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SECTION I INTRODUCTION

HUBBARD COMPREHENSIVE PLAN

The Hubbard Comprehensive Plan is comprised of three (3) separate documents. The Comprehensive Plan was originally adopted by the city in 1977. Amendments to the Plan were adopted in 1997, 1999, and 2001. In 1999, the city adopted the *Hubbard Transportation System Plan* (TSP), which is the second Plan document. The third portion of the Plan, the *Hubbard Inventory of Natural Resources, Scenic and Historic Areas, and Open Spaces*, was adopted in 2001.

BACKGROUND

The city of Hubbard was first laid out by Charles Hubbard in 1871. Mr. Hubbard donated over 10 acres of his land claim to the then Oregon-California Railroad Company for a train station and townsite. Mr. Hubbard then proceeded to lay out the city which was to become Hubbard. Twenty years later, in 1891, the city of Hubbard was incorporated.

Hubbard is located in northeast Marion County, approximately 12 miles south of Oregon City and 20 miles north of Salem. The terrain is nearly level, the city center is 182 feet above mean sea level. A mean annual temperature of 52.3 F. characterizes Hubbard's moderate climate. Annual rainfall is about 44 inches per year.

The highly fertile soil types in the Hubbard area consists principally of dark rich loams of the Woodburn silt-loam class, some Amity silt-loams, and Labish silt-clay loams along river bottoms. There is a minor escarpment 30 to 40 feet high bordering the flood plain of the Pudding River to the East, and to the West on both sides of the Mill Creek drainage way.

The Wolfer Mineral Springs, purchased from the original Hubbard family, operated successfully until the 1950s as a Health spa, picnic, and ball field area. The mineral spring is located to the West of Hubbard on the Mill Creek's East bank, and produces in excess of 100 gallons of mineral waters per minute.

For many years, the economy of Hubbard has been built on the agricultural production of the area. Berries, walnuts, filberts, apples, pears, prunes, cherries, all types of produce, grain, hay, hops and grass seed production indicate the diversities of the area. In past times, mechanized harvesters and the elimination of children under 12 years of age in the fields, have reduced the labor force required to harvest the crops.

Service industries currently account for a large portion of the local employment opportunities. The largest employers include meat packing, auto sales, a seed cleaning operation, clothing production, numerous manufacturing businesses, telecommunication services, construction services, and related commercial activities. In recent years, a growing industrial area has been developed in the southeast portion of Hubbard.

CITIZEN INVOLVEMENT

The city government consists of a five-member City Council and Mayor. The city staff is made up of a city recorder, court clerk, finance director, public works superintendent, police chief and other staff support. The Hubbard Planning Commission is a five-member advisory body to the city council on Comprehensive Plan matters. The Planning Commission is the body most often responsible for the city's citizen involvement efforts. Special committees, such as the Transportation Advisory Committee, which was formed to oversee development of the Transportation System Plan, may also be formed as needed.

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SECTION II NATURAL RESOURCES, SCENIC AND HISTORIC AREAS, AND OPEN SPACES

The purpose of Statewide Goal 5 is: “*To protect natural resources and conserve scenic and historic areas and open spaces.*” The goal language states that local governments shall adopt programs that will protect natural resources and conserve scenic, historic, and open space resources for present and future generations. The goal requires that the following resources be inventoried:

- Riparian corridors, including water and riparian areas and fish habitat
- Wetlands
- Wildlife Habitat
- Federal Wild and Scenic Rivers
- State Scenic Waterways
- Groundwater Resources
- Approved Oregon Recreation Trails
- Natural Areas
- Wilderness Areas
- Mineral and Aggregate Resources
- Energy sources
- Cultural areas

Local governments are encouraged to maintain current inventories of the following resources:

- Historic Resources
- Open Space
- Scenic Views and Sites

These inventories are found in a separate document: *City of Hubbard Comprehensive Plan Inventory of Natural Resources, Scenic and Historic Areas, and Open Spaces* that is adopted as part of the Comprehensive Plan.

Goal 5 requires that local jurisdictions adopt policies to allow, limit, or prohibit conflicting uses at each inventoried resource site. The City adopts the following goals, and policies regarding natural resources, scenic and historic areas, and open spaces:

Natural Resources, Scenic and Historic Areas, and Open Spaces Goals and Policies

Goal: Protect natural resources and conserve scenic and historic areas, and open spaces.

Policies:

1. Hubbard will participate in watershed-based efforts to improve fish and wildlife habitat and water quality in the Pudding Watershed. Participation will include having a representative on the Pudding River Watershed Council or coordinating with the small-city representative.
2. Hubbard will contribute to, or comment upon, regional water quality improvement planning and fish recovery plans undertaken by state and federal agencies by reviewing and responding to proposed policies and plans.

3. Hubbard will protect significant wetlands through a safe harbor ordinance that contains restrictions on placement of fill material, grading, excavation, and vegetation removal.
4. Hubbard will provide notice to the Division of State Lands as specified in the Hubbard Development Code for any development request on a property containing, or within 25 feet of, a wetland mapped on the City of Hubbard Local Wetland Inventory.
5. Hubbard will protect significant riparian corridors through a safe harbor ordinance that contains restrictions on placement of new structures and impervious surfaces, grading, and vegetation removal within riparian buffer sites.
6. Hubbard will protect significant groundwater resources by completing and implementing the City of Hubbard Drinking Water Protection Plan consistent with requirements of the Department of Environmental Quality.
7. Hubbard will cooperate with state agencies and other historic organizations to catalog and preserve historic buildings, artifacts, and archaeological sites.
8. Hubbard will pursue the establishment of a multi-use path along Mill Creek as specified in the City of Hubbard Transportation System Plan.

SECTION III AIR, WATER, AND LAND RESOURCES QUALITY

BACKGROUND

Oregon's Statewide Planning Goal 6 requires efforts to maintain and improve the quality of air, water, and land resources of the state. This goal is mainly accomplished by local compliance with state and federal regulations. A variety of state agencies administer resource quality protection programs and maintain databases about resource quality but the lead state agency is the Department of Environmental Quality (DEQ).

The purpose of this section is to briefly summarize existing **regulations** and **information in agency databases** regarding land, air, and water quality in the Hubbard area. Local governments must comply with, and sometimes enforce, existing regulations and this section is intended to be a quick overview of existing environmental requirements. Requirements are complex and ever changing. DEQ publishes a useful document called "*An Oregon Guide to Environmental Requirements for Local Governments*" (DEQ, 1997).

DEQ regulates the discharge of pollutants into the environment. Currently the following activities **will** require a permit or plan approval from DEQ or other state agencies:

- Discharging any material into waters of the state;
- Disposal of wastewater to the land surface or injection of wastewater into the ground;
- Discharge of storm water associated with industrial activity, directly or indirectly, through the storm sewers or storm drainage to surface waters;
- Disturbance of five or more acres of land with clearing, grading, excavating, and/or construction activities;
- Removal of friable asbestos-containing material;
- Ownership or operation of a landfill, transfer station, incinerator, or septage lagoon for non-hazardous wastes; and
- Treatment of petroleum contaminated soil from underground storage tank release on-site or off-site.

The following activities **may** require a permit or plan approval from DEQ or other state agencies:

- Handling or storing petroleum products above ground;
- Discharge of any emission to the air;
- Use of solvents, degreasers, and paint; and gasoline storage by a business;
- Treatment, collection, storage, or disposal of hazardous wastes that are corrosive, toxic, reactive, or ignitable;
- Storage or transport of waste tires;
- Installation or removal of an underground storage tank;
- Construction of a parking lot; and
- Purchase or lease of land for project development (environmental assessment).

Some DEQ permit and plan approval actions affect land uses and, therefore, require a Land Use Compatibility Statement (LUCS) from the city and/or county. The following list of applications must include a LUCS from the affected local government:

- Approval Of Air Quality Notice Of Construction
- Air Contaminant Discharge Permits
- Oregon Title V Air Quality Operating Permit

- Noise Impact Boundaries For Racing Facilities
- Airport Abatement Plan/ Noise Impact Boundaries
- Air Indirect Source Construction Permits.
- Parking And Traffic Circulation Plans
- Solid Waste Disposal Permits/Authorization Letter
- Commercial Composting Facility
- Waste Tire Storage Permits
- Hazardous Waste/Polychlorinated Biphenyl (PCB) Storage, Treatment, And Disposal Permits
- Pollution Control Bond Fund Request
- Wastewater System Facility/Sewer System Plans
- Water Quality Construction Grants
- Municipal Wastewater Treatment System State Revolving Loan Request
- Certification Of Water Quality Standards For Federal Permits
- On-Site Sewer Permits
- Water Discharge Permits: National Pollution Discharge Elimination System (NPDES) And Water Pollution Control Facility (WPCF).

The Oregon Health Division (OHD) requires information about project compatibility with local land use plans and ordinances in the following situations:

- New public water systems
- Major additions, alterations, and extensions of water transmission mains
- Development of new water sources
- Relocation of water treatment or storage facilities.

Additional information and permit assistance for the above activities is available from DEQ's offices in Salem and/or Portland and OHD's offices in Portland or the Marion County Health Department offices in Salem. The following sections present what is known about air, water, and land quality in Hubbard and provide more detail about permit requirements.

AIR QUALITY

Ambient air quality is monitored by the Oregon Department of Environmental Quality (DEQ) by a statewide air quality surveillance network. Air Pollution Index (API) values, based on the monitoring information, are calculated for Portland, Salem, Eugene, Medford, and Bend. The monitoring stations closest to Hubbard are located in Salem. These stations continuously monitor for carbon monoxide, ozone, sulfur dioxide, nitrogen dioxide and particulate levels. Lead samples have also been obtained in Salem. Ambient air quality is related to the amount and types of discharged pollutants and meteorological events (DEQ 2001).

Available data from Salem stations indicates that air quality is generally good (DEQ, 1996). DEQ monitoring records indicate that air quality standards in Salem were not exceeded for ozone, fine particulate matter, or lead; and exceeded for carbon monoxide twice, in 1991 and 1993. In 1994, the summary of API values, categorized as good, moderate, and unhealthful, showed no unhealthful values for Portland or Eugene, and 74 and 48 moderate values for Portland and Eugene respectively (DEQ, 1995).

Air pollution permits include Air Contaminant Discharge Permits and Oregon Title V Operating Permits, and are dependent on:

- The type of facility proposed
- The amount of emissions

- The type of emissions
- Regional air quality, e.g. is the area in “attainment” of existing air quality standards (DEQ, 1996).

Activities that typically require a permit include asphalt plants, incinerators, grain elevators, rock crushers, boilers, and other major sources of air pollution. In general, facilities that emit more than 10 ton of pollutants per year require a permit and facilities that emit more than 100 ton of pollutants per year require an permit and must meet more stringent standards. DEQ should be contacted for more information and assistance regarding air contaminant discharge permits.

The DEQ maintains a database of Air Contaminant Discharge Permits. Facilities that emit over certain levels of particulates, carbon monoxides, nitrogen oxides, sulfur dioxide, or volatile organic compounds are required to obtain a discharge permit. The DEQ database does not list any Air Contaminant Discharge Permits in Hubbard.

Other local air quality concerns can include asbestos, outdoor burning, dust and fugitive emissions, chlorofluorocarbons, and wood stove pollution. These activities are regulated as follows:

- Demolition, renovation, repair, construction, or maintenance activities that involve material containing asbestos is regulated by DEQ.
- Construction of large parking lots (150 to >1000 spaces) in certain areas of the state require a permit.
- Most western Oregon counties (including Marion County) require that certain activities take precautions to prevent particulate matter (dust and fugitive emissions) from becoming airborne. Construction and renovation activities, equipment operation, and materials handling are examples of potentially affected activities.
- DEQ, and other state agencies, regulate all types of outdoor burning (e.g. backyard incinerators, construction debris, and field burning) some local governments have added additional restrictions by local ordinances.
- Controlling wood smoke pollution from wood stoves and be mandatory or voluntary, depending on regional air quality.
- The service, maintenance, repair, installation, and disposal of air conditioners and refrigerators is strictly regulated. The chlorofluorocarbons used in these units interact with the atmosphere and create smog and damage the ozone layer.

Air toxics are generally defined as air pollutants known or suspected to cause serious health problems. Serious health effects include cancer, birth defects, lung damage and nerve damage. The U.S. Environmental Protection Agency (EPA) has recently released the first of two phases of the National Air Toxics Assessment (NATA), a new evaluation of 32 high priority toxic air pollutants. The first phase of NATA includes estimated air toxics emissions and outdoor concentrations. The second phase will provide estimates of exposure and health risk. In the Willamette Valley, there are concentrations of 12 toxic air pollutants estimated to exceed health-based benchmarks, or guidelines for safe levels. These pollutants are acetaldehyde, acrolein, benzene, beryllium, 1,3butadiene, carbon tetrachloride, chloroform, chromium, 1,3 dichloropropene, ethylenedibromide, ethylene dichloride and formaldehyde. Five of those air pollutants are present in concentrations estimated at ten times or more above benchmarks. Major sources are large industrial facilities, like wood products manufacturers and steel mills. Area sources include smaller manufacturers and service industries, such as auto body shops and service stations, and consumer activities. On-road mobile sources are cars and trucks. Non-road mobile sources include motorized watercraft, farm equipment, and all terrain vehicles.

Because motor vehicles emit the most air toxics, people can help by driving less (reducing trips using public transportation, carpooling and telecommuting). Using alternatives to gas powered equipment, such as electric lawnmowers and weed trimmers will also reduce air toxics. As consumers, we can choose products

that emit fewer volatile organic compounds, which are usually air toxics as well. Many paints and other products are now available in low toxicity formulations. Other ways of reducing air toxics include reducing woodstove use, doing regular vehicle maintenance and avoiding household pesticide use.

Air quality in the Willamette Valley is affected by all activities occurring in the airshed. The metropolitan areas influence air quality in the rural areas and vice versa. People typically think of the large point sources when considering air quality and underestimate the cumulative impact of individuals operating small engines, driving their cars, and backyard burning.

WATER QUALITY

Information about surface and groundwater quality in the Hubbard area was obtained from the DEQ, Oregon Health Division (OHD), and other background reports. This information is compiled from monitoring programs run by state agencies to comply with water quality standards set by the U.S. Environmental Protection Agency. Water quality investigations have been undertaken for the Willamette Basin by the United State Geological Survey for surface water and groundwater.

Surface Water Quality

The Clean Water Act (CWA) requires that states publish a list of surface water bodies that fail to meet water quality standards. This list is called the 303(d) list and is published by the DEQ every three years. The most current list is the 1998 list. Plans to improve water quality must be developed when a water body is placed on the 303(d) list.

No information regarding water quality in Mill Creek or Little Bear Creek is available but data for the Pudding River exists. Water sampling data indicates that some beneficial uses of the Pudding River are limited due to low water quality and the Pudding River is on the 303(d) list. Water-contact recreation, from the mouth to the Little Pudding River, is not advised for any portion of the year due to high bacteria (fecal coliform) levels in the water. High summer water temperatures, pesticides (DDT), and low levels of dissolved oxygen also limit beneficial uses of the river.

Water quality problems in the Pudding River watershed are related both point and non-point sources including agricultural practices, septic effluent, and municipal waste discharges and are exacerbated by natural low flow in the summer months (Water Resources Department, 1992). Seepage and runoff carry waste from numerous confined animal feeding operations and septic systems into the river, and field erosion contributes to poor water quality. A Total Maximum Daily Load (TMDL) was approved in 1993 for ammonia and biochemical oxygen demand.

The Pudding River and Mill Creek were rated with moderate to severe stream problems for water quality, water contact recreation, fish condition, and aquatic habitat due to non-point source pollution. (Department of Environmental Quality, 1988).

The Oregon Department of Agriculture (ODA), through its Agricultural Water Quality Management Program, is initiating development of an Agricultural Water Quality Management Plan for the watershed in response to the listing of the Pudding River as water quality limited under section 303(d) of the Clean Water Act. The Agricultural Water Quality Management Program is responsible for addressing water pollution associated with agricultural lands and activities. The Program has evolved in response to requirements under various state and federal laws, such as the Clean Water Act. In 1993, the Oregon Legislature passed Senate Bill 1010 (ORS 568.900 - 568.933) or the Agricultural Water Quality Management Act, which provides for ODA to be the lead state agency working with agriculture to address water pollution. ODA is authorized to develop and carry out a water quality management plan for any agricultural or rural lands area whenever a

water quality management plan is required by state or federal law. Through its locally based planners, ODA assembles a Local Advisory Committee consisting of stakeholders residing in the watershed. The committee is responsible for developing a draft action plan to address water quality issues arising from agricultural activities and soil erosion on rural lands. Under the AgWQM Area Plan, local operators will be asked to deal with identified problems such as soil erosion, crop nutrient loss from fields, or degraded streamside areas. The AgWQM Act provides flexibility so that landowners in each watershed are able to develop their own approaches to local problems. ODA is in the initial stages of the process for the Pudding River Watershed. A Local Advisory Committee has been selected and is meeting.

The Pudding River Watershed Council includes environmental protection of the watershed as part of its mission. The Council has established a Water Quality Committee to address water quality monitoring and the development of projects to support water quality improvement.

Hubbard’s contribution to surface water pollution in the Pudding River watershed comes mainly from municipal treated sewage effluent and untreated storm water discharges. Increases to the net pollutant load from the sewage effluent discharges may be limited to existing levels for all parameters because of low water quality in the basin.

DEQ administers the water quality permit process. National Pollutant Discharge Elimination System (NPDES) permits regulate discharges to surface waters from commercial or industrial facilities, municipal sewage treatment plants, confined animal feeding operations with point source discharges, and mining operations. Water Pollution Control Facility (WPCF) permits regulate discharges of waste waters land to the land surface or subsurface with no direct discharge to surface waters. Examples include land irrigation, evapotranspiration lagoons, industrial seepage pits, and subsurface sewage disposal systems with flows greater than 2,500 gallons per day.

The application process for NPDES permits includes a review and approval of treatment facilities. In some cases public notices and hearings may be requested by interested parties. Storm water associated with industrial activity, directly or indirectly, and discharged to through storm sewers or storm drainage to surface water may require a permit if the industry is covered by federal storm water regulations. An NPDES permit is also required when clearing, grading, excavation, or construction activities disturb more than one (1) acre. The permit requires that an erosion control plan be submitted to the DEQ before any activity commences. On-site sewage disposal systems require a site evaluation and a permit. Natural Resources Table 1 shows the water discharge permits in the Hubbard area. These permit holders are required to pretreat the waste waters prior to release and the information in Natural Resources Table 1 is provided only to characterize the kinds of waste discharges in the area.

**Air, Water, and Land Resources Quality Element - Table 1
Surface Water Discharge Permits in the Hubbard Area, 2001**

Permit Number	Permit Holder	Permit Type	Location
101640	City of Hubbard	Domestic Wastewater Treatment Facilities	Mill Creek R.M. 5.3
27886	Norman Kenagy (Hubbard Industrial Park)	Stormwater General 1200C: Construction Activities	2826 Industrial Avenue
1701	Hubbard Garage, Inc. (Hubbard Chevrolet)	NPDES General 17A: Wash Water	3081 J Street, 3251 2 nd Street

Source: Oregon Department of Environmental Quality, National Pollutant Discharge Elimination System Permits, 2001.

Groundwater Quality

Natural groundwater quality, from a regional perspective, is generally good, though some groundwater is saline or high in iron/manganese and arsenic content (Oregon Water Resources, 1992). Recent studies suggest that shallow (<80 feet) groundwater supplies in the Willamette Valley are affected by chemicals associated with human activities (Hinkle, 1997). Nitrate concentrations are higher down gradient from irrigated agriculture. About nine (9) percent of the wells tested exceeded the drinking water quality standard for nitrate. Low concentrations of pesticides were also detected in about 1/3 of the sampled wells, but only one chemical: dinoseb, a common herbicide used to control weeds, exceeded the drinking water standard. A higher concentration of volatile organic compounds (degreasers and solvents) were found to be associated with urban land use. This study also dated groundwater and found that about 1/5 of the waters sampled were recharged before 1953. This suggests a potential lag time between the surficial use of a substance and its presence in groundwater.

Hubbard relies exclusively on groundwater for municipal water supply. Drinking water is provided by four (4) city wells. The Hoodview Estates subdivision uses its own wells to supply water. Hubbard has completed a Drinking Water Protection Plan to protect groundwater quality in the wellhead areas of the city. The Plan identified 122 locations in the wellhead protection area that could potentially be contaminant sources and ranked them by risk level. The Plan includes management strategies based on proactive, voluntary actions for commercial, industrial, agricultural, and residential landowners. The Plan also includes contingency plans for contamination or disruption of the water supply.

LAND QUALITY

Land quality is protected in Oregon by regulation of hazardous waste and waste tire storage and transfer; and regulation of underground storage tanks and solid waste. Land quality can ultimately affect water and air quality. Hazardous waste permits are required for activities that:

- Generate useless, unwanted or discarded pesticide or manufacturing residue that is toxic, corrosive, ignitable, or reactive, and
- Establish a hazardous waste disposal site.

Hazardous waste permits may be required for activities that:

- Generate hazardous waste and store it on site for more than 90 days, and
- Store and/or treat hazardous waste on site.

Registered hazardous waste generators in Hubbard are listed in Table 2. Conditionally Exempt Generators (CEG) are facilities that produce less than 220 pound of hazardous waste per month and accumulate less than 2,200 pounds of waste at any time. CEG's are not required to notify DEQ of their hazardous waste activity but are required to handle the material safely, in accordance with existing regulations.

Air, Water, and Land Resources Quality Element - Table 2
DEQ Registered Hazardous Waste Generators in the Hubbard Area, 2001

ID #	Generator	Type	Location
1150770	Hubbard Cleaners and Laundromat, Inc.	CEG	3362 D Street
5016	Hubbard Garage, Inc. (Hubbard Chevrolet)	CEG	2937 G Street
5017	Hubbard Garage, Inc. (Hubbard Chevrolet)	Used Oil Handler	2937 G Street

Source: Oregon Department of Environmental Quality, Oregon DEQ, 2001

Solid waste permits are required to operate a site where garbage, demolition waste, industrial waste, land clearing debris, or sludge is stored, received, processed, or landfilled. Operations that plan to store large amounts of tires or chipped tires on a site also need a permit. A review of DEQ's listing of active solid waste facilities in Oregon shows that the closest facility to Hubbard is the Waste-to-Energy Facility in Brooks, located about 5.5 miles southwest of Hubbard. The facility burns waste and is privately owned and operated. Ash from the facility is disposed of at the North Marion County Disposal Facility.

Permits are required for underground storage tanks that:

- Contain petroleum products or listed chemical products such as gasoline, diesel, solvents, pesticides, and herbicides, AND
- Are larger than 1,100 gallons, AND
- Have more than 10% of the total volume (including piping) underground.

Underground storage tanks that are unused for a period of 12 months must be permanently decommissioned by either removing the tank or filling it with an inert substance. DEQ must be notified prior to activity, and a report and checklist must be submitted after the work is completed. The activity must be performed by a licensed service provider. Plans to treat petroleum contaminated soils from an underground storage tank release, on or off the site, will require a Solid Waste Letter of Authorization from DEQ and be submitted with a Soil Treatment Plan.

DEQ databases indicated permits for four (4) active underground storage tanks (UST) in the Hubbard area, all located at the Hubbard Texaco at 3325 Pacific Highway. DEQ records identified two (2) formerly leaking underground storage tank sites (LUST) at Hubbard Garage, Inc. (Hubbard Chevrolet) at 2937 G Street. The DEQ database showed that both tanks have been cleaned up, one in 1991, the other in 1998. The above information should be considered minimum numbers since not all tanks are permitted and not all old tank locations are known.

SUMMARY

Air, water, and land resource quality is summarized in Table 3.

Air, Water, and Land Resources, Quality Element - Table 3
Summary of Resource Quality

Resource Type	Quality	Comments
AIR	Regional air quality currently meets standards. No documented local problems.	Projected population growth could result in declines in air quality. Stay current with changes in state and federal standards, regulations, and assistance programs.
WATER		
Surface Water	Pudding River Subbasin water quality problems documented. Quality of surface water in Hubbard unknown. Beneficial uses, including fish and aquatic habitat and water contact recreation have been degraded due to non-point source pollution. .	Stay current with changes in state and federal standards, regulations and assistance programs. Support or participate in the Pudding River Watershed Council. Develop surface water management plan that includes water quality components. Specifically, note the impacts to Hubbard when NPDES Phase II requirements and the Pudding-Molalla-French Prairie Agricultural Water Quality Management Plan are finalized. Note listing status of steelhead and salmon species and determine the effect on city surface water management practices.
Groundwater	Regional water quality problems in shallow aquifer documented (nitrate, pesticides, VOCs). Water quality of deeper aquifer used by Hubbard is documented by periodic sampling to be good.	A variety of activities in Hubbard area have the potential to degrade groundwater quality. Drinking Water Protection Plan includes proactive, voluntary actions to prevent contamination. Require new development to locate and properly abandon unused wells on property.
LAND	Two sites in Hubbard were contaminated by leaking underground storage tanks that have since been cleaned up. No other problems documented. Surrounded by irrigated agriculture.	Spills on railroad and highway have potential to impact Hubbard, including groundwater quality. Stay current with changes in state and federal standards, regulation, and assistance programs. Surface Water Management Plans and Drinking Water Protection Plan will include elements that apply to land quality.

REFERENCES

DEQ. 2001. Air Quality Index. http://www.deq.state.or.us/aq/aqi_home.htm

Air, Water, and Land Resources Quality Goals and Policies

Goal: To maintain and improve the quality of air, water, and land resources in Hubbard.

Policies:

1. Hubbard will participate in watershed-based efforts to improve fish and wildlife habitat and water quality in the Pudding Watershed. Participation will include having a representative on the Pudding River Watershed Council or coordinating with the small-city representative.
2. Hubbard will contribute to, or comment upon, regional water quality improvement planning and fish recovery plans undertaken by state and federal agencies by reviewing and responding to proposed policies and plans.
3. Hubbard will protect significant groundwater resources by implementing the City of Hubbard Drinking Water Protection Plan as approved by the Department of Environmental Quality.
4. All development activities within the city shall adhere to applicable federal and state air, water, and land quality regulations and standards.
5. Hubbard will continue to support the regional solid waste management program.
6. All development activities within the city shall comply with local and state noise regulations.

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SECTION IV AREAS SUBJECT TO NATURAL DISASTERS AND HAZARDS

INTRODUCTION

Oregon's statewide planning goals and guidelines include a goal to protect life and property from natural disasters and hazards. This goal is accomplished by identifying and inventorying the types of potential natural disasters and hazards that might affect the community. Inventory information is the basis of subsequent planning and implementation activities. The purpose of this section is to identify the types and locations of natural disasters and hazards within the Hubbard UGB, based on existing information.

Seismic Hazards

Recent earthquakes in the northern Willamette Valley area and studies of estuaries on the Oregon Coast suggest that damaging earthquakes are likely to occur in Oregon. The Scotts Mills quake of 1993 (Maldin and others, 1993) had a Richter magnitude of 5.7 (moment magnitude of 5.6), and caused widespread, though generally minor, damage in the central and northern Willamette Valley. The preliminary damage estimate for this quake was 28.4 million dollars, and fortunately included no loss of life (Black, 1996). Quake damage was most intense in a northwest-southeast trending area that included Newberg, Woodburn, Mt. Angel, and Molalla (Maldin and others, 1993). The Scotts Mills event indicated that faults in this area are still active. Great subduction earthquakes are the most powerful types ever recorded and recent investigations have found evidence that quakes along the Cascadia subduction zone affect Oregon every 400 to 600 years (Wang, 1997).

Due to increased awareness of potentially damaging earthquakes in Oregon, the Oregon Building Codes Division changed construction standards for western Oregon. Prior to 1993, all of Oregon was in Seismic Zone 2b. In 1993, the western half of Oregon (west of the Cascades) was upgraded to Seismic Zone 3. This increased the structural standards for buildings constructed in this zone. For example, masonry and concrete structures require additional construction provisions and wood walls require additional bracing in Seismic Zone 3.

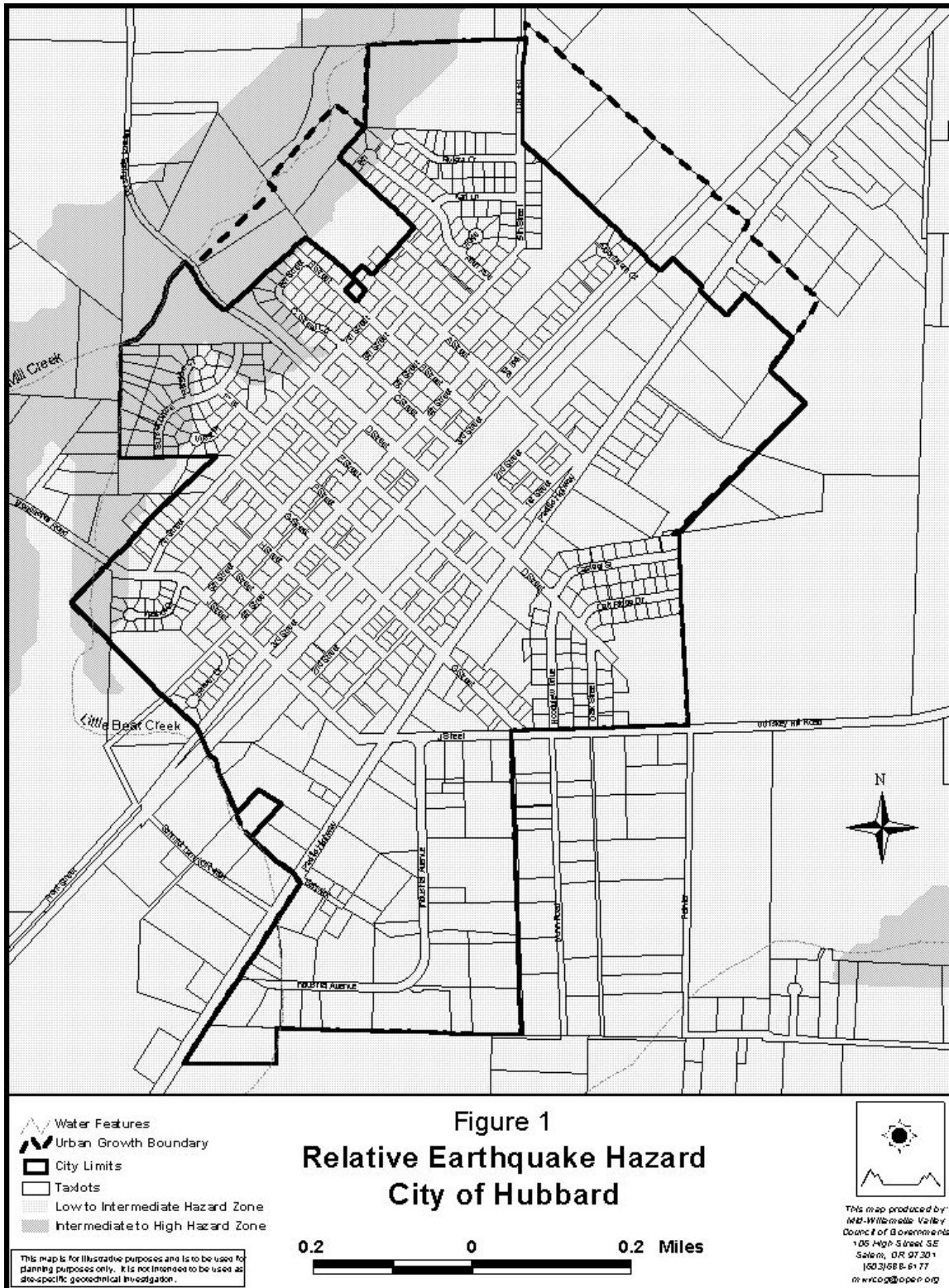
Hubbard was one of several communities evaluated for earthquake hazards in an Oregon Department of Geology and Mineral Industries (DOGAMI) report released in 1999. The report evaluated potential earthquake damage based on three factors that can affect the severity of damages that occur during an earthquake: ground shaking amplification, liquefaction, and landslides.

Ground shaking amplification can be determined by examining the types of soils and rocks near the surface. These materials can increase or decrease the strength or frequency of shaking experienced at the surface. In the DOGAMI study, Hubbard was found to have a moderate amplification hazard. This means that in the Hubbard vicinity, there is a moderate risk from damage associated with ground shaking amplification.

Liquefaction occurs during an earthquake when shaking causes a saturated soil to act as a liquid instead of a solid. Potential damages include differential vertical settlement of foundations and structures, and horizontal flow in the downhill direction or toward the drainages. Liquefaction hazard is enhanced by soil moisture and is greater during the wet winter months and near ponds, drainages, and streams. The results of the DOGAMI study indicate a low to moderate risk of damage from liquefaction in Hubbard.

Hazards from earthquake-induced landslides are calculated by examining the steepness of slopes in an area. Due to the flat topography in most of Hubbard, the risk of earthquake-induced landslides is low. The only exception to this is the slopes adjacent to Mill Creek. The DOGAMI study identified this area as having a moderate risk of earthquake-induced landslides.

Figure 1, the Relative Earthquake Hazard Map, consolidates the hazards described above and shows which areas in the city are most likely to experience damage from an earthquake. The dark shaded area indicates intermediate to high risk of damage from an earthquake. The lighter area is shows where low to intermediate risk of earthquake damage is predicted.



Flood hazards

Riverine Floods

There are two types of flood hazards that could impact the City of Hubbard: riverine floods and urban flooding. Riverine floods – overbank flooding of rivers and streams – are the most common of all natural disasters. Most communities in the United States have the potential to experience this type of flooding after spring rains, heavy thunderstorms, or snowmelt. These floods can be slow or fast rising, but generally develop over a period of days.

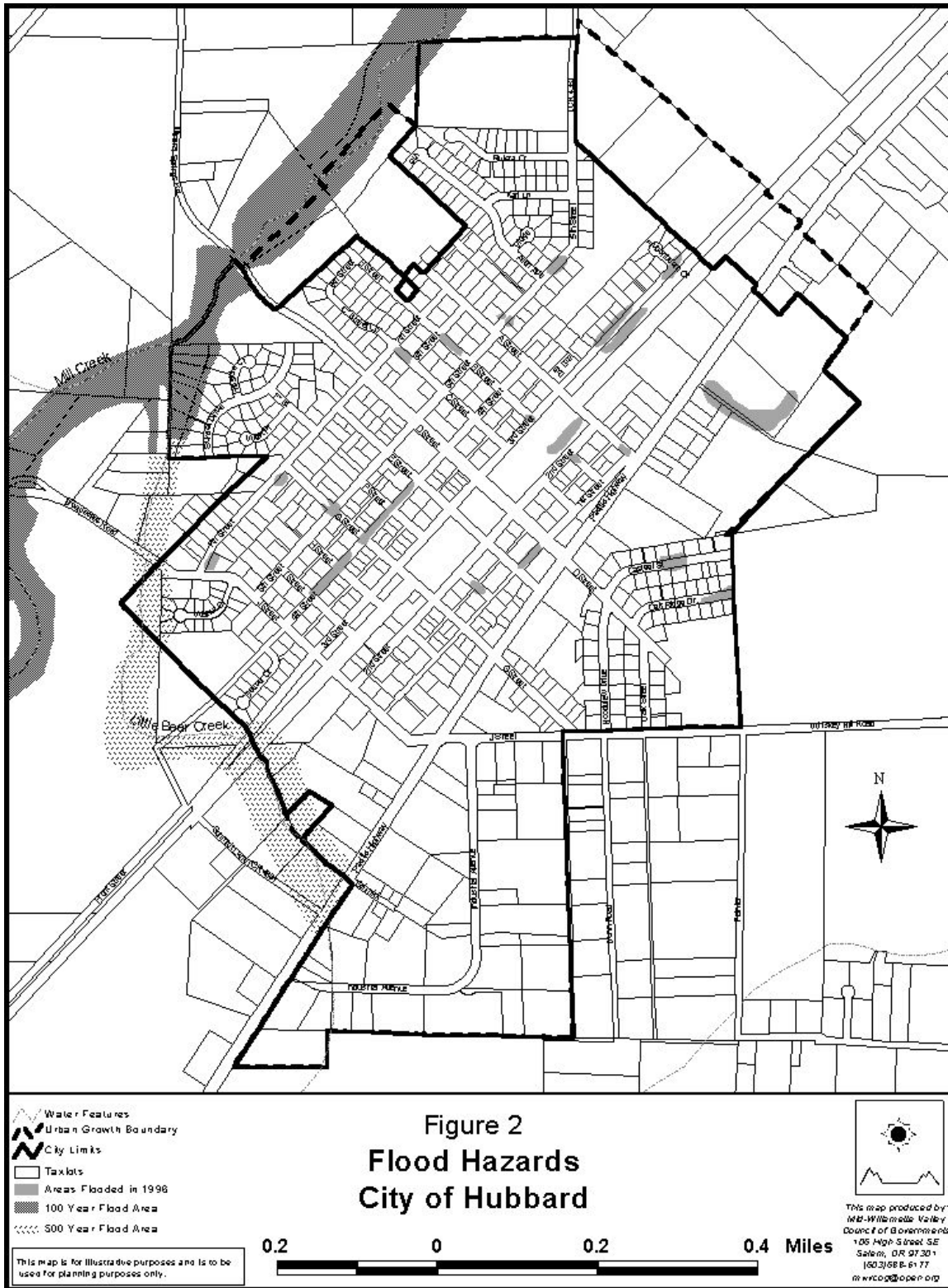
Flooding in large river systems typically results from large-scale weather systems that generate prolonged rainfall over wide geographic areas, causing flooding in hundreds of small streams, which then drain into major rivers. The most severe flooding conditions generally occur when direct rainfall is augmented by snowmelt. If the soil is saturated or frozen, stream flow may increase due to the inability of the soil to absorb additional precipitation. The danger of riverine flooding occurs mainly during the winter months, with the onset of persistent, heavy rainfall and during the spring with the melting of snow in the Cascade and Coast Ranges.

The City of Hubbard adopted floodplain overlay zoning regulations in 2000 to remain in the National Flood Insurance Program (NFIP). Membership in the National Flood Insurance Program makes flood insurance available to the city. The floodplain overlay zone will regulate the area designated as the 100-year floodplain by the Flood Insurance Rate Map (FIRM).

In January 2000, a revised Flood Insurance Study (FIS) and FIRM for Hubbard took effect. **Figure 2** shows the 100-year floodplain along Mill Creek on the northwest side of the City. The 100-year floodplain is defined as those areas having at least a one percent chance of flooding within any given year. Much of the 100-year floodplain identified on the FIRM is outside city limits, but in the urban growth boundary. As this land is annexed into the city, the floodplain overlay zone regulations will be applied.

The area along Little Bear Creek is shown in the 500-year floodplain. A 500-year flood has a 0.2 percent chance of occurring in any given year. The 500-year floodplain is not regulated by the floodplain overlay zone.

Another flooding issue for the city is the Pudding River, which flows southeast of Hubbard. Most of the Pudding River watershed is in Marion County and the river has been impacted by rapid urbanization in the area. The Pudding River is very sensitive to changes in flow amounts because the river has a very low gradient and is prone to backwater flooding. While the Pudding River does not actually pass through Hubbard, some of its tributaries do and have flooded property within city limits. In 1998, the City requested that FEMA evaluate the floodplain of the Pudding River while the FIS and FIRM were being updated, but no changes were made in the updated FIS and FIRM.



Urban Flooding

Urban flooding results when land is converted from fields or woodlands to roads and parking lots, causing the land to lose its ability to absorb rainfall. This transition from pervious to impervious surfaces results in more water running off instead of filtering into the ground. Thus, water moves more quickly to watercourses, with resulting water levels rising above historic, pre-development levels. During periods of urban flooding, streets can become swift moving rivers and basements can fill with water. Storm drains often back up with yard waste causing additional, localized flooding.

Another cause of urban flooding is grading associated with development. Grading may cause changes in drainage direction from one property to another. Although this is a small, isolated impact of development, it may be significant to the adjacent property owner.

Hubbard has experienced shallow urban flooding primarily due to inadequate storm drainage. On the Flood Hazards map (**Figure 2**), areas flooded in 1996 are shown. While 1996 was a year that brought record flooding in several areas of Oregon, the flooding experienced in Hubbard was not an unusual occurrence. During abnormal wet years, runoff exceeds the capacity of the local storm drainage system.

In 1996, Hubbard completed a Storm Drainage Master Plan. This document described the current problems with Hubbard's stormwater drainage system and proposed solutions. According to the Master Plan, the city is served by a central stormwater system that was constructed in 1916. The central part of the city is drained by a ten-inch diameter pipe, while other parts of the city have no storm drainage system and experience localized ponding.

The Master Plan prioritized storm drainage improvements and grouped them into two phases. Installation of a 36-inch trunk line on D Street was the first improvement listed in Phase One. This line would provide stormwater drainage to southeast Hubbard. In 2000, Hubbard was awarded a \$40,500 Rural Investment Fund grant to help fund storm drainage improvements on D Street. Future improvements to Hubbard's storm drainage system will occur as additional funding becomes available.

While improvements to public storm drainage facilities are vital to preventing urban flooding in Hubbard, it is important that new development in the city does not contribute to existing problems. In 1997, the City adopted a Storm Drainage chapter in the Development Code. Most residential, commercial, and industrial development is now required to construct and implement storm drainage and erosion control plans. New development must plan for and provide facilities for managing stormwater and preventing run-off from polluting or damaging the natural environment, public facilities, and private property. These regulations will prevent new development in the city from adding to storm water management problems.

HIGH GROUND WATER TABLE

A high ground water table refers to a situation where the top of the water table is at or near land surface for a part of the year. The water table is defined as the depth where all the empty spaces in the soil, usually occupied by gas, are filled by water.

Most soils in Hubbard formed on the Willamette Silt. This surficial deposit is composed of fine grained, inter-layered sediments ranging from clay to fine sand size. Water is transmitted through silt and clay at very slow rates (permeability in **Table 1**) and these layers in the Willamette Silt impede the infiltration rate of rain. During the winter months when rainfall rates are high, saturated areas develop in the soils above layers of silt and clay. These water bodies create seasonal high water tables and are very common in the Willamette Valley during the winter.

Natural Hazards and Disasters Element - Table 1
Selected Characteristics of Soils in the Hubbard Area

Map Symbol	Erosion Hazard ¹	Runoff Rate ²	Shear Strength/Load Bearing Capacity ³	Permeability	Shrink-Swell Potential ⁴	Development Limitations
Concord silt loam (Co)	Slight	Locally ponded, slow	Very low/low to moderate	Slow	High	Severe: seasonal high water table
Dayton silt loam (Da)	Slight	Ponded, very slow	Very low/low	Very slow (Claypan)	High	Severe: seasonal high water table
Amity silt loam (Am)	Slight	Slow	Low/low	Moderately slow	Moderate	Moderate: seasonal high water table
Woodburn silt loam (WuA)	Very low	Slow	Very low/low	Moderate to slow	Moderate	Moderate: seasonal high water table on gentle slopes, slope problems on steep slopes
Woodburn silt loam (WuC)	Slight to moderate	Slow to Medium	Very low/low	Moderate to slow	Moderate	Moderate: seasonal high water table on gentle slopes, slope problems on steep slopes

Source: *Marion County Soil Survey*, United States Department of Agriculture Soil Conservation Service

¹ Erosion Hazard - Expresses how readily are the soil particles detached and transported by rainfall and runoff

² Runoff Rate - The rate at which water flows over the surface of the soil. Related to slope, soil characteristics, vegetative covering, and climate.

³ Shear strength - ability to resist sliding along internal surfaces within a mass.

⁴ Shrink-Swell Potential - Soil expands on wetting and shrinks on drying, which may cause damage to roads, dams, building foundations, or other structures.

Table 1 details the various soil types found in Hubbard. **Figure 3**, the Soils Map, shows that most of the city is underlain by Woodburn A soil which has moderate limitations for development due to the seasonal high water table. Soils along Mill Creek, in depressions and swales (Concord and Dayton), and Amity soils pose severe limitations to development due to seasonal high water table, slow permeability, high shrink-swell potential, flooding, and slope. Concord, Dayton and Amity soils are hydric and therefore associated with wetlands. However, east of Highway 99E, these soils have been drained and their presence does not indicate a wetland.

A high water table can be a hazard for certain types of development and construction. Examples of hazards include: failing basement walls; differential settling of structures; overwhelmed storm water systems; difficulty in maintaining underground utilities; poor surface drainage during the winter; and underground tanks hydrostatically forced out of the ground (Schlicker, 1977).

Figure 3
City of Hubbard Soils Map



Source: Soil Survey of Marion County Area, Oregon, United States Department of Agriculture Soil Conservation Service

WEAK FOUNDATION SOILS

The shear strength and load-bearing capacity of most Hubbard soils (**Table 1**) have low to very low shear strength and low load bearing capacity. Shrink-swell potential for all the soils in the city are moderate to high and could cause damage to structures due to expansion and contraction.

EROSION

The erosion hazard for most soils in Hubbard is slight due to very gentle to flat slopes. Soils on slopes, such as some Woodburn soils (WuC) have moderate erosion hazard. Slopes along Mill Creek were observed to be the steepest in Hubbard and pose the highest local erosion hazard, especially if they are disturbed. Vegetation removal, or earthwork, will increase the erosion hazard for soil types in Hubbard because they are composed of small particles, readily detached by the impact of raindrops and transported by flowing water.

LANDSLIDE HAZARDS

Landslides are a natural process defined as the perceptible downslope movement of soil, rock, and vegetation under the influence of gravity (Wold and Jochim, 1995). Landslides are triggered by both natural and human-induced changes. Landslide hazards in a particular area are studied beginning with an inventory of existing landslides in order to identify the key local causal factors. Natural landslide hazards are related to several factors that include slope, soil and rock strength, and ground and surface water. In general, areas with steep slopes, high groundwater tables, and highly weathered rock are prone to sliding. Human activity can increase natural slide hazards.

As mentioned in the previous section, most of Hubbard has very gentle or flat slopes and therefore faces little risk of landslides. The only area in Hubbard that could experience landslides is along the Mill Creek streambed. Due to the close proximity to Mill Creek, development is unlikely to occur on these slopes.

Natural Hazards and Disasters Goals and Policies

Goal: To protect life and property in Hubbard from natural hazards and disasters.

Policies:

1. Hubbard will promote earthquake hazard awareness and hazard mitigation activities in the community by periodically providing information to residents in their utility bill and displaying pamphlets or other literature related to this topic at city hall.
2. Hubbard will coordinate an assessment of the level of earthquake preparedness in the community and vulnerability of key public facilities. Prioritized lists of hazard reduction activities will be developed.
3. Hubbard will continue to participate in the National Flood Insurance Program. Hubbard will apply the floodplain overlay zone standards to new development that occurs within designated 100-year floodplains.
4. Hubbard will protect transportation facilities and plan for emergencies. Transportation facilities and services located in floodways and floodplains must be designed and constructed to withstand flooding or excessive damage will occur. Emergency management plans and routes must take into account which routes are likely to be closed during flood events and identify alternative routes.
5. Hubbard will work with Marion County to ensure that the flood hazards along Mill Creek, Little Bear Creek, the Pudding River, and tributaries to the Pudding River are defined and mitigated prior to development and construction.
6. Hubbard will continue to implement the Storm Drainage Master Plan and install facilities as funding becomes available.
7. Hubbard will prevent new storm water runoff problems by requiring storm drainage and erosion plans for new development as required by the Hubbard Development Code.

SECTION V PUBLIC FACILITIES & SERVICES

INTRODUCTION

Public facilities and services are of great importance to the general welfare of a community. Various levels of government or nonprofit private institutions either own or operate these facilities for the benefit of the community. Some of the services provided are necessities of life, such as sewer, storm sewer, and water, whereas others substantially enhance the quality of life, such as schools, park and recreation facilities. Considering the continued population growth, rising living standards, increased leisure time, and educational expectations, the City anticipates an increased demand for various types of public services within the planning period. Advance and systematic planning of these public facilities is essential to assuring that the City meets future demands.

The City adopts the following general goals, objectives, and policies regarding the provision and development of public facilities and services:

Goal: To provide for an orderly, efficient and economical system of delivery of City services. To conserve and manage efficiently the available water resources, and to extend and secure long range water supplies to meet the needs of the people of Hubbard. To seek and maintain cooperation and coordination of public services with other governmental agencies.

- Objectives:**
1. Maintain and enhance the quality of public facilities and services, and provide them in a timely cost-effective manner.
 2. Direct new development to locations where facilities and services exist, or to buildable areas adjacent to the existing service area.
 3. To maximize on existing investment, consider service line extension policies that encourage infill development within the existing city.

- Policies:**
1. The sizing and location of sewer, water and storm drainage lines is to reflect the requirements of desired land use arrangements and densities of the service area.
 2. Utilize the provision of community facilities and services as a guide to urban development by phasing and directing growth based on facility and service capability and capacity.
 3. Encourage development of vacant land within the city prior to urbanization of rural land within the urban growth boundary so as to achieve maximum utilization of public investment.
 4. The installation, repair or resizing of municipal service lines should be done prior to, or concurrent with, street improvements.

WATER SYSTEM

The 1996 City of Hubbard Water Master Plan guides the governing body in the development of the water system. This plan continues to be the design plan for Hubbard. The plan consists of several phases to the year 2016. Copies of the plan are available for review through City Hall or for purchase based upon the cost of reproduction.

The 1999 update to the Public Facilities Element, Water System, includes excerpts and summary information

from the Water System Master Plan, prepared by KPFF Consulting Engineers, adopted by the City in 1996, and information collected by staff members from the City's Public Works Department.

The French Prairie area aquifer is Hubbard's groundwater resource. The geologic formation has approximately 50 to 100 feet of Willamette silts with the underlying 100 foot ± layer consisting of alternating clays, silts, sands, gravels, and large boulders. This underlying layer is called the Troutdale formation, and is cemented to form a impermeable layer.

The municipal water for the city of Hubbard comes from groundwater and underground rivers. Initially, four deep wells provided access to these waters, drawing water from the French Prairie area aquifer (see Table 1). The City abandoned its first well in 1968 because of its low capacity of 80 gallons per minute (gpm). The second well, referred to as well Number #1, was developed in 1945, and is located at "D" Street and Highway 99E. It was drilled to a depth of 225 feet and cased to the bottom. The pump is driven by an electric motor and is rated at 260 gallons per minute. Well Number #1 is also considered a stand-by source for peak demand periods. The City developed well Number #2 in 1968 as another municipal water source for Hubbard. Well Number #2 is located at E street near the City park. The well is 260 feet deep and is cased to 139 feet. The pump is an eight (8) stage Johnson turbine with a capacity of 800 gallons per minute. Well Number #3 is located at 2nd and "J" Street. It is 266 feet deep and provides 500 gallons per minute. Geological surveys indicate that the recharge rate of the underground river is more than ample to replace the annual discharge.

**Public Facilities Element - Table 1
Hubbard Municipal Wells**

Well Number	Year Drilled	Location by St.	Depth (feet)	GPM
Number 0	Abandoned			80
Number #1	1945	D Street & Hwy 99E	225	260
Number #2	1968	E Street near City Park	260	800
Number #3		2nd and J	266	500
Number #4		J Street	320	350

Source: City of Hubbard

The City of Hubbard holds the following water permits with the State of Oregon as shown in Public Facilities Element Table 2.

**Public Facilities Element - Table 2
Hubbard Municipal Water Permits**

Source	Number	Quantity	Priority Date
Well #1 and #2	T6320	1.1 cfs	4/28/75
Well #3 (@ City Shops)	G10965	1.56 cfs	12/31/84

Source: Water Master Plan, 1997, KPFF Engineering
cfs: cubic feet per second

In the 1960s, the combined maximum pumping capacity of the four wells in the City was 1,560 gallons per minute, or over 1.5 million gallons per day, one well was later abandoned. Summer pumping capacity, at that time, was 1.09 million gallons per day.

During the 1970s, the City's storage capacity was 1,050,000 gallons stored in two reservoirs. The site of the first reservoir, a one million gallon ground level steel structure, is adjacent the water treatment plant. The City later added another water tank, with 50,000 gallon capacity, near the City shops on the southwest corner

of 1st and "D" Streets. The latter is an elevated tank that "rides" on the pressure of the distribution system. Excess water from the booster pumps fills the tank. When the booster pumps are off or when they are not keeping up with system demand water flows out of the tank.

In 1999, City engineers began the final design for a new one million gallon reservoir. Construction of the reservoir and an associated upgrade of the treatment system are expected to be complete by 2002.

Approximately 33,700 feet of water lines serve the customers of the system. The distribution system was interconnecting pipes laid out in a grid pattern. Pipe ranged in size from one (1) inch connections of galvanized steel to ten (10) inch cast iron or asbestos cement pipe. Valves were spaced at intervals of 600 to 800 feet. The City billed monthly based upon metered service connections. The City did not meter wells. At that time there were 41 fire hydrants within City limits.

According to the City's Water Master Plan (page 13), prepared by KPF Consulting Engineers and adopted in 1997, the distribution pipe system is generally, well looped, predominately six (6) inches in diameter with some ten (10), eight (8), four (4) inch and smaller diameter pipes. The water system has a maximum of 42 pounds per square inch (psi) under present day demands, and fire flows of 450 to 2,000 gallons per minute at 20 psi. Out of 158 system piping junctions listed in the master plan, 104 junctions fall below the goal for fire fighting of 1,500 gpm at 20 psi minimum.

In 1996, there were 735 connections within the City limits. Using the engineering firms population projections at a 3 percent growth rate, there will be approximately 1,327 connections in the year 2016. Public Facilities Element Table #1 shows the existing piping system.

The City's treatment plant, installed in 1974 and housed in a prefabricated metal building, is a single direct pressure filter "packaged" green sand treatment plant for the removal of iron and manganese. The rated plant is currently operating at 500 gpm (720,000 gallon per day). The water from the three wells (one at a time) is piped directly to and through the water plant into a reservoir with a capacity of one million gallons and then pumped into the distribution system. Construction of a 500 gpm upgrade of the treatment facility was completed in by 2002.

The backwash solids from the filter and sand from the sand separator on well Number #1 are washed into an on-site concrete basin and decanted to the City sanitary sewer collection system. Solids (mostly sand and oxidized iron) are removed and hauled for land disposal by the City.

Preparation for the water system plan documented water production records for the years of 1993 through 1995. Public Facilities Element Table 3 below indicates a tabulation of the data.

**Public Facilities Element - Table 3
3-Year Water Treatment Plant Production Summary**

Year	Number of Services	Total Year (millions of gallons)	Peak 2 Months (millions of gallons)	Average (gallons/day)
1993	575	59.77	12.43	164,000
1994	598	66.40	17.01	182,000
1995	617	68.91	16.88	189,000

Source: Water Master Plan, 1997, KPF Engineering.

Using a population of 2,045, the average usage was 92 gcpd in 1995 and the Master Plan notes a peak day demand of 300 gcpd. With growth and the future expansion/upgrade of the water system, water use will increase. In 1996, the City's consulting engineer recommended use of a future average annual water demand

of 130 gcpd and a peak day water demand of 420 gcpd. This figure had been recommended under past water system studies.

With the year 2016 service population, according to the Water Master Plan, expected to be about 3,693 persons, the average year 2016 daily demand is projected to be about 443,000 gallons per day or about 308 gpm. Using a peaking factor of 3.23 and assuming the City's growth is without the addition of major industries, the engineering firm predicted for the year 2016, a peak daily demand of 1,551,000 gallons per day, or about 1,077 gpm.

Water loss can typically be attributed to a number of causes which include leakage, unmetered users, inaccurate meters, water used in fighting fires, irrigating City parks, flushing pipes, and water theft. In the late 1990's, the consulting engineer was unable to correlate water loss because of unmetered uses in the system. To determine actual water loss, the City needs to meter water used by or for City facilities, the fire station, and backwashing at the treatment plant. After installation of the additional meters and allowing a time interval of six (6) to ten (10) months, the City could more accurately analyze the system for the actual loss of treated water.

The treated water is disinfected using chlorine. The chlorine is fed from small open tanks of liquid hypochlorate mixed on site at the water treatment plant. Using this form of chlorine eliminates any danger from a chlorine leak.

The May 1990 State inspection of the Hubbard water system found the system to be in good condition. The Health Division recommended that the City establish a cross-connection control program, continue line flushing, and continue reservoir cleaning to remove accumulated iron and manganese. The City passed an ordinance requiring the installation of cross-connection devices in the mid-1990s.

The Oregon State Health Division (OSHD) establishes the minimum water system standards which are set forth in administrative rules. The OSHD used the following service standards to evaluate the Hubbard Water System:

- Maintaining water quality at the highest possible level.
- Meeting all Oregon and U.S. Environmental Protection Agency (EPA) standards at all times.
- Delivering the quantity of water required to meet peak day, hourly, and fire demands for the next 20 years.
- Maintaining pressures between 40 and 95 psi under both normal and peak demand periods (except fire flows where minimum system pressures shall remain above 20 psi).
- Storing treated water for the system equal to at least three average days usage plus a design fire. (Design fire should be 3,500 gpm for 3.5 hours at schools and 1,500 gpm everywhere else.)
- Requiring all new distribution piping be a minimum of six (6) inches in diameter.
- Installing valves at least as often as every mile in supply pipelines and every 500 to 800 feet or at every intersection in town, whichever, is shorter.
- Installing fire hydrants a maximum of every 400 to 500 feet in the distribution system.

"Raw" well water quality is generally good, except for high levels of iron and manganese. No significant occurrences of waterborne diseases are reported in the distribution system. The City does not appear to be receiving contamination from leaking pipes, cross-connections, or backflow within the system due to pressure drops.

Lead and copper testing is required by the State on a regular basis to determine the condition of the distribution system. Many communities have multiple lead and copper lines. As corrosion occurs, these

lines leak into the distribution system and are slowly consumed by the public. The City of Hubbard tested its water for lead and copper, and passed the regulatory requirement.

The City of Hubbard draws water from four (4) wells within the city limits. Since there are significant agricultural uses of the land within the groundwater recharge area, the groundwater should be checked as required by OHD at the recommended intervals for pesticides or other chemicals. If these are present, then a new treatment process should address their removal.

Hubbard's future source of water, at least for the next 20 years, is most likely to be from local area wells. Some private wells, north of Hubbard in the Aurora area, have shown some signs of pollution of industrial chemicals and the City installed a water treatment process to deal with that pollution. Ground water quality in some Woodburn area wells, a community only four (4) miles away, is not good.

The Mid-Willamette Valley Council of Governments (MWVCOG) conducted an inventory of potential groundwater contaminants in 1996. One known source of contamination is a leaking gasoline tank under a Chevrolet salesroom at the southeast corner of Second and "G" Streets. The tank, located under the showroom floor, and the abandoned pump island originally sat in the "G" Street right-of-way. In 1994, during the excavation for a storm drain, the contractor disturbed an uncapped fuel line. A high level of fuel fumes caused the shutdown of the public street. Under the direction of the Department of Environmental Quality (DEQ), the City coordinated a cleanup of the soil within the trench line. An investigation by City officials and DEQ traced the source to the car dealership.

Recruitment for a Drinking Water Area Protection program committee began in the summer of 1997. Volunteers serving on the committee represented different interest groups including government agencies, agricultural activities, commercial and industrial uses, and citizens of the community. The result of the members' efforts was the adoption of the *Hubbard Drinking Water Protection Plan* by the City Council in March of 1998. The Plan includes a delineation of the protection area, management proposals for potential contamination sources by agricultural, commercial/industrial, and residential users, and contingency plans in the event that a groundwater contamination event should occur. A major component of the plan is educating individuals regarding the need and methods to protect the City's groundwater sources.

For a few summers in the 1990s, the City of Hubbard applied voluntary water rationing. Citizens, however, should not confuse water rationing with water conservation. Water conservation is the practice of not wasting water. Water conservation must be practiced and emphasized not only within the City of Hubbard Water System, but throughout the region as the limited natural resources are drawn upon to supply even greater amounts of water. Major new projects may not receive governmental or public support without a water conservation program in place. The State of Oregon may in the future require a water conservation program for all public water systems.

Example of conservation measures include the following.

1. Using good irrigation practices while watering lawns, flowers, and gardens, and planting grass or plants that require little or no water (xeriscape).
2. Taking fewer and shorter showers with water conserving shower heads or using less water for baths.
3. Waiting until its full before running a dishwasher.
4. Turning the water off while one brushes their teeth.
5. Using a bucket and brush and turning the water off when washing a car at home, taking the car to a car wash that recycles its water, or not washing the vehicle as often.
6. Using the waste basket for paper tissue versus flushing the toilet for disposal.

In all likelihood, these measures produce a long-term savings for each individual of approximately 20 to 30 gallons per day, or about 15 to 30 percent. It takes many people throughout the community practicing these conservation measures every day to make a difference. The savings, however can reduce the size or number of wells required by the City, the size and cost of the water treatment plant, and the need for expanded or new storage reservoirs.

Timing of water use is also very important. If the City reduces its peak day or peak hourly demands, it reduces the amount of water pumped and treated. If most of the people in the community balance their water use by utilizing the following techniques, the City could reduce the size and cost of its water supply system.

1. Watering at different times of the day or on different days--morning versus evening or odd versus even dates.
2. Taking showers and doing laundry at different times and on different days.
3. Not washing the car at the same time as watering the yard, or just not washing the car.
4. Not using more than one garden hose at a time when watering the yard.
5. Using fixed low capacity automatic sprinklers set to come on during low water demand periods.

Conservation of water may also include preventing waste from larger users, such as industrial sites. An example of an industry that uses a lot of water is the food processing industry. As of the late 1990s, Hubbard did not have a food processing industry or any other large water users. In fact, Hubbard has one of the lowest per capita water consumption rates in the area.

The City may also include the following actions in their plans to reduce water use.

1. Prepare and distribute water conservation materials (bill inserts, etc.).
2. Prepare and distribute technical conservation information to specific customer types such as residential, commercial, industrial, etc.
3. Distribute conservation retrofit kits.
4. Continue a public information program including media, and presentations to schools and service organizations.
5. Reduce street and water main flushing.
6. Require pool covers to reduce evaporation.
7. Stop watering City parks and around City facilities.
8. Adopt an ordinance that all (new) residential, commercial and industrial facilities must use low water plumbing fixtures, landscaping and irrigation equipment.
9. Adopt an ordinance that allows the City to declare a water emergency. The ordinance would allow the City to fix consumption allotments or percentages (rationing), require all homes/business to retrofit low water volume showers and toilets, restrict car washing, etc. Ordinances should be adopted for all activities requiring legal sanction or authorization.
10. Reduce system pressure to minimum allowable for the protection of public health.
11. Convert some of the drinking water used at the wastewater treatment plant from domestic drinking water to the reuse of wastewater, such as lawn irrigation, disinfection and washdown hoses.

In addition to conservation, the reuse of “gray” water or even wastewater may become necessary someday. Gray water is domestic wastewater from sinks, washing machines or showers, etc. that does not contain sewage (urine, feces, vomit, blood, or other potentially infectious or hazardous material). Control becomes harder when the laundry contains baby’s diapers, or the person taking the shower has an infectious skin disease. The City or a citizen would not reuse water for domestic consumption or in places where the general public comes in direct contact with the water. It could be used to irrigate large lawns, golf courses, or feed-crops not intended for human consumption.

The City's distribution system is generally well looped. However, this system only delivers about 300 to 500 gallons per minute for fire flow in many parts of the distribution system--about one third to one fourth the normally accepted fire flow in a residential area. Except for a few areas where four (4) and six (6) inch in diameter water mains dead-end, the Water Master Plan recommends a series of increases in the pipe sizes and the installation of additional pipes and looping as a way to remedy the fire flow situation.

There is no alternative water source, other than wells, available to the City of Hubbard. If an emergency occurred, the City could connect to Woodburn's water supply using fire hoses for a distance of approximately one-half mile.

In 1999, the City completed final designs for a new one million gallon reservoir. Construction of the reservoir was completed by 2001. As noted in the Water Master Plan, this additional capacity is expected to ensure that the City will have adequate emergency water reserves for the next 20 years.

A preliminary discussion has been held with the City of Woodburn regarding development of a regionalization plan that would include sharing one or more features of a water system. The sharing of a joint intertie line with Woodburn, for emergency purposes would be a first step in creating a regionalized system. Currently the cities have water mains about 1.2 to 1.4 miles apart on opposite sides of Highway 99E. In their discussion, both Cities have expressed a desire to pursue development of a metered intertie on the same side of Highway 99E with shared expenses. Other aspects of regionalization could include sharing cross connection personnel and testing equipment, sharing additional equipment, and forming committees to address water conservation.

The water treatment plant expansion should include a second treatment unit plus space for a third unit, additional pumping capacity, and an additional pump to storage for filter backwash surge, better chemical unloading and storage facilities. In addition, it should include some office, laboratory, rest room, and/or locker room facilities for the water plant operator and City Public Works Department staff members.

A booster pump station will be required to maintain system pressure if the option not to construct additional elevated storage is made. This station would pump from a ground level reservoir filled with treated well water. It would maintain a relatively constant pressure on the distribution system. The pump stations location would likely be at the water treatment plant and would become an integral part of that facility. If not located at the water plant, the pumping station would be adjacent to a new ground level reservoir so that it may draw water from the reservoir and pump it into the distribution system. The basis for design would be that the station should be capable of supplying water under all conditions of water demand and pressure for the design period, with one of the largest pumping units out of service, and provide fire and system demands during an extended electrical power outage.

The City adopts the following goals, objectives, and policies regarding the provision and development of water service:

- Goals:**
1. To maintain and enhance the quality of water service to all customers.
 2. To conserve water and encourage its wise use.

- Objectives:**
1. Implement the water facilities plan adopted in 1996.
 2. Increase monthly water rates commensurate with the need to conserve water, and increase overage beyond base rates for residential and commercial users, to pay for future needed improvements.
 3. Secure additional well sites as needed to ensure adequate water supply.

- Policies:**
1. All land use developments are required to install distribution lines that will provide at least, minimum water pressure and flow for the proposed land use and future land uses.
 2. To maintain adequate water flow and pressure, the City continually strives to loop the system and require a standard pipe size based upon the level of development
 3. Discourage the development of land uses that require high water consumption.
 4. Develop supply, storage and distribution facilities that are able to satisfy insurance fire flow requirements and provide a given reserve for maximum daily use and emergency needs.
 5. The City shall continue the policy of paying the cost of maintaining and improving the existing water system with funds derived from user fees.
 6. Waterlines and fire hydrants serving a subdivision or new development and connecting it to city mains shall be installed at developers' expense. The installation shall take into account provisions for extension beyond the subdivision or development to adequately grid the city system.
 7. Support implementation of the Hubbard Drinking Water Protection Plan adopted by the City in 1998.
 8. Encourage water conservation and the development of a water conservation education program.
 9. Actively participate in efforts to develop regional or shared water system facilities

SANITARY SEWER SERVICE

The existing sewage treatment facility was constructed in 1967 with a projected population equivalency of 2000 persons. An extended aeration system was completed in 1984, which is intended to serve a population of 5,100 persons. The projected population of Hubbard by the year 2020 is 3,105 persons. If this projection holds true, the city will have to modify its facilities to meet population increases beyond 2000 persons. Other factors, such as higher discharge standards, industrial wastes, etc. may necessitate modifications to the existing facility. The 1967 Treatment Plan is also supplemented by a 1974 Sewage Collection and Treatment report. The 1967 Treatment Plan is in the process of being updated. The new sewer master plan should be complete by the end of 2002.

According to a 1974 Sewage Collection and Treatment report, there were 35,000 feet of mains, laterals and collectors in the system. As development occurred, the City required extensions of the sewer lines according to maximum benefit to the community.

The City adopts the following goals, objectives, and policies regarding the provision and development of sanitary sewer service:

Goal: To provide a continuing program for sanitary sewer service that represents the most cost-effective approach for providing service to existing and future residents.

Objective: Strive for the most cost-effective approach to provide sewage treatment capacity that accommodates the projected sewerage flows, and that meets the objectives of DEQ's state water quality management plan.

Policies:

1. The review of any development proposal should be balanced against any impact on the treatment system and other line operation and maintenance costs, and desired direction and type of growth.

2. The City will further investigate alternatives for sewer system improvements needed to accommodate planned future population growth. A Capital Improvements Program will be prepared to guide and schedule needed improvements.
3. New subdivisions and areas of development shall pay for the cost of sanitary sewers installed to serve the subdivision and to connect the subdivision to existing mains.
4. The City shall continue the policy of paying the cost of maintaining and improving the existing distribution system with funds derived from user fees.
5. The sizing and location of wastewater line is to reflect the requirements of the desired land use arrangements and densities of the service area.

STORM DRAINAGE SYSTEM

The City of Hubbard hired KPFF Consulting Engineers to conduct a study of the City's storm drainage system. In 1996, the City adopted a Storm Drainage Master Plan. The study reviewed the existing system, noted problem areas within the community, and made recommendations on improvements. Although the City endorsed the study, it made modifications to the proposed improvements due to financial constraints.

The City of Hubbard, incorporated in 1891 with ten (10) acres of land, established a central storm/sanitary system in 1916. As the development occurred during the 1940s to 1960s, the City's system overloaded and the City separated the sanitary and storm sewers. From the 1960s to the present, the City, as well as private developers, have installed additional pipe and connected to the storm system. In 1998, the public system still drains the central portion of the City with a pipe ten (10) inches in diameter.

The community's terrain is relatively flat land with residential and commercial development. The majority of the commercial and industrial activities are near Highway 99E, a State highway, that basically divides the City into easterly and westerly sections. Although there are residential developments throughout the community, there are more dwelling units on the west side of Highway 99E. Natural grasslands and agricultural parcels surround the community perimeter.

The three major drainage basins, underlying the community, are Mill Creek Urban Drainage Area, Brandy Creek Basin, and Hubbard North Basin. Either by natural flow or through the public system, the City conveys approximately 65 percent of generated storm water to Mill Creek. The remaining run-off drains to tributaries of the Pudding River, or become retained in the form of ponding in localized depressions. Run-off, that collects in these depressions, dissipates primarily due to the effects of infiltration, transpiration and evaporation.

Minor system improvements have recently been made along "D" Street between 4th and 5th Streets. Several recent bond measure efforts to fund storm drainage improvements were defeated by the voters. The City will continue to pursue funding options for system improvements.

The State of Oregon adopted the civil law doctrine of drainage. This doctrine directs an adjoining landowner to accept the normal course of natural drainage, but is entitled to protection when the normal drainage changes or substantially increases. The lower landowner may not obstruct the run-off from the upper land, if the upper landowner is properly discharging the water.

In Oregon, for drain water to cross onto other lands, the landowner must initially satisfy the following.

1. The lands must contain a natural drainage course, and;
2. The landowner must have acquired the right of drainage supported by consideration.

In addition, because Oregon has adopted the civil law doctrine of drainage, a property owner must follow three basic elements.

1. A landowner may not divert water onto adjoining land that would not otherwise flow there. "Divert water" includes, but is not necessarily limited to:
 - Water diverted from one drainage area to another
 - Water collected and discharged which normally would infiltrate into the ground, pond, and/or evaporate
2. The upper landowner may not change the place where the water flows onto the lower owner's land. (Most of the diversions not in compliance with this element result from grading and paving work, and/or improvements to water collection systems.)
3. The upper landowner may not accumulate large quantities of water, then release it, greatly accelerating the flow onto the lower owner's land. This does not mean that the upper landowner cannot accelerate the flow of water at all.

As part of new EPA rules, individuals, companies, or public agencies must obtain National Pollutant Discharge Elimination System (NPDES) permits. The purpose of the permit is regulating the discharge of storm water. In Oregon, these rules are being implemented by DEQ according to their agreement with EPA. These new rules come as a result of an increased understanding about the environmental impacts of storm water run-off and several years of litigation.

The City adopted standards established by Marion County Public Works Department. The rules that require on-site detention facilities and on-site water quality facilities for new developments are of particular interest. Briefly, the City may require on-site detention if additional run-off from new development results in deficiencies in the downstream conveyance system. The City may also require on-site water quality facilities unless the site topography or soil makes it impractical, or there is a regional storm water treatment facility in the near vicinity.

The City supports the use of Best Management Practices. Best Management Practices (BMP's) are those physical, structural and managerial practices and prohibition of practices, that, when used singly or in combination, control storm water peak flow rates and volumes and prevent or reduce pollution of surface water or groundwater.

The City requires detention facilities to detain and treat storm water run-off. They provide temporary storage of storm water and reduce the rate of run-off during and following a storm event. Detention facilities are generally designed to control the rate of the discharge rather than store all storm water discharged from an area. Some typical facilities include ponds, concrete basins, and buried vaults.

Detention facilities can also be effective in removing soil particles and suspended solids as a result of sedimentation. Upon entering a detention facility, storm water velocity reduces and larger particles fall from solution due to the influence of gravity.

Above ground detention facilities, such as a storm water detention pond, have associated limitations and concerns, including the following:

- May be a safety hazard to children and others and require fencing.
- Are not effective in removing dissolved pollutants.
- May be constructed only in areas where land is available.
- Only prevent flooding in downstream properties.

The City's Public Works Department operates and maintains storm water facilities within the City limits. While the City does regularly maintain facilities or as the need arises, there is currently no formal maintenance schedule. For example, the City generally cleans catch basins twice per year, or as conditions warrant. Catch basins that become clogged do receive immediate cleaning to prevent flooding. Inspection of facilities occurs as part of performing general maintenance activities in the community.

Preventative maintenance consists of all measures taken to prevent conditions from developing which would reduce the storm water system's ability to function properly. As noted above, the City conducts many of these maintenance activities.

Maintenance tasks for a preventative program include the following:

- **Street cleaning:** The City should clean streets with the most traffic more frequently because they collect greater amounts of sediment, debris, and other problem materials and pollutants.
- **Leaf removal:** A City leaf removal program reduces the potential for storm sewer blockage and subsequent flooding caused by leaf debris.
- **Garbage pick-up:** Adequate garbage service ensures that individuals dispose of refuse, that the franchised company serving the City takes the refuse to a sanitary landfill, and that refuse is not left to wash down the storm drain.
- **Hazardous waste removal:** A municipally sponsored hazardous waste program would give citizens the opportunity to properly dispose of household wastes, such as motor oil, paint, pesticides, and herbicides.
- **Sediment control:** By requiring builder to implement proper erosion prevention methods, the City controls the amount of sediment associated with new development.

During storm events in 1996, the City incurred some serious flooding that trapped some residents in their homes. Because of these incidents and additional complaints from local businesses, the City undertook steps for corrective action.

According to the City's Storm Drainage Master Plan and the impacts of recent flood events, the City of Hubbard had six problem areas in the late 1990's, indicated as follows:

- The City identifies the first problem area along Highway 99E at "A" Street and along 3rd Street between "A" and "D" Streets. Storm drainage facilities in this area are limited. The highway ditch grades slope to a low point that contains no outlet. Along 3rd Street no storm drainage is available. Flows during peak storms collect in the ditch and flood the adjacent property owners.
- A second problem area involves local flooding in the vicinity of Oakridge Lane and Hood River Drive. An adjacent field to the northeast draws some flow to the roadway, in addition to flows collected from the street and corresponding property frontage. No storm drainage piping exists for 300 feet at the north end of the road.
- The location of the third problem area is at 3rd and "H" Streets. No storm drainage exists in this area. Because of a depressed topography, flows of storm water collect around a local residence. When the

flooding begins to cause property damage, the Public Works Department pumps the flow into another area.

- A fourth problem area is located at 7th and "D" Streets where storm water backs up onto property. The City originally drained this natural lowland by a six (6) inch or eight (8) inch outlet. There was a garden planted in the lowland by the property owner. However, the owner partitioned the property with plans for later residential development. The City worked with the owner and his design to provide for more adequate storm drainage. New facilities were available due to City improvements at this intersection in 1998.
- The location of the City's fifth problem area is the Mill Creek crossing of "D" Street. The culvert is undersized to pass large storms and creates seasonal ponding areas onto the adjacent properties. The City sewage treatment plant is near the present storm drainage outfall location. The outfall for the treatment plant discharges at this location. The backwater area is the mixing zone for the existing sewage treatment plant. The outfall may become surcharged during flood conditions.
- A sixth problem area is located between Parkway Boulevard and Elm Street. An adjacent field to the east draws some flow to the area, in addition to flows collected from nearby streets and corresponding property frontage. Construction of a ditch connection to Highway 99E is intended to mitigate this problem.

The City requires all properties, at the time of development, to direct storm water run-off to a public storm sewer or natural drainage channel. Receiving waters, including underground storm drainage systems, shall have adequate capacity to carry necessary flow without overflowing or causing damage to public property or welfare. The developer and/or property owner is responsible for the cost of the approved system, including any required improvements or additions to the off-site system.

As part of the development permit application, the City requires design calculations performed and stamped by a Civil Engineer registered in the State of Oregon with all plan submittals. Table 4 shows the storm type frequency to be used when making design calculations.

**Public Facilities Element - Table 4
Storm Frequency Design Standards**

Development Type	Frequency	Detention Release Rate
Residential	25 year	N/A
Industrial	25 year	5 year
Commercial	25 year	5 year

During the development review process, the City requires run-off controls limiting the developed condition's peak rates of run-off to the pre-development run-off rate. This usually means detaining the storm water displaced by the addition of impervious surface. Detention is the collection and temporary storage of surface water and restriction of the outflow rate, usually to the pre-developed flow rate. Detention storage is equal to the difference in volume of run-off from the 25-year storm event with post-development conditions and the 5 year storm with pre-development conditions. The City requires detention for all developments on one-half acre or greater.

The City's Public Works Department controls the size of the orifices and storage structures or methods and require use of approved engineering methods. The detention facility shall have an overflow system with the capacity to pass the 50-year storm event to an accessible drainage feature. The City requires detention using either subsurface storage in conduits and structures or the construction of a pond.

The City adopts the following goals, objectives, and policies regarding the provision and development of a storm drainage system:

Goal: That existing and future development areas be provided with an adequate storm drainage system.

- Objectives:**
1. Implement the storm drainage master plan adopted in 1996.
 2. Eliminate flooding from stormwater runoff within the service area.

- Policies:**
1. All storm drainage is to be channeled into an effective storm drainage system.
 2. All new developments shall install engineered and City-approved storm drainage facilities along with other improvements.
 3. Drainage facilities shall be provided in subdivisions and developments and shall connect to drainage ways and storm sewers outside the subdivision at developers' expense. The design shall consider the capacity and grade necessary to maintain unrestricted flow from areas draining through the subdivision.
 4. Storm drainage improvements through already improved lands will be accomplished as the need arises using resources of bond issues or other funds depending upon the scope and expense of the project.

SOLID WASTE FACILITIES AND SERVICES

Hubbard does not have a solid waste disposal facility. Local collection is handled by contract with United Disposal or by individuals hauling their own waste. Curb-side recycling is available to citizens in the community. The company disposes waste at the Ogden-Martin burner in Brooks. If the need arises, United Disposal also uses Coffin Butte landfill near Corvallis.

Citizens are able to participate in a curb-side recycling program similar to larger communities in the area. If the City chooses to expand the program, additional opportunities are available but does require an increase in fees.

The City's regional contact is Marion County Solid Waste Advisory Council. United Disposal currently has representation on that committee. The company also participates in the Mid-Valley Garbage and Recycling Association, a group for companies transporting solid waste.

It is important that the City participate in a regional solid waste management program. A regional solid waste management program strives to maximize the use of existing sites, endorse energy conservation and recycling of wastes, and coordinates solid waste activities of counties in the region. Hubbard supports a regional solid waste management program that includes recycling opportunities.

POLICE SERVICES

In 1999, police services for the City of Hubbard consist of a police chief, four police officers, one administrative assistant/records person, and ten reserve officers. North Marion Communications Center (NORCOM) provides the emergency (911) communications services to the area. NORCOM receives all emergency calls and off hours business calls. NORCOM also dispatches police officers and members of the Rural Fire District.

Police equipment consists of three (3) marked patrol cars, one unmarked patrol car, two (2) speed reader board trailers, and four (4) patrol bicycles. Police personnel have two-way radios and paging communication capabilities, and mobile data units (MDT) with Fire, EMS, Public Works, as well as other area law enforcement agencies.

The mission of the Hubbard Police Department is to maintain peace and enhance the safety and livability of people in the community through community education and enforcement of state and municipal laws. Accomplishing the mission includes the following:

- Continue to provide efficient and courteous service.
- Maintain the Police Reserve program to enhance police services.
- Provide crime prevention and education programs.
- Participate in problem solving partnerships with citizens, business, and other agencies to enhance livability and safety in the community.
- Respond to all citizen complaints.

Additionally, the Hubbard Police Department will continue participation in Marion County Homicide Assault Response Team (H.A.R.T) major crime team, the multi-disciplinary Child Abuse Investigation Team, Western States Information Network (W.S.I.N.), the Oregon Association of Chief's of Police, the Oregon Police Officers Association, and the Oregon Narcotics Enforcement Association.

FIRE SERVICES

The Hubbard Rural Fire Protection District provides fire protection for the City of Hubbard. Its service area is approximately seven (7) square miles and service population is approximately 3,500 people. The rural district has a staff of 25 volunteers and one paid position.

The Insurance Service Office (ISO) reviews fire districts/departments and applies a fire suppression rating schedule. Before assigning the rate, the ISO evaluates fire protection services based upon the available water supply, ability to transport water, the number and type of trained personnel, type of available equipment, and handling emergency alarms. Rating ranges from one (1) to ten (10) with number one (1) being the best and number 10 being the worst. In 1998, the City's fire ISO rating was four (4).

The City has 2,050,000 gallons of water in storage, plus the capacity of the pumpers and tankers. The pumpers have the ability to draft from streams or ponds for additional water.

Apparatus available to the district in 1998 includes the following:

One 1976 Western States Pumper. The pumper carries six (6) firefighters. It holds 1,000 gallons of water, pumps at the rate of 1,000 gallons per minute, carries multiple lengths of hose, a variety of fire suppression equipment including wild-land fire fighting equipment, and medical equipment. Hoses include the following:

- one (1) 600-foot hose three (3) inches in diameter,
- one (1) 600-foot supply hose two and one-half (2 1/2) inches in diameter,
- two (2) 600-foot supply hoses one and three-quarters (1 3/4) inches in diameter, and
- two (2) 200-foot hose reels with hose one (1) inch in diameter.

One 1979 White Freightliner Tanker/Tender. The tanker carries two (2) firefighters. It holds 4,000 gallons of water, pumps at the rate of 500 gallons per minute, and is equipped with 200 feet of supply hose and wild-land fire fighting equipment.

One 1991 Ford Super Duty Rescue. The rescue unit carries five (5) firefighters or medically trained personnel. It is equipped with a Phoenix extrication tool, medical supplies including the Lifepak 300 Automatic External Defibrillator, a Stokes (rescue slide with rope), and extra Self Contained Breathing Apparatus (SCBA) equipment.

One 1993 Pierce Dash Pumper. The pumper carries six (6) firefighters. It holds 1,000 gallons of water, pumps at the rate of 1,250 gallons of water per minute, carries multiple lengths of hose, fire suppression equipment, and medical supplies. Hoses include the following.

- one (1) 1,000-foot supply hose five (5) inches in diameter,
- one (1) 450-foot supply hose three (3) inches in diameter,
- four (4) varied length attack lines for a total of 900 feet measuring one and three-quarter (1 3/4) inches in diameter, and
- one (1) 200-foot hose reel with hose one (1) inch in diameter.

One 1996 Chevrolet Brush Rig. The brush rig carries four (4) firefighters. It holds 200 gallons of water, pumps at the rate of 125 gallons per minute with a foam unit, and is equipped with a hose reel 200 feet in length (one (1) inch in diameter) and a variety of wild-land fire fighting equipment.

The mission of the Hubbard Rural Fire Protection District lies in three primary program and performance areas:

- The suppression of destructive fires.
- The provision of basic emergency medical service and rescue.
- Community support through public service activities.

SCHOOL SYSTEM

North Marion School District #15 was formed in 1960 by a vote of the electors of six districts. These districts were centered at Aurora, Broadacres, Butteville, Donald, and Hubbard. At that time, all of these elementary districts were operating in substandard buildings and sites.

In 1962, the School District completed Phase I of the current elementary school. Fourteen classrooms were constructed at that time. The Hubbard building was used to house grades 7 and 8. A six room addition to the elementary school and a three room addition to the high school were completed in 1965.

In 1968, another addition was made to the elementary school increasing the size of that building to 25 classrooms. Wings were added to the high school building to accommodate students in grades 7 and 8. The building at Hubbard was then sold.

Total enrollment in the school district at the end of the 1990-91 school year was 1,387 students. By the end of the 1998-99 school year, total enrollment had grown to 1,591 students, an increase of about 15 percent.

Currently, the school district is divided between four (4) buildings, housing grades K-12. All buildings are located at one site of 64 acres located approximately 3 miles northwest of the Hubbard.

The School District currently owns 18 acres within the Hubbard urban growth boundary. This site has 9 developable acres, the remaining acres are dedicated to open space. The size of the property could accommodate an elementary school facility. The School District has no immediate plans to construct a facility at this site.

The City adopts the following goals, objectives, and policies regarding the provision and development of a school system:

Goal: To ensure that the schools are developed, maintained and enhanced as the center for quality educational opportunities, and as a recreation and activity center.

Objective: Coordinate school facilities planning with land use planning so that the quality of educational opportunities and the schools as a recreation and activity center are not sacrificed due to the lack of land use and facilities planning.

- Policies:**
1. Support school revenue raising efforts to ensure the capacity to meet needs of the community.
 2. Maintain communication with school district concerning development projects that could impact school operations and functions.
 3. Plan and develop school facilities expansion according to City generated growth trends and the resulting projected school population growth.

SECTION VI LAND USE

INTRODUCTION

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

1. Low Density Residential. Areas designated as low density residential shall not exceed a density of six (6) dwelling units per gross acre.
2. Medium Density Residential. Areas designated as medium density residential shall not exceed a density of eight (8) dwelling units per gross acre.
3. High Density Residential. Areas designated as high density shall not exceed a density of twelve (12) units per gross acre.
4. Commercial. Commercial uses include all activities of a commercial nature. There is no distinction between what kinds of commercial activities are allowed; the specific zoning regulates uses.
5. Industrial. Industrial use covers the range of manufacturing, warehousing, and wholesaling activities. Manufacturing activities are limited to light industrial uses.
6. Public/Semi-Public. Public/Semi-Public uses include all government and semi-public lands and uses. Future semi-public lands are not identified on the Comprehensive Plan Map.

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 2001, the city conducted a buildable lands inventory. **Table 1** shows the amount of developed acreage by zoning designation within the city.

Land Use Element - Table 1
Developed Land Uses within the Hubbard UGB
By Zone, 2000

Zoning Designation	Acres¹	Percent of Total Area
Single-family Residential	93.7	42%
Manufactured Housing	29.9	13%
Industrial	29.0	13%
Commercial/Industrial	19.2	9%
Residential/Commercial	17.9	8%
Park/Open Space	10.4	5%
Public	9.1	4%
Commercial	7.6	3%
Multi-Family Residential	7.5	3%
Total	224.3	100%

Source: MWVCOG, 2001.

¹ Acreage data is from the Marion County Assessor and does not include public rights-of-way.

BUILDABLE LANDS INVENTORY

For each land type (residential, commercial, and industrial), the analysis was broken into two parts. First, the findings describe the amount of net buildable land, by zoning district, within the existing city limits. The findings then describe the amount of buildable land located between the city limits and UGB. Land in this area is zoned by the County until it is annexed into the city. The City's Comprehensive Plan does designate, in general, the future use (residential, commercial, or industrial) for such properties.

The analysis of residential lands includes totals for land that is completely vacant, partially vacant, and redevelopable. The analysis of commercial and industrial land includes totals for land that is completely vacant and redevelopable.

The following parameters are used to determine whether land is partially vacant and/or redevelopable.

- Vacant 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 residential parcels in Hubbard is 5,000 square feet, except in the Low-Density Residential (R-1) zone where the minimum lot size is 7,000 square feet.
- Within the city limits, partially vacant land consists of residential 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. This amount is added to the amount of gross buildable land.
- For land between the city limits and the UGB, partially vacant land consists of residential parcels that are at least 1.0 acre in size with an improvement value of at least \$5,000. This analysis assumes that 0.50-acre is devoted to the existing house, with the remainder considered vacant. This amount is added to the amount of gross buildable land. The larger area attributed to the existing residence in this portion of the urban area is intended to account for the presence of larger homes and an adjacent septic system serving the residence.
- Redevelopable land includes parcels in all zones where some limited improvements have been made, but where potential for redevelopment for more intense uses is high. For the purpose of this analysis,

redevelopable land is defined as parcels in all zones with improvement values of at least \$5,000, where the ratio of land value to improvement value is 1:1 or greater. For residential parcels, this land may instead be classified as partially vacant. The area of redevelopable parcels is added to the amount of gross buildable land.

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.

This analysis also assumes that 25 percent of the gross vacant or partially vacant residential land area will be dedicated for use as public facilities (rights-of-way, parks, etc). This percentage has been subtracted from the gross amount of buildable residential land in these categories.

Based on these refinements, the total amount of buildable land shown in each category (residential, commercial, industrial) represents the net amount of buildable land.

Figure 1 shows vacant, partially vacant, and redevelopable land within the Hubbard urban area by zoning designation.

Residential Land

Table 2 shows the amount of buildable land for each residential zoning district within the Hubbard urban area (both city limits and UGB). Approximately 50.1 net buildable acres are available for residential development within the urban area. Of that amount, approximately 31.3 acres are available within the city limits and an additional 18.8 acres are available between the city limits and UGB. Within the urban area, approximately 3.8 acres designated for residential use can be considered redevelopable. Approximately 149 acres within the Hubbard UGB are currently developed for residential use.

**Land Use Element - Table 2
Buildable Residential Land
Hubbard, 2001**

Zone/Plan Designation	Vacant (acres)	Partially Vacant	Redevelopable	Total
Within the City Limits				
Low Density Residential District (R1)	16.1	4.0	3.7	23.8
Medium Density Residential District (R2)	0.0	0.0	0.1	0.1
High Density Residential District (R3)	0.5	0.0	0.0	0.5
Manufactured Home District (MH)	3.5	0.0	0.0	3.5
Residential Commercial District (RC) ¹	0.9	2.5	0.0	3.4
Net Buildable Acres Within the City Limits	21.0	6.5	3.8	31.3
Between the City Limits & UGB				
Low Density Residential ²	11.4	7.4	0.0	18.8
Net Buildable Acres Between the City Limits & UGB	11.4	7.4	0.0	18.8
Net Buildable Acres Within the Urban Area	32.4	13.9	3.8	50.1

Source: Marion County Assessor data, MWVCOG, 2001.

¹ The Residential Commercial District allows some limited commercial uses, but is primarily oriented to residential development.

² This acreage figure includes a 4.3 acre partially vacant parcel in the UGB that is currently designated Public, but should be re-designated for residential use. Approximately 3.2 acres of this property are included as buildable land.

Figure 1 – Buildable Lands Map

Commercial Land

Table 3 shows that approximately 10.7 net vacant acres are available for commercial development within the Hubbard city limits. Approximately 4.0 acres designated for commercial use can be considered redevelopable. No vacant commercial land is located between the city limits and urban growth boundary. Approximately 7.6 acres within the Hubbard UGB are currently developed for commercial use.

**Land Use Element - Table 3
Buildable Commercial Land¹
Hubbard, 2001**

Zone/Plan Designation	Vacant (acres)	Redevelopable	Total
Within City Limits			
Commercial District (CG)	6.7	4.0	10.7
Net Buildable Acres within the Urban Area	6.7	4.0	10.7

Source: Marion County Assessor data, MWVCOG, 2001.

¹ The Residential Commercial Zone allows some limited commercial uses. The vacant land in this zone is shown in Table 2 - Buildable Residential Land. Similarly, the Industrial Commercial Zone allows commercial uses. The vacant land in this zone is shown in Table 4 - Buildable Industrial Land.

Industrial Land

Table 4 shows the amount of buildable land for each industrial zoning district within the Hubbard city limits. Approximately 15.0 acres designated for industrial use can be considered redevelopable. No vacant industrial land is located between the city limits and urban growth boundary. Approximately 29.0 acres within the Hubbard UGB are currently developed for industrial use.

**Land Use Element - Table 4
Buildable Industrial Land
Hubbard, 2001**

Zone/Plan Designation	Vacant (acres)	Redevelopable	Total
Within City Limits			
Industrial District (I)	20.2	8.8	29.0
Industrial Commercial District (IC) ¹	6.7	6.2	12.9
Net Buildable Acres Within the Urban Area	26.9	15.0	41.9

Source: Marion County Assessor data, MWVCOG, 2001.

¹The Industrial Commercial District allows a number of commercial uses.

LANDS NEEDS ANALYSIS

The buildable lands inventory is used in conjunction with the 2020 population projection to determine if adequate land is available for future residential, commercial, and industrial development.

Future Residential Land Needs

Average Net Density

To determine the amount of land needed for future residential development, it is necessary to calculate the average net density for the various types of housing developments including single-family, multi-family, and manufactured homes within manufactured home parks.

For single-family and multi-family development, average net densities were developed based on the size of residential lots developed since 1990. For manufactured home parks, an inventory of all of the existing parks in Hubbard was used to derive the net density. The average net densities used to conduct the analysis of future residential land needs are:

- Single-family residential – 4.95 units/acre
- Multi-family residential – 8.10 units/acre
- Manufactured home parks – 7.33 units/acre.

The housing needs analysis (see Housing Element - Table 4) identified 202 new residential units that will be needed to accommodate the projected 2020 population of 3,105 persons. Of the 202 new residential units, 42 percent, or about 85 units, are needed to meet projected need for rental units. Based on 1990 Census figures, about 45 percent of the local rental market is comprised of single-family residences. Therefore, of the additional 85 rental units, it is assumed that 55 percent will be multi-family housing units. Based on this assumption, then, approximately 47 new multi-family residences will be needed to meet the projected need in 2020. In addition, as shown in Housing Element - Table 2, the current rental market supply is currently about 59 units short of meeting the existing need. Consequently, in order to meet existing and projected need for such housing, 106 additional multi-family units will be needed over the next 20 years.

Table 5 shows the amount of buildable residential land needed through 2020 to accommodate various types of housing, including multi-family housing and manufactured home parks.

**Land Use Element - Table 5
Projected Housing Mix and Residential Land Needs
Hubbard, 2020**

Housing Type	Existing Units 2000	Units Needed 2020	Percent of New Units	Net Density (units/acre)	Acres Needed 2020
Single Family	494	49	24.2%	4.95	9.9
Multi-Family	114	106	52.5%	8.10	13.1
Manufactured Homes in Parks	197	47	23.3%	7.33	6.4
Total	805	202	100.0%		29.4

Source: MWVCOG, 2001.

Looking back at **Table 2**, adequate vacant, partially vacant, or redevelopable land is available to accommodate future housing needs within the existing urban growth boundary. The buildable lands analysis found that approximately 49.3 acres are available for residential development within the entire urban area, with 31.3 acres available within the city limits. An estimated 29.4 acres will be needed to accommodate residential growth through 2020.

About 13.1 acres of land designated for multi-family development will be needed by 2020. **Table 2** shows that about 0.6 acres of land currently zoned R2 or R3 are currently available for development within the city limits. Duplexes are also allowed in the R1 Zone and some of the need for multi-family land can be met through development of duplexes in this zone.

About 6.4 acres will be needed to accommodate future development of manufactured home parks. This use is allowed in the Manufactured Home District and as a conditional use in the R2 and R3 zones.

Approximately 9.9 acres will be needed for single-family residential development through 2020.

To meet the need for multi-family residential development and manufactured home parks Hubbard re-designated and rezoned low-density residential land within the urban area for higher density residential uses. In addition, the Hubbard Development Code was amended to include “Manufactured Home Parks” as a conditional use in the R2 and R3 zones. Overall, 19.5 acres is needed to accommodate future multi-family and manufactured home park development. **Table 6** shows the properties that have been redesignated and rezoned to meet future residential land needs.

**Land Use Element - Table 6
Residential Land Re-designations to Meet Projected Need
Hubbard, 2020**

Map & Tax Lot Number	Current Plan Designation	Current Zoning	New Plan Designation	New (Proposed) Zoning ¹	Net Buildable Acres
Within the City Limits					
41W33DB 700	Low-Density Residential	R-1	Medium Density Residential	R-2	2.9
41W34B 100	Manufactured Home Park	MH	Medium Density Residential	R-2	3.5
Between the City Limits & UGB					
41W34B 700	Low-Density Residential	UTF	Medium Density Residential	(R-2)	1.7
41W33AB 100	Public	UTF	Medium Density Residential	(R-2)	3.2
41W 27CC 200	Low-Density Residential	UTF	Medium Density Residential	(R-2)	4.5
41W27CC 300	Low-Density Residential	UTF	High Density Residential	(R-3)	4.2
Total					20.0

Source: MWVCOG, 2001.

¹ Areas between the city limits and the urban growth boundary are under the zoning jurisdiction of Marion County until annexed into the city. The proposed zoning designation shown in parentheses would only become effective upon annexation.

In addition to these re-designations, in 2002, a 7.0-acre parcel was annexed into the city and re-designated from Low Density Residential to Medium Density Residential. **Table 7** shows the buildable residential land within the urban area after properties have been re-designated to meet projected housing need. Approximately ~~29.5~~ **24.3** acres will be available for single-family residential development where approximately 9.9 acres will be needed. Approximately 25.9 acres will be available for multi-family development and manufactured home parks where 19.5 acres will be needed. As shown in **Table 5**, the city has provided sufficient land for various housing types and densities in response to projected need.

Land Use Element - Table 7
Buildable Residential Land after Re-designations
Hubbard, 2002

Zone/Plan Designation	Vacant (acres)¹	Partially Vacant	Redevelopable	Total
Within the City Limits				
Low Density Residential District (R1)	13.2	4.0	3.7	20.9
Medium Density Residential District (R2)	11.7	0.0	0.1	11.8
High Density Residential District (R3)	0.5	0.0	0.0	0.5
Manufactured Home District (MH)	0.0	0.0	0.0	0.0
Residential Commercial District (RC)	0.9	2.5	0.0	3.4
Net Buildable Acres Within the City Limits	26.3	6.5	3.8	36.6
Between the City Limits & UGB				
Low Density Residential	0.0	0.0	0.0	0.0
Medium Density Residential	6.2	3.2	0.0	9.4
High Density Residential	0.0	4.2	0.0	4.2
Net Buildable Acres Between the City Limits & UGB	6.2	7.4	0.0	13.6
Net Buildable Acres Within the Urban Area	32.4	13.9	3.8	50.1

Source: Marion County Assessor data, MWVCOG, 2001.

¹ All acreage figures are expressed as "net buildable acres".

Future Commercial and Industrial Land Needs

The Economics Element of the Comprehensive Plan includes a 2020 forecast of local employment (see the Economics Element - Table 6). 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 8 shows the forecasted 2020 employment growth by land use type. Different sectors of the economy will have different land needs. Employment growth was allocated to three land use types as follows:

- Commercial: Retail Trade; Finance, Insurance, Real Estate; Services.
- Industrial: Agriculture, Forestry, Fishing; Construction; Manufacturing; Transportation, Communications, and Utilities; Wholesale Trade.
- Public: Government.

Land Use Element - Table 8
Total Employment Growth by Land Use Type

Sector	1999	2020	New Employment 1999-2020	
			Total	Percent
Commercial	318	487	169	31.2%
Industrial	1,583	1,947	364	67.3%
Government	20	28	8	1.5%
Total	1,920	2,461	541	100.0%

Source: MWVCOG, 2001.

Several assumptions were made to convert the employment growth shown in **Table 8** to vacant acres needed for commercial and industrial uses. These assumptions include:

- **Percent of total employment growth that requires no non-residential built space or land.** Some new employment will not require any non-residential land or building be used. This analysis assumes that one (1) percent of employment growth will consist of employees who work at home.
- **Percent of employment growth on existing developed land.** Some new employment will occur through expansion of existing businesses on non-residential land. Such an expansion involves adding additional employees without increasing physical space. A analysis for Albany assumed that 10 percent of future employment growth will occur on land that is already developed. That same figure is used in this analysis.
- **Employees/acre.** In order to determine future commercial and industrial land needs, employment growth must be converted into employees per acre. Employees per acre ratios used in a similar study in Salem were 22 employees/acre for commercial and office development and 11 employees/acre for industrial development. The Albany study used 25 employees/acre for commercial development, 35 employees/acre for offices, and 12 employees/acre for industrial development. This analysis uses 25 employees/acre for commercial development (including offices) and 12 employees/acre for industrial development.
- **Employment on vacant or redevelopable land.** The recently completed buildable lands inventory for Hubbard identified both vacant and redevelopable commercial and industrial land. This analysis does not distinguish between vacant or redevelopable land in determining where new employment will occur. The analysis assumes that 89 percent of employment growth occurs on land that is either vacant or redevelopable. (The remaining 11 percent consists of employees working at home or new employment on existing developed land.)

Table 9 shows the amount of vacant or redevelopable land needed to accommodate new commercial and industrial employment growth through 2020. Approximately 33 acres will be needed for projected employment growth through 2020.

**Land Use Element - Table 9
Commercial and Industrial Land Needs
Hubbard, 1999-2020**

Sector	Total Employment Growth	Employees/Acre	Requiring no non-residential built space or land	On Existing Developed Land	On Vacant Land	Vacant/Redevelopable Acres Needed
Commercial	169	25	2	17	150	6.0
Industrial	364	12	4	36	324	27.0
Total	533		6	43	474	33.0

Source: MWVCOG, 2001

Table 10 shows a comparison of land needed to accommodate new employment growth (demand) and the available supply of vacant and redevelopable land. The comparison shows that sufficient commercial and industrial land is available within the Hubbard urban area to meet the forecast demand. Public facilities are available for all of the vacant or redevelopable commercial and industrial properties. Site constraints, such as steep slopes, wetland, or floodways, have been identified in the inventory and have been subtracted from the gross amount of buildable acreage.

Land Use Element - Table 10
Comparison of Supply and Demand for Commercial and Industrial Land
Hubbard, 2000

Land Use Type	Vacant/Redevelopable Acres
Supply	
Commercial	10.7
Industrial	41.9
Total Supply	52.6
Demand	
Commercial	6.0
Industrial	27.0
Total Demand	33.0
Surplus (Deficit)	
Commercial	4.7
Industrial	14.9
Total	19.6

Source: MWVCOG, 2001.

The City adopts the following goals and policies regarding land use:

Land Use Goals and Policies

Goal: To provide adequate lands to service the needs of the projected population to the year 2020, and to ensure the conversion of property to urban uses in an orderly and timely manner.

Policies: General:

1. Zoning is an important means of regulating land uses. Future zoning and rezoning should be in conformance with this plan and its policies.
2. Any amendments or changes to this plan should only be made after public hearings and official action by the Planning Commission and City Council.
3. Development should occur as extensions of existing City services.
4. The City will establish and maintain a buildable lands inventory at intervals requested by the City Council.
5. Development of vacant lands within the city with full urban services will be encouraged over annexation of additional lands.
6. The City of Hubbard will consider annexation of property contiguous to the City limits if the developer can provide adequate City-approved water, sanitary sewer, storm drainage facilities, and transportation facilities, if the City can provide adequate public safety services to the property and if other issues of importance to the City are adequately addressed.

7. The City of Hubbard will consider urban growth boundary expansions based upon consideration of the following factors:
- a. Accommodation of additional population;
 - b. Housing, employment opportunities, and livability;
 - c. Orderly and economical provision of public facilities and services;
 - d. Maximum efficiency of land uses within and on the fringe of the existing urban area;
 - e. The long term environmental, energy, economic, and social consequences of the locality, the region, and the state as the result of allowing Land Use and not preserving and maintaining the land for agricultural uses, and
 - f. Compatibility of the proposed urban use with nearby agricultural activities.

Residential Land:

1. The City of Hubbard will encourage residential development to continue an overall density of six (6) units per acre.
2. Residential development should be diversified to provide for a variety of housing opportunities.
3. The planned unit approach to residential development will be encouraged.
4. Multi-family housing development should be located close to shopping facilities and arterial or collector streets and interspersed with single-family residential when new subdivisions are developed.
5. Houses and structures of historical value should be preserved and protected from encroachment by other non-compatible uses.
6. Open spaces and parks will be encouraged in larger subdivisions and multi-family developments.

Commercial Land:

1. Commercial development should be located to provide adequate and convenient services to the resident as well as the visitor.
2. Corridor or strip commercial developments shall be discouraged.
3. Cluster type development at major intersections and a commercial center between "A" and "G" streets and Highway 99E and 3rd Street will be encouraged.
4. Commercial centers should be oriented toward pedestrians, with adequate off-street parking provided.
5. The Highway 99E business area should be a coordinated development that will add to the charm and beauty of the City. Highway 99E is the first thing a visitor sees when entering the City, so businesses along 99E should reflect the character of the community.
6. A mix of commercial activities with accessory or second-story uses is encouraged between Highway 99E and the railroad right-of-way.

7. The mixing of uses in the commercial area will provide a means of access to transportation, housing and shopping to those persons who need to locate near the various facilities.
8. The City of Hubbard supports maintaining existing businesses and encouraging a variety of new business activities to locate in the city.

Industrial Land:

1. The City of Hubbard shall provide an adequate amount of acreage to accommodate future industrial growth.
2. The City of Hubbard shall encourage the consolidation of smaller parcels into larger holdings suitable and desirable for industrial uses.
3. The City of Hubbard shall continue to support the development of an industrial park adequately served by City services and highway access as a way to increase and broaden employment opportunities for area residents and service-related activities.
4. The City of Hubbard shall discourage industrial activities that produce excess amounts of dust, smoke, odors, or other harmful or obnoxious discharges.
5. The City of Hubbard shall encourage light manufacturing processes that are energy saving and do not pollute air, water, and land resources.

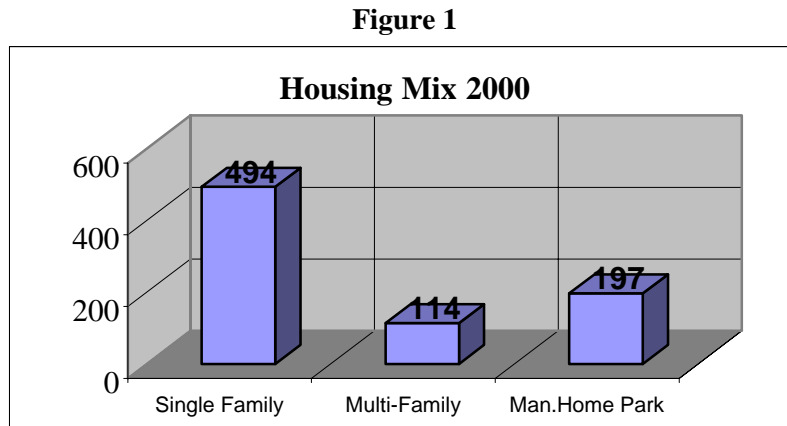
Public and Semi-Public Land:

1. The City of Hubbard shall encourage a high level of cooperation and coordination between the school district, Marion County and various State agencies, and the City of Hubbard.
2. The City of Hubbard shall encourage the development of the Mineral Springs property as a County or State park.
3. The City of Hubbard supports construction of a grade school within the City limits of Hubbard.
4. The City of Hubbard shall require adequate park, open space and rights-of-way in residential and commercial developments with increased emphasis on land east of Highway 99E.
5. The City of Hubbard encourages the preservation of a Mill Creek corridor to maintain a buffer from the creek, to allow an area for storm water management, and maintain the benefits of the vegetative riparian habitat.
6. Open spaces and recreational sites and facilities should be encouraged to provide for the leisure time needs of the resident and visitor.

SECTION VII HOUSING

EXISTING CONDITIONS

Figure 1 shows the existing mix of residential housing units within the city limits. These figures are estimated using 1990 Census data and building permit information for the period from 1989 to 2000. Of the 805 residential units, 494 units, or 61 percent are single-family residential units. Approximately 14 percent of the units are multi-family residences and the remaining 25 percent of the units are manufactured homes within manufactured housing parks.



HOUSING NEEDS ANALYSIS

This section presents estimates of housing need for various age and income sectors in the city. The needs analysis data in this chapter come from a model created in 2000 by the Oregon Housing and Community Services Department. The data are mostly based on Census figures. Other sources of information include *Regional Consumer Expenditure Survey* that is conducted every year by the U.S. Bureau of Labor Statistics as well as income data collected by *Claritas, Inc.*, a private company. The model uses age, income, and expenditure information to predict the ability of households to afford housing. The analysis is intended to predict need for both owner-occupied and rental housing units at either end of a 20-year period from 2000 to 2020.

The analysis of housing need is based on the following assumptions:

- (1) Vacancy Rates. At any given time, a number of homes within the community are vacant. The analysis assumes a 2.5 percent vacancy rate for 2000 and 2020. The vacancy rate for Hubbard in the 1990 Census was 2.2 percent.
- (2) Persons per household. The analysis assumes there are approximately 3.19 persons per household for 2000, and that the household size will remain the same in 2020.¹
- (3) Group Quarters. The percentage of persons living in 'group quarters' will remain constant in both 2000 and 2020. The U.S. Census Bureau classifies all persons not living in households as living in group quarters. Persons living in group quarters include persons who are institutionalized or living

¹ While this information is included in the data, analysis conducted by the Oregon Housing and Community Services Department in developing the housing needs model showed that household size is not necessarily a factor affecting need for particular types of housing.

in non-institutional group homes, rooming houses, assisted-living facilities, etc.

- (4) The ratio of owner-occupied (owned) units to rental units is the same for vacant units as it is for occupied units.
- (5) The analysis cannot predict any major changes in the economy and any associated impacts to local household income. The analysis assumes that economic conditions in 2020 are similar to those in 2000.
- (6) The analysis assumes that no more than 30 percent of gross household income is used to pay housing costs. The 30 percent threshold is the same as that used by the Department of Housing and Urban Development to determine housing affordability.

Current Housing Needs

The July 1, 2000 estimated population for Hubbard is 2,500. This figure is from the Portland State University Population Research Center and is based on the 2000 Census count. The 2020 population projection for Hubbard is 3,105. This projection has been adopted by Marion County for the City of Hubbard through a coordinated process required under state law (ORS195.036).

Table 1 shows various estimates regarding the local housing need in 2000. The estimated population is 2,500 persons and the total number of dwelling units is 805. The resulting household size is approximately 3.22 persons per dwelling. The housing needs model shows that approximately 490 owner-occupied units and 315 rental units are needed.

**Housing Element - Table 1
Housing Status
Hubbard, 2000**

Population (estimated) ¹	Persons in Group Quarters ²	Persons per Household	Total Dwelling Units ³	Occupied Dwelling Units ⁴	Vacant Units	Owner-Occupied Units	Rental Units	Owner-Occupied Units (percent)	Rental Units (percent)
2,500	10	3.19	805	785	20	490	315	60.9	39.1

Source: Oregon Housing and Community Services Housing Needs Model, 2000

¹ Population estimate is for July 1, 2000 and is produced by the Population Research Center at Portland State University based on 2000 Census data.

² Persons living in group quarters includes persons who are institutionalized or living in non-institutional group homes, rooming houses, assisted-living facilities, etc. This definition also includes students living in college dormitories.

³ "Total dwelling units" does not include group quarters dwelling units.

⁴ "Occupied dwelling units" does not include group quarters dwelling units.

The housing model shows that 315 rental units are currently needed. 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 114 multi-family units are currently located in Hubbard. The 1990 Census showed that approximately 45 percent of all local rental units were single-family residences. Assuming that this figure has remained constant, as many as 142 single-family units are currently used as rental units. Combined with the 114 existing multi-family units, the estimated rental supply in Hubbard consists of 256 units where 315 units are needed. As shown in **Table 2**, the estimated supply of rental housing units in Hubbard does not meet the current need for rental units.

**Housing Element - Table 2
Rental Housing Supply and Need
Hubbard, 1999**

Rental Units Needed	Existing Multi-Family Units	Single-Family Units Used as Rentals	Total Number of Existing Rental Units	Difference Between Existing Rental Units and Rental Units Needed
315	114	142	256	(59)

Source: Oregon Housing and Community Services Housing Needs Model and MWVCOG, 2000

Projected Housing Needs

The projected population of Hubbard in 2020 is 3,105 persons. As shown in **Table 3**, 997 dwelling units will be needed to accommodate this population. This represents 202 additional housing units that will be needed over the next 20 years (an estimated 10 units will also be removed).

Of the 202 new residential units, about 85 new units will be needed to meet the projected need for rental units. This analysis assumes that 55 percent of the rental market is comprised of multi-family residences, with the remainder comprised of single-family units. Based on this assumption, then, approximately 47 new multi-family residences will be needed to meet the projected need in 2020. In addition, as shown in Table 3, the amount of multi-family units currently available is about 59 units short of meeting the existing need. Consequently, in order to meet existing and projected need for such housing, 106 multi-family units will be needed over the next 20 years.

**Housing Element - Table 3
Projected Housing Status
Hubbard, 2020**

Population (projected) ¹	Persons in Group Quarters ²	Persons per Household	Total Dwelling Units ³	Occupied Dwelling Units ⁴	Vacant Units ⁵	Owner-Occupied Units	Rental Units	Owner-Occupied Units (percent)	Rental Units (percent)
3,105	12	3.19	997	973	24	607	390	60.9	39.1

Source: Oregon Housing and Community Services Housing Needs Model, 2000

¹ The 2020 population projection has been coordinated with the projections for Marion County as required by Oregon Revised Statutes 195.036.

² Persons living in group quarters includes persons who are institutionalized or living in non-institutional group homes, rooming houses, assisted-living facilities, etc.

³ "Total dwelling units" do not include group quarters dwelling units.

⁴ "Occupied dwelling units" do not include group quarters dwelling units.

Table 4 shows the total number of additional dwelling units that will be needed by the 2020 population. With the estimated removal of 10 units from the housing supply, an estimated 324 additional dwelling units be needed during this 20-year period.

**Housing Element - Table 4
Additional Dwelling Units Needed in Hubbard by 2020**

Total Dwelling Units 2020	Total Dwelling Units 2000 ¹	Dwelling Units Removed	Additional Dwelling Units Needed	Additional Group Quarters Needed
997	805	10	202	2

Source: Oregon Housing and Community Services Housing Needs Model, 2000

The City adopts the following goals and policies regarding housing:

Housing Goals and Policies

Goal: The City of Hubbard shall encourage the development of a range of housing types and cost levels to adequately meet the needs of its citizens.

- Policies:**
1. The City of Hubbard will provide adequate amounts of residential land within the urban growth boundary to permit development of housing for families of all income levels.
 2. The City of Hubbard will support programs that promote the integration of low income housing with housing targeted toward other income groups.
 3. The City of Hubbard shall encourage developers to make all new residential developments as energy-efficient as possible, including consideration of renewable fuel sources.

Goal: The City of Hubbard shall encourage upgrading of the existing housing stock.

- Policies:**
1. The City of Hubbard will solicit the aid of federal, state, and local agencies in obtaining funding for the rehabilitation of dilapidated housing in the city.
 2. The City of Hubbard shall solicit support for and otherwise encourage the weatherization of the existing housing stock to minimize health and economic impacts due to rising fuel cost.

Goal: The City of Hubbard shall ensure that all new housing developments be provided with services (streets, sewer, water, ambulance, police and fire) and that future developments will not overburden the City's ability to provide such services. Further, to ensure that the cost of extending such services shall be borne by the developer.

- Policies:**
1. Residential development should be located in areas that can be served by public facilities and services. The extension of public facilities and services shall be paid by the developer.
 2. Residential development shall be consistent with the city's transportation plan in effect, or as amended, at the time development is proposed.
 3. Multi-family housing development should be located close to shopping facilities and arterial or collector streets and interspersed with single-family residential when new subdivisions are developed.

SECTION VIII ECONOMIC DEVELOPMENT

BACKGROUND

The economy of the Hubbard area was built chiefly around the agricultural production of the valley. During the late 1980s and into the 1990s the City significantly increased its industrial base. The largest employers include meat packing, auto sales, a seed cleaning operation, clothing production, numerous manufacturing businesses, telecommunication services, construction services, and related commercial activities.

Table 1 shows employment data for the Hubbard area based on employer records with a 97032 zip code.² Employment in Hubbard grew between 1995 and 1999 as 347 new jobs were added. Hubbard had approximately 1,573 jobs in 1999 representing 1.2 percent of the estimated total employment in Marion County.³

The largest increase in employment locally is in the construction services industry. Hubbard experienced slight growth in agricultural and forestry employment and a slight decline in manufacturing jobs. Overall, non-manufacturing employment accounted for about 47 percent of all local employment in 1999, an increase of 15 percent from 1995.

² Some businesses with main offices located outside of the 97032 zip code may not be included in the employment statistics.

³ Total employment for Marion County is estimated using Oregon Office of Economic Analysis employment forecasts for 1995 and 2000.

**Economics Element - Table 1
Hubbard Employment
1995 and 1999⁴**

Industry	1995	1999	Change 1995-1999	Percent Change 1995-1999
Agriculture and Forestry, Total	387	450	63	16.3%
Agricultural Production Crops	349	394	45	12.9%
Agricultural Services	34	49	15	44.1%
Forestry	4	7	3	75.0%
Manufacturing, Total	446	385	(61)	-13.7%
Food & Kindred Products	48	45	(3)	-6.3%
Apparel & Other Textile Products	203	134	(69)	-34.0%
Furniture & Fixtures	0	17	17	100.0%
Chemicals & Allied Products	21	0	(21)	-100.0%
Rubber and Misc. Plastics Products	44	34	(10)	-22.7%
Primary Metals	19	27	8	42.1%
Fabricated Metals	70	107	37	52.9%
Machinery	26	3	(23)	-88.5%
Miscellaneous Manufacturing	15	18	3	20.0%
Non-manufacturing total	393	738	345	87.8%
Construction	76	245	169	222.4%
Trans & Public Utilities	78	128	50	64.1%
Wholesale Trade	62	92	30	48.4%
Retail Trade	79	103	24	30.4%
Finance, Insurance, Real Estate	19	67	48	252.6%
Services	62	83	21	33.9%
Government	17	20	3	17.7%
Total	1,226	1,573	347	28.3%

Source: State of Oregon Employment Department data, sorted and summarized by MWVCOG, 2001.

Table 2 illustrates the shift in regional employment for the period from 1979 to 1998. During that time, employment in the wood products and food products manufacturing industries have declined while regional employment in the service sector has more than doubled. Recent growth in the trade and construction sectors is indicative of the expansionary economy in the last decade.

⁴ Employment figures for 1995 and 1999 are monthly averages for each sector and industry shown.

**Economics Element - Table 2
Employment by Selected Industry
Marion, Polk, and Yamhill Counties, 1979-1998**

Industry	1979	1982	1992	1994	1996	1998	Percent Change 1979-1998
Manufacturing, Total	15,400	12,500	15,500	17,300	17,900	17,800	15.6%
Wood Products, Mfg.	4,200	2,700	3,600	4,100	4,000	3,900	-7.1%
Food Products, Mfg.	5,100	5,000	4,900	5,300	5,200	5,000	-2.0%
Construction	5,200	2,500	4,800	5,800	6,900	7,900	51.9%
Trade	19,100	18,100	24,700	26,400	27,600	24,100	26.2%
Services	15,400	14,800	25,400	27,700	30,100	32,000	107.8%
Government	27,300	25,900	32,400	33,200	35,700	37,600	37.7%

Source: Oregon Employment Department, *2000 Regional Economic Profile - Region 3, 1999*.

ECONOMIC OUTLOOK FOR OREGON

Oregon is expected to grow modestly over the next 40 years. The Oregon Office of Economic Analysis projects that between 2000 and 2040, Oregon's population will grow from 3.4 million to about 5.2 million persons.⁵ This represents an average annual growth rate of about 1.1 percent. About 1.3 million of the new residents, or about 70 percent, will result from net migration to Oregon. The Willamette Valley is projected to grow at a slightly faster rate during this period.

The Office of Economic Analysis forecasts that total employment in Oregon will grow from about 1.8 million persons in 2000 to about 2.5 million persons in 2040. About 73 percent of this employment growth is forecast to occur in the Willamette Valley.

REGIONAL POPULATION AND EMPLOYMENT GROWTH

Table 3 shows the Oregon Office of Economic Analysis population and employment forecasts for Marion County through 2040. For the period through 2005, employment is expected to grow at a faster rate than population. From 2005 through 2040, the Marion County population is forecast to grow faster than local employment. This forecast may be indicative of the general aging of the population as "baby-boomers" reach retirement age and leave the work force.

⁵ Oregon Office of Economic Analysis, *Long-Term Population and Employment Forecast for Oregon, 1997*.

**Economics Element - Table 3
Forecast Population and Employment Growth
Marion County, 2000-2040**

Year	Population			Employment		
	Total	Change	Percent Change	Total	Change	Percent Change
2000	285,975			131,622		
2005	308,364	22,389	7.83%	143,159	11,537	8.77%
2010	331,025	22,661	7.35%	153,015	9,856	6.88%
2015	354,561	23,536	7.11%	160,593	7,578	4.95%
2020	378,208	23,647	6.67%	167,821	7,228	4.50%
2025	401,787	23,579	6.23%	175,278	7,457	4.44%
2030	424,594	22,807	5.68%	183,919	8,641	4.93%
2035	446,737	22,143	5.22%	193,070	9,151	4.98%
2040	468,210	21,473	4.81%	201,172	8,102	4.20%

Source: State of Oregon Office of Economic Analysis, 1997.

Table 4 is similar to Table 3. It shows employment forecasts by industry for 1998 to 2008 for the region consisting of Marion, Polk, and Yamhill counties. The forecasts were developed by the State of Oregon Employment Department. As with the statewide economy, the most significant increases in employment growth within Region 3 will occur in the services sector. Employment in this sector is forecast to increase by nearly 30 percent between 1998 and 2008, with the largest gains in the professional services industry.

Manufacturing employment is forecast to increase by about 10 percent. About 2,300 new jobs will be added in this sector. Approximately 74 percent of these jobs will be in industries that manufacture durable goods other than wood products.

Economics Element - Table 4
Employment Projections by Industry
Marion, Polk, and Yamhill Counties, 1998-2008

Industry	1998	2008	Change 1998-2008	Percent Change 1998-2008
Total Non-farm Payroll Employment	162,000	191,100	29,100	18.0%
Goods Producing	34,100	37,900	3,800	11.1%
Service Producing	127,900	153,200	25,300	19.8%
Manufacturing, Total	24,200	26,500	2,300	9.5%
Durable Goods	14,300	16,100	1,800	12.6%
Lumber & Wood Products	5,100	5,200	100	2.0%
Other Durable Goods	9,200	10,900	1,700	18.5%
Non-durable Goods	9,900	10,400	500	5.1%
Food Products	6,100	6,200	100	1.6%
Other Non-durable Goods	3,800	4,200	400	10.5%
Non-manufacturing total	137,800	164,600	26,800	19.4%
Mining & Quarrying	400	500	100	25.0%
Construction	9,500	10,900	1,400	14.7%
Trans., Comm., & Utilities	4,700	5,600	900	19.1%
Transportation	3,400	4,100	700	20.6%
Communications & Utilities	1,300	1,500	200	15.4%
Trade	34,500	41,300	6,800	19.7%
Wholesale Trade	5,200	6,300	1,100	27.5%
Retail Trade	29,300	35,000	5,700	19.5%
General Merchandise Stores	4,000	5,100	1,100	27.5%
Food Stores	4,800	5,600	800	16.7%
Eating & Drinking Places	10,800	12,900	2,100	19.4%
Other Retail Trade	9,700	11,400	1,700	17.5%
Finance, Insurance, Real Estate	7,800	8,800	1,000	12.8%
Services	39,200	50,900	11,470	29.8%
Business & Professional Services	7,600	10,500	2,900	38.2%
Health Services	11,700	13,900	2,200	18.8%
Other Services	19,900	26,500	6,600	33.2%
Government	41,700	46,600	4,900	11.8%
Federal	2,200	2,300	100	4.5%
State	19,200	20,800	1,600	8.3%
Local	20,300	23,500	3,200	15.8%

Source: Oregon Employment Department, 2000 Regional Economic Profile - Region 3, 1999.

LOCAL EMPLOYMENT GROWTH FORECAST

Employment growth is forecast for both Oregon and Marion County over the next 20 years. **Table 5** shows the forecast for covered employment in Hubbard for 2020. Hubbard's share of Marion County employment in 1995 was 1.1 percent. In 1999, this figure increased slightly to 1.2 percent. The local employment forecast is based on an assumption that this percentage will remain the same in 2020. The forecast also makes assumptions regarding the distribution of employment in Hubbard in 2020. These assumptions are based on projected trends for employment growth within the region and current information regarding proposed industrial development.

**Economics Element - Table 5
Forecast of Covered Employment
Hubbard, 2020**

	1995		1999		2020	
Marion County Total Employment	114,102		131,622		167,821	
Hubbard Share of Marion Co. Total	1.1%		1.2%		1.2%	
Sector	Percent	Total	Percent	Total	Percent	Total
Agriculture, Forestry, Fishing	31.6%	387	28.6%	450	29.0%	582
Construction	6.2%	76	15.6%	245	13.2%	265
Manufacturing	36.4%	446	24.5%	385	22.9%	462
Trans., Comm., Utilities	6.4%	78	8.1%	128	7.5%	151
Wholesale Trade	5.1%	62	5.8%	92	6.8%	137
Retail Trade	6.4%	79	6.5%	103	7.8%	158
Finance, Insurance, Real Estate	1.6%	19	4.3%	67	4.5%	90
Services	5.1%	62	5.3%	83	7.0%	141
Government	1.4%	17	1.3%	20	1.4%	28
Total	100.0%	1,226	100.0%	1,573	100.0%	2,014

Source: 1995, 1999 and 2020 Marion County employment forecast from the State of Oregon Office of Economic Analysis. 1995 and 1999 local employment distribution calculated by MWVCOG from Oregon Employment Department covered employment data. Local employment forecast for 2020 calculated by MWVCOG.

Covered employment includes only those workers covered under unemployment insurance. The data tends to underestimate total employment by excluding certain employees, such as business owners and some agricultural workers. Overall, covered employment accounts for only about 81 percent of all employment in Oregon. In **Table 6**, covered employment is converted to total employment using statewide conversion ratios. Total employment in Hubbard is forecast to reach 2,461 persons in 2020, an increase of 28 percent over 1999 total employment.

**Economics Element - Table 6
Total Employment
Hubbard, 1999 and 2020**

Sector	Wage & Salary Percentage Total	1999 Total	2020 Total	1999-2020 Growth
Agriculture, Forestry, Fishing	62%	621	803	29.3%
Construction	73%	311	337	8.2%
Manufacturing	94%	408	490	20.0%
Trans., Comm., Utilities	87%	145	171	18.0%
Wholesale Trade	94%	98	145	48.9%
Retail Trade	84%	119	183	53.4%
Finance, Insurance, Real Estate	60%	94	126	34.3%
Services	74%	105	178	69.9%
Government	100%	20	28	40.0%
Total		1,920	2,461	28.1%

Source: MWVCOG, 2001.

The City adopts the following goals and policies economic development:

Economic Development Goals and Policies

Goal: To provide for and maintain a viable and diverse economy while preserving the present sense of community and high level of environmental quality.

- Policies:**
1. The City of Hubbard shall encourage a wide variety of commercial activities in convenient and desirable locations to serve city residents.
 2. The City of Hubbard encourages the continuation of business within the City limits along the Highway 99E corridor.
 3. The City of Hubbard wishes to develop and maintain a central business area to serve the needs of the resident and the visitor. A specific area between Highway 99E and the railroad right-of-way will be designated for a mixture of commercial and secondary residential uses to provide housing and services within close proximity of each other.
 4. To achieve a commercial and industrial development pattern that is balanced with a moderate rate of overall economic growth, the City of Hubbard encourages the location of businesses within the community that create wages able to support a family.
 5. Commercial and industrial establishments should contribute to and not detract from the beauty of the community.
 6. The City of Hubbard supports the industrial park concept for the area on the southeast end of town to attract larger industrial based businesses to the community.
 7. The City of Hubbard shall encourage the development of economic activities that will provide jobs able to utilize the skills of the local labor force.
 8. The City of Hubbard will encourage economic development planning and programming activities that serve to stimulate private sector development.

9. The City of Hubbard shall cooperate with relevant federal, state, regional, and local government agencies in economic development planning for the area.

SECTION IX PARKS AND RECREATION PLAN

CITY PARKS

Rivenes City Park is located between 4th and 5th and D and E streets. The city park is fully developed with recreational facilities and is the home site of the annual Hubbard Hop Festival. Future plans include fencing and parking facilities as well as a link with the bicycle path system.

Barendse Park is located on the north end of 5th street. A baseball diamond, picnic area and rostrum are the existing facilities. Future plans include a link to the bicycle path system, fencing and parking area, bleachers and possibly a tennis court. As the city increases in population, additional recreational facilities will be needed. An area east of 99E is identified on the land use map by a dotted line and shaded green. This area will eventually be developed as a tot lot as development occurs in the area. The tot lot should also be connected to the bicycle path system and have access with paved foot paths through the neighborhood.

The bicycle path system is included in the Transportation Plan section. Pedestrian walks are necessary in the central business section and along the west side of 99E. As business and industrial units develop in the central part of the city, sidewalks should be required to provide a safe means of pedestrian access. With an emphasis on a mix of commercial and residential uses in the central area, the need for sidewalks and open spaces will increase. Multi-family units and commercial developments should be encouraged to provide for passive as well as active leisure time activities. Off street parking areas could also be developed with the open space need in mind.

Hubbard Mineral Springs Park is located along Mill Creek north of D street. The City of Hubbard would like the county to establish a park on the Mineral Springs property.

The Elementary School Site is located adjacent to and north of the Mineral Springs property. The school district acquired the property in anticipation of a need for an additional school site in the Hubbard area. The site would be ideal when used in conjunction with the Mineral Springs property, for joint recreational facilities.

Parks and Recreation Goal

Goal: To establish and preserve parks and recreational open spaces in and near the city for all to enjoy. To preserve and encourage the development of the scenic and natural resources as the area provides. To promote and encourage the Regional Parks Program, and the State Parks Programs.

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SECTION X ENERGY CONSERVATION

INTRODUCTION

The Comprehensive Plan and implementing ordinances have been developed with consideration for possible energy savings. The Land Use Plan was designed for a compact and energy efficient urban area. Since there are no developed sources of energy in the Hubbard area, the city is totally dependent on existing sources of energy.

LAND USE AND ZONING

The central portion of the city is designed and planned to allow a mixture of commercial and residential uses. It was felt that this mix would help reduce the need for the automobile trips for shopping and services. Pedestrian walkways and bicycle paths are designed to link the recreational and commercial areas together to facilitate alternatives to the use of the automobile.

Large lot zoning has been reduced to help develop a more compact urban design. Mobile home parks are designated to encourage a more compact arrangement of alternative housing types.

The industrially designated area was chosen because of its larger parcel sizes, access to existing transportation systems and proximity to the housing stock of the area. Home to work travel will be greatly reduced as more residents work locally rather than commuting to other work centers.

TRANSPORTATION

One mode of transportation that could reduce the use of the automobile is the mass transit system that serves the metro area of Portland. If and when such a system is extended into North Marion County, the city will provide transit facilities and encourage the use of such a system.

The rail system is another alternative that could be improved when the demand for additional service for basic commuter transportation could support system improvements.

HOUSING

Energy savings could also be realized in the heating and cooling systems of homes and businesses. Better insulation materials, improved design standards and stronger insulation requirements could reduce the overall energy consumption in the Hubbard area.

Alternatives to the fossil fuel systems should be encouraged. Demonstration projects such as solar, geothermal and wind systems could show considerable savings and conservation over conventional systems. Exceptions to codes and regulations may be needed in order to develop some special projects and should be considered on an individual basis.

Energy Conservation Goal

GOAL: To seek and encourage alternatives to the conventional sources of energy. To encourage all means and methods of conservation and reuse of recyclable materials. To encourage the development of the community in an orderly, compact, and efficient manner that is consistent with a comfortable, affordable and pleasant surrounding. To seek alternatives to the use of the automobile, and to encourage the development and use of mass transit systems.

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APPENDICES

- A. Urban Growth Program
- B. Resource Conservation and Development Study
- C. Review and Revision Procedures
- D. Intergovernmental Agreement

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URBAN GROWTH PROGRAM

INTRODUCTION

The city of Hubbard is currently faced with development pressures outside its present city limits, leaving areas within the city undeveloped. This sprawl type of development results in inefficient land uses, depressed property values unattractive lots, rising farm land prices, and increased public facilities costs. Future Problems arise when developed areas are annexed to the city and cannot be further developed to city standards. Odd parcel shapes, limited access, and large lot developments make further urbanization extremely costly. These problems indicate a need to coordinate city and county planning. To avoid conflicts, it is necessary that an overall development plan be formulated.

PURPOSE

The purpose of the Urban Growth Program is to establish guidelines for the orderly transition from rural to urban land use. The program, which is indicated by the Urban Growth Boundary, is a planning guideline to designate the future urban area of Hubbard. The Boundary will also indicate the areas in which city services such as water, sewer and storm drainage will be extended. The program is not intended to be an annexation plan. However, it does indicate where the city expects to grow.

DELINEATION OF THE BOUNDARY

The Urban Growth Boundary is shown on the attached map, and is part of the Urban Growth Program. To determine the boundary, several factors were considered:

1. The amount of land needed to accommodate expected growth and development of Hubbard, based on the "208 Water Quality Management" population projections to the year 2000.
2. The land use relationships such as transportation routes, existing development, land divisions, land capabilities and limits, and efficient urban services consistent with City and County plans.
3. The most cost effective areas for the extension of city utilities.
4. The avoidance of areas of physical limitations such as steep slopes, erosion and slippage areas, and areas that cannot be served by gravity sewer lines.
5. The desire to avoid including prime agricultural lands within the boundary when other lands are available.

The Urban Growth area that is delineated by the above factors is enclosed within the boundary line, shown on the Comprehensive Land Use Map.

CHARACTERISTICS OF THE AREA

- | | |
|-------------|--|
| Soils: | Consists mainly of dark rich loams of the Woodburn silty-loam class, Amity silt-loam, and Labish silt-clay along river and creek bottoms. Refer to Comprehensive Plan Soils Section. |
| Topography: | Other than the Mill Creek drainage way, on the west side of the boundary, the topography is flat varying some two to three feet overall. |

Physical Limitations: The Southern Pacific Railway dissects the city east and west, and presents a physical barrier to traffic and drainage. Highway 99E also divides the city east from west and presents a limited physical barrier to traffic and drainage. Because of the relative flatness of the eastern portion of the city, ground water and drainage problems present a physical limitation to development.

Acreage of the Boundary Area: There are approximately 500 acres within the Urban Growth Boundary, including the 350 acres within the corporate city limits.

Density and Population Projections: The amount of land within the boundary is more than sufficient to accommodate the projected population of 2300 by the year 2000. A 1975 survey indicated that approximately 264 of the land zoned for residential use was vacant, and 35% of the total land area was undeveloped. Overall density, using the 2300 population figure would be 4.6 persons per acre. Out of the 500 total acres, approximately 240 acres would be for residential uses, indicating 9.5 persons per residential acre, or slightly below the standard urban density of 10.5 persons per acre.

Population Projections

	1975	1980	1985	1990	1995	2000
1975 208 Plan	1470	1696	1975	2047	2183	2300
1973 MWVCOG	1590	2050	2650	3420	4350	5282

IMPLEMENTATION

The success of the Urban Growth Program will be dependent upon the proper implementation by coordination and cooperation of all involved governmental agencies. Continued application and review of the policies of this program will be necessary to obtain the desired objectives. The following policies are intended to give the necessary guidance to the decision-making bodies of the City of Hubbard and Marion County.

URBAN GROWTH PROGRAM POLICIES

1. Major annexations to the city should be discouraged until much of the city's buildable vacant lands are developed.
2. Since the city is the logical provider of urban services, development outside the city limits and within the Urban Growth Boundary should conform with city standards and requirements.
3. City services should not be extended to areas outside the city limits.
4. Developments which can be served by existing services or extensions of gravity-flow sewage system should be given priority in annexation requests.
5. The city should not seek additional annexation.
6. Developments which would require extensive city expenditures should be discouraged.

7. Zoning between the city limits and the Urban Growth Boundary should be reviewed by Marion County and the City of Hubbard to ensure the proper implementation of the Urban Growth Program.
8. The Urban Growth Boundary should not be changed until most of the land is developed or committed to development.
9. The city Planning Commission should develop specific criteria to be met when boundary changes are requested.
10. The areas immediately outside the Urban Growth Boundary should be maintained in a rural character by either zoning EFU or Acreage Residential.

SURFACE WATER MANAGEMENT
INVENTORY AND EVALUATION
FOR HUBBARD, OREGON AREA

Prepared By:
Gerald O. George
RC&D Engineer & Project Coordinator

USDA - SOIL CONSERVATION SERVICE

In Cooperation With
MARION SOIL AND WATER CONSERVATION DISTRICT

AND

MID-WILLAMETTE VALLEY RESOURCE CONSERVATION
AND DEVELOPMENT AREA

May 1977

Requested By: Hubbard City Council.

Assisted By: Marion Soil and Water Conservation District and Mid-Willamette Valley RC&D.

Location: Hubbard, Marion County, Oregon.

Situation:

The Hubbard City Council has requested the Marion Soil and Water Conservation District, the Marion County Commissioners, and the Mid-Willamette Valley RC&D Sponsors for assistance in preparing an inventory of surface water control and management for the proposed urban growth area of Hubbard,

Hubbard is completing a comprehensive plan to conform to Oregon Department of Land Conservation and Development Goals and Guidelines. The City Council needed the inventory of surface water runoff and methods of management to complete this comprehensive plan.

The Marion SWCD and the Soil Conservation Service have completed and published a general soils map and interpretive data for Marion County. A cooperative Soil Survey of Marion County was published in September 1972. A Soil Survey Interpretations for Land Use Planning and Community Development for the Hubbard Area, Oregon Inventory and Evaluation was completed in March 1975.

Surface water from excessive rainfall originates within the city limits, the Urban Growth Boundary, and the rural agricultural area to the south of the city. This water flows in a north and westerly direction into Little Bear Creek and Mill Crock. At present the water falling within the city is being carried in an abandoned sanitary sewer system which is highly inadequate. The water falling in the rural area is being carried in an open ditch to Little Bear Creek then into Mill Creek. This water crosses under US 99E through a 42-inch concrete culvert, under the SP railroad track in a 36 inch concrete culvert, under the Hubbard Woodburn road in a 24 inch culvert, and under J Street in a 36 inch culvert. These pipes are adequate for their runoff areas.

Hydrologic discharges were computed using Soil Conservation Service, Engineering Field Manual, Chapter 2, method as the contributing area is less than 2,000 acres. Technical Release 59, Soil Conservation Service was used to determine curve numbers and runoff factors. The soil series of the contributing areas are Amity, Willamette, Woodburn, Dayton, Cove, and Labish. The discharges are estimated as follows, (see attached map):

Location	Discharge Cubic Feet per Second (cfs)					
	2 yr	5 yr	10 yr	25 yr	50 yr	100 yr
E. of 99E & S. of J St.	9.5	13	16	19	22	22
W. of 99E E. of SPRR & S.of J St	17	24	29	35	40	40
W. of SPRR & S. of J St.	20	27	33	40	45	45
E. of 99E & N. of J St.	12	17	20	24	28	28
E. of SPRR & N. of J St.	18	25	30	38	42	42
E. of 5th St. N. of J St.	23	32	39	48	55	55
E. of 7th St. Alley and N. of J St.	28	38	47	57	65	65
W. of 7th St. Alley, S. of D. St. E. of Mill Creek	5	6	7	9	11	11
W. of 7th St, Alley, N. of D. St., E. of Mill Creek, S. of Alley, N. of A St.	4	5	6	7	9	9
NW Corner of Urban Growth and City Boundaries	9	12	15	18	21	21

The vegetation of the runoff area is lawns, grass seed crops, and pastures. Along the streams there are willows, cattails, blackberries, sedges, and other aquaphyles,

Sparrows, quail, pheasants, rabbits, doves, stray cats and other common wildlife types are found in the area.

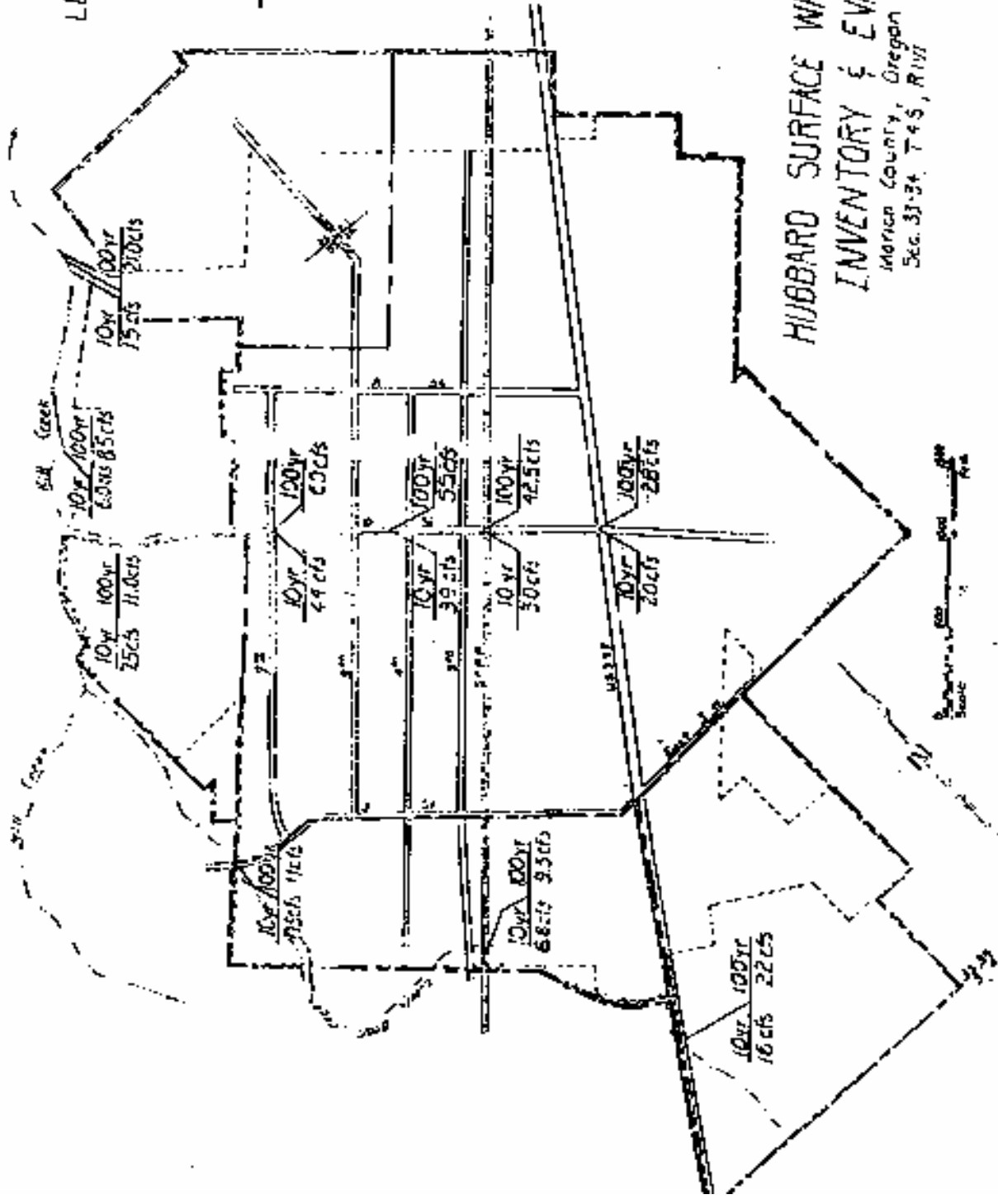
Surface water damages are limited to nuisances and puddling along the streets and on the lawns and yards. Runoff from streets and sidewalks carry oils, dirt, debris, and other pollutants. At present Hubbard has no treatment facilities for storm water runoff, it is discharged into Mill Creek as direct runoff.

Actions Needed:

1. Little Bear Creek and Mill Creek should be zoned as flood plains. The zoning should be carried up to the estimated 100 year flood plain or the Corps of Engineers Standard Project Flood which ever is larger.
2. Streets should be cut below the level of lawns and yards, then sloped to carry excess water to major drainage ways. With paving and curbs the streets could carry ten year frequency runoff in most instances.
3. Storm drains could be installed in the area north of J St.; West of the East City Boundary; South of the North City Boundary; East of the Alley between 4th and 5th St.; South of the Alley north of A St.; East of the Alley west of 7th St. Also, in the Northwest corner of the Urban Growth and City Boundaries. The Southeast area east of 99E and South of J St. will eventually require storm drains. The rest of Urban Growth Area could be protected by proper shaping and grading of lots and streets.
4. Contact a private engineering firm to complete a design and system layout and prepare a cost estimate for construction.
5. Contact Farmers Home Administration and Housing and Urban Development to determine if grants are available for construction of storm drain systems,
6. Require subdividers and developers to provide adequate drainage in new subdivisions.

LEGEND

- PRESENT CITY LIMITS
- URBAN GROWTH 20yr
- 10yr FREQUENCY IN YEARS
- 50cfs FLOW IN CUBIC FEET PER SECOND FOR GIVEN FREQUENCY
- PLUNGE AREA BOUNDARY



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4/19/77

Procedures For Adopting & Revising

Urban Area Comprehensive Plans

Section I. Definitions

A. Legislative Action

1. Adoption or revision of urban growth boundaries.
2. Adoption or revision of comprehensive plan maps, policies, goals or recommendation

B. Quasi-judicial Action

1. Zone/Plan changes
2. Amendments to the urban growth boundary and plan maps which affect less than 100 acres or less than five property owners

Section II. Who May Initiate Actions

A. Governing Body

1. Legislative
2. Quasi-judicial

B. Planning Commission

1. Legislative
2. Quasi-judicial

C. Property Owner

1. Quasi-judicial

Section III. Schedule For Periodic Review Of Urban Area Plans (see Exhibit A, attached)

Section IV. Procedures

A. County initiated plans and amendments

1. Marion County Planning Commission will review and forward a recommendation to the Board of Commissioners. A hearing is optional. In making its findings, the Commission will consider the recommendation of

the Advisory Committee and the affected city.

2. The Board of Commissioners will hold a public hearing. The hearing will be held jointly with the affected city.
3. No final decision shall be made until a recommendation is received from the city.
4. If the City and County disagree, a joint meeting may be held.

B. City initiated plans and amendments

1. The City, after holding public hearings and complying with all applicable State goals and guidelines shall adopt the plan or its amendment by Ordinance and forward a copy of said ordinance, along with all pertinent maps, to the county with a letter requesting a public hearing and the mutual adoption of said plan or amendments.
2. Upon receipt of the request, the Board shall refer the proposal and any related material to the Planning Commission for a review and critique of the program. The Planning Commission may note concerns or deficiencies in the program and make specific recommendations for approval or modification. The Commission will consider the recommendations of all affected Advisory Committees.
3. Following Planning Commission review, the county shall schedule a public hearing. The public hearing may be held jointly with the city.
4. The procedure for conducting the public hearing for the adoption of the proposed plan or its amendments shall include the following:
 - a. A representative of the city shall explain the program used to develop and implement the plan or amendment.
 - b. A representative of the Marion County Planning Department will present the County's concerns and recommendations as developed by the Marion County Planning Commission.
 - c. The hearing will be open to the public and any individual who wishes to speak on the proposal may do so personally or through a representative or an attorney.
5. Following the County's approval of a proposed boundary, supportive document, amendments, or plans the City and County shall enter into a joint agreement which adopts said plan or its amendments and identifies the responsibilities for the development and implementation of the plan. The City shall furnish the County, for the joint agreement, a metes and bounds description of the urban growth boundary if one is included.

HUBBARD URBAN GROWTH BOUNDARY

POLICY AGREEMENT

RECEIVED
JAN 4

MARION COUNTY
OF COMMISSIONERS

RESOLUTION NO. 1978-6

ADOPTION OF AN URBAN GROWTH BOUNDARY AND AUTHORIZATION
FOR THE MAYOR AND CITY RECORDER TO SIGN AN URBAN GROWTH
BOUNDARY AND POLICY AGREEMENT WITH MARION COUNTY.

WHEREAS, ORS 197 (Oregon Land Use Act) requires the mutual development and
adoption of Urban Growth Boundaries; and,

WHEREAS, Marion County and the City of Hubbard have mutually
agreed to an Urban Growth Boundary, now therefore, the City Council does resolve:

1. The Urban Growth Boundary is mutually adopted and attached as exhibit 'A'
to this Resolution, and
2. The Mayor and City Recorder are authorized to sign the Urban Growth Boundary
and Policy Agreement with Marion County, on behalf of the City of Hubbard

This Resolution passed and adopted on this 28th day of December, 1978.

Judith Bogle
City Recorder

Carl Lin...
Mayor, City of

Passed by the Council 12-28-78
Submitted to the Mayor 12-28-78

FILED IN THE OFFICE OF THE RECORDER

Approved 12-28-78
Attest: Judith Bogle

CERTIFICATE OF POSTING

I, Judith Bogle, City Recorder of the City of Hubbard, do hereby
certify that I posted three copies of Resolution No. 1978-6 in three
public and conspicuous places within the City of Hubbard, and that all
of said copies were posted by me on the 29th day of December, 1978.

Judith Bogle
City Recorder of the City of
Hubbard, Marion County, Oregon.

Exhibit A

