following facilities were considered for upgrade from local street to collector classification based on the connectivity they provide and relationship to access and railroad right-of-way crossings:
        - 1st Street from Roosevelt Street to Main Street
        - Kutch Street from Johnson Street to Roosevelt Street
        - Kutch Street from Main Street to Monroe Street
        - Johnson Street from 4th Street to 7th Street
    - During peak hours, approximately one truck every 1.5 minutes pass through the downtown area of the City of Carlton along Main Street and create a negative impact to the downtown/community environment. Up to four times that many trucks pass through the Yamhill Street/Main Street intersection. Approximately seventy percent of the trucks on Main Street continue through town on Highway 47 and have the potential to be rerouted by a local by-pass.
    - Trucks have a difficult time negotiating the Yamhill Street/Main Street and Pine Street/Main Street intersections and encroach on both the approaches and departures of the intersections.
    - Highway 47 within the UGB has a crash rate slightly higher than the statewide average for similar facilities. This is a result of the relatively short study segment length. The crashes are primarily located at or near the two Main Street intersections along Highway 47 which have relatively low intersection crash rates.

- Crashes at the two Main Street intersections along Highway 47 are likely related to the unusual three-way stop-control. The three-way stop-control at the Yamhill Street/Main Street and Pine Street/Main Street intersections causes confusion to some motorists who mistake the intersections as all-way stop controlled.
- Left-turn lane warrants will be met at any intersection along N. Yamhill Street with a left-turn volume greater than ten vehicles in the peak hour. Left-turn lane warrants will be met at any intersection along S. Pine Street with a left-turn volume greater than approximately 20 vehicles during the peak hour.

Pedestrian Network

- Existing Pedestrian Conditions: There are many sidewalk locations that are missing or deficient within the City of Carlton. Many of the existing sidewalks are in poor physical condition, too narrow, or poorly maintained with overgrown vegetation. The sidewalk system within the City is fragmented and disjointed and is difficult to use the sidewalks to safely walk from one area of town to another.
- Pedestrian Deficiencies: Sidewalks in good condition are desirable and should be provided on all collector, arterial, and local streets within the city limits; however, due to cost constraints a system of prioritization is necessary. Sidewalks shall be prioritized based on the necessity to provide Safe Routes to School and each roadway's importance in the roadway hierarchy. Priority sidewalk gaps, maintenance areas, and pedestrian crossings (in no particular order) include the following:
    - Safe Routes to School:
        - S 3rd Street between E Monroe Street and Carlton Elementary School
        - W Polk Street between S Pine Street and Carlton Elementary School
        - E. Monroe Street from N. Kutch Street to N. 3rd Street
        - N. Kutch Street from LE. Lincoln Street to E. Monroe Street
        - Pedestrian crossing along Highway 47 at Monroe Street
        - Railroad right-of-way crossing at E. Washington Street
        - Pedestrian crossing along Highway 47 at Washington Street
    - Other priority arterials/collectors:

- Main Street from N 7th Street to N 1st Street
- Railroad Right-of-Way Crossings to improve east-west connectivity throughout the City.
- N Yamhill Street from Main Street to Lincoln Street
- W Grant Street from S Pine Street to S River Street
- N 1st Street from E. Monroe Street to E. Main Street

Bicycle Network

- Existing Bicycle Conditions: There are currently no designated bicycle facilities in Carlton.
- Bicycle Deficiencies: Bicycle lanes are desirable on all collector and arterial roadways; however, roadways with traffic volumes greater than 3,000 vehicles per day, those on Safe Routes to School, as well as those that create recreational opportunities should be the priority. Based on these criteria, the following prioritizes potential bicycle facilities:
    - Highway 47 within the city limits
    - Main Street within the city limits
    - Polk Street between S Pine Street and Carlton Elementary
    - 3rd Street between Main Street and Carlton Elementary School
    - Railroad right-of-way multi-use path

Public Transit Service

- Existing Public Transportation: Several public transportation services are provided within the City of Carlton. Including:
    - LINKS – provides service via the Highway 47 Corridor LINK service which connects between Carlton and McMinnville, Yamhill, Cove, Gaston and Hillsboro (which connects with Metro's MAX light-rail system).
    - 99W Corridor LINK – fixed route service connecting McMinnville, Lafayette, Dayton, Dundee, Newberg and Sherwood
    - YCTA Paratransit Service – dial-a-ride service to all residents with 24-hour advance notice.
- Future Transportation: Future transit needs in the City of Carlton could include expanded regional and intercity commuter services, expanded transit frequency during Carlton Fun Days

and peak wine tasting times, park-and-ride lots, as well as more widespread awareness of the existing Cherriots Rideshare carpool program.

Rail Service

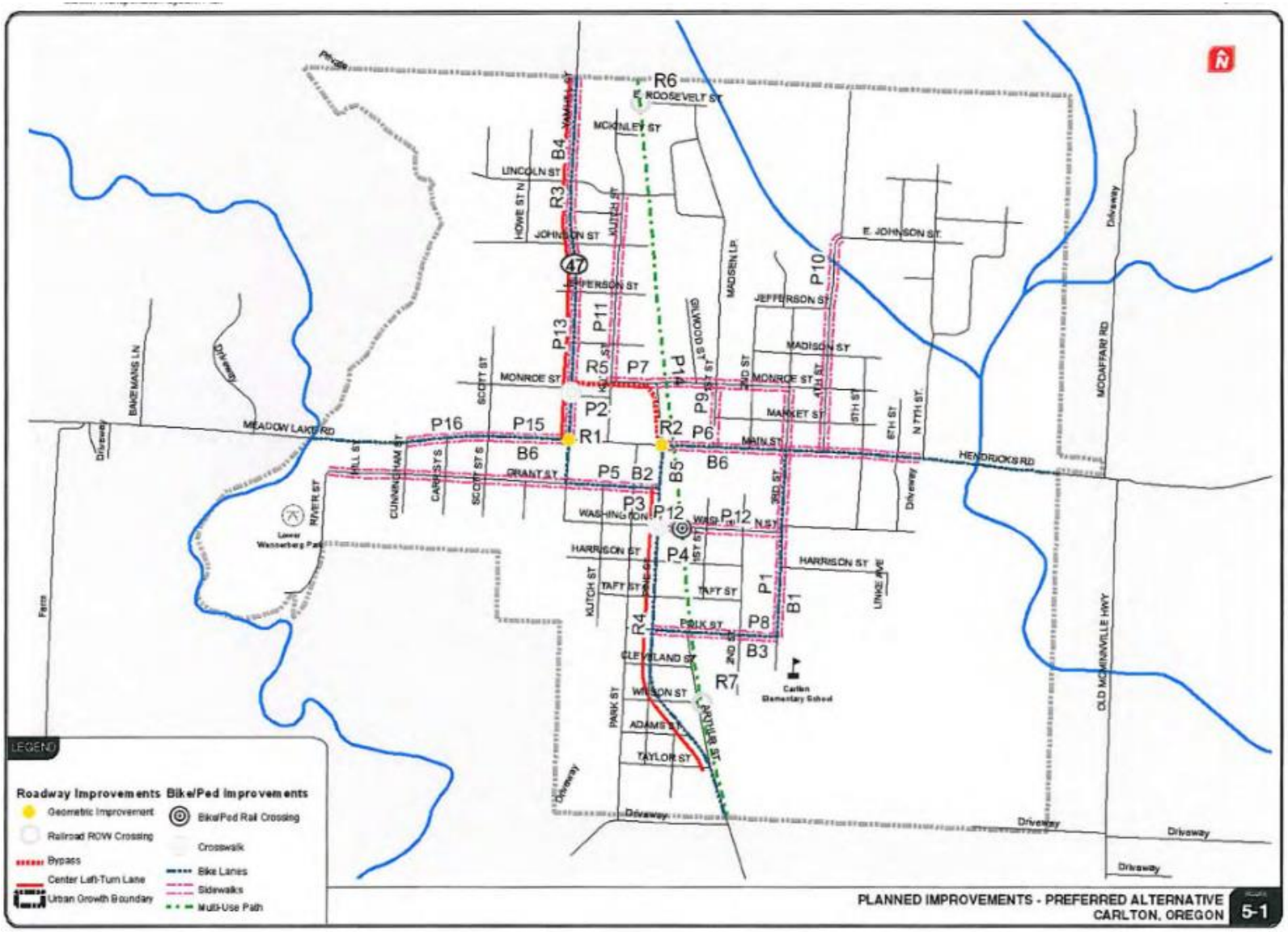
- There is one rail right-of-way owned by the Union Pacific Railroad that runs through the City of Carlton, but no tracks remain in the right-of-way that runs through Carlton.

Air Service

- No public airports are located within the City of Carlton. A general aviation airport is located in McMinnville, north of Carlton. The nearest airport with scheduled passenger service is the Portland International Airport, located approximately 25 miles northeast of Carlton.

The TSP includes a Preferred Plan that summarizes all of the roadway, pedestrian, bicycle, and transit improvements required to address the City of Carlton's transportation goals, as shown in Figure 11. No mitigations are required to meet the ODOT mobility standards along Highway 47; however geometric improvements have been identified to improve safety. Because none of the identified improvements are driven by a timeframe based on future volume projections, the projects are categorized as either short-, medium-, or long-term priority based on how they meet the City's goals and to establish an order in which the projects could potentially be pursued.

Figure 11. Preferred Plan Map



ENERGY

Electricity, heating oil, bottled gas and wood are the principal fuel types supplying the energy needs for Carlton. The City is not presently served by natural gas. Portland General Electric provides Carlton's electric power. Power is supplied by 57,000-volt transmission line coming from east of the City. PGE indicates that there are no problems with the expansion of the Carlton system to meet expected growth trends. Carlton and Yamhill County are primarily dependent upon power generated from hydroelectric and thermal plants located elsewhere in the Pacific Northwest.

Approximately 78% of the household energy use goes for space and water heating. In terms of personal direct energy use, the private automobile is the largest consumer. In Oregon, approximately 56% of personal direct energy use is attributable to the auto. This compares to 27.2% for space heating and 7.0% for water heating. There is no reason to suspect significant variations from these percentages for residents of Carlton.

The rising cost of energy, coupled with the fact that the majority of our energy comes from nonrenewable 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.

URBANIZATION

A land use plan indicates the area into which various types of activities are expected to occur. Carlton designates five categories of land uses to be described and located on the land use map.

1. Residential. The Residential Plan designation is implemented through the Suburban Residential (SR), Multi-Family Residential (MR), and Manufactured Home (MH) zones. The maximum density in the Suburban Residential Zone is 5.80 dwelling units per acre. The maximum density in the Multi-Family Zone is 13.75 dwelling units per acre. The Manufactured Housing Zone allows for manufactured home parks at a density of 5.80 dwelling units per acre. Manufactured home parks are also allowed as a permitted use in the Multi- Family (MR) Zone at a maximum density of 10 dwelling units per acre.

2. Commercial. The Commercial Plan designation is implemented through the Commercial Business (CB) and Commercial-Industrial (CI) zones. Commercial uses include all activities of a commercial nature as authorized by the implementing zones.

3. Industrial. The Industrial Plan designation is implemented through the Industrial Zone. Industrial use covers the range of manufacturing, warehousing, and wholesaling activities. The Commercial-Industrial (CI) Zone also allows a number of industrial uses.

4. Public Facilities. The Public Facilities Plan designation includes all government and semi-public lands and uses, including park land. The Public Facility (PF) Zone implements this Plan designation.

5. Agricultural Holding. The Agricultural Holding Plan designation is implemented through the Agricultural-Holding (AH) Zone. The Agricultural-Holding Zone includes areas for future growth within the Carlton Urban Growth Boundary (UGB) and allows an orderly phasing of urban development of land. The AH Zone is a holding district that allows agricultural uses to continue until such time that the agricultural lands are needed for urban uses and public facilities and services are available. Conversion of AH property to a non- agricultural use requires a zone change. Comprehensive Plan policies recommend removing the AH zone and assigning other zone types to AH lands.

The land use designations in the Comprehensive Plan are of a general nature and are intended to indicate the expected community growth pattern. Implementation of the plan occurs through more specific actions such as zoning, subdivision control, annexation review, Urban Growth Boundary administration and public facilities planning. Although the plan is designed to be somewhat flexible, it must be understood that it is a significant policy statement and a great deal of responsibility must be exercised in its use and updating.

In 2007, the city conducted a buildable lands inventory. Table 2 shows the amount of developed acreage by zoning designation within the city. Approximately 224.6 acres are currently developed within the Carlton urban area.

Table 2. Developed Land Uses within the Carlton UGB By Zone, 2007

Zoning Designation	Acres*	Percent of Total Area
Suburban Residential	145.9	65.0%
Park/Open Space	18.0	8.0%
Multi-Family Residential	11.1	4.9%
Commercial Business	10.9	4.9%
Agricultural Holding	9.5	4.2%
Public	9.2	4.1%
Commercial-Industrial	7.7	3.4%
Manufactured Housing	7.2	3.2%
Industrial	5.1	2.3%
Total	224.6	100.0%

Source: MWVCOG, 2007.

*Acreage data is from the Yamhill County Assessor and does not includes public rights-of-way.

Buildable Lands Inventory

Buildable lands were inventories for each land type - residential, commercial, and industrial. The analysis of each land type includes totals for land that is completely vacant and redevelopable. The following parameters are used to determine whether land is vacant or redevelopable.

- Vacant residential land includes all parcels that are at least 5,000 square feet (0.11 acres) in size with improvement values of less than $5,000. The minimum lot size for new residential parcels in the Suburban Residential (SR) Zone is 7,500 square feet, however the City allows development of existing lawfully created lots that are smaller than the minimum lot size. The minimum lot size in the Multi- Family (MR) Zone is 5,000 square feet.
- Vacant commercial or industrial land includes all parcels with improvement values of less than $5,000.

- Redevelopable residential land consists of residential-zoned parcels that are at least 0.50 acre in size with an improvement value of at least $5,000. This analysis assumes that 0.25-acre is devoted to the existing house, with the remainder considered vacant (redevelopable).
- Redevelopable commercial and industrial land includes parcels in commercial and industrial zones where some limited improvements have been made, but where potential for redevelopment for more intense uses is probable. For the purpose of this analysis, redevelopable land is defined as commercial or industrial parcels with improvement values of at least $5,000, where the ratio of land value to improvement value is 1:1 or greater.

The analysis also includes an assessment of land that is not buildable due to physical constraints such as steep slopes, riparian buffers, floodways, and wetlands. These areas have been subtracted from the amount of gross acreage that is considered buildable.

Residential Land

Table 3 shows the amount of buildable land for each residential zoning district within the Carlton urban area. All of the residential land included in this table is located within the existing city limits. In Carlton, the city limits and urban growth boundary are in the same location.

Approximately 90.1 buildable acres are available for residential development within the urban area. Approximately 166.5 acres within the Carlton UGB are currently developed for residential use.

Table 3. Buildable Land Inventory, Carlton, 2007

Zone	Vacant (acres)	Redevelopable	Total
Suburban Residential (SR) Zone	58.9	30.7	89.6
Multi-Family Residential (MR) Zone	0.4	0.0	0.4
Manufactured Home (MH) Zone	0.1	0.0	0.1
Buildable Acres Within the Urban Area	**59.4**	**30.7**	**90.1**

Source: Yamhill County Assessor data, MWVCOG, 2007.

Commercial Land

Table 4 shows that approximately 8.1 vacant acres are available for commercial development within the Carlton city limits. Approximately 1.9 acres designated for commercial use can be considered redevelopable. Approximately 18.6 acres within Carlton are currently developed for commercial uses.

Table 4. Buildable Commercial Land[1] Carlton, 2007

Zone	Vacant (acres)	Redevelopable	Total
Commercial Business (CB) Zone	6.0	1.0	7.0
Commercial-Industrial (CI) Zone*	2.1	0.9	2.9
Buildable Acres within the Urban Area	**8.1**	**1.9**	**10.0**

Source: Yamhill County Assessor data, MWVCOG, 2007.

*The Commercial-Industrial (CI) Zone also allows all of the industrial uses permitted outright in the General Industrial (GI) Zone. These uses include mini-warehouse storage; assembly, including light manufacturing, processing, packaging, treatment, fabrication of goods or merchandise; laboratories, offices, bottling and distribution centers, light repair facilities, wholesale businesses, and similar uses.

Industrial Land

Table 5 shows the amount of buildable industrial land within the Carlton urban area. Approximately 1.5 acres of vacant or redevelopable industrial land are available within Carlton. An additional 2.0-acre vacant industrial-zoned parcel has recently been purchased by the Carlton Fire District for development of a new fire station. Approximately 5.1 acres within Carlton are currently developed for industrial uses.

Table 5. Buildable Industrial Land, Carlton, 2007

Zone	Vacant(acres)	Redevelopable	Total
General Industrial (GI) Zone	1.0	0.5	1.5
Buildable Acres Within the Urban Area	**1.0**	**0.5**	**1.5**

Source: Yamhill County Assessor data, MWVCOG, 2007.

Land for Future Development

The Agricultural-Holding Zone includes areas for future growth within the Carlton UGB. The AH Zone is a holding district that allows agricultural uses to continue until such time as these lands are needed for urban uses and public facilities and services are available. Table 6 shows that approximately 190.6 acres are available for future development in the Agricultural Holding (AH) Zone.

Table 6. Buildable Land for Future Development Carlton, 2007

Zone	Vacant (acres)	Redevelopable	Total
Agricultural Holding (AH) Zone	107.4	83.2	190.6
Buildable Acres Within the Urban Area	107.4	83.2	190.6

Source: Yamhill County Assessor data, MWVCOG, 2007.

Land Needs Analysis

The buildable lands inventory is used in conjunction with the 2027 population projection to determine if adequate land is available for future residential, commercial, and industrial development.

Future Residential Land Needs Residential Densities

To determine the amount of land needed for future residential development, it is necessary to determine residential densities for single-family and multi-family housing developments. The Carlton Development Code specifies the following maximum densities for residential zones:

- Suburban Residential (SR) Zone – 5.8 dwelling units per acre
- Multi-Family Residential (MR) Zone – 13.8 dwelling units per acre

To determine land needs for residential development, net densities were developed for these zones. This net density is determined by subtracting 25 percent of each developed acre for public facilities, such as street rights-of-way, then applying the minimum lot size to the remainder. The resulting net densities for each zone are as follows:

- Suburban Residential (SR) Zone – 4.4 dwelling units per acre
- Multi-Family Residential (MR) Zone – 10.3 dwelling units per acre

The housing needs analysis identified 233 new residential units that will be needed to accommodate the projected 2027 population of 2,379 persons, as shown in Table 7. Of these 233 new residential units, 176 single-family dwelling units and 57 multi-family dwelling units will be needed. The table is shown again below.

Table 7. Additional Dwelling Units Needed in Carlton by 2027

Dwelling Units Needed by 2027	Single-Family Units	Multi-Family Units	Total
Dwelling Units Needed to Meet 2007 Rental Demand	9	18	27
Rental Units Needed by 2027	18	39	57
Owner-Occupied Units Needed by 2027	149	0	149
Total	176	57	233

Source: MWVCOG, 2007.

Table 8 shows the amount of buildable residential land needed through 2027 to accommodate various types of housing, including multi-family housing. Based on the densities described above, approximately 83.1 acres will be needed to provide for residential development in Carlton trough 2027.

Table 8. Projected Housing Mix and Residential Land Needs Carlton, 2027

Housing Type	Units Needed 2027	Percent of New Units	Density (units/acre)	Acres Needed 2027
Single Family	176	75.5%	4.4	40.0
Multi-Family	57	24.5%	10.3	5.5
Total	233	100.0%		45.5

Source: MWVCOG, 2007.

Looking back at Table 3, approximately 67.1 acres of vacant or redevelopable residential land is available to accommodate future housing needs within the existing urban growth boundary. An estimated 45.5 acres will be needed to accommodate residential growth through 2027. This includes approximately 5.52 acres designated Multi-Family Residential to accommodate multi-family housing needs. An additional 40 acres will be needed to provide for single-family housing development.

To meet the need for multi-family residential development Carlton amended the Comprehensive Plan Map designation and rezoned two (2) properties that were identified as redevelopable in the buildable lands inventory. Table 9 shows the properties that have been rezoned to meet future residential land needs. The amount of buildable acres is a net figure, with 0.25 acres subtracted from the total area of each tax lot to account for the existing dwelling on each property.

Table 9. Residential Land Re-designations to Meet Projected Need For 2027

Assessor Map/Tax Lot	Current Plan Designation	Current Zoning	New Plan Designation	New (Proposed) Zoning	Buildable Acres
3422CC 1100	Residential	Suburban Residential	No change	Mixed-Density Residential	4.7
3422CC 1101	Agricultural Holding	Agricultural Holding	Residential	Multi-Family Residential	0.7
3422BC 300	Residential	Suburban Residential	No change	Mixed-Density Residential	1.8
Total					**7.3**

Source: MWVCOG, 2007.

Table 10 shows the buildable residential land within the urban area after properties have been re-designated to meet projected housing need through 2027. Approximately 62.2 acres is available for single-family residential development in the Suburban Residential Zone where an estimated 40 acres is needed. Approximately 6.3 acres will be available for multi-family development in the Multi-Family Residential (MR) Zone. The city has provided sufficient land for various housing types and densities in response to projected need.

Table 10. Buildable Residential Land after Re-designations Carlton, 2007

Zone	Vacant (acres)*	Redevelopable	Total	Acres Needed 2027
Suburban Residential (SR)	57.1	30.0	88.9	40.0
Multi-Family Residential (MR)	0.4	0.7	1.1	5.7
Mixed-Density Residential (MX)**	1.8	4.7	6.5	
Manufactured Home (MH)[1]	0.1	0.0	0.1	NA
Total	**59.4**	**35.4**	**94.8**	**45.7**

Source: MWVCOG, 2007.

*No specific analysis of future need in the Manufactured Home (MH) Zone is required as manufactured home parks with a maximum density of 10 units per acre are allowed as a permitted use in the Multi-Family Residential Zone.

**The MX Zone provides for a mixture of housing types with a maximum density of nine (9) dwelling units per acre.

Future Commercial and Industrial Land Needs

The Economy section of the Comprehensive Plan includes a 2027 projection of local employment (see Table 8). One purpose for forecasting local employment is to determine if sufficient land is currently designated in the Comprehensive Plan to accommodate projected commercial and industrial development. Table 7 of the Economics Element shows the projected amount of land need for commercial and industrial uses through 2027. That information is also included in Table 11 below.

Table 11. Comparison of Supply and Demand for Commercial and Industrial Land Carlton, 2027

Land Use Type	**Vacant/ Redevelopable Acres**
Supply	
Commercial	9.5
Industrial	2.5
Total Supply	**12.0**
Demand	

Commercial	4.6
Industrial	13.3
Total Demand	**17.9**
Surplus (Deficit)	
Commercial	4.9
Industrial	(10.8)

Source: MWVCOG, 2007.

To meet the need for future industrial growth, Carlton amended the Comprehensive Plan Map designation and rezoned a 11.0-acre portion of a 21.8-acre property that was formerly designated and zoned Agricultural Holding as shown in Table 46.

Table 12. Residential Land Re-designations to Meet Projected Need For 2027

Assessor Map/Tax Lot	Current Plan Designation	Current Zoning	New Plan Designation	New (Proposed) Zoning	Property Size (acres)	Area Proposed for Redesignation Rezoning (acres
3421 300	Agricultural Holding	Agricultural Holding	Industrial	General Industrial	21.8	11.0
Total						**11.0**