ENVIRONMENTAL QUALITY
&
NATURAL RESOURCES

INTRODUCTION

The quality of life in Marion County is directly related to the quality of the physical and natural environment. Marion County presently has relatively high quality air, water, and land resources. Man's relationship to and use of these key physical elements comprise the land use issues of environmental quality. In considering land use possibilities and alternatives, affect on the physical environment and natural resources is of significant importance. The goal of environmental quality planning in Marion County is: The property use and management of our air, land, and water resources to maintain our physical, social, and economic well-being.

The definition of land use includes the use of air and water. The land use relevance and impact on the quality of the environment are summarized in the following sections.

WATER QUALITY AND QUANTITY PLANNING

The Water Resources Element provides discussion and analysis of issues facing Marion County with regards to water supply, use, and quality. This chapter provides goals and policies for county decision-makers to employ when faced with matters relating to these issues. A separate Water Management Plan has been adopted as part of the county comprehensive land-use plan by reference; the goals and policies that follow are part of the overall guidance for county land-use decisions developed from the information presented in the Water Management Plan.

The comprehensive plan included a section regarding water quality planning when it was originally adopted. The goals and policies that follow replace that comprehensive plan section.

Additionally, the county Board of Commissioners adopted a “Groundwater Resources” section to the plan in 1997. That adoption also included background documentation and a zoning ordinance chapter, the “Sensitive Groundwater Overlay zone.” The goals and policies from that adoption are included here unchanged except a goal and two policies regarding education are moved to a different section for continuity. Appendix GW in the Water Management Plan replaces the background document previously adopted.

WATER RESOURCES PLANNING

Although Marion County’s location in the maritime northwest means abundant rainfall, the demand for water could result in a deficiency of the resource. With growth of the population, irrigated agriculture, and industry, demand for consumptive use of water has and will continue to increase. At the same time, increasing use of the resource by recreation and the need to maintain or enhance fish habitat argues for less consumption. The increased human activity in the county heightens the risk that the resource will be polluted.

Due to of these competing demands on water and the agencies that manage it, sound planning is needed. Marion County has little direct influence over managing water use, as that authority resides at the state and federal level, but land-use decisions at the county level can have an affect on the issues of water supply and quality. Particularly relating to groundwater, gaps in state authority can result in unsustainable use of the resource, and county land-use decisions can

aggravate the situation if the issue is not addressed. Because the groundwater supply issue is of particular concern, a separate section of this plan is devoted to it.

Marion County recognizes the need for water management planning at the county level. Based on this recognition, the Board of Commissioners appointed a Water Management Advisory Council to develop, among other things, a water management plan. The Council developed the plan, and it is incorporated into the county Comprehensive Land Use Plan by reference. Based on consideration of the myriad issues discussed and analyzed in the water management plan, the county developed a set of goals and policies to help guide decision-making with the sustainability of a clean water supply in mind. Marion County recognizes the goals and policies do not and cannot address every issue confronting the county, and therefore is committed to continue working on and updating the water management plan.

GOAL A: To efficiently utilize the water resources of and for Marion County while maintaining good quality water for public water supplies, propagation of wildlife, fish and aquatic life, and for domestic, agricultural, industrial, commercial, municipal, recreation and other beneficial uses.

Policies

1. The county shall consider the physical capacity of the land and water to accommodate land uses when planning for the location, type and density of rural development.

2. Maintain rural densities of 1.5 to 3 acres per dwelling in rural residential areas to minimize potential groundwater pollution from septic tank use. Even lower densities should be required when soil limitations show more than the usual limitations for septic tank systems.

3. In areas experiencing proven water pollution from septic tanks or inadequate water supply, encourage the provision of alternative individual treatment system or water systems to overcome health hazards or to provide a greater margin of public safety in allowable developments.

4. Minimize soil erosion and sedimentation by encouraging soil conservation techniques. Educational programs and technical assistance should be provided in voluntary erosion abatement.

5. The County Health Department should conduct sanitary surveys in areas of concentrated rural development to determine present or potential septic tank pollution problems.

6. Residential, commercial and industrial development should be encouraged to be designed or located in a manner to maintain an acceptable impact on water quality.

7. Marion County shall cooperate with watershed councils and the Marion Soil and Water Conservation District to promote watershed management practices that protect and enhance water quality and quantity.

8. Water resources used as municipal water supplies shall be protected by encouraging the strict enforcement by the State Department of Forestry of the State Forest Practices Act.

9. Small watersheds that are water sources for municipalities shall be identified, and coordination requirements defined, in intergovernmental agreements if the city determines that special protective measures are needed for the watershed. When municipalities have identified particular needs and methods for protecting their watersheds, the county shall consider including such measures within the Marion County Comprehensive Plan.

10. Encourage water quality testing of rural residential wells through a public information program.

11. Improve maintenance and use of residential and industrial septic systems by:

    a. encouraging proper operation and maintenance of septic systems,
    b. encouraging water conservation to reduce waste loading, and
    c. educating users about chemical additives, particularly those containing chlorinated organic solvents, that are sold to improve septic system and drain field operation.

12. Marion County recognizes the risk to maintenance of good quality groundwater from improperly abandoned wells and encourages proper abandonment of unused wells.

13. Participate in cooperative water quality planning through such agencies as the Oregon Water Resources Department, Oregon Department of Fish and Wildlife, Department of Environmental Quality, Natural Resources Conservation Service, Army Corps of Engineers, U.S. Bureau of Reclamation, and U.S. Geologic Survey.

14. Encourage water providers to share delivery systems and supply sources within urban growth boundaries.

15. Encourage construction of wells for municipal water use only within urban growth boundaries to minimize impacts of wellhead protection areas on other land uses.

GOAL B: To ensure all standards and regulations applicable to waters in Marion County are coordinated.

Policies

1. Marion County shall coordinate with state and federal agencies to help ensure the waters of the county comply with applicable state and federal water quality standards.

2. Marion County shall, to the extent financially and practically possible, support water quality or quality management plans and programs of federal, state and regional agencies.

In regulating land use, the County shall encourage conservation of water resources, improved treatment of point sources of pollution and the control of non-point sources of pollution.

3. Encourage DEQ to expand their monitoring program and increase sample areas to determine locations approaching or exceeding drinking water standards. Impacts from domestic sewage outfalls should be assessed to identify any possible hazards.

4. Marion County shall cooperate with municipal and other public water service providers in development and implementation of wellhead protection programs consistent with state water quality and land-use requirements.

5. Discourage sale of treated water and/or extending service from municipal facilities to areas outside urban growth boundaries.

GOAL C: To strive for an adequate quantity of water for beneficial uses within the County.

Policies

1. Evaluation of demand for water shall include, but not be limited to, the following potential beneficial uses in no particular order: domestic, municipal, agriculture, streamflow augmentation, industrial, commercial, livestock, hydroelectric, mining, and recreation.

2. Encourage the Army Corps of Engineers and U.S. Bureau of Reclamation to include Marion County's future water needs in the Willamette Project Reservoir Study.

3. Encourage increasing streamflows through flow augmentation and water exchanges.

4. Discourage transfers of agricultural water rights used on irrigable lands zoned for farm use to other lands for non-agricultural use.

GOAL D: To educate property owners about the importance of the use of their property to water quality and quantity.

Policies

1. The Planning Division of the county may develop and maintain a library of information regarding water conservation, water quality protection, and water laws for public use.

2. Marion County shall refer land-use applicants to sources of information regarding water conservation, water quality protection, and water rights early in the development review process.
3. Encourage individual water conservation practices to hold water demands to a minimum through a public information program.

GROUNDWATER RESOURCES

Groundwater is water naturally stored below ground surface, in broken rock, gravel, or other permeable material. Marion County is comprised of parts of several geologic formations. The aquifers in these formations yield various quantities of water, and recharge at different rates. Many types of land uses depend on groundwater, including agriculture, cities, and individual residences.

In order to insure a continued supply of water to this variety of uses, Marion County needs reliable, current information regarding groundwater resources. Sources of this information are not abundant, but the county needs to obtain or generate sufficient data on which to base land use decisions that affect, or are affected by, groundwater supply in order to avert overdraft and land use conflicts.

The groundwater section of the comprehensive plan Background and Inventory Report identifies two geologic formations, Columbia River Basalts and marine sediments, where groundwater quantity is of concern. The policies of this Comprehensive Plan provide a framework to protect the groundwater resources of these and other aquifers from unsustainable levels of use.

Areas designated as "Groundwater Limited Areas" by the Oregon Water Resources Commission are significant Goal 5 resources, pursuant to Oregon Administrative Rules Section 660-23-140. Three designated Groundwater Limited Areas cover portions of Marion County. The geology of these areas is composed predominantly of Columbia River Basalts. The state Water Resources Department administers regulations on the use of waters of the state, but does not require a permit for certain uses of water ("exempt uses"). The Groundwater Limited Area designation does not limit exempt uses. The most common exempt use is domestic, and portions of the Groundwater Limited Areas are zoned for rural residential use.

Because adequate information regarding groundwater occurrence and sustainability is lacking, the best strategy for the county is to require an applicant for a development to provide information that the proposed use will not result in a detrimental impact on the long-term sustainability of the groundwater resource. Although the county needs the best possible information regarding groundwater resources in order to make informed land use decisions, due to variability of subsurface conditions and the uncertainty of even the best estimates of availability, the county cannot ensure that a particular parcel or development will find an adequate water supply.

GOAL A: To generate adequate information regarding groundwater resources to use when making land-use decisions.

Policies

1. Marion County should develop and implement a well-monitoring program in order to collect information regarding well location, water quality, water levels, and changes in aquifers. The program should be coordinated with the Oregon Water Resources Department and include monitoring sites in all areas of the county.

2. Any well-monitoring program implemented by the county should include objective criteria to determine when the developer of a new groundwater-dependent land use that needs approval by the county shall be required to make one or more wells available for the county to monitor.

GOAL B: To maintain sustainable yields of water from aquifers and minimize conflicts between land uses and water resources in the county.

Policies

1. Marion County shall develop and implement a program to review applications for new land uses that use water which is exempt from permitting requirements through the Oregon Department of Water Resources. This review shall assess whether the proposed use is likely to adversely affect the sustainability of aquifer production.

2. Marion County shall coordinate with the Oregon Water Resources Department to help ensure that adequate information is submitted by applicants for new groundwater rights to determine whether the proposed consumption will exceed the sustainable yield of the aquifer or interfere with other wells in the area.

3. Any land use/groundwater conflict risk assessment and mitigation program implemented by the county should prioritize areas where the risk of groundwater level draw down has been documented through groundwater monitoring.

4. Marion County's groundwater management goals and policies shall be accomplished through land-use planning and permitting actions that are compatible with state water law and policy.

5. Marion County should consider the role of aquifer recharge areas in implementing measures to protect groundwater quality or aquifer yield sustainability.

6. Marion County shall cooperate and coordinate with federal, state, and local agencies in assuring maximum beneficial use of all waters within the county.

7. Marion County may assist in the development and use of alternative water sources in lieu of groundwater where feasible, including augmentation with stored water.

8. Marion County should promote efficient use of water and conservation through the land-use permitting process and other county actions.

9. Marion County may coordinate its information gathering activities with water purveyors, and make land-use decisions in a manner consistent with the ability of affected water purveyors to provide adequate services to their customers.

AIR QUALITY PLANNING

To comply with the Federal Environmental Protection Agency, Oregon submitted its Clean Air Act Implementation Plan for review and received approval on May 31, 1972. The federal government requires states to establish air quality standards to protect "public health". The Oregon Clean Air Act goes a step further, however, in an effort to provide for the "public welfare" and prevents pollution problems form occurring.

Air quality is monitored throughout the Sate of Oregon and standards are enforced on a regional basis. The Salem-Northcoast Regional office of the Department of Environmental Quality has jurisdiction over Marion County.

Marion County is located in the Willamette Valley air shed. The valley is approximately 125 miles LONG (N-S) and 30 miles wide (E-W). It is bordered on the east by the Cascade Mountain Range that has an average height of 5,500 feet and on the west by the Coast Range which reaches an average height of 3,400 feet. The valley is closed off in the north and south as the two ranges come together. Prevailing wind direction is from the southwest in winter and from the north in summer. Because of these geologic features, pollution generated in the valley becomes trapped. Pollution from industry and automobile emissions in the metropolitan areas and from field burning, slash burning, and other agricultural practices in rural areas combine in the atmosphere and are dispersed the entire length of the valley.

Natural ventilation is limited primarily to two breaks along the Columbia River. There are several smaller breaks along the coast range where air may "leak: over the rims of surrounding mountains from the west. During periods of atmospheric stagnation, normally during late summer and early fall, warm temperatures virtually form a lid over the valley trapping pollution at low elevations. This pollution would normally disperse at higher elevations or be vented out of the area by the wind.

Because of the high air pollution potential of most of Marion County, land use designations must consider affects upon air quality. Since most of the air pollution problems are caused by automobiles, industry, and agricultural burning, land use control policies should be developed to minimize pollution problems.

The use of automobiles is a major source of pollution, especially in the urban areas. As indicated in the transportation section, excess use of the automobile should be discouraged. The manner of land use development can have a significant effect on the need to use the automobile. More compact urban designs and proximity of jobs and services to residences are examples of land use issues that can limit automobile pollution.
Industrial air pollution is less significant in Marion County due to the lack of amount and type of industry. The location and type of industry can be controlled through land use restrictions, which provide the primary mechanism for considering potential effects on air quality.

Probably the most pronounced problem with air quality in Marion County occurs from burning grass seed production waste and forest management waste. These are agricultural and forest management practices that are performed in late summer and early fall at the same time as stagnant air and temperature inversion characteristics occur. These weather conditions magnify

air pollution conditions of the smoke producing activities. This smoke tends to concentrate in areas of high population density causing discomfort and complaints.

This creates a major conflict between the interests of maintaining air quality standards and the important agricultural and timber industries. Since the majority of land in Marion County is utilized for agricultural and forestry activities, this conflict has significant land use implications. It is the intent of Marion County to encourage agriculture and timber production on rural lands that is in harmony with the need for clean air. The County therefore encourages development of a solution to the field and slash burning problems that would maintain agricultural and timber production while also improving air quality throughout the County.

It is the policy of Marion County to comply with applicable state and federal air quality standards.

SEWAGE SLUDGE DISPOSAL

The by-product of treating wastewater or sewage is accumulation of organic solids. When sewage is processed in a treatment facility, the process involves removal of waste solids from the sewage water. The purified water is returned to rivers and the solids or sludge remains. The disposal of sludge is usually accomplished by either taking it to a landfill or by spreading it on agricultural lands as an organic fertilizer and soil conditioner. The use of sludge can be beneficial to agricultural land, making it more productive. It contains significant quantities of nitrogen and phosphorus plus the humus material that can improve the quality of farmland.

The use of sludge as an agricultural fertilizer has its limitations since its over-application can be a threat to land and water quality. Improper use can result in harmful accumulations of nitrogen and heavy metals. Because of these problems, each application of sludge is reviewed by the State Department of Environmental Quality on an individual site basis. The main concerns involve disposal of the sewage sludge in an environmentally safe way.

There presently are six cities in Marion County that produce sludge that must be disposed of. Five of these cities dispose of their sludge by land application while one city deposits it in a landfill. Only the cities of Salem and Woodburn produce sufficient quantities of sludge to present a disposal problem. The master sewage plan produced by the Council of Governments describes each city's sludge disposal program, makes projections of future sludge production, and suggests sludge, management programs.

The disposal of sludge in a landfill constitutes a solid waste disposal site such as a sanitary landfill for garbage. The concerns with this type of operation are both land use compatibility, environmental degradation and water quality control. A County conditional use permit, as well as State DEQ permit, is required for establishment of a disposal site.

Marion County recognizes the potential beneficial aspect of agricultural application of limited amounts of sewage sludge. The use of sludge in a beneficial manner can and should be controlled by the State Department of Environmental Quality. Disposal of unlimited quantities of sewage sludge becomes a disposal problem of a different level. The dumping of large quantities of sludge in one location creates potential land use, health, productivity and water

quality problems. This type of disposal should be treated at a solid waste disposal site with a conditional use review by the County Planning Commission and State DEQ permit.

The County policies relating to sewage sludge are as follows:

1. Encourage the beneficial agricultural application of sewage sludge in limited amounts according to State DEQ standards.

2. Control the landfill or concentrated site application of sludge by conditional use review with a public hearing, contingent upon the granting of, and compliance with, a DEQ permit.

3. Require monitoring of sludge disposal sites for possible problems.

4. Specify in the zone code the difference between beneficial use sites and landfill sites. Establish separate review processes for each type of technique.

SOLID WASTE DISPOSAL

Solid Waste management involves collection and disposal of various solid waste materials such as household, commercial, and industrial garbage. There are 15 franchised collection areas in Marion County where commercial haulers pick up the solid waste and deposit it in several landfill sites. There are three of these sites in operation in Marion County at Browns Island, McCoy Creek and Woodburn.

Because of the landfill method of disposing of solid waste, concerns have arisen for land and water quality at these sites. In addition, with rising costs of energy and raw material, solid waste recycling has become a significant issue.

These issues and concerns for solid waste management have resulted in the formation of a five-county regional solid waste management organization called the Chemeketa Region. The organization includes the counties of Marion, Polk, Yamhill, Benton, and Linn, and several cities. A Solid Waste Management Plan was developed in 1974 by the Chemeketa Region intended to result in a regional effort to handle solid waste. Marion County has adopted the program and is taking steps to implement it.

The goal of the solid waste program is to meet the needs for safe, efficient, and sanitary storage, collection, transportation, and disposal of solid waste, and to increase, to the maximum, salvage reclamation and reuse of materials from solid waste.

The Chemeketa Plan indicates a continuation of present landfill operations with a long term move to recovery of values. The Plan emphasizes the establishment of a recovery center in the south Salem area with transfer stations throughout the County. The recycling of wastes would still result in some landfill needs that are proposed for the Browns Island site. This site is presently serving Marion County and portions of Polk and Linn Counties.

There are environmental conditions at the Browns Island site that will cause its closer in 1983, four years after the 1979 date given in the Chemeketa Plan. The various disposal alternatives will need to be evaluated and a new disposal facility developed by the time the landfill is closed.

Siting solid waste disposal facilities is a significant land use issue. Land use compatibility and environmental, and economic impacts as well as public acceptance must be considered. Specific site criteria for any new facility should be developed and utilized in any site search.

FISH AND WILDLIFE HABITAT

The discussion of fish and wildlife habitat issues is included in the Background and Inventory Report. It emphasizes that continued production of fish and wildlife is directly dependent on the quality of the natural environment. With awareness of the environmental needs of fish and wildlife, care can be exercised in reviewing developments in rural areas of Marion County which will remain in agriculture and forestry uses, thereby achieving most of the protection needs of this habitat.

The important fish and wildlife habitat areas of Marion County as identified by the Sate Fish and Wildlife Department are identified on the Wildlife Habitat Map. The Marion County goals and policies in regard to protecting fish and wildlife habitat are:

GOALS

Protect fish and wildlife habitat, maintain optimal ecological balance and protect endangered species.

POLICIES

1. New roads requiring County approval shall be located to avoid identified habitat areas whenever possible. Bridges, roads and access rights-of-way should be designed to avoid restriction of channel capacity and minimize removal of shoreline vegetation.

2. Developments should retain vegetation along streams, lakes, reservoirs (and fence-rows) to provide for shelter, shade, food and nesting.

3. To maintain stream quality and protect sensitive waterfowl areas, land uses that require drainage, excessive removal of riparian vegetation, alteration of stream banks and filling shall be discouraged in these locations.

4. Conflicts with wildlife (especially big game) shall be considered in land development. Development adjacent to streams, sensitive waterfowl areas and critical wildlife areas shall incorporate adequate setbacks and buffer zones.

5. Development density shall be controlled so that significant wildlife habitat will not be adversely affected in the County's resource zones. The standards for dwelling density in big game habitat, as identified on the habitat maps, shall be: 1 dwelling unit/80 acres in major habitat; 1 dwelling unit/40 acres in peripheral habitat. If dwellings are clustered within 200 feet of each other these densities may be doubled.

6. Off-road vehicle use should be controlled and seasonal roads should be closed to reduce harassment to big game animals during stress periods of winter and early spring.

7. Marion County will encourage the continuance or development of stocking programs for fish and wildlife in suitable habitat.

8. Marion County will cooperate with local, state and federal agencies to identify, conserve and protect fish and wildlife habitat and in implementation measures for the protection of such areas.

9. Native plant species, wetlands and streambank vegetation on County managed public lands shall be protected.

MINERAL AND ROCK RESOURCES

Statewide Planning Goal 5 and the Comprehensive Plan recognize the importance of mineral and aggregate resources. Under both the Marion County Comprehensive Plan and Statewide Goal 5, mineral and aggregate resources are given special protection because of their importance to a healthy and growing economy and in some areas because of their limited availability, their site specific locational characteristics, and their nonrenewable nature. A discussion of the mineral and rock resources in Marion County is included in the Background and Inventory Report.

Compliance with Statewide Goal 5

The Land Conservation and Development Commission (LCDC) adopted revised rules implementing Goal 5, effective September 1, 1996 (Oregon Administrative Rules Chapter 660, Division 23). The provisions of these rules must be applied directly by jurisdictions that did not have their comprehensive plan acknowledged by LCDC as consistent with Goal 5 after 1989 (including Marion County). In order to achieve compliance with the rule, Marion County included a work task in its periodic review work program specifying the steps and timing of adoption of plan and ordinance amendments. The county must, however, continue to apply the Goal 5 rule directly until the work task is complete.

The Marion County Rural Zoning Ordinance included provisions regarding mineral and aggregate mining operational requirements prior to adoption of the new rule. The ordinance does not contain criteria regarding whether a particular site should be used for mining or for conflicting use mitigation.

This plan includes significant, potential and other sites aggregate inventories in Addendum A. These inventories have been adopted as part of the plan. The inventories remain intact and may be amended according to the procedures specified in the policies of this section.

Goal

To plan for and protect mineral and aggregate resources for future use.

Policies

Marion County shall:

1. Administer Oregon Administrative Rule 660-23-180 by employing the provisions of the rule directly (without a local implementing ordinance), except for the standards in Section 120.400 of the Rural Zoning Ordinance, in consideration of applications for new or expanded resource sites.

2. Complete comprehensive plan and ordinance amendments to implement Oregon Administrative Rule 660-23-180, as specified in the county's approved periodic review work program.

NATURAL AREAS

Ecologically and scientifically significant Natural Areas contain components that are unique to that area and location and cannot be relocated. It is the objective of the State and County to preserve and protect sections of these ecologically diverse components before they are forever lost or altered. The Oregon Nature Conservancy, under contract with the Land Conservation and Development Commission, prepared a data summary of Natural Areas in Marion County. The inventory includes all areas noted for their natural values, whether or not they have been fully verified or evaluated. A total of 31 sites were identified by Minto Island was deleted because it is covered in the Salem Area Comprehensive Plan. Mckinney Bottom Heronry and Talbot Heronry were also omitted because they are located in Linn County. The identified natural areas that primarily are significant because of their value as natural habitat are discussed below. The remaining areas identified by the Nature Conservancy that predominately have a scenic or recreational character are discussed in the Parks and Recreation Section.

A general location of the Natural Areas is shown on the Wildlife Habitat Map in the Comprehensive Plan. Detailed maps illustrating the extent of these areas and the properties involved are appended to the Background and Inventory Report.

1. Candiani Island - Candiani Island is a 40 acre island in the Willamette River approximately four miles west of St. Paul. The island is essentially composed of three district vegetation communities. In one of these, a stand of tall cottonwoods, lies a great blue heron rookery. Another is a small slough with wapato, a species of concern. Candiani Island is a peaceful place little touched by human activity.

   The older upstream portion of the island is occupied primarily by cottonwood with canary grass in small amounts of nettle and nightshade grading into ash and willow along the stream banks. This area is a nesting habitat for 50 pair of great blue heron and a few raptors. The slough on the east side of the island, which is nearly dry by late August, sustains willow and canary grass, with wapato and knotweed in wetter areas.

2. Independence Bend - This habitat area is northeast of Independence and consists of a wooded area along the Willamette River that is 1.5 miles long and consists of 60 to 75 acres. It is a wintering area for geese in addition to being a great blue heron rookery.

3. Ankeny Osprey Nest - This American Osprey habitat area is located four miles downstream from Buena Vista and is adjacent to the Ankeny National Wildlife Refuge. The trees near the river are valuable for shelter and nesting.

4. Ankeny National Wildlife Refuge - This 2,750 acre refuge is within the Willamette River flood plain east of Buena Vista. It also includes the Ankeny Bottom waterfowl wintering area identified by Nature Conservancy. This important habitat is owned and managed by U.S. Fish and Wildlife Service. Waterfowl and birds of prey are among the major types of wildlife protected by this refuge.

5. Tyson Island - This Willamette River island of approximately 50 acres is situated 2.5 miles south of the Independence Bridge. The eastern half of the island is under cultivation and the riparian vegetation on the west side of the island provides excellent habitat for a great blue heron rookery and birds of prey. The western half of the island appears to be publicly owned.

6. Stout Mountain Rattlesnake Dens - Stout Mountain is located two miles west of Mehama and one mile north of Highway 22. The dens are considered by the Nature Conservancy to be among the best traditional rattlesnake dens in the Willamette Valley.

7. Little North Fork and North Santiam Rivers Confluence - This area consists of riparian habitat that is located between the two rivers.

8. North Santiam River Flood Plain - This area situated between Stayton and Jefferson contains numerous old stream channels and oxbow lakes. Riparian vegetation and habitat is abundant and relatively untouched and surrounded by farmland.

9. Giesy Mineral Springs - These springs are located 1.5 miles west of Aurora, north of the intersection of Boones Ferry Road and Donald Road.

10. Breitenbush Hot Springs- These springs are situated near the Breitenbush Lodge, on private land, approximately 10 miles northeast of Detroit. Band-tailed pigeons are found in the vicinity of the springs.

Candiani Island, Independence Bend, Ankeny Osprey Nest and Tyson Island (#1, 2, 3, and 5) are currently regulated by the County with the EFU (EXCLUSIVE FARM USE) zone, the Willamette River Greenway Overlay Zone and the County Floodplain Ordinance. The EFU zone and the Floodplain Ordinance both act to limit the intensity and type of development in the area. It is unlikely that any permitted or conditional use could be allowed that would have a detrimental impact upon these natural areas. In addition, the Greenway Ordinance contains provisions for the protection of habitat areas along the river and gives the County and several State agencies review authority over stream bank and vegetation alterations. As a result, these areas are adequately protected and no additional regulation or protective mechanism needs to be established.

The Ankeny National Wildlife Refuge (#4) is adequately protected by the U.S. Fish and Wildlife Service. Also, the EFU zone that applies to the refuge and the surrounding areas provides an additional safeguard in terms of incompatible uses located nearby.

The Stout Mountain Rattlesnake Dens (#6) are primarily protected from incompatible uses by the EFU zone. The dens are located in an area of poor agricultural soil and rock outcroppings and therefore farming activity in and around the dens is not feasible. The dens are adequately safeguarded by the zoning, the soils and terrain and the nature of the animal.

The confluence of the Little North Fork of the North Santiam River (#7) are basically protected by the EFU and TC zones and the County Floodplain Ordinance. A small potion of the confluence of the rivers is zoned AR (ACREAGE RESIDENTIAL) but a cliff effectively separates potential and existing homesites from the habitat area. The Forest Practices Act would cover any large scale timber harvest and sale, thereby maintaining the integrity of the river bank vegetation. These three regulations should effectively protect these habitat areas.

Giesy Mineral Springs and Breitenbush Hot Springs (#9, 10) are zoned EFU and P (PUBLIC) respectively and are both in private ownership. A resort including a lodge and cabins has been near the hot springs since the 1920's. It is not apparent from the Nature Conservancy inventory that any measures need to be taken beyond the existing zoning control and review to protect the springs and the pigeons. Since the established uses of the springs do not appear to have effected their value as natural areas, no additional protection is necessary.

Natural Area Policies

1. When land use changes are proposed in the vicinity of identified natural areas, possible conflicts shall be identified and evaluated as to their social, economic, environmental and energy consequences. Significant conflicts shall be resolved in accordance with state land use Goal 5 requirements.

2. As new natural areas are proposed they will be reviewed and if determined to be ecologically and scientifically significant shall be protected in accordance with Goal 5 requirements prior to the next Plan update.

NOISE IMPACTS

Exposure to excessive noise levels over prolonged periods can be a threat to health. Noise pollution is not a pervasive problem in rural Marion County but excessive noise from certain industries, from highly traveled roads or airports could reduce the livability of nearby dwellings. Through noise level regulations adopted by the Department of Environmental Quality, specific noise standards have been established for motor vehicles, industrial and commercial noise sources, motor racing facilities and a rule to control airport related noise. Much of their program attempts to achieve control over excessive noise by controlling the sources. Despite these controls residences close to a heavily traveled road could be adversely affected. For example, 50 feet from a dwelling the sound level of a single new accelerating automobile is about 80 decibels.

How often loud noises occur is a factor in how it affects people. During the daytime it is common to experience numerous loud noises for short periods. These same noises, if they occur at night, would not only waken someone but, if frequently enough, would prevent them from getting back to sleep.

The DEQ defined excessive noise in its rules for industrial and commercial noise sources for two different times of the day. From 7:00 a.m. to 10:00 pm., noises above 55 decibels will disturb normal conversation and are considered potentially harmful. Between the hours of 10:00 p.m. and 7:00 a.m. sounds above 45 decibels inside a dwelling disturb sleep.

Outside noise measured inside a building is 10 decibels lower with the windows open and 20 decibels lower with the windows closed. This means that if outside sound levels do not exceed 55 dBa the ability to converse in outdoor areas and the ability to sleep in a building would be protected. Although DEQ sound controls are achieving a reduction in noise, there are instances where excessive noise is a problem. New dwellings located in close proximity to the noise source can be adversely affected. In addition to DEQ controls, it is necessary for the County to consider noise impacts when approving development near certain sources. These sources are:

Highway 99E: This State Highway traverses Marion County in a north-south direction passing through Jefferson, Salem, Gervais, Woodburn, Hubbard and some smaller rural communities. Over the years commercial and residential uses were established along the road but the majority of land along 99E between the cities is zoned for agricultural use. The only possible concentration of new residential development along the highway could occur in the designated rural residential areas southeast of Salem.

Santiam Highway: This roadway extends easterly from Salem. It is a main transportation corridor through the Cascades to central Oregon. Most of the highway passes through areas zoned for agriculture and timber uses. These areas will experience minimal development in the future and the noise impact from the highway on these areas will also be minimal. Directly east of Salem several residential developments have been established which allow additional residential development on lands near the highway.

I-5 Freeway: The opening of I-5 greatly changed the routing of traffic through Marion County. Except at interchanges and through cities such as Woodburn and Salem, little development has taken place near the freeway, However, there are a few places where impacts could occur, the most notable being an areas south of the City of Salem designated for rural residential development.

Aurora Airport: The Aurora Airport, located in north Marion County is the only pubic airport outside of an urban growth boundary. Its use is projected to increase so the noise impacts can be expected to become more significant.

The airport property and the lands adjacent to it on the east are zoned for public use with two exceptions. The remainder of property in the airport area is zoned EFU (EXCLUSIVE FARM USE) and will experience minimal development.

The Airport Overlay Zone further limits development in the airport area and provides a good base from which to implement setbacks and buffering. The Aurora Airport Master Plan, previously reviewed by DEQ, defines a 1995 NEF 20 contour line that will be used by the County to define the noise impact area around the airport.

Industrial: All industrial development in Marion County must meet DEQ regulations. Their regulations are sufficient to provide adequate noise protection for surrounding areas.

Commercial: The only commercial use that has been identified is the Woodburn Drag Strip. This facility is located about 2.5 miles west of the City of Woodburn and is surrounded by farms and some existing residential uses. Complaints from nearby residents indicate that noise is a serious problem. Racing rules will mitigate noise impacts to a limited extent but existing residents will continue to be impacted during motor racing events. Except for the possibility of new farm dwellings near the strip, the farm zone and related regulations applied to surrounding land will adequately control new noise conflicts.

NOISE POLICY

1. Residential uses or other noise-sensitive uses proposed in the vicinity of Highway 99, Highway 22, Interstate 5, the Woodburn Drag Strip and public airports shall be reviewed to determine if the residents will be adversely affected by these noise sources. The County should seek comment from DEQ when resolving noise conflicts.

2. If other significant noise sources are identified, Marion County shall amend the Comprehensive Plan to designate the source and provide adequate protection for nearby lands.

3. All developments that are noise sources shall comply with applicable DEQ standards. When new major highways, airports, racing facilities and commercial and industrial developments are proposed, the County shall consult with DEQ to ensure that applicable sound regulations are satisfied.

4. When siting noise sensitive land uses near the sources identified in Policy #1 above, the objective should be to provide some outdoor living area with a daytime dBa of 55 or less and indoor sleeping areas with a nighttime dBa of 45 or less.

5. Setbacks, building orientation, soundproof construction, barriers and other feasible means shall be considered in attempting to mitigate noise impacts.