

GLENN COUNTY GENERAL PLAN

VOLUME II - ISSUES

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SECTION 1 - NATURAL RESOURCES ISSUE PAPER

1.0 INTRODUCTION

The Natural Resources Issue Paper is one of three papers prepared to assist in the formulation of an updated Glenn County General Plan. The other two papers are the Public Safety Issue Paper and the Community Development Issue Paper. Originally published separately as draft documents, the three papers have now been updated and bound into a single volume (Volume II). Each paper focuses on several topics which have been identified for discussion in the General Plan. Topics were suggested either by participants in the process or are identified by the State General Plan Guidelines as matters which must be addressed.

The Natural Resources Issue Paper focuses on attributes which are related to the physical environment of Glenn County. Included are agriculture and soils, water, biology, timber, minerals and energy, and cultural resources. The focus is on the non-urban parts of Glenn County and on programs and ways to retain, enhance and utilize the natural environment. In addition to a discussion of issues, the document contains three alternative natural resource scenarios for Glenn County. The draft Natural Resources Issue Paper also contained recommended goals, policies, implementation strategies and standards. These goals, policies, implementation strategies and standards have been reviewed and have been incorporated, with modifications, in the Policy Plan document (Volume I).

This series of papers was preceded by the Environmental Setting Technical Paper which was released in September 1991. The Technical Paper contains much of the data on which the present papers are based. Where necessary, that data was supplemented through additional research. References are made to the Technical Paper and it will be helpful for the reader to have access to a copy of the previous document when reviewing the Issue Papers.

2.0 AGRICULTURE/SOILS

Background

Two-thirds of Glenn County's 1,317 square miles are comprised of agricultural croplands and pasture. With the exception of range land, which encompassed 240,000 acres in 1990 (1990 Annual Crop and Livestock Report for Glenn County), rice is the largest crop in both acreage and valuation, accounting for more than one-fourth of the total agricultural value generated in the county. The prime agricultural soils which support the county's cropland are located in the eastern third of the county along the floodplain of the Sacramento River. Grazing lands are found in the central foothills and to the west in the Glenn County portion of the Coast Range, and also within the Mendocino National Forest.

Specific Concerns

2.1 Agricultural Land Preservation

The importance of agricultural land preservation can be viewed from both an economic and environmental perspective. As the most extensive land use in Glenn County, agriculture constitutes a significant component of the County's economy. According to the State of California Employment Development Department (EDD), agriculture represented the single largest source of private sector employment in Glenn County in 1990. From an environmental perspective, prime agricultural land, of which 173,565 acres are classified in Glenn County, is an important soil resource, the conversion of which constitutes an irreversible loss. Conversion of prime agricultural land typically leads to the conversion of less productive soils to farmland in an attempt to compensate for the loss of the more productive soils. The conversion of these marginal soils can lead to other resource problems such as soil erosion, and increased energy consumption and economic investment to make the land productive. In addition, the conversion of environmentally sensitive areas to agricultural uses in an attempt to compensate for the loss of prime agricultural soils can lead to the loss of other resources such as wetlands and other special habitat.

The value of agricultural land is not limited to the provision of food, fiber and jobs. Agricultural land also provides open space which has both psychological and aesthetic benefits, and provides important wildlife habitat. The importance of agricultural resources has been acknowledged on a statewide basis over the last twenty years through such programs as the Williamson Act and the Farmland Mapping and Monitoring Program. The general plan process provides an opportunity for the County to establish the relative importance of agricultural lands preservation locally as compared to competing interests, such as other forms of economic development, the construction of housing, and wetlands restoration.

2.1.1 Significance of Important Farmlands

Important Farmland mapping efforts were originally started in 1975 by the U.S. Department of Agriculture (USDA) Soil Conservation Service (SCS). Modern soil surveys were used as a basis for establishing criteria to classify land according to its suitability for agricultural production. This effort was transferred to the Farmland Mapping and Monitoring Program of the State Department of Conservation in 1982. The data base established through this program provides a means for tracking the conversion of important agricultural land to other uses and can assist local, state and federal governments in making land use decisions which best utilize the remaining agricultural lands. The General Plan provides an opportunity to utilize this information in the long-range planning process and to establish through policy how the mapping program will be utilized in future decision-making.

Seven categories are used in mapping California's Important Farmlands: Prime Farmland (lands with the best combination of physical and chemical features); Farmland of Statewide Importance (lands similar to Prime but with minor restrictions); Unique Farmland (lands of lesser quality soils used for the production of the State's leading agricultural cash crops); Farmland of Local Importance; Grazing Land; Urban and Built-up Land; and Other Land (those which do not meet the criteria of any other category). Glenn County has defined Farmlands of Local Importance as all lands not qualifying for Prime, Statewide, or Unique that are cropped on a continuing or

cyclic basis (irrigation is not a consideration); all croppable land within Glenn County water district boundaries not qualifying for Prime, Statewide, or Unique; and all land having Prime and Statewide soil mapping units which are not irrigated.

The Environmental Setting Technical Paper contains a table and map showing the distribution of Important Farmlands in Glenn County. An examination of this information shows that Important Farmlands virtually cover the Valley floor portion of the county. Because such lands are synonymous with those that are most readily developable for nonagricultural purposes, it will be very difficult to entertain new growth opportunities without encroaching into such lands. Options include foothill development and emphasis on infill of existing community areas.

2.1.2 Preservation Tools

On a local level, preservation of agriculture/open space can be implemented in a variety of ways. The most common method of controlling land use is through zoning. Exclusive agricultural zoning classifications can be established which allow only agricultural uses and related uses which are necessary to and an integral part of agricultural operations. By restricting the permitted uses to agriculture and related operations, the existing agricultural uses are protected from the encroachment of incompatible uses. Minimum parcel sizes can also be regulated through zoning requirements. Larger minimum parcel requirements can be used to ensure that land is not subdivided into lots which are not conducive to agriculture.

Glenn County has adopted an exclusive agricultural zoning classification, the AE Zone, which is broken down into three sub-zones, the AE-20, AE-40 and AE-80 Zones. The minimum parcel size allowed under these sub-zones are twenty, forty and eighty acres respectively. The zoning regulations allow for both intensive and extensive agricultural uses. Other agriculturally-related zoning classifications which have been adopted by the County are the FA (Foothill Agricultural/Forestry) Zone, the AP (Agricultural Preserve) Zone, and the AT (Agricultural Transitional) Zone. The FA Zone provides for extensive agricultural activities and the protection of timber and forest lands suitable for logging. The minimum parcel size allowed in the FA Zone is one hundred sixty acres. The AP Zone is applied to lands which are under Williamson Act contract and contains a minimum parcel size requirement of eighty acres in the valley area and one hundred sixty acres in the foothill area. The AT classification is used as a buffer zone between agriculture and urban development. With sub-zones of AT-5, AT-10 and AT-20 with corresponding minimum parcel size requirements of five, ten and twenty acres, these zones allow limited agricultural and livestock uses and low density residential development.

Urban limit lines can be established and incorporated into the General Plan. An urban limit line is a boundary that marks the ultimate growth area around a developed area whether it is an incorporated city or unincorporated entity. The purpose of the boundary is to encourage concentric growth and infill development and discourage urban sprawl. Typically, the ultimate growth boundary corresponds with the Spheres of Influence adopted by the County Local Agency Formation Commission (LAFCo). Within the ultimate boundary, additional boundaries or lines can be utilized to represent phased growth areas such as five- or ten-year periods. These lines can then be used as a guide for decision makers when reviewing development requests.

The result is that development occurs in areas where necessary services, e.g., water, sewer, police and fire protection, can be provided and/or extended in an efficient and economic manner, while at the same time directing development away from agricultural and environmentally sensitive areas. Further discussion of urban limit lines can be found in the Community Development Issue Paper, Section 2.1.

Transfer of development rights (TDR) is a device which can be used to redistribute property development rights. As a preservation tool, a TDR program can direct urban or non-agricultural uses away from agricultural areas by establishing preservation and development districts. Landowners within county preservation districts can relinquish and sell their development rights to landowners within the County-designated development districts. The incentive for developers to purchase the development rights from farmers is that they receive a "density bonus" which allows development of their property at a higher density than allowed under the current zoning. TDR programs can be established as either a voluntary or mandatory program.

Conservation easements can be used to preserve agricultural lands as well as other natural resources, (e.g. water, wildlife areas, and scenic corridors). A conservation easement is a voluntary agreement between a landowner and a qualified conservation organization, either a tax-exempt non-profit organization or a governmental agency, which legally restricts the use of the land. In return for relinquishing certain property rights (e.g. constructing residences and other structures, subdividing, oil or mineral extraction, or timber harvesting), the landowner may receive tax benefits including income tax deductions, reduction of estate taxes, or reduced property taxes due to the decline in assessment based on the loss of development potential.

As a part of the general plan process, the County should review the several preservation tools discussed above. The minimum agricultural zoning parcel sizes should be examined to determine if they are, in fact, effective. Also, does the AT Zone serve a useful and valuable purpose or is it simply an intermediate step toward removal of land from production? If the latter is true, it may be more efficient to allow the land to develop at a higher density from the outset. If urban limit lines are to be utilized, their relationship to the AT Zone must be established.

2.1.3 Status of Soils Information

A soil survey for Glenn County was published by the USDA in May 1968. The survey was undertaken in a cooperative effort by the University of California Agricultural Experiment Station, the Forest Service, and the Soil Conservation Service as part of the technical assistance provided to Glenn County and to the Elk Creek Soil Conservation District by these agencies. Major fieldwork for the survey was completed during the years 1951 to 1958. Soil names and descriptions were approved in 1964. Statements included in the published survey generally refer to the conditions in the county from 1960 to 1965. This 1968 survey was used as the basis for the Important Farmlands Mapping completed under the Farmland Mapping and Monitoring Program.

In May 1974, the 1968 Survey was used for reference in a report entitled Estimated Permeabilities For Soils In The Sacramento Valley, California, prepared by Gilbert L. Bertoldi in cooperation with the California Department of Water Resources. The purpose of this study was to develop a better understanding of the hydrologic system of the Sacramento Valley by preparing a soil permeability map of the area and a map of soils which contain barriers or clays that may reduce the vertical flow of water (also see Section 3.0 Water Resources).

There has been some concern expressed locally that the soils information contained in the 1968 Survey should be updated and made more current. According to the Soil Conservation Service office in Willows, a survey update will be initiated by SCS during fiscal year 1991/92. The update will include field survey and mapping efforts for the counties of Tehama, Glenn and Shasta. It is not anticipated that soil boundaries will change significantly, however, the descriptions of soil classifications will. The survey area will be divided into resource areas which cover the coast foothill, the central valley, and the Sierra foothill and mountain areas. The first resource area for which data will be updated is the coastal foothill area. It is anticipated that it will take two to three years to complete the update for each resource area. Even though the updating process is such a lengthy one, once completed, the new survey will provide data which will be of benefit to the County. Although the general plan process cannot wait until receipt, support for this effort should be expressed in the General Plan.

2.2 Williamson Act

The Williamson Act is a non-mandated State program, administered by counties and cities, for the preservation of agricultural land. Participation in the program is voluntary on the part of both landowners and local governments, and is implemented through the establishment of Agricultural Preserves and the execution of Williamson Act contracts. Individual property owners enter into a contract which restricts or prohibits development of their property to non-agricultural uses during the term of the contract in return for lowered property taxes. Initially signed for a minimum ten-year period, the contracts are automatically renewed each year for a successive minimum ten-year period unless a notice of nonrenewal is filed or a contract cancellation is approved by the local government. State subventions are paid to participating county and city governments, based on enrolled acreage, in partial repayment for lost property taxes.

State law requires that participating counties and cities adopt rules governing the administration of agricultural preserves and the types of uses allowed on land under contract. The uniform rules governing the types of uses allowed on lands under contract in Glenn County are contained in the "AP" zoning regulations of the Glenn County Zoning Code.

Interest has been expressed at the local level in expanding the compatible use list for lands under contract. A bill has been introduced into the Assembly, AB 1770, which would require that a compatible use ordinance be adopted by each participating board or council which only includes uses that conform to specified principles set forth in State law, including conditioned uses which would not comply with the principles without applicable conditions or mitigation measures. To meet the definition of compatible, the use would need to meet the following principles of compatibility:

°The use will not significantly compromise the agricultural viability of the subject parcel or other lands in agricultural preserves;

°The use will not pose any actual conflict with current or potential agricultural use of the subject land, or other lands in agricultural preserves; and

°The use will not induce nonagricultural growth or intensify pressures for conversion of other lands from agriculture.

The draft ordinance must be referred to the Department of Conservation for review and comment prior to adoption. If this bill is approved, the potential for expanding the compatible use list beyond the currently adopted regulations contained in the AP Zone may be limited.

Williamson Act contract applications were accepted in Glenn County from 1971 to 1985. Due to the decline in State subvention monies and loss of general fund revenues, the County has not accepted new applications since 1985. The County currently has 276 executed contracts covering 45,559 acres of prime agricultural land and 270,920 acres of non-prime land. To date, five notices of nonrenewal have been processed in the county and one cancellation application has been approved. The County is currently processing a request for cancellation on 370 acres for which a notice of nonrenewal had previously been filed.

2.2.1 Cancellation

State law establishes the procedures for cancellation of Williamson Act contracts and requires that all cancellations be carried out in accordance with those procedures. There is no local discretion.

State law limits the termination of a Williamson Act contract through the cancellation process to "special" or "extraordinary" circumstances. In contrast to the nonrenewal process in which a contract is phased out over a nine-year period, approval of a cancellation request results in the immediate termination of a contract once conditions are met. Only the land owner can apply for cancellation and only the governing board of a local government can approve such a request after holding a public hearing and making the finding that the cancellation would either be consistent with the intent of the Williamson Act or would be in the public interest. If a landowner receives approval of cancellation, payment of a penalty based on a percentage of the current market value of the land is required prior to termination of the contract.

Although implementation of the Williamson Act Program is voluntary, once contracts are executed, withdrawal from the program can only be undertaken in accordance with State law. The local entity may, however, impose more stringent requirements for cancellation than those specified under State law. Notices of nonrenewal can be filed either by the property owners or the local entity, after adequate notice has been given, as set forth in State law.

2.2.2 Minimum Parcel Size

Minimum parcel sizes for lands under Williamson Act contract in Glenn County are established under the "AP" Agricultural Preserve Zone site area requirements of the Glenn County Zoning Code. For prime land (valley floor) the minimum parcel size is 80 acres, and for non-prime land (foothill area) the minimum parcel size is 160 acres. Chapter 19.34 of the Zoning Code further stipulates that variances to the minimum parcel size requirements are prohibited.

Under State law, the minimum parcel size for prime agricultural land is 10 acres; for non-prime the minimum parcel size is 40 acres. The minimum parcel standards established by Glenn County are more restrictive than those set forth in State law and, therefore, meet the intent of State law. A survey was conducted among surrounding counties to see if Glenn County's requirements were comparable as follows:

Table 2.2-1

Williamson Act Contracts Acreage Requirements

County	Minimum Parcel
Tehama	40 acres prime 160 acres non-prime
Trinity	40 acres 100 acres for preserves
Lake	100 acres
Mendocino	100 acres for preserves
Colusa	80 acres
Butte	10-160 acres
Sutter	Does not participate in Williamson Act

Source: QUAD Consultants, 1991

It has been suggested that the County may wish to consider a reduction in minimum parcel size for foothill lands. The present minimum parcel size of 160 acres does not appear to be out of line with what other similar counties require. Grazing operations typically require large parcels of land to be viable. Since this is the predominant use of land in the foothill region, a reduction in parcel size would appear to be difficult to justify under the Williamson Act.

2.2.3 Continued Participation

As indicated earlier, Glenn County has not accepted new applications for Williamson Act contracts since 1985 due to the decline in State subvention monies and the loss of County revenue caused by the reduction of property taxes. For the 1988-89 tax year, the foregone property tax estimate for Glenn County was \$419,000 or 11.5 percent of the property tax revenues. Subvention monies were paid to the County in the amount of \$171,806, resulting in a net loss to the County's general fund of \$247,291. Since 1985, the County has contemplated withdrawing from the program by filing County-initiated notices of nonrenewal for all contracts.

An issue for the County to take into consideration when deciding whether to continue with the program is the possibility of State withdrawal of all subvention monies. Money for subvention payments is allocated within the current State budget and continuance of the program is a high priority of the State Department of Conservation, according to the Department. There are no guarantees, however, that such subventions will be included in future budgets due to cutbacks throughout State programs.

Agricultural landowners in the county are supportive of the Williamson Act program. This can be documented by the fact that only five notices of nonrenewal and two cancellation requests have ever been received by the County. The interest in the program may grow over the next few years depending on the outcome of a case currently before the U.S. Supreme Court which challenges Proposition 13. Should Proposition 13 be overturned, the Williamson Act program may be a key factor in the economic viability of retaining land in agricultural production.

As a part of the General Plan process, the County needs to establish clear policy on how it views the future of the Williamson Act. Without such a determination, it will be very difficult to make assumptions about future use of land now in Williamson Act. If the County determines to continue with the Act, the General Plan should establish the circumstances under which new Williamson Act contracts would be executed. As an example, if the General Plan clearly identifies an area as remaining in agriculture during the term of the Plan, there would appear to be no basis for withholding a Williamson Act contract, except from a revenue perspective. Similarly, there would also appear to be no basis for cancellation.

2.3 Changes in State and Federal Policies, Legislation and Regulations

Changes in policies, legislation and regulations at the State and federal level can have a severe effect on agricultural operations and general farming practices in Glenn County. It is, therefore, appropriate to examine pending changes as a part of the General Plan process.

2.3.1 Water

Known as the Agricultural Water Conservation and Management Act of 1992, Assembly Bill No. 1160 was approved by the Governor in July, 1991. This bill authorizes suppliers of water for agricultural use to institute a water conservation or efficient water management program which incorporates, at a minimum, the three following components:

- Provision of irrigation and other water use management services to persons served by the water supplier such as: providing information on historic and current crop water use data including evapotranspiration and leaching requirements; providing irrigation consulting services to improve on-farm water use practices; recommending more efficient techniques for preplanting irrigation; and providing irrigation management improvement services.
- Making physical and structural improvements to the water supplier's delivery system and aiding in the improvement of on-farm systems such as: using flow measuring devices in the delivery system; lining ditches and canals; and evaluating the storage, conveyance, and

drainage systems of both the supplier and farmers and the application systems of the farmers to maximize efficient water management.

- Making institutional and operational adjustments such as: allowing changes or flexibility in the water contract year to more closely fit water-use characteristics of the crops being grown; establishing a pricing structure for water delivered to encourage conservation; developing on-farm conservation education programs for farmers; and encouraging voluntary exchanges of water between suppliers which have surplus water and suppliers which have a water shortage.

Senate Bill No. 622 was introduced in March of 1991 which, if passed, would enact the Agricultural legislation Water Conservation Loan Act of 1991. The purpose of the bill is to encourage water conservation measures for agricultural operations by providing low-interest loans to farmers to assist in implementing agricultural water conservation programs. The loan program would be administered by the Agricultural Water Conservation Committee, established as part of the proposal.

2.3.2 Air Quality

Assembly Bill No. 1378, approved in October, 1991, imposes limitations on the burning of rice straw in the Sacramento Valley Air Basin. Known as the Connelly-Areias-Chandler Rice Straw Burning Reduction Act of 1991, this law requires the phasing out of rice straw burning beginning in 1992 by limiting the number of acres which can be burned to 90 percent of the total number of acres planted prior to September 1 and decreasing the allowable percentage each year to 25 percent by 1999. Beginning in the year 2000, conditional rice straw burning permits may also be issued; however, the maximum annual allocation that can be burned is 25 percent of the planted total or 125,000 acres, whichever is less, for the entire basin. Because rice is the predominant single crop produced in Glenn County with over 60,000 acres devoted to the crop annually, this legislation will directly affect current farming operations throughout the county.

Further discussion of air quality issues can be found in the Public Safety Issue Paper, Section 5.0.

2.3.3 Agricultural Chemicals

Pesticide use is under continuous evaluation in California. Based on the data obtained through this safety evaluation process, chemicals are replaced and substituted as necessary. The County does not restrict the use of approved pesticides, however there are some chemicals which are not effective due to climatic conditions. According to the Agricultural Commissioner's office, there are some areas where aerial application is restricted in the county due to the density or type of surrounding land use such as the Willows area. Aerial application of "restricted materials" requires the issuance of a permit from the Glenn County Agricultural Commissioner prior to treatment.

The restrictions urbanization places on agricultural chemical use should be taken into consideration as decisions are made concerning location of future urban uses. Additionally,

conflicts may also arise between chemical applications and livestock, including dairy cattle and poultry. Locational and separation standards should be included in the General Plan which recognize this concern.

2.3.4 Wetlands

A discussion of wetlands regulation is contained in Section 4.1.2 of this paper. Generally, agricultural lands are exempt from regulation as wetlands and are not subject to Section 404 of the Clean Water Act. There are some agricultural lands, particularly rice fields, that have value as wetland habitat. It is possible that winter flooding of rice fields could provide additional habitat for waterfowl while potentially providing an alternative to rice straw burning.

The North American Waterfowl Management Plan is discussed in Section 4.5 of this Paper. Agricultural land enhancement objectives are included within the Central Valley Habitat Joint Venture program of the Management Plan to encourage farming practices which enhance nesting and foraging habitat for waterfowl.

2.4 Provision of Irrigation Water to Urbanizing Areas

Encroachment of urban development, particularly the creation of non-agricultural parcels less than twenty acres in size, can pose problems for irrigation districts whose delivery systems are designed to serve larger agricultural water parcels. Two water purveyors, the Orland-Artois Water District and Orland Unit Water Users Association, have expressed concern over the encroachment of urban uses and change from agricultural to non-agricultural uses on lands within their boundaries. In the case of the Orland-Artois Water District, the creation of parcels less than twenty acres in size causes problems in their service delivery. The delivery system is a closed one and the extension of service to new parcels is very costly. The District, by policy, will not serve parcels less than twenty acres in size.

The Orland Unit Water Users Association has also experienced problems as urban uses encroach upon the agricultural properties within their boundaries. The District's delivery system operates on gravity flow via open ditches. As residential development occurs, with the increase in the number of residents and structures, the ditches can pose safety hazards to children. Because in some cases the existing canals are at a higher elevation than the residences that are constructed, the potential for flooding is also increased, as well as the potential for damage to structures from flood irrigation practices.

The above-described problems are not unique to the provision of irrigation water. They are typical of land use conflicts which occur as urban development encroaches into agricultural areas. Further discussion of irrigation districts, land use conflicts and incompatibilities can be found in the Community Development Issue Paper, Section 2.0.

2.5 Dairy Policies and Standards

Based on total value, dairy products rank second to rice on the list of leading agricultural commodities in Glenn County. There are currently 106 dairies in the county ranging in size from 40 head to 1,200 head, according to the Glenn County Agricultural Commissioner. The dairy

industry in Glenn County has stabilized over the last few years and according to the University of California Extension Office, it is anticipated that the industry will grow. The County has a Dairy Committee organized under the auspices of the U.C. Agricultural Extension Office which has worked to attract dairies to Glenn County. As a part of its General Plan, the County should consider adopting policy supporting the attraction of dairies to Glenn County as a part of its overall economic development effort.

Dairies are permitted uses in the agricultural zones. Performance standards for the construction of new dairies were adopted by the Board of Supervisors in September, 1991, under Ordinance No. 994. These standards include such requirements as: minimum setbacks from roads and from residences, schools and apartments in residentially zoned areas; obtaining encroachment, building and grading permits; and compliance with County, State and federal regulations. If a proposed dairy does not meet the adopted performance standards, a conditional use permit must be secured prior to construction. Animal densities for dairies in agricultural zones are regulated by the State Regional Water Quality Control Board based on waste discharge requirements.

As the number of residences constructed in agricultural areas increases, the potential for land use conflicts between residential and agricultural uses is greater. Animal operations, in particular, generate dust, odor, flies and vector breeding, and noise. In support of the animal industry, the County may wish to consider incorporating policies in the General Plan for siting of animal operations such as dairies and other confined animal raising operations. These policies could guide the placement of dairies, hog farms, poultry facilities, etc., by requiring separation between facilities and residential uses. An additional issue also to be considered is agricultural spraying, as discussed in Section 2.3.3, and potential conflicts with dairy operations.

2.6 Trends and Opportunities in Agriculture

Agricultural production can vary from year to year due to factors such as market conditions, rainfall, and climatic conditions. Crops grown in the county such as rice, alfalfa and sugar beets have remained fairly stable in production over the past few years. Orchard crops such as olives, almonds, and pistachios have increased while acreage devoted to citrus has declined. The sheep industry has declined and is not expected to recover in the near term. The dairy industry has stabilized and is anticipated to increase in the coming years according to the University of California Extension Office. The future attraction of dairies should be viewed as an opportunity to diversify the agricultural base of the county.

Opportunities in agriculture may be altered in Glenn County due to legislative changes in air quality and water regulations. As described in Section 2.3, water conservation measures may change cropping patterns and affect the rice industry. The requirement to reduce rice straw burning as set forth in AB 1378 may also significantly affect the rice industry in Glenn County. The growing recognition of ricelands as important waterfowl habitat may, however, have a positive benefit to the County as other groups work to restore waterfowl populations. Such recognition may guarantee the continuation of adequate water and a regulatory environment in which rice farming can be sustained.

An additional impact on agriculture, particularly the rice industry, is the acquisition of land on which to restore wetlands and other forms of wildlife habitat. As is discussed in more detail under Section 4.0, a number of programs are in place which are actively seeking to purchase lands with the goal of removing them from agricultural use. This effort will ultimately reduce the number of acres in production in Glenn County.

2.7 Sensitive Species

Various State and federal agencies and non-profit groups such as the Nature Conservancy are actively acquiring lands, whether in fee simple or through conservation easements, in Glenn County for wildlife preservation. These acquisitions are discussed in more detail in the Section 4.0 of this Paper. These acquisitions may affect land that is currently in agricultural production. In addition, the use of agricultural chemicals may be restricted, if there is the potential for chemicals to affect endangered plants and animals.

2.8 Agriculture/Soils Opportunities, Constraints and Conclusions

- Agriculture has in the past and will continue in the future to play a significant role in the County's economy. The preservation of the county's agricultural preservation land should be given a high priority; however, it should be recognized that other forms of economic activity will consume some land presently committed to agriculture. Other options available for development will be inadequate to realistically provide for the necessary diversity and growth required in the local economy.
- The importance of the County's agricultural preservation resources should be considered from both an economic and an environmental perspective, emphasizing the role agriculture plays in preserving open space and wildlife habitat. Of particular importance is the value of ricelands to the Pacific Flyway. As this fact receives greater prominence on a statewide level, pressures to remove riceland from production will be reduced. The County should capitalize on this opportunity.
- The General Plan needs to contain a clear statement describing the circumstances under which the County will continue to administer the Williamson Act. Although its value has been questioned, the County should continue to support the Act and to work for continuation and enhancement of the subvention program. The County should set out the criteria for contract execution in the General Plan and apply those criteria consistently.
- Although there has been local discussion concerning the desirability of expanding the compatible use list for Williamson Act contracts, it is likely any such move will be blocked by the State and could provide more ammunition for withdrawal of subvention money. It is also likely that the State will pass legislation giving itself a more direct role in the approval of compatible use lists. Reduction in minimum parcel size has also been discussed. A reduction in parcel size would not appear to be consistent with the purposes of the Act.
- Policy should be included in the General Plan encouraging the dairy industry to consider Glenn County for future expansion. This appears to be a desirable and achievable way to

diversify the local economy. To protect and enhance the dairy industry, consideration should also be given to an expanded set of locational criteria that assure problems do not arise as the number of dairies increases. Locational criteria should be viewed as a protection for the dairy industry and should offer assurance that Glenn County recognizes its importance. As dairies increase in size, it is also important to recognize that their perceived compatibility with surrounding uses, including other agricultural uses, can change. Although the focus is on dairies, it may also be desirable to look at other animal agricultural uses as well.

- Although agricultural preservation lands protection will likely continue to be dealt with primarily through zoning and Williamson Act, language should be included in the General Plan encouraging use of other types of preservation tools, such as in-county transfer of development rights and conservation easements, under unique circumstances.
- Minimum parcel sizes for agricultural preservation zones is always a very difficult issue on which to reach consensus. The minimums enforced by Glenn County appear to be very similar to those enforced by many other agricultural counties. The key question to ask is whether the present standards are discouraging the premature conversion of agricultural lands. Absent intensive pressure to convert, this may not be known. The standard necessary to discourage conversion will also change as development pressures increase. Rather than suggest new standards in the General Plan, it would be preferable to establish a mechanism in the General Plan for systematic review of the present standards, at intervals, to assure that they are still performing as intended.
- The County should examine the need for the AT (Agricultural Transitional) Zone and should be cautious in its application of rural residential zoning. Generally such zoning results in the premature conversion of otherwise viable agricultural land to rural residential environments which can no longer be farmed and are typically too dispersed to be served efficiently by government services.
- Although an enhanced soil survey for Glenn County is desirable and should be supported by the General Plan, the information will not be available for several years. Decisions during the present general plan process will, therefore, have to be based on already existing surveys and reports.
- Urban limit lines should be incorporated into the General Plan establishing clear boundaries around existing and planned future communities during the term of the Plan. These boundaries should be drawn in an effort to protect the best agricultural land and to encourage infill and concentric growth. Such lines create greater certainty in decision making and give property owners a readily recognizable boundary and time frame.

3.0 WATER RESOURCES

Background

Surface flows in Glenn County come primarily from the Sacramento River and Stony Creek. The Sacramento River is the chief source of surface irrigation water in the county. Two major canals divert water from the Sacramento River, bringing surface irrigation water to the farms of Glenn County. The Glenn-Colusa Canal crosses the county starting at the Sacramento River north of Hamilton City and runs southwest. The Tehama-Colusa Canal begins at the Red Bluff diversion dam and runs southward through the county. Stony Creek supports two reservoirs in Glenn County, Stony Gorge and Black Butte Reservoirs. In 1989, 543,900 acre-feet (af) of water was supplied to Glenn County by the Central Valley Project (Sacramento River water) and 75,900 af from Black Butte Reservoir.

Hydroelectric power generating facilities are located at both Stony Gorge and Black Butte Reservoirs. A substantial watershed is located in Glenn County along the easterly slopes of the Coast Range. Most of this watershed is located within the Mendocino National Forest and is under the jurisdiction of the federal government.

The eastern portion of Glenn County overlies the 5,000 square mile Sacramento Valley Groundwater Basin which contains abundant supplies of high quality water to depths of 800 feet. Groundwater pumping for irrigation occurs primarily in the area south and east of Orland and north of Willows. A major groundwater recharge area occurs along Stony Creek between Black Butte Reservoir and the Sacramento River. Groundwater is the primary source of domestic water supply in Glenn County. In 1989, 230,100 af of water was pumped for agricultural use while 8,300 af was utilized for municipal and industrial purposes. An undetermined additional amount was pumped by unmonitored private wells.

Specific Concerns

3.1 Competition For Water Resources

Although Glenn County contains abundant supplies of surface and groundwater, there is intense competition for water on a statewide basis. This has placed water "rich" counties such as Glenn in the spotlight as those areas with water deficiencies seek additional sources of supply. The picture is further complicated by recent requirements to assure that adequate supplies of water are available in rivers and streams, and other natural areas to sustain wildlife, in particular, threatened and endangered species. This statewide demand offers potential for Glenn County to capitalize on this valuable resource by selling water to other areas.

The statewide search for available water will create greater scrutiny of the manner in which Glenn County utilizes its resource. Rice growing, as an example, has come under attack for being wasteful of water resources. Others argue that rice culture is very valuable to wildlife and to withdraw the water would not only harm farming and the local economy but would threaten species that federal and State agencies are working hard to sustain. A recent proposal by the Nature Conservancy suggests that rice fields not only may benefit wildlife but that they could also be used to increase the amount of winter water storage, allowing more water to be available downstream during spring and summer months. Present and future demands to allow more water to remain in the Sacramento River for the benefit of fish and wildlife in the Sacramento-San Joaquin Delta as well as the anadromous fishery in the Sacramento River will impact

withdrawals in Glenn County. This was recently illustrated by the shut down of the Glenn-Colusa Canal intake due to harm to the salmon fishery and subsequent court rulings limiting withdrawals during times critical to survival of threatened winter-run salmon.

Sales of water to other areas may have some temporary economic benefit to individuals, however, it is more likely that the longer term effects on the county will be negative as available supplies are depleted or the thirst elsewhere grows. Such sales will undoubtedly take some land out of production which will have a direct impact on the County's economy as well as other indirect impacts as alternative uses for the land are sought.

Although competition for water may have serious implications for Glenn County, much of the decision-making will occur at State and federal levels and will be difficult to influence from the local level, particularly when the State's population base is primarily in areas with water deficiencies. The General Plan needs to propose actions which can assist in protecting this local resource from unfair exploitation and removal, including local priorities on water use. The County should also look to accommodations with environmental groups that will permit water to be retained locally for the benefit of wildlife rather than being shipped to more distant points.

3.2 Changes in State and Federal Water Policy, Legislation and Regulations

Assembly Bill 2090, sponsored by Assemblymen Katz and Filante, and now pending in the State Assembly, would facilitate transfers of ground and surface water to deal with water shortages. The legislation is intended to promote water transfer efforts such as those handled by the State's Emergency Water Bank which functioned during the past year. Under the water bank concept, farmers and districts sell water to a water bank, which then resells the commodity. The Bank resold about 800,000 acre feet of water last year. It was recently reported at a meeting of the Assembly Committee of Water, Parks and Wildlife that about half of the above sales caused agricultural fields to remain fallow.

To deal with water availability on a statewide level, Governor Wilson has created a Water Task Force which is expected to deliver an outline for a State water policy. The policy will deal with future allocation of water, including freeing more water for the benefit of fish and wildlife.

State Senate President Pro Tem David Roberti has recently proposed statewide water policy reform, including a State takeover of the Central Valley Project (CVP). He has suggested priorities that would place protection of the Delta at the top and has also proposed that groundwater basins be regulated. Primary to the interest in taking over the CVP is to reprice water to eliminate subsidies to agriculture. Since Glenn County receives much of its water from the CVP, changes in water pricing structure will have serious economic implications.

At the federal level, legislation is pending before Congress that would make major changes in the CVP. Among those changes is a provision that would permit CVP participants to sell water previously committed to agriculture for non-agricultural uses. Although major changes in the

CVP are opposed by the Bush administration, U.S. Interior Secretary Lujan recently reported that the administration supports changes allowing sales for non-agricultural purposes.

As was noted above, competition for water in California is intense. The County must devote the necessary resources to follow the myriad of proposals working their way through the legislative and executive process at the State and federal level in order to assure that its interests are recognized and protected.

3.2.1 Restriction of Transfer/Export of Water

Concern has been expressed at the local level over the exporting of groundwater. One reason for concern is that several of the irrigation and water districts in the county have service boundaries which extend beyond Glenn County. The Board of Supervisors, in the past, has requested assurance from districts who have drilled new wells in the county that water pumped from these wells will be used within the county and not be exported to other areas within the district. Although a building permit has been the only County approval required for drilling a new well, the County has recently adopted an ordinance which requires issuance of a permit to export water from the county. The permit process is similar to a special or conditional use permit filed with the Planning Department and approved by the Board of Supervisors. No permit applications have been filed since adoption of the ordinance, however.

In March of 1991, Senator Michael Thompson introduced Senate Bill 867, which proposes the creation of the Glenn County Groundwater Management District. If approved, exporting of any water from the district would be prohibited unless an export permit has been issued pursuant to specified procedures. The installation or operation of well fields would also be restricted. The bill is currently before the Senate Housing and Urban Affairs Committee for consideration. The goal of the legislation is to protect the County's groundwater resource and prevent overdrafting. A County committee has also been formed to support the legislation.

3.2.2 Water Mining and Sales

Water mining or the excessive withdrawal of groundwater beyond recharge capability is not a problem in Glenn County at the present time. Although groundwater is the principal source for urban use, surface water is the principal source for agriculture. The abundance and quality of groundwater in Glenn County is a valuable resource. As has been previously noted in this Issue Paper, there may be potential for exporting and sale of groundwater. However, the short term economic advantages may not balance against the long term impacts and the potential for water mining to occur.

The establishment of the Glenn County Groundwater Management District proposed under Senate Bill 867, discussed above, is one mechanism to monitor groundwater stability. It should be noted, however, that exporting of water is not the only potential reason for water mining. If the surface water supply is reduced or eliminated to the point that agricultural operations have to rely on groundwater, such mining could result. In addition, a prolonged drought such as that now being experienced can lead to temporary overdraft and potential long-term damage to the aquifer.

3.2.3 Long-term Water Delivery Contracts

Both the Glenn-Colusa and Tehama-Colusa canals provide Central Valley Project water. Districts in Glenn County which receive water from the Tehama-Colusa Canal include the Orland-Artois Water District, the Kanawha Water District, Glide Water District and Glenn-Colusa Irrigation District. Water rights were settled in the mid 1960's and long term contracts were entered between the Bureau of Reclamation and the districts. With the long term contracts in place, the concern over water delivery is related to each district's allotment of water. Two years ago, each district received only 50 percent of its total water rights. Last year that allocation was reduced to 25 percent. Continued reduced allocations may force these districts to seek alternative sources of water.

3.3 Watershed Protection

Although much of the water utilized in Glenn County rises outside the county, the county does contain a substantial watershed supplying locally important creeks, especially Stony Creek on which Stony Gorge and Black Butte Reservoirs are located. Much of this watershed is under the jurisdiction of Mendocino National Forest. Its primary uses are for agriculture and hydroelectric power production. Section 5.3 under Timber Resources discusses issues which arise when watersheds are disturbed. Standards and policies are needed in the General Plan to assure that watersheds are properly protected. This will require close coordination with the National Forest to assure that actions are not taken which may be detrimental to the watershed.

3.4 Reservoir Siltation

Siltation is a general problem experienced in reservoirs as well as with rivers, streams, creeks and canals, resulting in loss of water holding and moving capacity. During reservoir/dam design, allowances are made for projected siltation.

No current data on the amount of siltation that has occurred in Stony Gorge Reservoir is available from the Bureau of Reclamation. The Army Corps of Engineers has, however, revised the capacity figures for Black Butte Reservoir where substantial siltation has occurred. The gross pool capacity at Black Butte Reservoir was 160,000 af in 1966. The Army Corps found a 13,000 af reduction in capacity during a subsequent fifteen year period. This is 7 to 10 times greater than was estimated at the time the reservoir was constructed. During the general plan process, this accelerated reservoir siltation should be acknowledged as an issue which could have some impact on future water delivery and hydroelectric power generation.

3.5 Impact of Potential Increased Hydroelectric Power Generation

Hydroelectric power potential is discussed in some detail in Section 6.2.1 of this Working Paper. The Energy Facility Siting Working Paper prepared by Crawford, Multari & Starr notes that hydroelectric facilities can impact water resources by affecting water turbidity (the amount of sediment within the water), oxygen content, streamflows and groundwater recharge. If additional facilities are proposed in Glenn County, as has been suggested, the effects of such developments on groundwater recharge and streamflows must be carefully documented to assure that no unreasonable impacts on water resources occur. As is noted under Section 3.7.1 of this Paper, critical groundwater recharge areas exist in Glenn County. Reduced streamflows

resulting from additional reservoir construction may have an adverse impact that is not offset by new reservoir capacity.

3.6 Impact of Urbanization on Irrigation/Water Districts

Districts established to deliver irrigation water can be adversely affected by urbanization. Two water purveyors in Glenn County currently experience such problems: Orland-Artois Water District and Orland Unit Water Users Association. Both were discussed previously under Section 2.4 of this Paper.

From a water resource perspective, it is important to recognize that a substantial investment has been made in existing water delivery infrastructure within irrigation and water districts. As agricultural areas urbanize, the utility of that infrastructure is lost, resulting in a loss of water to agriculture or a need to recreate the systems elsewhere, at considerable cost. The value of such infrastructure needs to be factored into planning decisions. To give some dimension to the issue, the Orland-Artois Water District was asked to estimate the value of its present system. Their estimate identifies facilities worth approximately \$30.5 million in 1991 dollars. In addition, it is important to assure that development patterns do not make delivery of agricultural water to users impractical or cost prohibitive. As growth occurs, the County should endeavor to assure that its land use decisions do not prematurely disrupt delivery of agricultural water.

3.7 Groundwater Management

Historically in California, groundwater basins have gone unmanaged. Typically, no limits on the numbers of wells drilled or the amount of water withdrawn have been established. In recent times, as competition for sources of water has intensified, this position has become increasingly untenable. Locally in Glenn County, proposals have been put forth to export groundwater out-of-county. Such activity has caused concern due to the potential to overdraft the local groundwater basin, increase the cost of water, force the deepening of existing wells and remove land from production.

As discussed under Section 3.2.1, Senate Bill 867 has been introduced in the State Legislature to deal with the issue of groundwater management in Glenn County. The legislation would create the Glenn County Groundwater Management District. If enacted, it would prohibit the exporting of any water from the district unless the exporter has obtained an export permit from the district.

It would appear to be in Glenn County's interest to support this or similar legislation. The alternative may be regional groundwater management. Glenn County should establish policy in its General Plan that will protect its groundwater resources. This may be best accomplished through support for the creation of a local groundwater management district.

3.7.1 Areas Required For Recharge Of Groundwater Basins

Certain areas in California's Central Valley are critical to continued groundwater recharge. Typically such areas are located along major streamcourses with sustained flow and coarse gravel deposits. The State Department of Water Resources Bulletin 118-6 Evaluation of Groundwater Resources: Sacramento Valley reports that 20.7 percent of the natural recharge in

the Sacramento Valley occurs in the Stony Creek area. Such recharge comes from both stream percolation and deep percolation of precipitation. Clearly the Stony Creek area is critical to groundwater recharge. Not only is it fully one-fifth of the total, it is also the largest single source of recharge in the Sacramento Valley. Other groundwater recharge areas include the area along the Sacramento River and other locations as shown on Figure 3-1.

Glenn County should discourage the overcovering of soils necessary to groundwater recharge. It is apparent from an examination of the map that a conflict may already exist in the Orland and Hamilton City areas about which little can be done. Steps should be taken to limit the future overcovering of recharge areas and to direct intensive development and, in particular, uses with the potential to pollute the aquifer away from such areas.

3.8 Drought Related Issues

The drought conditions over the past few years have not impacted Glenn County as severely as they have other regions of the State. Even with the reduction in available surface water due to government cutbacks in water allocations as discussed in Section 3.2.1, agricultural operations have been sustained in the county. If further reductions in surface water supplies are experienced, however, alternative water sources may need to be developed. The County is fortunate to have an abundant groundwater supply.

If the drought continues, the County may feel greater pressure to export water to other regions. Refer to Sections 3.2.1 and 3.2.2 for discussion of water transport/export and mining. In addition, the drought may cause additional regulatory and legal actions to force cutbacks in agricultural supply to sustain flows in streams and rivers for the benefit of fish and wildlife.

3.9 Water Resources Opportunities, Constraints and Conclusions

- Due to Glenn County's abundant groundwater resource, the County finds itself in a somewhat unique position as compared to most of California. The County must thoughtfully decide how it will manage this resource and how best to utilize it as it looks for economic development opportunities. To allow unregulated exportation of the resource would appear to be short-sighted and may ultimately backfire in an ever more thirsty State. Glenn County should take steps in its General Plan to support groundwater management as a concept and to further efforts to manage the resource at the local level.
- Actions at the State and federal level to deal with water shortages elsewhere may have an adverse impact on Glenn County. Repricing of CVP water as suggested by a member of the State Legislature could have a devastating effect. Reserving more water for fish and wildlife is and will continue to have a detrimental impact on agriculture. The County should, however, look to ways to benefit from efforts to reserve water in the county for wildlife. Such efforts may well result in side benefits for economic development and for agriculture.
- Local priorities should be established for water use and placed in the General Plan. Such an effort could benefit those seeking to establish greater local control over water resources, including local oversight of exportation.

- If surface supplies are further disrupted, Glenn County may have to rely increasingly on groundwater. Such reliance will increase the cost of water and may be disruptive to the agricultural economy and continued production of certain crops, including removal of land from production. Potential disruption includes the sale of surface water to other regions of the State.
- Although the past drought years have not dramatically impacted Glenn County, there is a potential for drought conditions or water diversions to impact the County during the life of the Plan. The General Plan should include policies which encourage water conservation programs for both agricultural and urban users.
- If land is removed from production due to a shortage of water, land owners will look to alternative use for the land. This could include other forms of development which are incompatible with agricultural neighbors or are costly for the County to service. Such areas could be devoted to hunting preserves, however, lack of water could diminish their value.
- Due to the myriad of actions occurring at the State and federal level impacting water resources, the County needs to assign specific staff to monitor these actions and to report on a routine basis to County decision makers.
- Reservoir siltation will have some impact on future water storage capacity in the county. This fact needs to be acknowledged, along with creation of programs to gain better information and formulate a plan of action.
- Groundwater recharge areas must be protected from overcovering and potential contaminants. Large areas of the county appear to be impacted, primarily along the present and historic fan of Stony Creek. Specific policy needs to be included in the Conservation Element outlining the County's approach to protection of this resource, including limitations on certain types of development.
- The General Plan needs to recognize the value of irrigation system infrastructure and to assure that new development does not prematurely reduce the utility of such systems. This includes removal of land from production which is served by systems and impacts on remaining users' ability to acquire water.

4.0 BIOLOGICAL RESOURCES

Background

Like many counties in California, Glenn County has an extremely diverse plant and animal population. This is attributable to the wide range of elevation and geography within the county. Six major vegetation associations are present in Glenn County. They are: Blue Oak-Digger Pine Woodland, Coast Range Montane Forest, Chamise Chaparral and Northern Mixed Chaparral, Grasslands, Riparian Forest and Wetlands. Much of the Blue Oak-Digger Pine Woodland

remains intact as does the Coast Range Montane Forest and the Chaparral association. Grasslands, Riparian Forest and Wetlands associations have, however, been severely reduced by humans.

Although certain endangered, candidate and threatened species of lesser known plants and animals are present in Glenn County, species of greatest importance to the general plan process are deer and waterfowl due to the large areas they occupy. Glenn County contains three major deer herds which include both resident and migratory deer, with the migratory deer wintering in the lower elevations of Glenn County and returning in spring to the higher elevations of the Coast Range. Waterfowl concentrate around the Sacramento National Wildlife Refuge in southern Glenn County which provides winter migratory habitat for over one million birds. Among waterfowl visiting the area are several sensitive species including the Aleutian Canada goose. Waterfowl are closely associated with two vegetation associations, Riparian and Wetland, which are limited in distribution.

Fisheries are also important in Glenn County, focused primarily on the Sacramento River, and Black Butte and Stony Gorge Reservoirs. Trout are found in the higher elevations of the Coast Range within the Mendocino National Forest and warm water fisheries are present in some of the perennial streams and canals on the Valley floor.

Specific Concerns

4.1 Areas Required for the Preservation of Plant and Animal Life

As a part of the County's Open Space Element, it is necessary to address the subject of areas which are required for the preservation of plant and animal life. This subject has received ever increasing prominence as the State's biological resources continue to dwindle. Much of the focus at the State, federal and local level has been on the preservation of habitat for the benefit of a single species, although it has long been recognized that preservation of habitat for one species often aids in the preservation of other species inhabiting the same area. Creating larger areas containing greater bio-diversity is now viewed as the preferred approach to preservation of species. If significant areas can be retained in open space which benefit migrating deer or wintering waterfowl, then many lesser known species will benefit as well.

As Glenn County grows it is necessary to examine the impact development may have on wildlife. If unacceptable impacts are predicted to occur, mitigation or compensation will be required for those impacts. It is important to establish a program within the General Plan to guide how those decisions are made. The General Plan should first identify areas where development should not occur because of the adverse impact development may have on biological resources. The General Plan should also identify compatible uses within such areas so property owners can know with some certainty that which the County will permit. In other areas where development may occur, the procedures to be followed to protect biological resources and the form of compensation or mitigation required should be established in the Plan. It will always be difficult, however, to know with certainty what will be necessary since State and federal agencies typically play a significant role, much of which is outside the local review process.

As has been suggested, a particular concern is the protection of deer wintering areas and migration routes from incompatible development and the protection and buffering of waterfowl habitat areas, particularly the Sacramento National Wildlife Refuge. Riparian communities along the Sacramento River also require protection in order to preserve threatened species and to protect the character of the present anadromous and warm water fishery. Other unique landforms, such as vernal pools and the species inhabiting them, must also be afforded protection. A review of available information indicates that Glenn County is relatively free of vernal pools. Limited occurrences, however, have been reported by Robert F. Holland, The Geographic and Edaphic Distribution Of Vernal Pools In The Great Central Valley, California, in the area between Orland and Black Butte Reservoir.

4.1.1 Important Biological Resource Areas

The Environmental Setting Technical Paper identifies 12 important biological areas in Glenn County which require special attention as a part of the general plan development process. Six of the areas (Llano Seco, Oxbow Waterfowl area, Oxbow Heron Rookery, Princeton Riparian Woodland, Sacramento River Wildlife Area and Sacramento River Oxbow Preserve) are associated with the Sacramento River and are intended to protect the unique riparian forest, marsh and floodplain bordering the Sacramento River. Two of the areas (St. Johns Mountain and Sheetiron Mountain) are within the Mendocino National Forest and are under the jurisdiction of the National Forest Service. The remaining areas are the Sacramento National Wildlife Refuge, Black Butte and Stony Gorge Reservoirs, and Orland Buttes.

The State of California holds ownership to the bed of the Sacramento River. These lands are held by the State for the benefit of all the people of the State of California, for purposes of commerce, navigation, fisheries, recreation, habitat preservation, and open space. Responsibility for protection of the State's interests lies with the State Lands Commission (SLC). In a letter dated July 12, 1991, the SLC has advised the County that it has a particular interest in the protection of Sacramento River riparian and fisheries habitat. It has further advised that a permit may be required from the SLC for proposed projects that are within or adjacent to the River.

In determining the impact a proposed development may have on State interests, the SLC utilizes a "Significant Lands Inventory" of State owned lands. In addition the SLC has advised that the 1986 Sacramento River Marina Carrying Capacity Study will be utilized. The latter study identified the following potential impacts on riparian habitat from development activities:

- Removal of vegetation, grading and construction
- Compaction of roots of remaining vegetation
- Disruption of banks and placement of bank protection
- Alteration or removal of understory plants
- Fragmentation of migratory corridors for terrestrial wildlife
- Introduction of human activities, noise and night lighting
- Isolation, reduction or destruction of threatened and rare species and their habitats
- Disruption of shoreline and instream fish habitats
- Disruption from activities of adjacent developments

The study also makes the following recommendations which are applicable along the Sacramento River:

- Development should avoid environmentally sensitive areas to the maximum extent; such areas include habitat for threatened and endangered species and riparian vegetation.
- Development proposals should incorporate all feasible modifications and construction techniques to eliminate or minimize adverse impacts on ecological resources of land and water.
- Replacement of riparian vegetation should be planned by experts familiar with native riparian plants and their requirements, and monitoring programs should be established to ensure the satisfactory completion and maintenance of revegetation programs.
- The overall goal of mitigation should be that post project habitat productivity be at least equal to pre-project habitat productivity. Determinations of habitat productivity should be made by a panel of qualified biologists using habitat analysis methods acceptable to the U.S. Fish and Wildlife Service and the California Department of Fish and Game.

It is apparent that the Sacramento River must be viewed in its entirety as an important biological resource area and must be given careful attention during the planning process. The SLC has placed Sacramento River lands in a "Limited Use" category which is defined as those lands on which one or more closely related dominant significant environmental values is present. Specific policies are needed establishing the form and character of development, if any, to be permitted along the River. Further, the County should establish the manner in which it wishes to interact with the SLC when considering development proposals.

The Mendocino National Forest contains a number of forested areas, including St. Johns Mountain and Sheetiron Mountain, valued for their flora and wildlife. The recent controversy over the northern spotted owl is indicative of the Forest's value. Generally, the flora and fauna of the Forest are beyond the jurisdiction of the County. There are, however, a number of private inholdings surrounded by the Forest in which activities are subject to local control. Within such areas, it will be important to recognize the biological value such lands may have and to coordinate policy and decision making with the Forest Service.

Columbia blacktail deer frequent most parts of the National Forest. Although most of the herds both winter and summer within the Forest, there is an area of important deer winter range west of Black Butte Reservoir on private land. Resident deer also occur outside the Forest along Stony Creek, the Sacramento River, in the lower foothills and in the Butte Sink.

The Sacramento National Wildlife Refuge contains significant remnants of the once expansive Sacramento Valley wetlands and is utilized by major concentrations of Pacific Flyway waterfowl each year. Its protection is of paramount importance to federal and State agencies as well as

private conservation groups, including pro-hunting organizations. Associated with the Refuge are nearby private duck clubs and ricelands frequented by waterfowl. The General Plan should establish clear policy protecting this very valuable resource area from encroachment by incompatible land uses while providing for the continuation of traditional agricultural and hunting activities.

The two reservoirs, Stony Gorge and Black Butte, on Stony Creek have special value primarily because of the well-established warm water fishery which is present. The General Plan should establish policy protecting the fishery and assuring that activities associated with the reservoirs are not harmful to the fishery and other wildlife.

Orland Buttes are a local landmark situated near Black Butte Reservoir. The Buttes contain areas of Grassland and Blue Oak-Digger Pine vegetation associations. Their protection from incompatible development could create a substantial biological preserve potentially containing vernal pools and sensitive species while also maintaining a local visual resource.

An additional issue impacting Glenn County is the statewide interest in the preservation and regeneration of oak woodlands. The foothill region contains substantial stands of oak forest. A cursory examination reveals, however, that most trees are mature and little regeneration is occurring. Many theories have been put forward to explain the lack of large numbers of young trees, including the activity of cattle, birds and squirrels as well as climatic and hydrological changes. The County should prescribe through the General Plan the role it wishes to play in the protection of oaks and other trees.

4.1.2 Wetlands/Riparian Habitat

As noted previously, wetlands and riparian areas have been greatly reduced compared to historic occurrences. Their elimination has been in large part due to the introduction of agriculture and modern water management practices. Often overlooked is the fact that such areas were deliberately eliminated to control the spread of mosquito-borne disease.

Wetlands have been found to have unique value to many species of wildlife. Such lands can also play an important role in groundwater recharge, reducing floodflows and allowing harmful sediments to filter out of waters prior to their downstream discharge. As a consequence, the federal government has declared that there should be no net loss of wetlands in the United States.

The federal government's wetlands policy is implemented in conjunction with development projects primarily through Section 404 of the 1982 Clean Water Act which prohibits the filling or dredging of lands defined as wetlands. The Army Corps of Engineers has been assigned the responsibility for making jurisdictional determinations (e.g. what constitutes a wetland) and may issue 404 permits for alteration of jurisdictional wetlands, with agreed upon mitigation.

Based on the 1989 Federal Manual for Identifying and Delineating Jurisdictional Wetlands, defining jurisdictional wetlands incorporates three criteria: the presence of so-called hydric soils -meaning mucky or peat-based soils that thrive in wet areas; the presence of plants found on the

federal list of plants that thrive in wet areas; and the presence of water within 18 inches of the surface of the ground for at least 7 consecutive days during the year. A rule change presently under consideration could alter the latter criteria to require lands to be flooded for at least 15 days with soil saturation to 21 inches. This proposed change has however, generated substantial controversy and its outcome is uncertain.

Those wishing to encroach on apparent wetlands must apply to the Army Corps of Engineers for a jurisdictional determination. This typically involves detailed field surveys by qualified wetlands biologists who then present their findings to the Army Corps. If it is determined that jurisdictional wetlands exist, the project must first be examined to determine if such lands can be avoided. If avoidance is not possible, onsite or offsite mitigation must be provided. This can be in the form of wetlands creation or enhancement of existing wetlands. If a wetlands banking system has been created, it may be possible to mitigate through monetary contributions to such a system which will in turn invest in creation or enhancement of wetlands. Avoidance or onsite mitigation are the preferred approaches. Mitigation is typically required at a ratio greater than 1:1, with habitat value playing a significant role in such determinations. It is also commonplace to require those displacing wetlands to provide for the long term care and maintenance of mitigation lands.

Additional programs at the federal level that provide incentives for preservation of wetlands include provisions in the Congressional farm bill and the federal Water Bank Program. Another program at the federal level is a new Wetlands Reserve Program to be administered by the Soil Conservation Service (SCS). The goal of the program will be to return marginal crop land to wetlands. To accomplish this, the SCS will enter 10 to 30 year contracts with property owners through which the owners will receive payments for retiring the land and restoring wetlands. Guidelines have not yet been promulgated but it is anticipated that California will be one of the participating states and that money will be available during 1992.

Others involved in identification and protection of wetlands include the U.S. Fish and Wildlife Service and the State Department of Fish and Game. In addition to the more formal 404 process, these two wildlife agencies may intervene to protect wetlands through the federal and State endangered species acts, respectively, if endangered species are present, through the California Environmental Quality Act (CEQA), and through the auspices of the federal Migratory Bird Treaty Act.

Riparian habitat exists along the Sacramento River and certain stream courses such as Stony Creek. Historically, bands of riparian vegetation extended four to five miles inland from the banks of the Sacramento River. According to the Upper Sacramento River Fisheries and Riparian Habitat Management Plan, agriculture, firewood cutting, channelization, dam and levee construction, bank protection and stream flow regulation have all led to its reduction. What remains is generally along the immediate banks of the River. It was noted under Section 4.1.1 that the State Lands Commission regulates vegetation removal along the Sacramento River. Along Stony Creek, instream mining of aggregate has had an adverse impact on riparian vegetation.

The Upper Sacramento River Fisheries and Riparian Habitat Management Plan was completed by the State Department of Water Resources in 1989 in response to legislative mandate. Its purpose is to protect, restore, and enhance the fish and riparian habitat and associated wildlife of the upper Sacramento River. The document contains a Riparian Habitat Restoration Plan which states the following about stretches of the River in Glenn County:

The most significant area of remaining riparian habitat, as well as the most feasible location for reestablishing a functional Sacramento River riparian ecosystem, is in the Chico Landing (near Hamilton City) to Red Bluff reach... Within the Butte Basin reach, (Colusa to Chico Landing), opportunities for retaining an active meanderbelt are limited. The Sacramento River Flood Control Project will effectively freeze much of the remaining unveeved reach in place. Nevertheless, there are significant habitats adjacent to the River that are in need of long-term protection...

The Plan sets out two goals: preservation of remaining riparian habitat and reestablishment of a continuous riparian ecosystem along the River. To accomplish these goals, the document recommends a Sacramento River Riparian Conservation Plan to guide the restoration and preservation of riparian habitat and which also has the support and cooperation of landowners and local governments. It is suggested that once the Plan has been developed, legislation will be needed to create, implement and manage a Sacramento River Riparian Conservation Area. Several methods are proposed that may enable its establishment, including direct purchase of lands, conservation easements and transfer of development rights. Also suggested are tax incentives for retention of riparian areas and "set-aside" agreements where payments are made to landowners in return for retaining riparian areas.

The Plan requests Congress and the State Legislature to designate boundaries for a Riparian Conservation Area and to set guidelines for establishing a board of directors. Means of funding the actions are discussed, including use of bond act money. It is apparent, however, that new sources of funding will be needed.

Along other watercourses, decisions may be made by local special districts, the County and landowners. Work within a stream course, such as Stony Creek, requires a Streambed Alteration Permit from the State Department of Fish and Game. If endangered species are present, vegetation removal may involve consultation with Fish and Game or the U.S. Fish and Wildlife Service. If the streamcourse is within a designated floodway, a permit may be required from the local flood control district or the State Reclamation Board.

The above described Upper Sacramento River Fisheries and Riparian Habitat Management Plan also contains a proposed program for tributary riparian areas. The program contains many features in common with that for the Sacramento River although emphasis is placed on locally implemented programs such as Williamson Act. It is suggested that riparian zone management plans be included as a part of General Plan Conservation and Open Space elements.

Other Plan recommendations for tributaries include encouragement of the use of alternatives to rock riprap as bank protection techniques, the reconstruction of U.S. Army Corps of Engineers-

designed flood control projects with setback levees to allow for both the adequate passage of floodwater and reestablishment of the riparian community, and other changes in Corps operation and maintenance procedures. The Plan also recommends "Streamside-Riparian Zoning" which would have as a priority retention of riparian habitat. The Plan notes that in the writers' judgement, of the six upper Sacramento Valley counties, only Butte and Shasta Counties regulate land uses well enough to effectively conserve riparian vegetation.

At present the lower stretches of Stony Creek as well as some areas bordering the Sacramento River are zoned E-M, Extractive Industrial Zone. The zone permits a variety of surface mining, quarrying, dredging and material processing. Surface mining has had a significant impact on riparian vegetation and present County practices may not afford adequate protection to this resource. Consideration should be given to removal of this designation or modification of the Zoning Ordinance text to provide specific standards and procedures governing such activity. Consideration should also be given to Streamside-Riparian Zoning as recommended by the Riparian Habitat Management Plan.

Due to the strong interest at the State and federal level in preservation of wetland and riparian areas, it is important that the General Plan establish clear policy on the subject of agency coordination and that areas targeted for preservation be identified in the General Plan. The various recommendations contained in the Fisheries and Riparian Habitat Management Plan should also be recognized in the General Plan.

4.2 Sensitive Species

Federal and State endangered species laws require that threatened and endangered species habitat be protected during the development process or be compensated for in some predetermined fashion. As noted, certain waterfowl visiting the area have special status. In addition, there are 26 other species, including northern spotted owl, which have State or federal status and which are known to occur within Glenn County.

Wherever lands have been undisturbed for a period of time, it is likely that a biological survey will be necessary prior to issuance of permits for development in order to determine if sensitive species may be present. If certain sensitive species are present and a "take" may occur, a habitat conservation plan pursuant to the Federal Endangered Species Act may be required. A "take" includes destruction of habitat and is defined much more broadly than simply the killing or direct destruction of an endangered species. If certain species are known to occur over a wide area, it may be desirable for the County or some other interested group to take the lead in creating an areawide habitat conservation plan, relieving individual property owners of the obligation and assuring that issues are addressed in a more comprehensive fashion. Habitat conservation plans, when done for a larger area, may also identify lands for eventual purchase and preservation. Such proposed preserves could serve as "mitigation sites" when development is proposed elsewhere which requires mitigation of biological impacts.

Species of special concern in Glenn County which the General Plan should specifically address are Swainson's hawk, yellow-billed cuckoo, bank swallow, Valley elderberry beetle and California hibiscus along the Sacramento River, Aleutian Canada goose in the vicinity of

Sacramento National Wildlife Refuge, spotted owl in the forest areas, bald eagle in the foothill region, especially around the two reservoirs, and several endangered plants occurring in the foothills and along riparian corridors.

Because of the necessity to protect candidate, threatened and endangered plant and animal species, constraints can be placed on otherwise developable land and, at times, existing activities. As noted above, a habitat conservation plan may be required prior to development where it is determined that a take of certain species may occur. The General Plan should contain policy describing the County's approach to sensitive species issues, recognizing that State and federal agencies can and do act independently of the County. If certain areas are of particular importance to sensitive species, those areas should be identified in the Plan and policy formulated to assure their retention and to avoid conflicts with federal and State statutes.

4.3 Maintenance/Enhancement of Fisheries

The Upper Sacramento River Fisheries and Riparian Habitat Management Plan includes a number of recommendations for maintaining and enhancing fisheries in the Sacramento River. Most recommendations deal with issues beyond the boundaries of Glenn County, including modifications to Red Bluff Diversion Dam and modifications at Shasta Dam. Some recommendations, however, have direct impact on Glenn County, including a recommendation concerning the improvement of fish screen efficiency at the Glenn-Colusa Irrigation District Diversion near Hamilton City. An injunction was issued on January 9, 1992 that prohibits this facility from pumping water for a four and one-half month period each year. If the court order is not overturned, water cannot be pumped from July 15th to November 30th.

The Fisheries Plan has as its purpose the restoration and enhancement of the salmon and steelhead fisheries in the upper Sacramento River. The Plan indicates that salmon and steelhead runs in the River have declined substantially in recent years, and that the decline will continue unless large-scale restoration actions are undertaken quickly. The Plan describes the situation as follows:

The Sacramento River produces four distinct races of chinook salmon: fall, late fall, winter, and spring runs. All races have declined substantially. The fall run, which accounts for nearly 90 percent of the total ocean catch is presently at about 50 percent of historic numbers; the late fall run has declined a similar amount; the winter run has declined nearly 98 percent (since reliable counts became available at Red Bluff Diversion Dam in 1966) and is almost a threatened species; and the wild strain of spring run numbers only a few hundred and presently exists in only two or three tributary streams. Without immediate action, this race may soon become extinct. Steelhead populations have declined from about 18,000 in 1966 to less than 2,000 in 1988.

In the two years since the Plan was written, conditions, driven in part by the California drought, have worsened with the winter run salmon now being listed as federal threatened and State endangered.

In addition to changes at the Glenn-Colusa Irrigation District Diversion, the Plan recommends that unscreened diversions affecting fisheries be eliminated and that certain improvements be made to Butte Creek to facilitate return of the anadromous fishery to that stream. Although not discussed in the Plan, there is local interest in returning conditions on Stony Creek to a point where a healthy salmon run exists. This will require a close review of gravel extraction activities to assess adverse impacts resulting from such operations.

It will be important in the general plan process to weigh the impacts of development on the Sacramento River salmon and steelhead fishery. It is obvious that diversions and the manner in which they are undertaken is a key issue. It is also a very sensitive one if retrofitting of existing facilities is to be undertaken, since a determination as to who is to pay must be made.

4.3.1 Conflicts With Irrigation Practices

Irrigation practices may conflict with fisheries maintenance in two ways. First is the conflict between the need for fish transportation flows and the need to irrigate rice fields and other crops. Associated with this is a similar conflict in the fall when duck clubs are flooded. A second concern has to do with the quality of water returned to the River by agriculture. The Central Valley Regional Quality Control Board requires the holding of drain water on rice fields to control the levels of herbicides returned to the River. This deprives the River and other streams of important flows during certain periods, yet to return the water too quickly could be harmful to aquatic life. Additional study of the problem needs to be undertaken to determine if there are changes in practice that would allow fisheries to benefit without harming other parties.

4.4 Hunting

Glenn County is noted for its hunting opportunities. Of particular importance are deer, waterfowl and upland game. Important among upland game is pheasant. Although an exotic species, pheasant have naturalized in many agricultural areas of California and are actively managed by the Department of Fish and Game and others. Hunting activities are carried out on private lands, the Sacramento National Wildlife Refuge and the National Forest. Hunting associations have been formed which permit hunters access to private lands and various other forms of hunting for pay exist, including duck clubs and hunting on the Wildlife Refuge. The State Department of Fish and Game and U.S. Fish and Wildlife Service regulate hunting and have encouraged such activity as an integral part of game management and as a source of revenue. Hunting has traditionally been viewed by wildlife biologists as an opportunity to harvest surplus game that would otherwise be lost to other forms of mortality. As game numbers have declined, many have questioned the wisdom of past practices. Most agree, however, that the most significant impact on game is brought about through loss of suitable habitat.

In recent years the number of hunters has fallen as California has become a more urbanized state and as the availability of game has declined in many places. A formidable anti-hunting lobby has arisen as those from more urban areas lose their association with traditional lifestyles. Although the anti-hunting lobby is a minority, those who hunt are also a minority. The continuation of hunting and the lifestyle and economic benefits it brings to Glenn County are dependent on public opinion and on maintenance of a natural environment conducive to production of adequate supplies of game.

Maintenance of a natural environment suitable for game is, to a degree, dependent on retention of wetlands, riparian areas and other natural features discussed previously. Pheasant are dependent on an undisturbed nesting period between April 1 and July 1 of each year. Unfortunately this period is one of high activity for agriculture. The Agricultural Stabilization and Conservation Service has outlined a program for reducing pheasant mortality during this period. The General Plan can enhance hunting opportunities in Glenn County by supporting retention of natural areas and agricultural practices which protect game.

It may be desirable to establish certain standards in the General Plan for hunting camps, duck clubs, etc. to assure that health and safety problems do not arise in an ever more densely settled world. It may also be useful to encourage, through policy, land owner involvement in managed pay-to-hunt arrangements or the sale of hunting rights independent of the underlying fee title. This would allow a landowner to reap an economic return while continuing to hold title to the land, and at the same time permit a controlled and managed hunting environment to be created. The Department of Fish and Game administers a "Ranch for Wildlife" program which was encouraged by the County's existing Conservation Element. The County should continue its endorsement of such activities.

4.5 State, Federal and Nonprofit Refuge and Habitat Acquisition Plans

Considerable discussion has occurred concerning actions by various State and federal agencies and non-profit groups to purchase lands in Glenn County for wildlife protection. Perhaps the most ambitious undertaking is the North Central Valley Wildlife Management Area described in the Environmental Setting Technical Paper. This Wildlife Management Area is to be undertaken in furtherance of the North American Waterfowl Management Plan signed by the United States and Canada in 1986. "This Plan seeks to restore and maintain the diversity, distribution and abundance of waterfowl that occurred during 1970 to 1979..." The Central Valley is one of the areas receiving priority planning and funding through an organization known as the Central Valley Joint Venture. The Joint Venture is composed of public and private organizations which are pooling resources to plan for and purchase waterfowl habitat.

The Management Area spans eleven counties and involves a combination of fee title and conservation easement acquisitions. In Glenn County, no fee title land acquisitions are proposed; however, purchase of approximately 7,000 acres of conservation easements is proposed by the U.S. Fish and Wildlife Service on land north and east of the Sacramento National Wildlife Refuge. The easements would allow the Fish and Wildlife Service to jointly manage the property for waterfowl use. Both development rights and farming rights may be purchased. The underlying fee owner would continue to have the primary interest in the property. In the case where farming rights are also purchased, that interest may be limited to the right to reside on the property. The easements are to be acquired from "willing" sellers with acquisition spread over a fifteen year period. The Fish and Wildlife Service has estimated an annual net economic loss to Glenn County of \$405,617 if the easements are acquired. The Fish and Wildlife Service is presently soliciting easements.

Other purchases include portions of the Sacramento River Riparian Conservation Area discussed under Section 4.1.2. The Glenn County Assessor reports two recent purchases within the Sacramento River levee including land containing orchards. The 15,000 acre Llano Seco Ranch in both Glenn and Butte Counties was also recently acquired, in part, through easements by the Nature Conservancy and State and federal agencies. South of Llano Seco, the 8,000 acre McGowan Ranch has been purchased by the State Department of Fish and Game. Approximately 3,300 acres of the Ranch are in Glenn County. The Department of Fish and Game reports that a draft plan for the property is in preparation entitled Management Plan For The Upper Butte Basin Wildlife Area. With Llano Seco, the McGowan Ranch and Grey Lodge in adjacent Colusa County, an almost unbroken belt of waterfowl habitat now exists east of the Sacramento River in Glenn and adjoining counties.

In September 1991, an Executive Council was formed through a Memorandum of Understanding between federal and State land management agencies, University of California, U.S. Fish and Wildlife Service and California Department of Fish and Game. The purpose of establishing the Council is to develop guiding principles and policies, design a statewide strategy for conserving biodiversity, and coordinate implementation strategies at a regional and local level. The State has been divided into ten "bioregions" which support a "logical" ecosystem. It is intended that regional councils be established for each bioregion composed of representatives from local governments, environmental groups and other interested parties, which will cooperate and coordinate information to plan and set goals which best conserve and preserve the amenities of their specific ecosystems. Glenn County is part of the Sacramento Valley bioregion. Due to the potential impact on Glenn County from the actions of the represented agencies, the County should request membership on the regional council for the Sacramento Valley.

4.5.1 Impact on Tax Rolls

Fee title purchases by public agencies obviously remove land from the tax rolls. Conservation easements, however, leave land on the tax rolls and may provide for farming activities to be continued in some fashion. Most acquisitions in Glenn County are proposed to be by easement. Although easements do not remove land from the tax rolls, they do have the potential to diminish property value, especially where farming rights are purchased, which will result in a reduced assessment. The County Assessor reports that purchases to date have been primarily in areas used for hunting. As the program spreads out into areas devoted more heavily to farming, the purchase of easements which restrict agriculture may diminish property value by up to two-thirds. If this is borne out, the County along with other affected counties should advocate for a property tax replacement program applicable to lands diminished in value by easements.

If land were purchased outright, the County would be eligible for payments under the federal Refuge Revenue Sharing Act. The Act is intended to reimburse counties for property tax loss. Payments, however, depend on the amount allocated by Congress and have not always equalled the loss in property tax revenues. The County Assessor reports that if the federal Refuge Revenue Sharing Act were fully funded, full fee purchase of lands in Glenn County would result in very little tax loss.

4.5.2 Impact on Pest and Animal Control

The reestablishment of substantial areas which are left in a natural condition could create animal and pest control problems for nearby properties engaged in agriculture as well as allow for the spread of mosquitos. Such areas can also lead to the need to restrict use of certain agricultural control chemicals on surrounding properties due to the concern that endangered species attracted to the area may be harmed. Wetlands restoration work must be carefully managed to avoid conflict with vector control efforts directed at reducing disease potential. If new natural areas are established in Glenn County, the County should look to establishment of buffer areas that will minimize conflicts with adjacent properties.

4.5.3 Tourism Opportunity

With the increasing emphasis on the natural environment and the interest among urban dwellers in experiencing things natural, including bird watching, camping and generally getting out of doors, the creation of wildlife refuges and natural areas could attract tourists and weekend travelers to Glenn County. This is consistent with a desire among many local officials to increase tourism in the county. Unfortunately, it is unlikely that the type of preserves to be established will be designed to attract large numbers of new visitors. The focus will be on preservation of wildlife in a relatively undisturbed environment. Tours of sites may be sponsored by groups such as the Nature Conservancy but the sites will have limited access and appeal to most groups. In addition, much of the acquisition activity will be by easement with farming and other activities continuing on the site.

It is likely controlled hunting opportunities will expand in some instances but it is unlikely this alone will bring a significant increase in visitors. An increase in hunting opportunities does, however, bolster one of Glenn County's strengths and is consistent with an interest in promoting use of lands for hunting by groups and individuals willing to pay for access.

Additional fishing opportunities may also be created along the Sacramento River since the focus of some acquisition programs will be the improvement of salmon runs. Such improvements could attract additional fishing activity to the area.

4.6 Biological Resources Opportunities, Constraints and Conclusions

- Biological resource issues in Glenn County focus primarily on retention and enhancement of diminishing habitat for species. Both the State and federal government are playing and will continue to play a significant role in habitat preservation through a variety of programs, regulations and agencies. How the County intends to respond to these initiatives and what role the County wishes to reserve to itself is key in the biological resource area and should be spelled out in the General Plan, including sites suitable for acquisition.
- From an economic development perspective, the various State and federal initiatives may have some limited value because of enhanced hunting, fishing and wildlife observation opportunities which translate into more visitors to the county. It is unlikely, however, that this will offset the economic loss resulting from less land in production, lost development opportunities and land use conflicts that are likely to arise. To help offset this loss, the

County should advocate for more reliable and inclusive federal and State programs designed to offset property tax loss.

- When considering wildlife preservation approaches, it makes most sense to look at systems or areas, rather than individual species or properties. The programs formulated by State and federal agencies for preservation of the Sacramento River Corridor (including the Butte Sink properties) or the Sacramento National Wildlife Refuge area wetlands are preferable to waiting for development opportunities to come along and then raising biological issues. If the General Plan can identify areas in which development can proceed relatively unconstrained by biological issues, then the trade-off may be worthwhile.
- Focusing preservation efforts on the Sacramento River Corridor, the National Wildlife Refuge area, migratory deer herd areas, and streamcourses such as Butte and Stony Creeks would appear to be a good "fit" with State and federal intentions and will provide ample opportunity elsewhere in the county for housing and economic activity.
- If development is proposed through the Plan process to occur in proximity to the Sacramento River, specialized policies need to be formulated assuring that compatibility with State Lands Commission policy is feasible. Further, the County needs policy on how it will interact with the State Lands Commission during review of development proposals.
- Since there are sizable private inholdings within Mendocino National Forest, it is important to share information with the National Forest concerning biological resources to assure that future actions of the County and Forest are coordinated.
- In addition to coordinating with the National Forest to assure appropriate development within inholdings, it is also important to assure that County policy protects the important deer winter range located west of Black Butte Reservoir.
- A buffer area may be needed around the Sacramento National Wildlife Refuge which protects the Refuge from incompatible development. The buffer area could focus activity in the area on those uses already established or those which benefit directly from the Refuge such as hunting clubs. Similar buffer areas may become necessary around other areas acquired or proposed for acquisition. Because State and federal actions create the need for such buffer areas, State and federal government should assist in offsetting the economic costs to property owners and the County.
- Policies should be formulated that focus local attention on protection of important foothill area resources, including protection of the two reservoirs from incompatible encroachment and protection of the Orland Buttes as an important biological resource area. Policy should also be included in the General Plan on preservation of foothill oak woodlands.
- It is anticipated that General Plan policy will direct development away from areas with wetland resources. It can be anticipated, however, that areas qualifying as wetlands will be

encountered from time to time in areas slated for development. Policy needs to be created that spells out how the County intends to handle such situations, including questions of coordination with the Army Corps of Engineers. It is unlikely that Glenn County will have sufficient development activity to make a wetlands banking program feasible.

- The Upper Sacramento River Fisheries and Riparian Habitat Management Plan suggests local adoption of riparian zone management plans as a part of the General Plan. Streamside Riparian Zoning is also recommended. Due to the interest in riparian areas in Glenn County, development of the suggested plan should be given careful consideration. The County should also consider removal or modification of the present E-M zone located on Stony Creek and along portions of the Sacramento River.
- The General Plan should contain policy describing the County's approach to dealing with sensitive species issues, recognizing that State and federal agencies do act independently. Dealing with the subject in the context of preserving areas for a variety of species should be viewed as preferable to the species-by-species approach. In this context the areas described for protection (e.g. the Sacramento River corridor, etc.) in this Issue Paper will generally fulfill this role.
- Returning better salmon and steelhead runs to local streams should be viewed as beneficial to the environment and also as a potential economic development tool as greater fishing opportunities are created. Associated with this are present water management practices which require study to determine if a more beneficial outcome for all parties is possible.
- Development of additional hunting opportunities should be encouraged by the General Plan. In this manner, the cost of preserving natural areas can be partially offset. Included should be a variety of pay-to-hunt opportunities.
- Standards for hunting camps and related enterprises need to be created as a part of the general plan process to assure that the public health and safety of those who may pay for the privilege to hunt in Glenn County is protected.
- It is apparent that the acquisition and purchase of various lands in fee and otherwise by public agencies will proceed in Glenn County. With this backdrop, it behooves the County to take a proactive approach and identify ways to benefit economically from these actions.

5.0 TIMBER RESOURCES

Background

Timber resources in Glenn County are composed of a variety of soft woods including white fir, red fir, yellow pine, Douglas fir, ponderosa pine, and incense cedar. Harvestable trees come predominantly from Mendocino National Forest although there are also private lands containing timber. Private land managed for timber production is shown on the County Zoning Map as

Timberland Preserve Zone (TPZ). Public lands within the National Forest are managed by the federal government, with the County having little jurisdiction.

Within the Mendocino National Forest, present plans provide for an annual timber sale of approximately 85.5 million board feet (including lands in other counties). A Land Resource Management Plan is currently under development for the Forest and is expected for completion in early 1992. The Plan will include new requirements for the management of the Forest in order to assure protection for the northern spotted owl. It is estimated that the new Plan will reduce timber harvest to approximately 20 to 25 million board feet.

Timber harvesting on private lands is regulated by the State Board of Forestry which approves timber harvest plans, upon request, for specific properties. Typically such plans are referred to the local planning agency for information, after approval. The Planning Department reports that the number of approved timber harvest plans received has declined. The largest private timber company in Glenn County is Louisiana Pacific. It is reported that Louisiana Pacific lands have been harvested heavily in Glenn County and that little harvestable standing supply remains. Louisiana Pacific once operated a mill at Elk Creek which has been closed for several years.

Although timber harvesting has historically been an important component of the Glenn County economy (About 4.4 percent of the total county work force was employed in forestry-related industry in 1990), the Forest Service projects that timber production may decline to less than thirty to forty percent of levels prevalent in the 1980's. Regionally, lumber mills have closed down or been consolidated into major milling centers. The role of the timber industry is not expected to grow in relation to the balance of the economy.

Specific Concerns

5.1 Future of Timberland Preserve Zone Lands

Approximately 30,000 acres of private lands within the Mendocino National Forest are zoned TPZ. TPZ was mandated under the Z'Berg-Warren-Collier Forest Taxation Reform Act of 1976, now known as the Timberland Productivity Act of 1982. Its purpose is to discourage the premature conversion of timberland to other uses. The law also requires the Land Use Element of the General Plan to reflect the distribution of TPZ Zoning and to have a land use category that provides for timber production. The State of California General Plan Guidelines describe TPZ as follows:

Patterned after the Williamson Act, TPZs are rolling ten-year contracts providing preferential tax assessments to qualified timberlands. Under this program, assessments on timber are based on the value of the timber at the time of harvest, rather than an annual assessment on the market value of standing timber. Assessment of zoned timberland is based on a statutory value of land that is related to site capability, and is annually indexed to changes in the periodic immediate harvest value.

During the first two years of the act, local governments could adopt TPZ zoning on qualified parcels without approval of the property owner provided that the statutory procedures were followed. Currently, additions to the local program are limited to requests from property owners.

Subject to approval by the legislative body, land may be removed from a TPZ by rezoning. The effective date of the new zone will be deferred, however, until expiration of the ten-year restriction. The local legislative body may, under special circumstances, approve immediate rezonings as well.

The County Zoning Ordinance limits TPZ lands to timber production and related activities. One dwelling is permitted per TPZ "contract". With the decline in the fortunes of the timber industry, the County may be faced with requests for rezonings. As noted, the rezoning will not be effective for ten years unless special circumstances exist. The special circumstances are related to matters of public interest and would not apply to a typical request for rezoning.

Removal of lands from TPZ could boost County property assessments since assessments are now restricted on such lands. It is likely that any resulting development would be recreationally related which could be a positive economic stimulus but will also carry a County service responsibility in relatively remote areas. Property owners will have a variety of responses to the timber industry's decline but it is probable that one response will be to seek another form of economic return from the property which could lead to conflicts with TPZ. If a paved highway is extended across the crest of the Coast Range, this potential is considerably enhanced.

Another option available to landowners will be to trade inholdings with the Forest Service for land elsewhere. The Forest Service often encourages such trades in order to consolidate its holdings. Large multi-state companies such as Louisiana Pacific are particularly adept at such trades and may trade spent timberland in California for harvestable timber in another state. Such activity would effectively eliminate TPZ on transferred lands and would also remove the land from the tax rolls.

5.2 Sensitive Species

Endangered and sensitive species within Glenn County timberlands include northern spotted owl, bald eagle, peregrine falcon, fisher, goshawk and marten and several rare plants. The impact of these species, in particular the northern spotted owl, is widely recognized. The listing of the northern spotted owl as threatened has had a significant effect on timber harvest plans. The owl and other species may have similar effects on other forms of development on private lands.

It will be necessary that biological studies be undertaken as development proposals are brought forward for lands now in TPZ. Although impacts on sensitive species will need to be carefully assessed, it is probable that some forms of recreation related development can be accommodated on private lands within the Forest.

5.3 Watershed Protection

The National Forest and private lands within the Forest perform a critical watershed role in Glenn County supplying water for agriculture, domestic use and power production. The greatly increased competition for water resources experienced in recent years coupled with the decline in timber production will place greater emphasis on the watershed protection values of the Forest. Development must be carefully designed and monitored to assure that it does not impair the ability of the Forest to perform this function. Erosion caused by road cuts and other forms of development can have a deleterious effect on downslope watercourses and can lead to the siltation of streams and water bodies, resulting in reduced capacity and a degraded water supply. Siltation also has a negative impact on fisheries and other aquatic resources.

Clear policies and standards must be set out in the General Plan which place a high priority on watershed protection. Included should be standards for vegetation retention, stream and drainage course setbacks, cut and fill, land coverage, and limitations on development on steep slopes. With the potential value of Glenn County's water resources, their protection should take precedence over forms of development that may have the potential to create short term gains coupled with long term impacts.

5.4 Changes in Timber Harvesting Plans

As has been noted under Background, it is clear that timber harvesting on public and private lands is in a state of decline. Under the Management Plan now being written by the National Forest, it is estimated timber production will be reduced 60 to 70 percent. Similar declines can be experienced from private lands as greater emphasis is placed on biological resources preservation and other values.

With a decline in timber harvest, there is also a decline in County revenues. Receipts are paid to the County by the National Forest to be shared equally between the public schools and the road fund. The program is commonly referred to as the "25% receipts program", since local government receives 25 percent of the revenues generated from Forest activities. The function may also be referred to as an "in-lieu of tax receipts" program, since the purpose of the program is to reimburse local government for lost property tax. Total Forest revenues are taken into consideration and may include, in addition to timber harvest receipts, revenues from recreational use permits, grazing fees and mining as well as other activities. In the case of Mendocino National Forest, fees attributed to timber have approached 95 percent of total Forest receipts.

Over the last six years revenues to Glenn County government have averaged approximately \$600,000 on an annual basis. In future years it is likely such revenues will decline to a level approximating \$150,000 to \$200,000. The Forest reports that approximately 20 million board feet is currently under contract. This compares with three to four times that amount under contract, based on past norms. Although timber production has already declined, it is not reflected in the above reported receipts due to the fact that payment is made at the point timber is processed as opposed to when it is cut. This results in a lag in the time a reduction in timber production is felt at the receipts level. The above described decline in Forest receipts shows

clearly that the reduction in timber harvest will not only reduce jobs and economic activity in Glenn County but also reduce direct financial support for Glenn County schools and roads.

At all levels of government, there is an awareness that the forests of California will be called upon to perform increasingly as areas of recreational solitude for harried urbanites, as preserves for scarce species of plant and animal life and as protected watersheds to quench the State's increasing thirst. In this context, the timber industry will play a secondary role rather than the dominant one played during most of this century. The County must be ready to respond to these new directions through formulation of General Plan policy which will recognize these realities while providing for economic use of private lands within the Forest.

5.5 Timber Resources Opportunities, Constraints and Conclusions

- The timber industry in Glenn County and elsewhere in Northern California is in a serious state of decline. This means both lost jobs and tax revenues to Glenn County. The General Plan needs to recognize this reality and at the same time propose new directions which capitalize on remaining opportunities.
- State law requires the General Plan to recognize the distribution of TPZ lands and to have a land use category for timber production. The present General Plan for Glenn County complies with this requirement.
- As a result of the decline in timber production, the County may be faced with requests to change TPZ to another zoning category that will allow for other forms of economic return. The most probable alternative land uses will be those related to recreational activity. It will be in the County's interest to take an objective look at such requests in order to explore all potential economic development opportunities.
- The timber industry decline may prompt trades of private lands with the National Forest resulting in a loss in local tax base. The County should discourage such trades unless they are seen as necessary to preservation of critical watershed and wildlife areas.
- The removal of lands from TPZ could boost County property tax assessments. At the same time, demands for additional county services will be generated in remote reaches of the county. The County should assure that such development shoulder its fair share of service related costs through appropriate assessments and mitigation fees.
- Although impacts on sensitive species and other wildlife must be considered, it is probable that some forms of recreation related development can be accommodated on private lands within the Forest. The County may wish to approach major landowners to determine the level of interest that may be present in exploring recreationally related development.
- Timberlands play a major watershed protection role. Clear policies and standards must be set out in the General Plan which place a high priority on watershed protection. Included

should be standards for vegetation retention, stream and drainage course setbacks, cut and fill, land coverage and limitations on development on steep slopes.

- Not only are jobs and economic activity lost due to reduced timber harvesting, but also tax revenues to local government under the "25% receipts program". The General Plan must recognize this reality while seeking new directions for use of timbered lands which will preserve and capitalize on their unique recreational, biological, and watershed values.

6.0 MINERAL AND ENERGY RESOURCES

Background

Mineral and energy resources are found in relative abundance in Glenn County, and represent a potential source for economic development in the county. In addition to providing local employment and resources for local use, several of these processes provide a source of revenues to the County, both through direct fees and property taxes.

The County is currently in the process of developing an Energy Element of the General Plan for adoption in 1992. This is an optional element of the General Plan which still must be consistent with the seven mandatory elements. Material from three working papers which have been completed for the Energy Element - the Environmental Resources and Energy Technologies - Draft Environmental Setting, the Energy Facility Siting Working Paper and the Energy Efficiency and Conservation Working Paper - has been referenced and excerpted in this section. In addition to discussion contained in this Issue Paper, recommendations regarding specific energy goals and policies for the County will also be a part of the Energy Element. This Issue Paper will identify certain goals, policies and implementation strategies where a desired direction is presently known, and will defer to the Energy Element for others.

Specific Concerns

6.1 Distribution of Mineral Resources and Provisions for their Continued Availability

6.1.1 Natural Gas

Figure 2-9 of the Environmental Setting Technical Paper shows the existing gas fields within Glenn County. While these fields are located throughout the valley floor portion of the county, the Malton-Black Butte field located on the border with Tehama County, and the Willows-Beehive Bend field located in southeastern Glenn County account for nearly 80 percent of the total gas production in the county. Detailed production and estimated reserve figures for operations within those fields during 1989 are contained in Table III-1 of the Energy Facility Siting Working Paper of the Glenn County Energy Element.

Approximately 2.8 percent of total statewide natural gas production in 1989 was produced in Glenn County. According to the Energy Facility Siting Working Paper, it is quite likely that

natural gas production will continue in Glenn County for at least the next twenty years. No public information exists regarding planned or proposed facilities. The paper concludes that the County should expect significant gas exploration and extraction to continue, most likely centered around the existing gas fields.

The Energy Facility Siting Working Paper notes that Pacific Gas and Electric Company (PG&E) operates gas well collection pipelines to convey natural gas from the gas fields into their main gas pipeline system. The County can therefore expect that additional gas collection pipelines will be constructed in response to new gas field development. In 1989, the Public Utilities Commission (PUC) decided that the cost and risk of providing gas collection lines should be borne by the gas producers rather than PG&E customers. As a result, PG&E recently discontinued laying gas collection pipelines to individual gas wells (with certain exceptions allowed by the PUC decision). In response, Glenn County created a franchise program that provides gas producers with easements to lay pipelines within County rights-of-way to connect to PG&E's distribution system. In effect, gas transporters pay the County an annual fee (dependent upon the size of the pipeline) for the ability to route pipelines within County-owned rights-of-way.

With regard to gas well siting, their location is obviously limited to areas with a subterranean gas resource. Assuming that the County has an interest in the maintenance and expansion of natural gas resources, it is important to identify gas field locations so as not to preclude gas development by allowing other uses in the vicinity that may conflict with gas development.

The Energy Facility Siting Working Paper identifies the general environmental issues associated with the siting and development of gas and oil wells. It states that natural gas extraction facilities may adversely impact, or be constrained by the following environmental features:

Geology. Geologic features may be impacted by gas and oil facilities, and such facilities may be constrained by geology as follows:

- increased soil erosion potential during exploration and initial production;
- risk of spills, leaks, or discharges that can contaminate the soil; and,
- ground subsidence that can damage infrastructure such as sewer, water and gas mains.

Hydrology. Gas production may adversely impact water resources by:

- pumping extracted wastewater into fresh water aquifers through injection wells;
- polluting surface or groundwater resources through accidental spills or material extracted from wells; and
- increasing erosion and sedimentation to nearby creeks.

Air Quality. Air quality may be adversely affected by oil and gas development by:

- generating air pollutants during recovery and refinement; and
- increasing vehicle traffic associated with transport of oil and gas.

Biology. Biological resources may be impacted by gas field development by:

- degrading air, water and soil quality; and
- converting wildlife habitat into incompatible industrial uses.

Aesthetics. Natural gas extraction may have adverse aesthetic impacts by:

- occupying large areas of land; and
- constructing drilling facilities with tall derricks.

Although noise is not included in this listing, noise from gas well compressors is also apparently an environmental issue. Because of potential impacts to biological, hydrological and aesthetic resources, natural gas extraction should be limited and/or carefully monitored near such sensitive areas as wildlife refuges, streams and riparian habitat, and important view corridors.

The Glenn County Zoning Ordinance allows natural gas wells with an administrative permit in the Recreation (RZ), Foothill Agricultural/Forestry (FA), Agricultural Preserve (AP), Exclusive Agricultural (AE), Commercial (C), Industrial (M) and Extractive Industrial (E-M) zones. Administrative permits are granted by the Planning Director if the following findings are made:

- That the proposed use at the particular location is necessary or desirable in providing a service or facility which will contribute to the general well-being of the public;
- That such use will not, under the circumstances of the particular case, be detrimental to the health, safety or general welfare of persons residing or working in the vicinity, or injurious to property or improvements in the vicinity;
- That the site for the proposed use is adequate in size and shape to accommodate said use and to accommodate all of the yards, setbacks, walls or fences, and other features required herein or by the Planning Commission.
- Except in the case of the expansion of a nonconforming use, that the granting of the permit will not adversely affect the general plan or any area plan of the County.

The County considers such permits to be ministerial and therefore exempt from the California Environmental Quality Act. Injection wells are permitted in the AP, AE, AT, C, M and E-M zones with a conditional use permit.

The Division of Oil and Gas (DOG) of the California Department of Conservation oversees oil and natural gas production of oil and gas wells, and all onshore drilling, production and injection must conform to DOG regulations. Prior to DOG evaluation of a proposed well, however, a driller must have an approved land use permit from the County. This review procedure insures that Glenn County will have permit authority over future gas development.

It is assumed that the County will wish to continue to accommodate, and possibly encourage, additional development of natural gas resources in the county because it represents a source of direct revenues to County government as well as a source of employment and other economic

benefits. The County should plan accordingly, by assuring that any areas proposed for new urban development in the General Plan do not encroach upon known gas fields.

While most fields are located in agricultural fields areas, there are gas fields in the vicinity of East Orland and the Capay area. It is essential in these areas that new urban development and urban limit lines be formulated to avoid these areas to the extent possible and that permits for new wells include mitigation measures designed to minimize impacts on existing development. Standard measures can be developed for inclusion in the Zoning Ordinance as part of the administrative permit approval process.

6.1.2 Sand and Gravel (Aggregate)

Figure 2-8 of the Environmental Setting Technical Paper shows the location of sand and gravel operations within the county. The primary area for gravel extraction occurs along Stony Creek, although there are other pockets of the resource scattered throughout the county.

Commercial mineral extraction is permitted with a conditional use permit in the AE zone, and quarrying, dredging, surface mining, underground mining and removal of overburden for the recovery of commercial and industrial aggregate are similarly permitted in the E-M zone, which has been applied along Stony Creek. Various types of concrete production and distribution are also permitted in the E-M zone. The County continues to receive applications for new gravel extraction operations.

There are potentially significant environmental impacts associated with sand and gravel extraction and related operations, including impacts on geology and soils, air quality, hydrology and water quality, vegetation and wildlife, fisheries, noise, transportation/circulation, public services, land use and quality of life for any surrounding residents. The cumulative impacts of multiple operations on soil erosion, hydrology and depletion of resources raise particular concerns.

All active and proposed surface mining operations are required by State law to submit a reclamation plan to the County which sets forth the eventual restoration of the facility once the resource is exhausted or the extraction ceases for other reasons. These plans are reviewed by the State. However, the security posted to assure that these plans will be implemented is frequently inadequate.

The Conservation Management Element of the Glenn County General Plan (1987) states that gravel extraction, processing and transportation should be properly planned, and that the County should:

- (1) Require that mineral extraction operations be performed in a way that is compatible with surrounding land uses and does not adversely affect the environment.
- (2) Consider the following when approving future extraction:

- a. Preservation of top soil
- b. Preservation of natural vegetation, wetlands and wildlife habitat
- c. Control of erosion
- d. Control of drainage and desilting basins
- e. Control of noise and visual impacts
- f. Ability of roadways to accommodate heavy traffic
- g. An engineering and geological survey
- h. A restoration plan
- i. Bonds commensurate with total costs of compliance with requirements imposed
- j. Preservation of fisheries
- k. Inventories of sand and gravel and their replenishment
- l. Discourage land use policy conflict
- m. Control of air pollution (dust)

However, the existing plan does not include any polices which address these issues.

State law (the Surface Mining and Reclamation Act of 1975) requires the State to identify and classify as to significance areas which are urbanized or subject to urban expansion which would preclude mineral extraction. This identification has not been completed for Glenn County. The law provides that, once the classification is completed, the County must establish mineral resource management policies to be incorporated in the General Plan which will:

- Recognize mineral information classified by the State Geologist and transmitted by the board.
- Assist in the management of land uses which affect areas of statewide and regional significance.
- Emphasize the conservation and development of identified mineral deposits.

As with natural gas, it is assumed that the County has an interest in continuing to accommodate additional development of aggregate resources in suitable locations because of the economic benefits. The County itself uses these materials for road construction and maintains its own extraction operations near Artois. The State recognizes the statewide importance of these resources as well as evidenced by the requirements in State law. The County also has an interest, however, in making sure that these operations do not degrade the quality of other important resources, including water, air and riparian vegetation along Stony Creek, and that new conflicts with urban development are not created.

6.2 Expansion of Energy Resources

Because of the relative abundance of energy resources in Glenn County, and the opportunities for local employment and revenues which follow, the development and expansion of energy resources offer opportunities as well as potential drawbacks. Two resources which are given

special consideration in the Glenn County Energy Element are hydroelectric power and biomass production.

6.2.1 Hydroelectric Power Potential

As described in Section 2.5 of the Environmental Setting Technical Paper, two hydroelectric power facilities are located in Glenn County (Stony Gorge and High Line Canal). These hydroelectric facilities are operated for the City of Santa Clara by the Orland Unit Water User's Association. The State Department of Water Resources has performed engineering feasibility studies for construction of various reservoir projects to supplement the State Water Project's capacity. All the projects evaluated would include hydroelectric power generation facilities. These projects are currently on hold, however. According to the Energy Facility Siting Working Paper, the County should expect some aspect of the project to be proposed as state water becomes increasingly scarce.

The Working Paper identifies the general environmental issues associated with the siting and operation of hydroelectric facilities as follows:

Hydrology. Hydroelectric facilities may adversely affect water resources by:

- changing stream flows;
- changing the amount of groundwater recharge; and
- affecting water turbidity (the amount of sediment within the water) and oxygen content.

Biology. Biological resources may be impacted from hydroelectric development by:

- displacing terrestrial habitat with a new lake environment;
- restricting wildlife migration patterns; and
- altering water quality and quantity, thereby adversely impacting aquatic life.

Geology. Geologic features may be impacted by hydroelectric facility development and such facilities may be constrained by geology as follows:

- increasing erosion potential during construction;
- creating exposure to earthquake hazards; and
- creating landslide potential.

Aesthetics. Hydroelectric facilities may adversely impact aesthetics by:

- being located on steep, visible slopes to take advantage of hydrostatic head;
- converting a free flowing natural stream landscape to an industrial-looking facility.

Cultural Resources. Hydroelectric projects may impact cultural resources by:

- reservoirs inundating cultural sites; and
- disturbing or destroying archaeological sites during construction.

When siting such facilities, consideration should also be given to land use issues as well, such as locating facilities downstream from major population centers, where possible, to avoid hazards

in the event of dam failure. Consideration should also be given to potential land use conflicts resulting from recreational uses created by constructing a reservoir/dam project, e.g. boating, fishing and swimming vs. hydroelectric facilities. It is anticipated that siting criteria will be addressed in the Energy Element which is being prepared separate from the general plan effort. In order to ensure internal consistency among the various elements of the General Plan, potential siting criteria in the Energy Element should be integrated into the overall general plan process.

Hydroelectric facility permitting is controlled by the County unless it is proposed on lands under the jurisdiction of the State or federal government. Various types of these uses are permitted with a conditional use permit in the RZ, FA, AP, AE, AT, RE, R-1, R-M and M zones. However, approvals are also normally required from one or more of the following State and federal agencies: State Water Resources Control Board, California Department of Water Resources, and the Federal Energy Regulatory Commission.

While offering the potential for local employment, revenues, and a new source of electrical power (if the power generated is not exported elsewhere), siting of new large-scale hydroelectric facilities has become extremely sensitive due to the potential impacts described above. The impacts of such facilities on fisheries are receiving increasing attention.

As described above, the County's Zoning Code allows these facilities, with a conditional use permit, in residential zones. It seems unlikely that a hydroelectric facility would be approved in a residential area.

Biomass Production

According to the Energy Facility Siting Working Paper, the agricultural industry in Glenn County offers significant potential for biomass energy (including waste-to-energy) production. Table II-2 of that document estimates potential biomass tonnage from crop residues. Converting the total potential biomass energy above into kilowatt hours yields roughly thirteen times the 1990 electricity use in the county. Aside from the potential energy benefits of biomass conversion, it is reported that air quality benefits may also accrue. Currently, much agricultural waste is burned in the fields, contributing to local exceedances of air quality standards for particulates. While biomass conversion often creates air quality impacts of its own, it may result in a net decrease in pollutant emissions.

Recently adopted legislation already requires a phased reduction in burning of rice straw. However, the characteristics of rice straw also limit its utility for biomass conversion. According to the Energy Facility Siting Working Paper, the requirements of the Clean Air Act coupled with the current inability to use rice straw as a biomass feedstock may significantly affect the rice industry within Glenn County.

There is currently one waste-to-energy facility located in Glenn County, but it is not operative. Glenn County is considering entering into a contract for construction of a pyrolysis (chemical changes caused by heat) facility at the Glenn County landfill. These types of facilities are not specifically listed as permitted or conditional uses in the Glenn County Zoning Code.

The Energy Facility Siting Working Paper identifies the following general environmental issues associated with the siting and operation of biomass conversion facilities:

Geology. Geologic features may be impacted by biomass conversion facility development, or geology may constrain such development as follows:

- requiring landfill space for ash disposal;
- creating the potential for erosion and soil impacts from crops raised specifically for biomass consumption; and,
- increasing runoff and resulting sedimentation and leaching of pesticides and fertilizers.

Air Quality. Biomass conversion facilities may adversely impact air quality by:

- venting by-product emissions such as carbon dioxide, oxides of nitrogen, sulfates, and particulate matter into the atmosphere;
- creating objectionable odors near adjacent sensitive land uses;
- employing grain elevators, screening, and grinding equipment during the fuel loading, drying and handling processes; and,
- increasing vehicle traffic associated with transporting biomass products.

Water. Biomass energy production may impact water resources by:

- using large quantities of water for cooling and washing of facilities;
- creating contaminated waste water; and,
- requiring additional treatment facilities to treat contaminated waste water.

Biology. Biomass facilities may adversely affect biological resources by:

- exposing humans, wildlife and habitat to pollution by-products; and,
- eliminating endangered species and/or their habitat through removal of forestry slash.

Aesthetics. Aesthetics may be adversely impacted by biomass facilities by:

- creating a relatively large, industrial type land use;
- employing tall stacks to vent exhaust emissions that are highly visible; and,
- creating plumes of smoke or steam that are highly visible.

Circulation. Biomass may create adverse circulation impacts by:

- requiring large trucks to transfer biomass products to conversion facilities, assuming such facilities are not located where the biomass is generated;
- impacting rural roads which are not designed to handle the weight of fully loaded transfer trucks; and,
- creating safety hazards from large trucks that may constrain traffic movement.

Because of the potential to put the county's large volumes of agricultural waste to productive use, some provision for biomass production should be made in the County's General Plan and Zoning Code. At the same time, the need to ensure compliance with the Clean Air Act must be kept in

mind. This issue should be addressed in the County's Air Quality Attainment Plan, and there should be consistency between that Plan and the County's Energy Element.

6.3 Land Use Compatibility

In addition to the potential benefits of mineral extraction and energy facilities, and the impacts they may have on other resources and the environment, there is also a potential for land use conflicts to occur. The nature of these land use compatibility issues is described below, as excerpted from the Energy Facility Siting Working Paper (with the exception of the aggregate mining discussion). The Glenn County Energy Element will include goals, policies and implementation measures which address land use compatibility issues related to natural gas production and transmission, hydroelectric facilities and biomass conversion.

- Gas and oil wells and pipelines. Gas field development requires initial exploratory activity and later drilling operations that may conflict with noise sensitive land uses. Seismic testing may involve the use of explosives or "thumper trucks" (trucks equipped with pounding equipment that send sound waves into the ground), and drilling rigs typically operate on a 24-hour basis until a well is completed. Possible hazards include some fire and explosion risks, though such events are rare. For these reasons, urban development (especially residential and commercial uses) should be restricted to low densities in or near gas fields, if allowed at all.

Natural gas wells require above-ground valves and other metering equipment, pipelines, and maintenance access roads, such ancillary facilities may conflict with existing agricultural uses by hindering the movement of farm machinery and irrigation equipment, as well as effectively removing agricultural uses where such facilities must be situated. In rural areas using ground water sources, injection well activity may conflict with established residential uses.

- Hydroelectric facilities. Dams used to create reservoirs present the possibility of hazards to downstream land uses in the event of dam failure, though such occurrences are extremely rare because of construction and continuing safety inspections required by the State Division of Dam Safety. While it may be impractical to avoid locating such facilities upstream from major population centers, care should be given to the siting of community emergency response facilities (hospitals, potential emergency shelter sites, control centers, etc.) downstream from reservoirs.

Dams constructed along free-flowing rivers or streams may conflict with recreational uses of the waterway, including certain types of fishing. Conversely, reservoirs can often create new recreational opportunities such as swimming, boating, and fishing, although such activities may not be compatible with nearby hydroelectric generating facilities. Restricted access near generating facilities can help mitigate such potential conflicts.

- Biomass Conversion. Biomass facilities are generally relatively large, industrial-type land uses. They can generate smoke and/or odors that can be offensive or even dangerous to

downwind populations. Such facilities may also require the use of large trucks or other noisy equipment to move biomass and resulting waste products. For these reasons, biomass facilities should generally be located in areas unsuitable for industrial development and away from residences, retail commercial areas, recreation areas, or sensitive wildlife habitats.

- **Sand and Gravel Extraction.** Aggregate mining operations must be located in streambeds, and as such have particular impacts on soil erosion and hydrology. Surrounding agricultural operations and rural residential areas which depend on ground water may experience changes in water quantity and quality. The principal types of conflicts with residential uses are traffic, dust generation and noise. There is a particular problem in the West Orland area where the only access to facilities on Stony Creek is through local roads in a rural residential development. Because extraction must occur where the resource is available, a decision must be made as to whether to allow such operations in proximity to existing residential, agricultural (e.g. orchards), and noise-sensitive uses. New residential and noise-sensitive uses should not be permitted in proximity to existing mining operations, or potential operations if the County wants to encourage such operations.

6.4 Energy Efficiency and Conservation

The Energy Efficiency and Conservation Working Paper has been prepared as a part of the Energy Element work program in order to identify energy use patterns and energy efficiency and conservation programs that may reduce energy use. Several factors are identified which affect the use of energy in Glenn County. For residential use, those factors are listed as population, climate and appliances. The Paper concludes that generally, energy use will grow proportionally with population. The effects of climate are rather obvious with greater energy being consumed during periods of hot and cold weather. The efficiency of household appliances also affects energy use with older appliances operating less efficiently than newer models.

For commercial and industrial uses, heating, ventilation, air conditioning, lighting and refrigeration are the largest factors with manufacturing itself being a significant user in industries such as the Manville fiberglass manufacturing facility. In agriculture, most energy use is associated with the movement of water through pumping of surface and groundwater.

Transportation energy use is primarily related to the individual automobile. Automobile energy consumption is affected by the number of vehicles, how many miles are driven, and the efficiency of those vehicles. Glenn County has relatively few vehicles as compared to other areas of the State, but the relatively low population density, and the lack of public transportation causes trips to be more frequent and to cover longer distances. The manner in which agricultural products are transported also has an effect on energy use. Rail service uses one-fourth the energy to move goods than do trucks. The prohibition on triple tractor trailers in California also causes greater energy use as most truck tractors run more efficiently carrying heavier loads.

Land use planning can have a significant effect on energy use patterns through the way in which development occurs. Scattered discontinuous patterns of development create more automobile trips for basic goods and services. Placing homes remote from jobs also adds to transportation

energy use. The County should plan with energy conservation in mind as it identifies areas appropriate for development and distributes land uses. Access to present and future forms of alternative transportation should also be factored into decisions and provision should be made in new developments for pedestrian and bicycle use, and future park-and-ride lots and transit facilities.

Construction methods and siting of structures should be reviewed with energy conservation in mind. Programs for retrofitting existing homes and businesses should also be encouraged. This should go hand-in-hand with public education programs. These topics, and others discussed above will be covered in more detail in the Energy Element and recommendations from that document will be integrated into the General Plan land use planning process.

6.5 Mineral and Energy Resources Opportunities, Constraints and Conclusions

- Opportunities, constraints and conclusions with regard to energy resources will be excerpted and summarized from the Glenn County Energy Element.
- Mineral resources represent an economic development opportunity, but their extraction may have detrimental environmental effects and create land use conflicts. Using the existing goals for mineral extraction from the Conservation Management Element as a starting point, the General Plan should include policies which assure that impacts of mining operations on the environment and surrounding land uses are fully mitigated, through site-specific mitigation measures and through payment of a mitigation fee which also compensates for resource depletion. These policies can be implemented through the CEQA process.
- Through the Noise Element of the General Plan, the County should establish policies and standards to apply to proposed mineral extraction operations near existing noise-sensitive land uses, and to proposed new noise sensitive land uses near existing mining operations.

7.0 CULTURAL RESOURCES

Cultural resources refer to resources created by humans which are considered to be of value - historic structures and artifacts, archaeological sites and artifacts (primarily Native American in origin), and aesthetics with respect to the impact of structures, signs and other facilities on scenic natural vistas. Such resources may be of local, regional, statewide or even national significance. It is first necessary for the General Plan (normally, the Conservation Element) to identify sites of cultural resource value which the County wants to preserve, then formulate a policy basis for their preservation. This section includes a discussion of issues related to historical, archaeological, aesthetic and scenic resources.

Specific Concerns

7.1 Historical Resources

It is unfortunate that few known historically significant structures remain in the unincorporated area of Glenn County, although there are several historical sites and monuments. These include the Monroeville Cemetery Historical Site, the Will S. Green Monument (County Road 204, relocated by Glenn-Colusa Irrigation District at their diversion gates), Swift Adobe Monument (County Road 99W north of Orland), Kanawha Cemetery Monument (State Highway 162, west of Willows), Monroeville and Ide Monument (State Highway 45 north of Ord), and The Willows Monument (State Highway 162 east of Willows). In addition, according to the 1987 Conservation Management Element, there is a need for a historical monument at the site of the Jacinto landing (State Highway 45 at the junction with County Road 39).

Several cities in California have adopted historic registers, historic preservation elements of their general plans and historic preservation ordinances. It is more unusual for a county to do so, presumably because the historic resources located in the unincorporated area are few or scattered. According to the State Office of Planning and Research, only Mariposa, Monterey and Sonoma Counties have adopted historic preservation elements. Unless there is a high interest locally in identifying and preserving historic structures, it should be sufficient to include policies in the General Plan to protect the sites listed above and to protect additional sites or structures should they be identified.

7.2 Archaeological Resources

As reported in the Environmental Setting Technical Paper, according to information obtained from the California Archaeological Inventory Information Center at California State University, Chico, there are four general environmental zones in Glenn County which vary as to archaeological sensitivity: the Riverine, Valley, Foothill and Coast Range zones. Precise locations of archaeological sites are not divulged in order to prevent plunder and vandalism.

In the Riverine Zone, most sites are villages typically located on raised areas adjacent to the Sacramento River. Any development proposed adjacent to the River would normally be carefully scrutinized anyway for environmental impacts, including archaeological impacts. The Foothill Zone has the highest density of sites, most of which are close to water sources. The Coast Range has a lower density of sites, with most sites located on ridge tops, along streams, and on mid-slope flats. Most of the area within these zones is either within the Mendocino National Forest, or is planned and zoned for grazing where little development occurs and disruption of archaeological sites is unlikely to occur. A large percentage of foothill lands are in Williamson Act contracts as well.

The Valley Zone is the area between the Sacramento River and the foothills. Within this zone, most recorded sites are smaller villages or campsites located along seasonal streams, and historic sites such as homesteads. Because cultivated agriculture and most of the cities and towns of Glenn County are located in this zone, it has the highest potential for disruption.

The Guidelines for Implementation of the California Environmental Quality Act (CEQA Guidelines) establish a process for assessing project effects on historic and prehistoric

archaeological resources (Appendix K). It states that public agencies should seek to avoid damaging effects on an archaeological resource whenever feasible. If avoidance is not feasible, the importance of the site must be evaluated using criteria outlined in the Appendix. According to this Appendix, avoiding damage can be accomplished by many approaches, but in-site preservation of a site is the preferred manner of avoiding damage to archaeological resources. If avoidance is not feasible, the lead agency should include an excavation plan for mitigating the effect of the project on the identified qualities which make the resource important. The Appendix also sets limits on the time and cost of mitigation measures which can be required by the lead agency. Finally, procedures are set forth in the event of a discovery or recognition of human remains outside a dedicated cemetery.

According to Section IX of the Appendix, a lead agency (in this case, the County) should make provisions for archaeological sites accidentally discovered during construction. These provisions should include an immediate evaluation of the find. If the find is determined to be an important archaeological resource, contingency funding and a time allotment sufficient to allow recovering an archaeological sample or to employ one of the avoidance measures should be available. Construction work could continue on other parts of the building site while archaeological mitigation takes place.

The County General Plan should incorporate a policy or policies expressing the County's intent to ensure compliance with Appendix K, including the establishment of standards for when site-specific archaeological surveys will be required prior to project approval. More specific procedures can be delineated in the County's local CEQA Guidelines.

7.3 Aesthetics

The discussion of aesthetics in this section is intended to refer primarily to the natural environment; a discussion relating to the "built" environment, including design review, is included in Section 2.4.1 of the Community Development Issue Paper. Glenn County is fortunate to have great scenic beauty and a variety of scenery, including the Sacramento River and streams, foothill and mountain areas, agricultural vistas on the valley floor, the Sacramento National Wildlife Refuge, glimpses of wildlife and a distant view of Mount Lassen. It is assumed that these visual resources are valued and that the County, through its General Plan policies, has an interest in preserving this resource for local enjoyment as well as for economic development (tourism) purposes.

7.3.1 Light and Glare

The Environmental Setting Technical Paper did not identify any unusual or noteworthy sources of light and glare in the Glenn County unincorporated area. In fact, compared to the San Joaquin Valley, this portion of the Sacramento Valley is noticeably darker at night, and the night sky is more visible. Assuming that the County does not wish obnoxious sources of light and glare to be created, the General Plan can establish policy regarding permitted levels of illumination and shielding of light sources to be implemented through the County's Design Review Guidelines.

7.3.2 Highways

A Scenic Highways Element used to be a mandatory element of general plans. While it is no longer required, it can be included in other general plan elements such as Conservation or Open Space. The Conservation Management Element of the Glenn County General Plan includes a section entitled Scenic Highways. According to that document, Glenn County does not include any eligible or State-designated scenic highways.

The previous adopted Scenic Highway Element recommended designation of State Highways 45 and 162 as scenic highways. It has also been suggested that State Highway 32 and County Road 99W be considered for scenic highway status. Eligible routes can be designated scenic by the California Director of Transportation following a request from the Board of Supervisors and the recommendation of the Department of Transportation Advisory Committee. Apparently, the main benefit of scenic highway designation is the promotion of tourism in the county; however, the process required for State designation, including restrictions on overhead utilities, may be out of proportion to the actual benefits which accrue.

The County can locally designate scenic highways and establish policy in the General Plan with regard to allowed uses, setbacks, and design standards. New signs and billboards can be limited or prohibited within such corridors.

7.4 Areas of Outstanding Scenic, Historic and Cultural Values

The Biological Resources Section of the Natural Resources Issue Paper identifies twelve important biological resource areas in Glenn County. Six of the areas (Llano Seco, Oxbow Waterfowl area, Oxbow Heron Rookery, Princeton Riparian Woodland, Sacramento River Wildlife Area and Sacramento River Oxbow Preserve) are associated with the Sacramento River and are intended to protect the unique riparian forest, marsh and floodplain bordering the Sacramento River. Two of the areas (St. Johns Mountain and Sheetiron Mountain) are within the Mendocino National Forest Service. The remaining areas are the Sacramento national Wildlife Refuge, Black Butte and Stony Gorge Reservoirs, and Orland Buttes. These resource areas qualify as areas of outstanding scenic value as well, along with vistas from the potential scenic highways identified in Section 7.3.2 above.

Areas of outstanding historic and cultural value include the historic sites identified in Section 7.1 above, areas along the county's watercourses, which have a high potential for archaeological resources, the Grindstone Indian Reservation, County parks and the Mendocino National Forest. Because the location of individual archaeological sites is not divulged, it is not possible to identify those areas in the General Plan.

7.5 Cultural Resources Opportunities, Constraints and Conclusions

- Disturbance of historical and cultural resources by development has not been a major issue in Glenn County due to the relatively slow pace of population growth and urban development. Mineral extraction may have the greatest potential to create such impacts. Compliance with the process outlined in Appendix K of the CEQA Guidelines should be incorporated as a

policy of the General Plan. The General Plan should also provide for protection of historic sites identified in the Plan.

- Scenic vistas, highways and corridors should be identified and protected through General Plan policies which specify the types of land uses which are appropriate, as well as standards for site and building design, lighting and signs.

8.0 ALTERNATIVES

For each Issue Paper, three alternative scenarios are to be developed and reviewed with the staff, Citizens Advisory Committee and decision makers. As suggested in the State General Plan Guidelines, for any set of circumstances, a number of possible courses of action or planning scenarios exist. It is our purpose in this Section to identify a reasonable range of alternatives related to Natural Resources in Glenn County and to explore the various pros and cons of the potential courses of action. The alternatives should also be examined for consistency with the goals and policies described in the previous Section of this Issue Paper.

The alternatives need not be mutually exclusive and ultimately the decision makers may choose to consolidate ideas from more than one scenario. Further, it must be kept in mind that decisions concerning Natural Resource alternatives will have an impact on alternatives identified for Community Development and Public Safety, and vice versa, requiring alternative futures in all three areas to be reviewed and absorbed prior to decision making.

The General Plan Guidelines recommend that each alternative be evaluated for its short-term and long-term environmental, economic and social effects. This Issue Paper will use the suggested format, to the extent it is applicable to natural resource issues. Evaluation of the environmental effects of each alternative will also form the basis for evaluation of project alternatives pursuant to the California Environmental Quality Act, at such time as the EIR for the General Plan is prepared.

The role of Glenn County and that of present and future cities will also be explored. This subject will have greater meaning in the areas of community development and public safety. However, the well being of Glenn County's natural resources will also be influenced by the respective roles of the County and its cities, and whether mutually agreed upon plans, priorities and cooperation mark city/county relations, or whether conflict leads to unilateral decision making at the expense of the other jurisdictions and the County's resource base.

8.1 Scenarios

Three general scenarios which suggest themselves for Glenn County resources include one with a strong natural resource preservation ethic (Alternative 1NR), one which emphasizes use of natural resources in a regulated framework which balances preservation with beneficial use (Alternative 2NR), and a third which gives the highest priority to relatively unconstrained use and development of natural resources (Alternative 3NR). Each scenario is described and evaluated in the following paragraphs.

Alternative 1NR

Description

Under this alternative, emphasis is placed on preservation of natural resources and decisions are made based on benefit to the natural environment. Local economic and social consequences are deemphasized while greater importance is placed on preserving natural features, fish and wildlife on behalf of the larger public interest. The priorities of the various State and federal agencies which are attempting to preserve and recreate wetlands and other natural areas in Glenn County would be adopted as local priorities. Production agriculture, although important in any preservation scheme because of its open space value, would play a secondary role to efforts to restore the natural environment. Additional lands would be removed from the tax rolls as public agencies, including the County, played a larger role in direct land ownership and management for the benefit of natural areas and species.

The Williamson Act would receive strong support under this scenario and would be used to retain agricultural and open space land in a relatively undeveloped state. Few, if any, exceptions would be made to accommodate other forms of development. Dairies would be approached cautiously under this scenario, due to concerns about the potential for surface and groundwater contamination, as well as air quality problems that may be associated with dairies.

Urban limit lines would be established and strictly enforced in an effort to contain development within existing urbanizing areas. Rural residential development would be discouraged and severely limited in order to protect the county's open space lands. Exclusive agricultural zoning would remain in place and would be strengthened to assure that agricultural land was not converted to nonagricultural use or divided into parcels too small to be of value as agricultural and nonagricultural open space.

Exportation of ground and surface water would be prohibited and local water use priorities would emphasize wildlife as opposed to agriculture and urban use. Groundwater recharge areas would be carefully protected and most forms of development would be prohibited in such areas. Watershed areas would also be given special attention and most forms of activity would be prohibited on steeply sloping terrain. It is unlikely that additional reservoirs would be constructed in Glenn County.

The development of habitat conservation plans pursuant to the federal Endangered Species Act would be strongly endorsed as would the concept of preserving large areas or systems for the benefit of wildlife. A riparian zone management plan would be developed for Stony Creek and the Sacramento River and the E-M (Extractive Industrial Zone) would be eliminated from use in Glenn County. Aggregate mining would be closely regulated and would only be permitted if it could be shown that all environmental impacts could be mitigated, including returning the site to a natural condition upon completion of mining.

Hunting opportunities would be encouraged, although closely monitored, due to the common interest of hunting groups in preservation and restoration of natural areas. Membership would be

sought in the Sacramento Valley Bioregion Regional Council and the group's efforts would be strongly supported.

Timberlands would be left alone to heal and restore themselves after a considerable period of overcutting. Other forms of development on timberlands would be discouraged due to the impact they may have on watershed lands and wildlife. Public acquisition of inholdings within the Mendocino National Forest would be viewed positively and as beneficial to management of forest resources.

Gas well exploration would be permitted as long as activity did not encroach into natural areas or other areas inhabited by sensitive species of plant or animal life. Energy conservation would be given a high priority. Infill activity, clustering and alternative forms of transportation would be strongly supported to conserve energy and land. Remote development would be discouraged and a jobs/housing balance would be sought for all new development in order to reduce travel and energy use.

An historic preservation plan would be authorized and implemented as would a scenic highways system. Cultural resource surveys would play a more prominent role in decision making.

Discussion

As noted above, Alternative 1NR would be very beneficial to the natural environment in Glenn County, assuming that funds could be found to carry out the numerous programs and also maintain County government. County revenues would undoubtedly decline as additional land and value was taken from the tax rolls. Service obligations, however, may also be relaxed, as development that occurs is forced into compact and higher density patterns in proximity to existing developed areas.

The size and importance of agriculture would likely decline without being replaced with anything of comparable economic value. Because jobs would also be lost as agriculture and growth opportunities declined, the social consequences would be considerable. Fewer jobs would be generated and burdens on social service agencies would likely increase, with fewer dollars available to County government to pay for those services. An alternative which emphasizes preservation without also creating new economic opportunities may have long term adverse consequences, including an inability to maintain this approach without impoverishing the County. Short term impacts will be more difficult to determine since the various programs and impacts described are incremental in nature. The full impact of some actions will not be known for several years.

Quality of life in Glenn County, if viewed in terms of economic opportunity and standard of living, will likely diminish under this scenario. However, quality of life, if viewed from a broader geographic perspective, can be viewed as improved as fish and wildlife, wetlands and other natural features are preserved and enhanced for the enjoyment of present and future generations. Other positive aspects of this approach include concentric and compact growth

concepts as well as energy conservation measures. In general, however, the approach does not provide sufficient benefits on which Glenn County can stake its economic and social future.

Alternative 2NR

Description

This alternative accommodates preservation and conservation of natural resources while providing sufficient flexibility to allow for physical and economic growth. Decisions concerning preservation of natural areas are influenced more by local priorities than those established at the State and federal level. Strong protection measures are built into various forms of economic activity, but the emphasis is on finding ways to preserve agriculture and accommodate growth and development, while still protecting significant natural areas in Glenn County. Dialogue and cooperation with other levels of government are stressed and agreement is sought on limits of land acquisition activities.

The Williamson Act receives strong support under this scenario in recognition of its value in preserving agricultural lands. Areas along the I-5 Corridor and adjacent to growth centers, however, would be examined to determine if the use of certain lands for other forms of economic activity outweighs their present agricultural value. Full reimbursement of tax loss resulting from Williamson Act implementation would continue to be a high priority. A dairy attraction program along with other efforts to diversify the county's agricultural sector would be pursued, recognizing that standards for siting of dairies and their development need to be carefully crafted to assure that environmental problems are avoided.

Urban limit lines are an important tool under this approach, permitting communities to shape and contain their urban area in such a way that minimum amounts of high value agricultural lands are disturbed and natural areas are avoided. The concept of infill is promoted, but it is also recognized that peripheral expansion provides unique and competitive economic development opportunities. Rural residential activity is confined to already established areas on the valley floor, and foothill areas are examined as possible alternative locations for large lot homesites. The concept of "new towns" is endorsed under this alternative as long as sites under consideration are adequately buffered from agriculture and natural areas and have no adverse impact on these resources. In order to assure compatibility, extensive front-end planning of such communities would occur, including development of specific plans.

Other agricultural preservation tools would be utilized, when appropriate, to retain agricultural land, including transfer of development rights, conservation easements, exclusive agricultural zoning and minimum parcel sizes.

Exportation of ground and surface water would be discouraged under this alternative. Local domestic and agricultural use of water would be given the highest priorities. Groundwater recharge areas would be carefully protected, and the type of development occurring in such areas would be closely reviewed, to assure that excessive overcovering does not occur and that the risk

of pollution of the aquifer is minimized. Septic systems would be discouraged in such areas, and sewage collection systems would be planned where densities warrant.

Watershed areas would be protected through adoption of standards for development on such lands. Development on steeply sloping terrain would be discouraged. New reservoirs would be given consideration under this scenario as long as potential adverse impacts could be mitigated.

The County would work with wildlife agencies and groups to identify critical habitat in Glenn County. A variety of tools would be used for its protection, including purchase in some instances. Agreement would be sought on areas needing protection and the level of protection required. A plan would be developed, publicly debated and ultimately adopted by all parties. Membership would be requested on the Sacramento Valley Bioregional Regional Council in order to protect Glenn County's interests. Any plan, including acquisition of fee title or farming rights, would include a mechanism for reimbursement of local tax and economic loss.

Riparian areas would be afforded protection and the E-M (Extractive Industrial) Zone would be eliminated or modified to provide greater protection to Stony Creek. Aggregate mining would continue to be treated as an integral part of the county's economic mix, however, standards for such activity would be carefully reviewed and adequate reclamation plans and securities would be required.

Hunting opportunities would be expanded in the County to the extent practical. Strong support would be given to pay-to-hunt enterprises, and agriculture would be encouraged to include fish and game management in its land steward activities. Flooding of rice fields in winter months would be supported not only as an assist to wintering waterfowl but also as a possible alternative to rice straw burning.

Timberlands would be viewed from a multiple use perspective. Recreational and other non-timber uses of private timberlands would be considered and encouraged, subject to a determination that the development poses no unmitigated service burdens on the County and does not create harm to the watershed. Public acquisition of inholdings by the National Forest would be resisted due to the loss in property tax revenues to the County.

Continued development of gas fields would be encouraged, and energy conservation in building construction and design of communities would be promoted. Infill, clustering and alternative modes of transportation would be given consideration and implemented, where feasible, but not to the exclusion of other forms of development and movement.

Historical preservation, scenic highways and cultural resource protection and recovery would continue to be discussed with decisions made at some future time as to their relative priority in Glenn County.

Discussion

Alternative 2NR recognizes that both use and protection of natural resources are important to the County and the well being of its residents. Priorities are established under this scenario which provide for growth in the local economy and the focus is placed on quality of life for residents of Glenn County. Priorities established by other levels of government, although recognized and dealt with realistically, are critically analyzed in terms of benefit or harm to Glenn County. Changes in those priorities and compensation for their impact is pursued.

Over time, County revenues will increase under this scenario. Short term impacts will be difficult to measure but long term impacts should be positive. Service impacts to the County and districts will, however, increase with the potential for service demands in new areas not previously requiring services.

Additional agricultural land will be lost to urbanization and some land now under Williamson Act may be removed. Conflicts with agricultural operations may increase and less area will be permanently set aside for fish and wildlife. Although agriculture may lose some acreage, it is not anticipated that it would decline in any significant sense. New high value agriculturally related activities, such as dairies, would be attracted to the County which would help offset the value of land lost to other uses.

Some existing natural areas may be lost, however, it is envisioned that substantial area will still be preserved based on agreement among the various agencies and the County. Growth may be somewhat more scattered than under 1NR and this will have some additional impact on natural resources as travel and road construction are increased.

Additional jobs would be generated under this scenario and burdens to social service agencies should decline. Communities should become more attractive places to live as the County applies higher standards to development and more jobs are generated.

In general, the approach strikes a middle ground with the County taking an assertive and leadership role in shepherding its natural resources, recognizing that its role is to protect and enhance the quality of life in Glenn County.

Alternative 3NR

Description

This alternative places emphasis on consumption and use of natural resources. Efforts to preserve natural areas, regulate aggregate mining and exportation of ground and surface water would be given very low priority. Cooperation with State and federal agencies would be limited as Glenn County maintained its independence and that of its residents. Less regulation would be viewed as preferable to more regulation.

The County would continue to administer the Williamson Act although County actions would permit ready cancellation by individual property owners. Agriculture would also continue to receive support, however, the County would neither work to preserve agricultural land nor to remove it from protection, allowing individual property owners to make those decisions. Present

agricultural zoning could be weakened through amendments and variances, upon property owner request. Dairies would be encouraged to locate in Glenn County but less attention would be paid to standards and locational criteria.

Urban limit lines would be given limited support but the form and character of urbanizing areas would be decided to a great degree by individual developers. Most growth would be peripheral and scattered in nature with the cheapest land being sought out. Adequate service levels would be an afterthought in many instances and the County and districts would generally be playing a catch-up game. Cumulative impacts would be a significant unmitigated problem. Natural areas would play a limited role in County decision making, and State and federal agencies would necessarily have to take the lead in their preservation.

Exportation of water resources would be debated but steps to curtail exportation would be very tentative at the local level. Groundwater management and other regulatory approaches to water resources would be resisted in the county. Water use priorities would be set by individuals competing for water and by State and federal agencies.

Decisions concerning watershed protection would be left to the National Forest and other federal agencies. The County would be reluctant to adopt additional standards regulating development of foothill and mountain lands. The County would strongly oppose the removal of land from the tax rolls by State and federal agencies and communication with such agencies would be limited.

Groundwater recharge areas would be viewed as potential impediments to development and their protection would be of secondary importance. Aggregate mining would continue along historic patterns with few changes in the manner in which it is regulated. Hunting, forestry and gas well activities would be regulated by the State with little local input. Energy conservation measures would be promoted to the extent they were mandated by State and federal law.

Discussion

Obviously this alternative is out of step with contemporary times. Although in the short term additional dollars will be generated locally, in the long term it would have a deleterious effect on the Glenn County environment and its quality of life. Seldom does over-consumption of valuable resources benefit a region longer than for a temporary period of time. As an example, heavy consumption of timber has been reported to be, in part, responsible for the economic decline in northwest timber producing regions. Short term employment benefits and revenue gains will accrue but the long term damage and lack of employment after resources are used up will more than offset earlier gains.

The cost of services will increase under this scenario as development occurs in discontinuous patterns and as little provision is made to recoup those costs. Residents will have to drive longer distances for goods and services as scattered development occurs and additional energy will be consumed by the longer drives.

Without cooperation with State and federal agencies working to protect the natural environment of Glenn County, it is likely that the end result will be even less satisfying to Glenn County than it would be with County participation. This is not only true when dealing with the subject of wildlife preserves, but also when dealing with regulation of other commodities such as timber and natural gas.

8.2 Role of County vs. Cities

In the area of natural resources, most roles are ascribed to the County. County planning is typically seen as resource management and protection while cities are seen as the appropriate agency to provide for urban development. Some counties, however, are actively involved in competing with cities for urban development and attempt to act as both resource protector and urban service provider.

Cities do have a role to play in the preservation of natural resources, in particular agricultural lands, biological resources, water resources, energy conservation and cultural resources. Agricultural lands retention is strongly influenced by urban growth. If cities act irresponsibly, County programs to preserve agricultural lands can be frustrated. Ideally cities and the County should adopt the same set of agricultural lands preservation policies, including agreement on urban limit lines and other growth direction determinations. Mutually agreed upon policy in this critical area can be key to retention of agricultural land. Without it, the County's efforts can be frustrated. This may lead to open competition with cities for development within urban areas, resulting in very inefficient service and development patterns characterized by leapfrog subdivisions and wasted agricultural land.

As cities grow, natural areas and other areas critical to biological resources are encountered. It is important that cities also take such factors into consideration and coordinate their planning and development efforts with the County to assure that comprehensive decision making occurs. Natural areas and biological resources seldom respect political boundaries. Cities and the County can benefit by working together to assure a more comprehensive and systems approach to biological issues, including joint preparation of habitat conservation plans, should such a plan become necessary.

Cities also play a role in protection and use of water resources. Of particular note is the impact city growth has on existing irrigation and water districts, as discussed under Section 3.6 of this Issue Paper. Energy conservation can be greatly influenced by cities in terms of the design and orientation of subdivisions and structures as well as land use patterns. Compact development and placement of shopping and jobs near homes will lead to lower consumption of energy resources. In this regard, the County may wish to request the two cities to adopt portions of its Energy Element now in preparation.

Cultural resources, especially historical resources, are often more prominent in cities than the County. If the County determines to move forward with an historic preservation plan, it would be useful to include the two cities in that effort.

In summary, the County's role is a significant one in the natural resource area due to the expansiveness of its geography and the rural nature of the land use. Cities do, however, share responsibility within their respective areas of interest. It is important that the County and cities coordinate their planning and development efforts to assure the most advantageous outcome for everyone.

SECTION 2 - PUBLIC SAFETY ISSUE PAPER

1.0 INTRODUCTION

The Public Safety Issue Paper is one of three papers prepared to assist in the formulation of an updated Glenn County General Plan. The other two papers are the Natural Resources Issue Paper and the Community Development Issue Paper. Originally published separately as draft documents, the three papers have now been updated and bound into a single volume (Volume II). Each paper focuses on several topics which have been identified for discussion in the General Plan. Topics were suggested either by participants in the process or are identified by the State General Plan Guidelines as matters which must be addressed.

The Public Safety Issue Paper focuses on topics which are related to public health and safety. Included are law enforcement, fire hazards and fire protection, geologic hazards, air quality, flood hazards, water quality, noise, and solid and hazardous waste. The focus is on the impact natural and human-created hazards may have on development and future population, and on programs and ways to direct, enhance and serve new development in a safe and cost-effective fashion. In addition to a discussion of issues, the document contains three alternative public safety scenarios for Glenn County. The draft Public Safety Issue Paper also contained recommended goals, policies, implementation strategies and standards. These goals, policies, implementation strategies and standards have been reviewed and have been incorporated, with modifications, in the Policy Plan document (Volume I).

This series of papers was preceded by the Environmental Setting Technical Paper which was released in September 1991. The Technical Paper contains much of the data on which the present papers are based. Where necessary, that data was supplemented through additional research. References are made to the Technical Paper and it will be helpful for the reader to have access to a copy of the previous document when reviewing the Issue Papers.

2.0 LAW ENFORCEMENT

Background

The Glenn County Sheriff's Office provides law enforcement services within unincorporated areas of Glenn County. Willows and Orland maintain their own police departments, although the County Sheriff provides backup and dispatch services for the two cities. The Mendocino National Forest and Sheriff share law enforcement responsibilities within the National Forest. The Sheriff maintains a headquarters facility in Willows with substations in Orland and Hamilton City. The jail is located in conjunction with the headquarters facility and houses all County prisoners. The California Highway Patrol provides traffic patrol services on all roadways in the unincorporated area.

Specific Concerns

2.1 Maintenance of Adequate Staffing Ratios

The nationally accepted standard for officers to population is 1:1,000. Using unincorporated area population as a measure, the Sheriff maintains 1.2 officers per 1,000 people, which is within the standard. It is desirable to establish a staffing ratio or service level for law enforcement early in the planning process so that future decision making can reflect this important consideration. Otherwise, planning decisions may result in a reduction in future levels of service.

Compared to the nationally recognized standard, it appears that Glenn County presently provides an adequate level of basic law enforcement. According to the Glenn County Sheriff's Department, however, several factors dilute coverage, including staff vacancies which are unfilled due to budgetary constraints, support services which are provided to the two cities, and the geographic distribution of population in Glenn County. Because of the dispersed nature of the population, it is not possible to provide the response and coverage in some areas that the present ratio of officers to population may otherwise imply. More calls are presently received in the Orland/Hamilton City areas, causing other areas of the county to receive fewer patrol hours. As Glenn County becomes more populous, providing an adequate level of law enforcement will become more problematic unless the number of officers is increased and careful consideration is given to the manner in which Glenn County grows.

A critical decision which must come from the General Plan process is whether the County intends to move toward increasing urbanization in the unincorporated area or if such growth will be directed to the two incorporated cities. Directing growth to incorporated areas will reduce the service burden on County law enforcement. It does, however, limit the County's options to expand revenues necessary to improve service levels. It should also be noted that regardless of where growth occurs, the County still houses all prisoners and must provide for the criminal justice system.

2.2 Relationship to City Police Departments and National Forest

The Sheriff and City police presently operate independent forces, although the Sheriff does provide dispatch and other backup for the two cities. As the urban fringe around the two cities grows, areas of overlap in service may develop. Decisions should be made during the planning process as to how to best provide law enforcement to city fringe areas and whether consideration should be given to jurisdictional consolidation. As an alternative, contracting with the adjoining jurisdiction for law enforcement should be considered when contracting would result in greater efficiency in the use of personnel and equipment. A policy directing growth to incorporated cities would resolve future service inefficiencies around incorporated cities.

The Sheriff and Mendocino National Forest presently share law enforcement responsibility within the National Forest pursuant to a Cooperative Law Enforcement Agreement. Due to continued population growth in the State of California and an interest in attracting more visitors to Glenn County, additional law enforcement within the National Forest will undoubtedly be required over time. The cost of additional law enforcement to Glenn County and the National Forest Service must be considered as planning decisions are made.

2.3 Siting of Future Law Enforcement and Correctional Facilities

As Glenn County plans for the future, it will be necessary to ascertain whether or not present law enforcement facilities are in optimal locations or whether shifts in population will result in a need to provide new facilities in faster growing areas. The need for correctional facility space and updating to meet contemporary standards must also be considered in future planning. Although the Sheriff only recently moved into a new jail facility, the Sheriff's office reports that the facility may soon become overcrowded. If new sites are required for correctional facilities during the term of the Plan, that need should be reflected in the Plan in order to avoid future conflict over their location.

There is also a need to address regional and State correctional facilities siting. The General Plan is an appropriate document in which to establish local policy with regard to such facilities. Many arguments have been put forth both pro and con with regard to the economic benefits and social negatives of correctional facilities. In the final analysis, the local community must decide what is most important to it, recognizing that change of the magnitude typically accompanying location of a major institutional facility is both positive and negative.

2.4 Public Safety-Related Land Use Planning

As new development occurs in Glenn County, it is possible to design such development so that criminal activity is discouraged. This can be accomplished through orientation, access, lighting and generally the way development is planned. The subject also relates to the adequacy of law enforcement services in the area in which development is proposed. Law enforcement personnel should be actively involved in land use planning decisions, including the siting and future layout of homes and businesses. In addition, standards which deal with development and impacts on public safety should be included in the general planning effort.

2.5 Law Enforcement Opportunities, Constraints and Conclusions

- Law enforcement in Glenn County is adequate to meet current demands and conforms to generally accepted standards. Budgetary constraints on the County have, however, caused needed positions to go unfilled. If this trend continues, service levels could fall below that which is professionally acceptable and will certainly be perceived as inadequate by the local citizenry. Growth will only compound the problem unless a very careful program is structured which involves law enforcement and considers the impact of future development on services.
- As discussed in Section 5.0 of the Community Development Issue Paper, the County should look to Mello-Roos Community Facilities Districts and other forms of impact and service assessments in order to assure growth and development result in an improved economic environment and law enforcement service commitments the County is capable of meeting.
- If the County determines that it does not wish to increase service levels sufficient to meet the demands of a growing county, new development should be directed to the two incorporated cities with the County avoiding involvement with urban development approvals. Such an

approach may be difficult, however, recognizing potential development pressures in the Hamilton City area due to its proximity to Chico.

- Policies to be included in the new General Plan should clearly identify the role of law enforcement in future planning and assure that the costs of law enforcement are adequately addressed. A service standard should be established, as should the longer term role of County law enforcement in the fringes of the two incorporated cities and the National Forest.
- A clear policy should be set out concerning regional and State correctional facilities. Any future need for or relocation of County correctional facilities should also be addressed.
- Policies and standards which assure that law enforcement needs are considered in the design of new development should be included in the General Plan.

3.0 FIRE HAZARDS AND FIRE PROTECTION

Background

Fire protection in Glenn County is provided by twelve independent fire districts (see Figure 3-1). The City of Willows provides its own fire protection service, maintaining five paid personnel. The other eleven districts are staffed on a volunteer basis. The City of Orland provides its own fire protection. Personnel are provided by the Orland Volunteer Fire Department. On a seasonal basis, wildland fire protection is also provided by the California Department of Forestry (CDF) in the unincorporated foothill and rural areas (see Figure 3-2 for State Responsibility Areas). The U.S. Forest Service is responsible for wildland fire protection within the Mendocino National Forest and maintains an agreement with CDF to provide protection to private holdings. The U.S. Forest Service and CDF are staffed with paid personnel.

Specific Concerns

3.1 Maintenance of Adequate Staffing Ratios

Unlike law enforcement, specific standards for staffing of rural fire agencies do not exist. Each district creates its own standards for staffing based on different needs. As growth takes place, fire protection service in Glenn County could decline unless means are devised to fund expanded services. It is unlikely that the increase in property assessments alone will cover future costs. The impact new development has on fire protection capability must be carefully weighed to assure that service levels do not decline for existing property and that unreasonable risks are not created for developing properties. Additional impacts on funding are created when properties are annexed to the incorporated cities, removing all secured, unsecured and special tax funding from the districts serving the unincorporated areas.

One method of measuring overall fire protection capability is to utilize the ISO (Insurance Service Organization) rating system. The ISO rating is based on several factors such as response time, equipment, size of district, radio equipment, dispatch, maintenance of equipment, water system capability, and several other factors. The ISO uses a Fire Suppression Rating Schedule

with ten public protection classifications with Class 1 receiving the most rate recognition and Class 10 receiving no recognition. The Fire Suppression Rating Schedule defines different levels of public fire suppression capabilities which are reflected in the individual property fire insurance rate establishment procedures. The present ISO rating for residential structures in Glenn County ranges from 4 to 10, with most rural districts having a rating of 8 or 9. Orland generally has a rating of 6 while Willows has a rating of 5.

3.1.1 Future of Fire Districts and Volunteer Fire Departments

Glenn County has along history of volunteer fire protection and there is a strong desire to continue with that tradition. As Glenn County grows fire protection will become increasingly complex. It will, require that volunteer forces be well trained and capable of responding to increasing liability exposure, greater fire hazard from structures, and demands for emergency medical response. Many of the volunteers, in Orland, have already received First Aid and other forms of advanced training as a part of current efforts. The cost and difficulty associated with providing training to volunteer fire forces should be factored into future planning and decision making.

Although it is likely that growth will be relatively moderate during the planning period, with growth also comes the need to examine district boundaries and Spheres of Influence to determine if present arrangements are most efficient and cost-effective. Some districts may be more capable of responding to development pressures than others and this may lead to a desire to adjust boundaries. Other future considerations include consolidation of districts into a countywide district or the assumption of fire protection directly by the County. If future growth is directed to the two incorporated cities, both cities may see a need to operate independent departments. See Section 5.1.6 of the Community Development Issue Paper for a related discussion.

3.1.2 Implications of Non-Volunteer (Paid) Staffing

There are both positive and negative implications of a paid staffing arrangement. The obvious negative result is a considerable increase in local cost for fire protection. It is unlikely the revenues generated from new growth can cover the cost of such a move; therefore, there are cost implications which must be borne by existing residents and property. Unfortunately, this investment may become a necessity if certain economic development opportunities are to be pursued. Also lost is the direct citizen support and participation in an important governmental service, although it is presumed that districts or the County would continue to maintain a smaller volunteer force to supplement paid staff. Another consideration is the typical drop off in volunteer participation as areas grow and become more urbanized.

3.2 Development Exactions for Fire Stations, Equipment, Bridges, In-lieu Fees

Many fire districts in Glenn County receive a tax from each house to help fund their districts, e.g., Hamilton City, Orland and Artois. An issue for the Orland area is that the Orland Rural Fire District loses tax dollars for each house that is annexed into the City of Orland. There

currently is a funding imbalance since most of the calls are in the Orland Rural area and most of the revenue to support the department comes from the City of Orland.

At the present time, Glenn County imposes no fees on new development for fire protection. A necessary element of any program to expand fire service in Glenn County will be additional sources of revenue. AB 1600, adopted by the State Legislature in 1989, provides a procedure for local jurisdictions to follow when establishing one-time fees to pay for additional costs which can be attributed to new development. Capital costs related to fire protection can be recouped in this fashion as long as the fees are tied back to a rational method of cost allocation that assures that new development does not pay an unfair share. The law also requires the funds to be expended within five years. Frequently, fee programs rely on the General Plan and the population distributions, facilities and projected costs developed for such plans as a basis for determining an equitable fee structure. Although fees could be levied on a district-by-district basis, a specific cost allocation and establishment of need would have to be done for each district.

Various forms of assessment district financing can also be used in conjunction with new development, the most common of which is Mello-Roos Community Facilities District financing. With Mello-Roos, the County and a developer typically form the district prior to sale of lots or homes. An assessment is imposed on each lot which is sufficient to pay off the cost of improvements or bonds sold to pay for development of the site, including the costs of fire station, bridge and road construction, as well as purchase of equipment. Under Mello-Roos, only the special tax imposed against property within the district is obligated to pay off debt. Other revenues of the County are protected.

The Marks-Roos Local Bond Pooling Act of 1985 (Government Code Section 6584 et. seq.) allows the pooling of bond issues when there are five or more Mello-Roos bond issues on a ballot. This Act has no revenue function because taxes cannot be levied pursuant to this section of Government Code, and, therefore, does not have bond debt recovery capability.

In the case of fire suppression services, as well as police, the law also allows operations and maintenance costs to be paid for using Mello-Roos financing. This means all fire service costs, including personnel, which are attributable to the new development can be funded in this fashion. It must be recognized, however, that the assessment is for a finite period of time and other more permanent sources of revenue for operations and maintenance must ultimately be found. More permanent sources may include the formation of a County Service Area which could collect a fire service fee for specific services rendered. See Section 5.0 of the Community Development Issue Paper for a more complete discussion of financing opportunities.

3.3 Relationship to City Fire Departments, CDF and National Forest

As noted above, Glenn County presently has twelve separate fire districts with the recent addition of Capay Fire District. Although the two cities participate with their respective districts in fire protection, only the City of Willows provides paid personnel. At present, the cities and the several districts have a close working relationship, including joint dispatch.

The need for more paid staff will arise in the two incorporated cities and their urban fringe before it does elsewhere. As an initial step, creation of distinct and separate urban fire departments, including paid staff, for both the Willows and Orland areas should be explored. The two departments should have a large enough service area to include all urbanized and urbanizing lands around the two cities. The two urban departments would continue to provide dispatch and other support to their rural counterparts.

CDF and Forest Service responsibility areas contain few structures and very low population. Areas such as Elk Creek, Bear Valley and Indian Valley, which contain higher concentrations of people, are also located within a local fire district which supplements the seasonal protection provided by CDF. There is little reason to alter the present arrangement in the CDF coverage area unless the County, through its General Plan process, proposes to significantly change population density or activities in the region.

3.4 Wildland Fire Potential and High Fire Risk Areas

Approximately the western two-thirds of Glenn County is subject to wildland fire potential. The area essentially equates to the region under CDF and Forest Service jurisdiction. Typically such areas pose a substantial fire risk to dwellings and other structures as evidenced by the recent 49er Fire in the Placer/Nevada Counties area and the even more recent Oakland Hills disaster. Clearly such areas pose great risk when people choose to live in them in large numbers. Despite this considerable risk, such areas are typically viewed as attractive places to reside. It is very important that the fire risk and planning for fire safety play an important role when considering residential development in such areas. To this end the State Board of Forestry has adopted Fire Safety Regulations which apply to the State's area of responsibility and which require certain minimum fire safety measures (for a more complete discussion of Fire Safety Regulations, see Section 3.6). In addition, because Glenn County contains State Responsibility Area (SRA) within its boundaries, the draft Safety Element of the General Plan must be submitted to the State Board of Forestry for review and comment.

Fire hazard severity zones have been mapped for the State Responsibility Area within Glenn County (See Figure 3-2). Fire hazard severity zones are intended to show relatively homogeneous areas and are based on fuel loading, slope, fire weather and other factors. The lower grassland areas adjacent to the Valley floor have a rating of "moderate". Adjacent lands to the west, typically characterized by steeper slopes and chaparral, carry a "high" rating, while more heavily forested lands adjacent to and within the Mendocino National Forest have a "very high" rating. The map indicates that the most fire secure areas are in the lower grasslands and in the areas of Newville, Chrome and Elk Creek.

Outside the SRA, risks are more typical in nature and do not pose any unusual constraints to development, assuming that adequate fire service is in place and that standards for development take fire safety into consideration.

A considerable amount of agricultural burning occurs in Glenn County (rice stubble) on the Valley floor; however, such burning is closely controlled to assure that it poses no unusual risk.

Also, rice stubble burning is to be substantially reduced, in accordance with State law, during the next decade.

3.5 Peakload Water Supply Requirements

In order to have an effective fire suppression capability, it is necessary to have an adequate and reliable supply of water. Due to the rural character of the County, water is frequently hauled to the site by tanker. Systems having fire suppression capability are maintained in the unincorporated communities of Hamilton City, Elk Creek, Artois and Butte City. Incorporated areas of Orland and Willows also have water systems with adequate line size and hydrants for fire suppression purposes. There is no reliable information on fire flow quantity in the various communities and such quantity may vary considerably within communities, depending on the well capability and the immediate water main size.

The County currently requires the installation of fire hydrants and establishes minimum fire flows for new developments where water systems are installed. According to the County's Land Division Ordinance, water systems are required in subdivisions containing lots less than 10,000 square feet. Systems are also required in subdivisions with lots greater than 10,000 square feet if no community sewer system is available. Required fire flow is 2,500 gallons per minute for a duration of 10 hours in commercial and industrial areas, 1,500 gallons per minute for a duration of 6 hours in high density residential areas, 1,000 gallons per minute for 4 hours in urban residential subdivision areas, and 750 gallons per minute for 4 hours in rural and estate subdivisions. However, because the most common parcel size in the unincorporated area is 40,000 square feet or larger, few new developments are actually required to install fire hydrants.

In addition to County standards for new systems, the State Public Utilities Commission (PUC) establishes minimum standards for systems not operated by a public entity. In Glenn County, systems subject to PUC jurisdiction include the California Water Service systems in Willows and Hamilton City and the Black Butte Water Company. These standards are found in PUC General Order 103 and are generally intended to apply where standards have not been adopted by a city or county. They are also intended to apply to existing systems that may not measure up; however, compliance is only required when new hook-ups, modifications or extensions of systems are proposed.

Based on the limited information reported for existing systems, substantial deficiencies undoubtedly exist in present fire flow in communities when compared to current standards. It is worth noting that while the supply is potentially adequate, the infrastructure to deliver the desired flows is not present. This condition, however, is not untypical of most rural communities in California. It is also noteworthy that the present development standards place emphasis on water supply for health reasons rather than fire suppression, an approach also typical of other similar areas in California.

In order to properly address the subject of peakload water supply, the General Plan should reinforce present standards for new development and should establish clear policy concerning the location of growth, with the adequacy of water systems for fire suppression purposes factored

into the decision. Means must also be identified in the General Plan for the upgrading of water systems which will be impacted by growth.

3.6 Fire Safety-Related Land Use Planning

Similar to public safety, jurisdictions should plan with fire safety and prevention in mind. The subject is a mandatory requirement in the Safety Element of the General Plan, which must address minimum road widths, evacuation routes, clearances around structures and water supply. Water supply has been discussed separately under Section 3.5.

Fire safety concerns require special attention in areas of wildland fire potential where limited access and vegetation buildup pose substantial threat in the event of fire. The State Board of Forestry's adopted Fire Safety Regulations apply in such areas. Effective May 30, 1991, counties and cities are required to bring local standards into compliance with the State's regulations. Glenn County is presently in the process of reviewing local standards for compliance with the State requirements. The State's regulations cover the following general topics:

- Emergency Access Standards
- Signing and Addressing Standards
- Emergency Water Supply Standards
- Fuel Modification and Defensible Space Standards

The County's review has identified several areas requiring attention including modifications to certain local road standards, creation of standards for private driveways, gate entrance standards, road signage and house numbering standards, additional fire hydrant standards and setback requirements. Of special note is the requirement to have a house numbering system and to assign addresses to all new structures. Although the requirements apply only within areas of State Responsibility, implementation of the new standards will have implications outside the SRA as the County focuses on such subjects as house numbering.

The State General Plan Guidelines recommend the following planning standards be applied to areas with wildland fire potential:

- **Access and Evacuation Routes:** There should be sufficient access for emergency vehicles and for the evacuation of residents. Two or more routes of access should be provided, preferably on different sides of the development.
- **Road and Structural Identification:** All roads in wildland fire areas should be well marked and homes should have addresses in plain view.

- **Roadway Widths:** Roadways should allow for two-way traffic with room for parking on at least one side.
- **Water Supply:** There should be sufficient water supply for fire suppression units in the event of a wildland fire.

Although these standards may be useful as guidelines, the new SRA standards are much more specific and will guide discussion in the SRA.

3.6.1 Minimum Road Widths

The County presently requires new development to dedicate and improve streets to minimum standards. Those standards typically include a minimum 60-foot right-of-way width for both public and private roads serving residential development and a surfaced area ranging from 40 feet in width for most public roads to 20 feet in width for private roads serving four or fewer lots greater than 5 acres in size. The only surfacing required for private roads which serve four or fewer parcels is 0.5 feet of aggregate base. In areas of the County containing gravelly soils, this typically results in no road improvements being required. Forty-foot radius turnarounds are required at the end of roads and the length of dead end roadways is limited based on the number of lots served. The typical residential roadway in Glenn County built in accordance with present standards will satisfy the above suggested standard for two lanes of traffic and parking on one side; however, the narrowest private road (20 feet of surfaced width) will not. In addition, the Fire Safety Regulations will require that minimum standards be modified to provide for turnouts and to establish minimum standards for private driveways.

3.6.2 Access and Evacuation Routes

County regulations address the question of access and require a public or private road meeting minimum standards to all lots. Present regulations do not specify the numbers of access points to a development or the location of access, as recommended by the General Plan Guidelines.

3.6.3 Clearance Around Structures

Within State Responsibility Areas, cleared fire breaks a minimum of 30 feet in width are required around all occupied structures. In addition, the new Fire Safety Regulations require a 30-foot setback from property lines and the center of roads in order to provide space on the same property for the necessary clearances. Outside State Responsibility Areas, there is no requirement for vegetation clearance.

3.6.4 Road and Structural Identification

Roadways in Glenn County are presently marked; however, they do not comply with the specifics of the new Fire Safety Regulations. Residences are not numbered in accordance with a countywide scheme, as now required by the Fire Safety Regulations, making it very difficult to properly identify the location of structures in the event of a fire. In response to the Fire Safety Regulations, and as Glenn County becomes more populous, it will be necessary to create a

countywide house numbering system which will allow for ready identification of a residence's location. This will avoid confusion, save time and potentially avoid loss of life.

3.6.5 Open Space for Fuel Break and Fuel Reduction Zones, Helispots and Fire Access

With proper planning, open spaces within developments can be used to separate structures from areas of heavy fuel. In addition, heavy fuel areas can be removed to create open spaces and to provide areas for helicopters and other emergency equipment to congregate. Such concepts should be applied whenever development is proposed in areas evidencing high or very high fire risk. The new Fire Safety Regulations encourage use of "greenbelts" as a part of development plans, with the greenbelts providing separation between wildland fuels and structures.

3.7 Emergency Response Plan

In September 1972, the Glenn County Board of Supervisors adopted Ordinance No. 553 which created the Glenn County Disaster Council and outlined its powers and duties as well as those of the Director and Assistant Director of Emergency Services. One responsibility of the Council was the development of an Emergency Plan for the County. A Multihazard Functional Plan was adopted in 1986 under the authorization of the California Emergency Services Act. Considered a preparedness document, the Plan is divided into three parts as follows:

- Part One is the Basic Plan which provides overall organizational and operational concepts for responding to various types of identified hazards that may impact the jurisdiction.
- Part Two includes eleven functional Annexes which describe the emergency response organization. Each Annex is supported by Appendices that provide Emergency Action Checklists for hazard-specific responses.
- Part Three contains operational data such as listings of resources, key personnel, essential facilities (lodging, feeding, fallout shelters, etc.), contacts, and other data needed for conducting emergency operations.

It is intended that individuals and agencies assigned emergency responsibilities as stated in the Plan prepare appropriate supporting plans and related Standing Operating Procedures, periodically review and update alerting procedures and resource listings, and maintain an acceptable level of preparedness to implement portions or all of the Plan.

The Government Code specifies that the General Plan must address evacuation routes and critical facilities (those facilities that either provide emergency services or house or serve people injured or killed during an emergency). The Emergency Response Plan identifies the following evacuation routes in the event of flood or dam failure:

- East to West or West to East

State Route 32

County Road 24
State Route 162
County Road 60
County Roads 308 and 309
County Road 200
County Road 35
County Road 70

- South to North and North to South

State Route 45
County Road 99
County Road D
County Road 306
Corning Road
Interstate 5

Although the Plan does not specifically identify critical facilities, such facilities should include Glenn General Hospital and schools where people may gather and which relief agencies may use as points for distribution of supplies and services.

The General Plan should be reflective of and supportive of the Emergency Response Plan, and the County should work with the Glenn County Disaster Council and the Director of Emergency Services to update the Plan as needed.

3.8 Fire Hazards and Fire Protection Opportunities, Constraints and Conclusions

- As the County grows, fire protection service could decline unless means are devised to fund expanded services. It is unlikely that the increase in property assessments alone will cover future costs. The impact of new development on fire protection capability should be carefully weighed to assure that service levels do not decline for existing property and that unreasonable risks are not created for developing properties.
- The County should establish minimum levels of service for fire protection. One approach would be to use ISO ratings, with a goal of no less than a rating of 8 for rural areas and a rating of 5 for urbanized areas.
- LAFCo should review and evaluate fire district boundaries to determine if the existing service areas are the most efficient and cost-effective. Partial consolidation and more direct County involvement may be necessary if an adequate level of service, sufficient to support economic development, is to be present.

- The County should look at various forms of voter approved assessment district financing for new development to fund new fire stations, equipment and personnel in order to assure growth and development do not exceed service capacity.
- Policies to be included in the new General Plan should clearly identify the role of fire protection in future planning and assure that the costs of providing adequate fire protection are addressed.
- Policies and standards which assure that fire protection needs are considered in the design of new development should be included in the General Plan. To be considered are minimum road widths, evacuation routes, clearances around structures, water supply, and type of construction.
- If the County, through the General Plan process, proposes to significantly change population density or activities in the areas currently under CDF and Forest Service responsibility, consideration should be given to consolidation of responsibility.
- Fire risk and safety planning should play an important role when considering residential development in areas subject to potential wildland fires.
- Substantial deficiencies exist in present community fire flow when compared to current County standards. Policies should be included in the General Plan which reinforce present water supply standards for new development and which establish clear policy concerning the location of growth and its impact on peakload water supply. Means must also be identified in the General Plan to address the cost of upgrading water systems which will be impacted by growth.
- State law requires the County to bring its local ordinances into compliance with the State's Fire Safety Regulations for the SRA. This will require certain changes in standards and will also require the County to number all future structures in the SRA. The County is currently awaiting approval by the State Department of Forestry and Fire Protection of proposed changes in the Glenn County Code. The General Plan should establish policy on countywide house numbering which can be implemented as an adjunct to Fire Safety Regulations compliance.
- The General Plan should be reflective of and supportive of the Emergency Response Plan. In addition, the General Plan should recognize the need to periodically update the Emergency Response Plan.

4.0 GEOLOGIC HAZARDS

Background

The Government Code specifies that the General Plan must address the protection of the community from any unreasonable risks associated with the effects of such hazards as

seismically induced surface rupture, ground shaking, ground failure, slope instability, subsidence and other geologic hazards. These hazards must be identified, defined and mapped, and policies and standards incorporated into the General Plan which address such hazards.

Geologic hazards in Glenn County include the potential for landslides, subsidence, erosion and soil expansion. Glenn County is in a relatively inactive seismic area when compared to other portions of California such as the San Francisco Bay area and the Los Angeles Basin.

Specific Concerns

4.1 Prevention, Avoidance, Control and/or Correction of:

4.1.1 Soil Erosion

Different types of soil erosion have been identified in Glenn County by the U.S. Soil Conservation Service. Sheet and rill erosion is prevalent in the foothill region of the county, particularly where dryland farming occurs. Sheet and rill erosion results from rainfall which causes soil dislodgement and transport over a large area. It can be reduced through changes in farming practice, and in rangeland areas, through fencing, reseeding, water development, grazing management, and mechanical soil treatment to aerate badly compacted soils. As new construction occurs in foothill areas, native soils are disturbed in order to create roads and building pads. Sheet and rill erosion will occur on disturbed soils if they are not properly graded and seeded to protect them from rainfall.

Gully erosion also occurs in foothill areas. This form of erosion is caused by infrequent and large volumes of water coursing through otherwise dry or low flow waterways. Overall watershed management can help prevent gully erosion while planting of vegetation and other forms of slope stabilization can help reduce already occurring gully erosion. As development occurs in foothill areas, care should be taken to assure that intermittent and perennial streamcourses are protected through setbacks and left undisturbed, to the extent practical. Where encroachments cannot be avoided, a strong program of replanting and slope stabilization needs to accompany development proposals.

Streambank erosion occurs both in the foothills and on the valley floor. It is aggravated by livestock activity, recreation and development. Setbacks from streamcourses along with programs for streambank stabilization should be incorporated into the planning process to avoid this concern. Another common form of erosion is wind erosion. The Soil Conservation Service reports, however, that wind erosion is not known to be a problem in Glenn County.

In general, erosion may be expected to occur in Glenn County where protective vegetation is removed by construction, fire, cultivation, livestock grazing or other activity. Factors that contribute to erosion include topography, rainfall, and soil type. As a consequence, erosion hazard is highest in the western foothill and mountain region and lowest in the eastern flatter portion of the county (See Figure 4-1). In order to protect the public health and safety, the County should consider requiring erosion control plans as a part of the development approval

process for all property where public and/or private improvements are to be placed on sloping land.

The Land Division Ordinance of Glenn County presently includes language to ensure that preventive measures such as vegetation plantings and special slope treatments may be required when cut and fill activities are necessary for land division and subdivisions. The requirements, however, should be made more specific and broadened to include other development activities.

4.1.2 Landslides

The areas of highest apparent landslide potential in the county generally correlate with relief. Those areas having the highest potential, therefore, occur in the mountainous western portion of the county, while areas with the least potential occur in the lower relief eastern portion of the county. Figure 4-2 shows areas ranked with regard to relative potential for landslides. The foothill region has a moderate rating of 3 while the more westerly mountains have a higher rating of 5. The area of greatest landslide potential is primarily within the Mendocino National Forest and is not generally threatened with development. When development is proposed within an area with a high rating for landslides, a site specific investigation by a qualified geologist and engineer should be performed prior to approval of such development.

4.1.3 Subsidence

Potential subsidence areas occur in the eastern portion of the county where extensive groundwater withdrawals have occurred. Extraction of natural gas from reservoirs located in these same areas can also contribute to local subsidence of the land surface (see Figure 4-3). Available information has not pinpointed any known areas of subsidence within Glenn County although they do occur in neighboring counties.

The problem is potentially a widespread one, affecting the entire valley floor. Areas of heavy groundwater and natural gas withdrawal should be monitored to determine the extent of the problem in Glenn County. Contemporary building practices, as defined in the Uniform Building Code (UBC), will normally protect structures from the effects of subsidence as it may occur in Glenn County. Greatly increased withdrawals of groundwater or natural gas, however, may warrant a review of the potential for subsidence to occur at potentially damaging levels in the future.

4.1.4 Earthquakes

As indicated above, Glenn County is in a relatively inactive seismic area (See Figure 4-4). During the past 100 years, the county has experienced only minor earthquakes within its boundaries and secondary impacts from earthquakes centered out of the area. There are no Alquist-Priolo Special Studies Zones within the County. Such zones highlight active faults that have a potential for ground surface rupture.

The highest historic intensity rating for an earthquake affecting Glenn County is VII as measured by the Modified Mercalli Scale. Refer to Table 4-1 for the Modified Mercalli Intensity Scale.

The UBC establishes standards for structures to survive earthquakes of an intensity of VII with little or no damage.

The UBC also classifies all of Glenn County as being within a Seismic Risk Zone 3. Seismic risk zones are based, in part, on the distribution of earthquakes and the Modified Mercalli Intensity Scale rating of known earthquakes. A Seismic Risk Zone 3 requires that special precautions be taken, in accordance with the UBC, during construction to avoid or minimize earthquake damage.

Table 4.1-1

MODIFIED MERCALLI INTENSITY SCALE OF 1931¹
 (1956 version)²

I.	Not felt. Marginal and long-period effects of large earthquakes
I.	Felt by persons at rest, on upper floors, or favorably paced.
III.	Felt indoors. Hanging objects swing. Vibration like passing of light trucks. Duration estimated. May not be recognized as an earthquake.
IV.	Hanging objects swing. Vibration like passing of heavy trucks, or sensation of a jolt like a heavy ball striking the walls. Standing motor cars rock. Windows, dishes, doors rattle. Glasses clink. Crockery clashes. In the upper range of IV, wooden walls and frames creak.
V.	Felt outdoors, direction estimated. Sleepers wakened. Liquids disturbed, some spilled. Small unstable objects displaced or upset. Doors swing, close, open. Shutters, pictures move. Pendulum clocks stop, start, change rate.
VI.	Felt by all. Many frightened and run indoors. Persons walk unsteadily. Windows, dishes, glassware broken. Knickknacks, books, etc., off shelves. Pictures off walls. Furniture moved or overturned. Weak plaster and masonry D cracked. Small bells ring (church, school). Trees, bushes shake visibly, or heard to rustle.
VII.	Difficult to stand. Noticed by drivers of motor cars. Hanging objects quiver. Furniture broken. Damage to masonry D including cracks. Weak chimneys broken at roof line. Fall of plaster, loose bricks, stones, tiles, cornices also unbraced parapets and architectural ornaments. Some cracks in masonry C. Waves on ponds; water turbid with mud. Some slides and caving in along sand or gravel banks. Large bells ring. Concrete irrigation ditches damaged.
VIII.	Steering of motor cars affected. Damage to masonry C; partial collapse. Some damage to masonry B; none to Masonry A. Fall of stucco and some masonry walls. Twisting, fall of chimneys, factory stacks, monuments, towers, elevated tanks. Frame houses moved on foundations if not bolted down; loose panel walls thrown out. Decayed piling broken off. Branches broken from trees. Changes in flow or temperature of springs and wells. Cracks in wet ground and on steep slopes.

IX.	General panic. Masonry D destroyed; masonry C heavily damaged, sometimes with complete collapse; masonry B seriously damaged. General damage to foundations. Frame structures not bolted, shifted off foundations. Frames cracked. Serious damage to reservoirs. Underground pipes broken. Conspicuous cracks in ground. In alluviated areas sand and mud ejected, earthquake fountains, sand craters.
X.	Most masonry and frame structures destroyed with their foundations. Some well-built wooden structures and bridges destroyed. Serious damage to dams, dikes, embankments. Large landslides. Water thrown on banks of canals, rivers, lakes, etc. Sand and mud shifted horizontally on beaches and flat land. Rails bent slightly.
XI.	Rails bent greatly. Underground pipelines completely out of service.
XII.	Damage nearly total. Large rock masses displaced. Lines of sight and level distorted. Objects thrown into the air.

Masonry A,B,C,D. To avoid ambiguity of language, the quality of masonry, brick or otherwise, is specified by the following lettering.

- Masonry A. Good workmanship, mortar, and design, reinforced especially laterally, and bound together by using steel, concrete, etc., designed to resist lateral forces.
- Masonry B. Good workmanship and mortar, reinforced, but not designed in detail to resist lateral forces.
- Masonry C. Ordinary workmanship and mortar, no extreme weaknesses, like failing to lie in at corners, but neither reinforced nor designed against horizontal forces.
- Masonry D. Weak materials, such as adobe, poor mortar, low standards of workmanship; weak horizontally.

1Original 1931 version in Wood, H.O. & Naumann, F. 1931. Modified Mercalli intensity scale of 1931 Seismological Society of American Bulletin v 53 no. 5 p 979-987.

21956 version prepared by Charles F. Richter in Elementary Seismology, 1958 p 137-138. W.H. Freeman & Company.

4.1.5 Expansive Soils

Much of Glenn County has expansive soils (See Figure 4-5). Areas of low expansion potential occur in a small area between Orland and Hamilton City and along the Sacramento River. The remainder of the valley and foothill area is classified as having high expansion potential. The western mountainous portion of the county is classified as having moderate expansion potential.

Expansive soils present potential structural problems for proposed building and other facilities. However, a variety of standard design and construction methods exists to strengthen structures against the stresses caused by expansive soils. These design standards and construction methods are found in the UBC or are addressed through engineer-approved development and design standards included in the Land Division Ordinance.

4.2 Application of Uniform Building Code

The Uniform Building Code (UBC) is the most common method for establishing construction and development standards. The UBC addresses the hazards discussed above. Glenn County is currently operating under the 1988 edition of the UBC with the exception of the electrical code, which is the 1990 edition. The County should update the UBC periodically, as required by law, to ensure that the County's standards are contemporary.

4.3 Geologic Hazards Opportunities, Constraints and Conclusions

- In foothill and mountainous areas of the county, disturbed soils must be protected from the effects of sheet and rill erosion, and gully erosion. The General Plan should contain policy which encourages agricultural practices which are conserving of soil resources and which also requires development to avoid or mitigate practices which may cause soil erosion. Standards should be included which require proper grading and reseeded of disturbed soils and which require avoidance and setbacks from steeply sloping soils and streamcourses. Programs for replanting and slope stabilization should accompany all development proposals involving disturbance of soils on slopes or along streamcourses.
- Valley streamcourses should also be protected, through setbacks and programs for streambank stabilization, where disturbance cannot be avoided.
- The County should consider requiring erosion control plans as a part of the development approval process where public and/or private improvements are to be placed on sloping land. In this fashion, the various concerns can be dealt with in a standardized and consistent fashion.
- Although the present County Land Division Ordinance contains language addressing replanting and special slope treatment, the requirements need to be made more specific and broadened to include other development activities. This could be accomplished through a standardized requirement for an erosion control plan, as discussed above.
- Landslide threats exist primarily within the mountainous region and generally within the jurisdiction of the National Forest. When development is proposed within a high landslide risk area, a site specific investigation by a qualified geologist and engineer should be undertaken.
- Subsidence is linked to groundwater or natural gas withdrawal and is associated with the flatlands of the Sacramento Valley. Although no areas of subsidence have been specifically identified in Glenn County, monitoring should be performed in conjunction with gas well and water well production to assure that accurate information is available on which to base future actions.
- Glenn County is in a relatively inactive seismic area. Anticipated seismic activity is within the parameters anticipated by the Uniform Building Code and can be effectively mitigated by Building Code compliance and standard engineering practice.

- Although much of Glenn County contains expansive soils, problems associated with Glenn County soils can be mitigated through Uniform Building Code application and standard engineering practice.

5.0 AIR QUALITY

Background

Air quality standards for Glenn County are set by both the federal government, through the Environmental Protection Agency (EPA), and by the State, through the California Air Resources Board (CARB). Locally, the Glenn County Air Pollution Control District (APCD) is responsible for the planning and maintenance/attainment of these standards. The pollutants in Glenn County for which standards have been established include ozone and particulates (PM10).

Generally, air quality in Glenn County is better than that required by federal standards. The County has never exceeded federal air quality standards, including those set for ozone and PM10. Because of this, EPA has labeled Glenn County as an area of "Prevention of Significant Deterioration" (PSD). This designation is due mainly to the small number of urban-style pollution sources (motor vehicle traffic and industry) and insufficient air quality data from EPA. California air quality standards, however, have been consistently more stringent than federal standards. Glenn County has been designated as a nonattainment area for ozone and PM10 standards by the State. Ambient air quality standards for both California and the nation are shown on Table 5-1.

Table 4.3-1

**TABLE 5-1
AMBIENT AIR QUALITY STANDARDS**

POLLUTANT	AVERAGING TIME	CALIFORNIA STANDARDS ¹		NATIONAL STANDARDS ²		
		CONCENTRATION ³	METHOD ⁴	PRIMARY ^{3,5}	SECONDARY ^{3,6}	METHOD ^{4,7}
Ozone	1 Hour	0.09 ppm (180 ug/m ³)	Ultraviolet Photometry	0.12 ppm (235 ug/m ³)	Same as Primary Std.	Ethylene Dichloride
Carbon Monoxide	8 Hour	9.0 ppm (10 mg/m ³)	Non-dispersive Infrared Spectroscopy (NDIR)	9 ppm (10 mg/m ³)	-	Non-dispersive Infrared Spectroscopy (NDIR)
	1 Hour	20 ppm (23 mg/m ³)		35 ppm (40 ug/m ³)		

Nitrogen Dioxide	Annual Average	-	Gas Phase Chemiluminescence	0.053 ppm (100 ug/m3)	Same as Primary Std.	Gas Phase Chemiluminescence
	1 Hour	0.25 ppm (470 ug/m3)		-		
Sulfur Dioxide	Annual Average	-	Ultraviolet Fluorescence	80 ug/m3 (0.03 ppm)	-	Pararosaniline
	24 Hour	0.05 ppm (131 ug/m3)		365 ug/m3 (0.14 ppm)	-	
	3 Hour	-		-	1300 ug/m3 (0.5 ppm)	
	1 Hour	0.25 ppm (655 ug/m3)		-	-	
Suspended Particulate Matter (PM10)	Annual Geometric Mean	30 ug/m3	Size Selective Inlet High Volume Sampler and Gravimetric Analysis	-	-	-
	24 Hour	50 ug/m3		150 ug/m3	Same as Primary Stds.	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	-		-	50 ug/m3	
Sulfates	24 Hour	25 ug/m3	Turbidimetric Barium Sulfate	-	-	-
Lead	30 Day Average	1.5 ug/m3	Atomic Absorption	-	-	Atomic Absorption
	Calendar Quarter	-		1.5 ug/m3	Same as Primary Std.	
Hydrogen Sulfide	1 Hour	0.03 ppm (42 ug/m3)	Cadmium Hydroxide STRactan	-	-	-

Vinyl Chloride (chloroethene)	24 Hour	0.010 ppm (26 ug/m3)	Tedlar Bag Collection, Gas Chromatography	-	-	-
Visibility Reducing Particles	1 Observation	In sufficient amount to reduce the prevailing visibility ⁹ to less than 10 miles when the relative humidity is less than 70%		-	-	-

Source: State of California, Air Resources Board, November, 1989.

1. California standards for ozone, carbon monoxide, sulfur dioxide (1 hour), nitrogen dioxide and particulate matter - PM10, are values that are not to be exceeded. The sulfates, lead, hydrogen sulfide, vinyl chloride, and visibility reducing particles standards are not to be equaled or exceeded.

2. National standards, other than ozone and those based on annual averages or annual arithmetic means, are not to be exceeded more than once a year. The ozone standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above the standard is equal to or less than one.

3. Concentration expressed first in units in which it was promulgated. Equivalent units given in parenthesis are based upon a reference temperature of 25°C and a reference pressure of 760 mm of mercury. All measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 mm of mercury (1,013.2 millibar); ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

4. Any equivalent procedure which can be shown to the satisfaction of the Air Resources Board to give equivalent results at or near the level of the air quality standard may be used.

5. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health. Each state must attain the primary standards no later than three years after that state's implementation plan is approved by the Environmental Protection Agency.

6. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant. Each state must attain the secondary standards within a "reasonable time" after the implementation plan is approved by the EPA.

7. Reference method as described by the EPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the EPA.

8. At locations where the state standards for ozone and/or suspended particulate matter are violated. National standards apply elsewhere.

9. Prevailing visibility is defined as the greatest visibility which is attained or surpassed around at least half of the horizon circle, but not necessarily in continuous sectors.

Specific Concerns

5.1 Compliance with State Standards and California Clean Air Act

Passed in 1988, the California Clean Air Act (CCAA) contains guidelines for the attainment of air quality goals that are much more stringent than the federal standards. The CCAA also expands the authority of both the California Air Resources Board (CARB) and local Air Quality Management Districts (AQMDs), especially where a district has been found to be in "nonattainment" of state air quality standards. The CARB regulates statewide sources of pollutants such as mobile sources and fuels, consumer products, paints and coatings, etc. The local AQMDs regulate sources within the districts such as stationary sources, indirect sources, and agricultural sources.

The CCAA requires that Air Quality Attainment Plans be prepared and designed to achieve a reduction in district-wide emissions of five percent or more per year for each nonattainment pollutant or its precursors, averaged every consecutive three-year period. The Air Quality Attainment Plan for the Northern Sacramento Valley Air Basin, of which Glenn County is a part, is discussed in Section 5.5 of this Issue Paper.

State PM10 standards are exceeded mainly during the fall and spring, however there are PM10 exceedances year round. Probable sources are the agricultural burning of field crops and orchard waste, cultivating and harvesting of crops, and driving on unpaved roads. A contributing factor are the prevailing wind patterns which transport pollutants from the Sacramento Metropolitan Area to the north Sacramento Valley Air Basin. The exceedances of ozone standards occur mainly during the warmer months of May through October. The transport of ozone and/or its precursors from the broader Sacramento area to the upper Sacramento Valley occurred on at least 57 of the 63 days when the ozone standard was exceeded during 1986 through 1988 in the Upper Sacramento Valley.

5.2 Phase-out of Agricultural Waste Burning

The Connelly-Areias-Chandler Rice Straw Burning Reduction Act of 1991 requires the phasing out of rice straw burning beginning in 1992 with incremental reductions over the next seven years. By the year 2000, the maximum annual allocation of rice straw that can be burned is 25 percent of the planted total of 125,000 acres, whichever is less, for the entire Sacramento Valley Air Basin. This mandatory reduction should substantially decrease the generation of PM10.

5.3 Gas Well Compressor Emissions

Natural gas well compressors are primarily fueled by natural gas in Glenn County. Alternative fuels include diesel as well as electrical power. Engines burning natural gas and used in oil and gas exploration and extraction require issuance of a "Permit to Operate" from the Glenn County Air Pollution Control District (APCD). Emissions from natural gas compressors have been viewed as a problem in the county, primarily because operators were not obtaining the required permits. The APCD now reports that this problem has been largely corrected.

Emissions from gas well compressors are a source of nitrous oxide (NO_x) which contributes to the production of photochemical smog. Natural gas is the most efficient and cleanest burning of

the hydrocarbon fuels available. Its continued use is viewed as the best available fuel source for the engines.

5.4 Consistency with Air Quality Attainment Plan

In compliance with the California Clean Air Act of 1988, an Air Quality Attainment Plan for the Northern Sacramento Valley Air Basin (NSVAB) has been prepared and submitted to the California Air Resources Board. The NSVAB includes the counties of Butte, Colusa, Glenn, Shasta, Sutter, Tehama and Yuba. The Plan is designed to achieve a reduction in districtwide emissions of five percent or more per year for each non-attainment pollutant or its precursors, averaged every consecutive three-year period. By law, the five percent requirement is calculated against the 1987 actual emission level of each nonattainment pollutant or its precursor.

According to the Plan, a five percent reduction of the pollutant levels cannot be demonstrated, as the control efficiencies and cost-effectiveness are not available for many of the proposed control strategies. The Plan states that it does, however, include every feasible control measure and a schedule of adoption for the control measures. A complete listing of these control measures can be found in Table 5-2 along with the ranking of the measures and implementation schedule.

Table 5.4-1

TABLE 5-2

**NORTHERN SACRAMENTO VALLEY AIR BASIN,
1991 AIR QUALITY ATTAINMENT PLAN**

As Adopted by the Glenn County Air Pollution Control Board 7/16/91

LIST OF FEASIBLE MEASURES FOR STATIONARY SOURCES

CONTROL MEASURES	APPLICABLE DISTRICTS	ADOPTION SCHEDULE RANKING	*CONTROL EFFICIENCY	*COST EFFECT
New source review, Indirect source review				
New source review measures	All	1	No Calc	No Calc
Indirect source review measures	All extent varies	1	No Calc	No Calc
Transportation control measures	All extent varies	1	No Calc	No Calc
NOX related control measures				
Cement Kilns	Shasta	2	50%	\$2000 /Ton
Crude oil pipeline heaters	N/A	N/A	N/A	N/A

Electric utility gas turbines	All	3	60%	\$7500 /Ton
Glass melting furnaces	All	5	45%	\$4000 /Ton
Industrial boilers	All	2	50%	\$9000 /Ton
Internal combustion engines	All	2	70%	\$1000 /Ton to \$5000 /Ton
Oil field steam generators	N/A	N/A	N/A	N/A
Refinery heaters and boilers	N/A	N/A	N/A	N/A
Residential space heating	All	4	No Calc	No Calc
Residential water heating	All	4	No Calc	No Calc
Utility boilers (elec. power generation)	All	1	40%	\$9000 /Ton
ROG related control measures				
Aerospace coatings	N/A	N/A	N/A	N/A
Aircraft fuel transfer into storage tanks	All	1	40%	\$2000 /Ton
Architectural coatings	All	3	50%	\$2000 /Ton
Automobile finish coatings	All	3	25%	\$2000 /Ton
Automobile assembly coatings	N/A	N/A	N/A	N/A
Can and coil coatings	All	5	5%	\$2000 /Ton
Cleaning of organic product storage tanks	All	4	95%	No Calc
Coating of metal parts and products	All	3	25%	\$2000 /Ton
Coating of plastic parts	All	3	25%	\$2000 /Ton
Commercial bakeries	N/A	N/A	N/A	N/A
Commercial charbroilers	All	4	90%	\$25000 /Ton

Commercial and industrial adhesives	All	5	70%	\$2000 /Ton
Control of emissions from cyclic oil production wells	N/A	N/A	N/A	N/A
Control of emissions from steam driven oil production wells	N/A	N/A	N/A	N/A
Covers for sumps, pits, and wastewater processing equipment	All	4	90%	\$3000 /Ton
Cutback asphalt	All	1	50%	No Calc
Disposal of organic wastes	All	2	90%	No Calc
Factory surface coating of flatwood paneling	All	4	No Calc	No Calc
Flexible disc manufacturing	All	5	No Calc	No Calc
Floating roof storage tanks	All	1	40%	\$2000 /Ton
Fugitive emission from industrial processes (includes synthetic organic; chemical manufacturing industries, petroleum refining, oil/gas production, gas plants, etc)	All	3	70%	\$1000 /Ton
Gas collection system for sanitary landfills	All	3	No Calc	No Calc
Graphic arts (rotogravure & flexography)	All	3	30%	No Calc
Kelp processing plants	N/A	N/A	N/A	N/A
Marine coatings	All	4	No Calc	No Calc
Marine vessel ballasting and housekeeping	N/A	N/A	N/A	NA/A
Marine vessel loading operations	N/A	N/A	N/A	N/A
Metal furniture and fixture coating operations	All	3	25%	\$2000 /Ton

Natural gas/gasoline processing plants	All	5	No Calc	No Calc
Organic chemical manufacturing	All	5	60%	\$2000 /Ton
Petroleum solvent dry cleaning operations	N/A	N/A	N/A	N/A
Pharmaceutical manufacturing	N/A	N/A	N/A	N/A
Polyester resin operations	All	2	No Calc	No Calc
Polymer resin manufacturing	N/A	N/A	N/A	N/A
Refinery vacuum producing systems, wastewater separators and process unit turnarounds	N/A	N/A	N/A	N/A
Rubber tire manufacturing	N/A	N/A	N/A	N/A
Semiconductor manufacturing Operations	All	5	80%	\$4000 /Ton
Soil decontamination containing VOCs	All	2	No Calc	No Calc
Solvent degreasing	All	2	40%	\$2000 /Ton
Surface coatings of paper and fabrics	All	4	No Calc	No Calc
Synthetic solvent dry cleaning operations	N/A	N/A	N/A	N/A
Vapor recovery systems for gasoline distributors (includes terminals, bulk plants, storage tanks, tank trucks, rail car loading)	All	3	40%	\$2000 /Ton
Vegetable oil manufacturing	All	5	No Calc	No Calc
Wood furniture manufacturing coatings	All	4	20%	\$2000 /Ton
NSVAB AgBurn Plan	All	1	No Calc	No Calc

Multiple and other pollutant (SOX, CO, PM) control				
Clean fuel for fleets (NOX, SOX, CO, PM, ROG)	ARB	N/A	N/A	N/A
Fluid catalytic cracking units (SOX)	N/A	N/A	N/A	N/A
Marine vessel operations (SOX, ROG)	N/A	N/A	N/A	N/A
Petroleum coke calcining (SOX)	N/A	N/A	N/A	N/A
Residential wood combustion (CO, ROG, PM)	All	1	No Calc	No Calc
Sulfur content in fuel (SOX)	N/A	N/A	N/A	N/A

*References for Control Efficiency and Cost Effectiveness - 3/18/91 Draft Bay Area Air Quality Management District Clean Air Plan, "Candidate Control Measure Description".

Adoption Schedule Ranking for feasible control measures:

- All measures ranked #1 shall be proposed and implemented no later than July 1, 1992.
- All measures ranked #2 shall be proposed and implemented no later than July 1, 1993.
- All measures ranked #3 shall be proposed and implemented no later than July 1, 1994 only if attainment of the State ambient air standard for ozone is not achieved by January 1, 1994.
- All measures ranked #4 shall be proposed and implemented no later than July 1, 1995.
- All measures ranked #5 shall be proposed and implemented no later than July 1, 1996.

Although the Air Quality Attainment Plan (AQAP) is not a component of the General Plan, policies and standards should be included within the General Plan which support and are consistent with the adopted AQAP.

5.5 Protection and Enhancement of Air Quality

Air quality control measures have traditionally been applied only to "direct" sources of air pollution: mobile sources (primarily motor vehicles) and stationary sources (such as factories). The California Clean Air Act, through the air quality attainment plans described above, has for the first time extended local control measures to "indirect" sources of air pollution. The indirect source review regulation is intended to reduce and mitigate emissions of non-attainment pollutants or their precursors from sources which generate or attract motor vehicle activity. Such sources include shopping centers, residential and commercial developments, government buildings, medical facilities, office buildings, hospitals, hotels, and restaurants.

While these control measures have not yet been drafted or implemented, it is safe to say that they will focus upon disincentives to development which is dependent upon the private automobile, which discourages use of alternative forms of transportation, and which is not contiguous to existing development. Put another way, such measures should encourage compact, higher density and infill development, project designs which encourage use of transit, bicycle and pedestrian transportation, and proximity of residences to shopping and places of employment.

The NSVAB Air Quality Attainment Plan speculates that features of this regulation may include a requirement for "Best Available Mitigation Measures" from significantly-sized projects, mitigation fees, review fees, and offset requirements. Mitigation fees will be linked to emissions resulting from motor vehicle trips and will be used to reduce mobile source emissions.

The urban limit line concept discussed in the Community Development Issue Paper, if incorporated in the General Plan, can help to achieve the County's air quality goals. Other measures can be implemented through the inclusion of relevant policy in the General Plan as well. These include policies which encourage infill and contiguous development; higher residential densities; mixed land uses; and project design standards that include requirements for transit stops, and pedestrian and bicycle access between residential, shopping, schools, employment centers, and other attractions.

The AQAP also proposes a "new source review rule", or new control measures for new and existing stationary sources. These measures will have implications with regard to the continuing operation of existing businesses and industries, as well as the location of new business and industry in Glenn County. Features of this regulation will include air quality offsets, emission reduction credits, and application of Best Available Control Technology (BACT). The County's economic development strategies need to take these future regulations into consideration. Glenn County is fortunate that its air quality status is less severe than many other areas of California, hence it may be an attractive area for industries to relocate which are subjected to more restrictive regulations elsewhere. By the same token, the County should seek to protect its air quality resource through careful review of new industry.

Transportation control measures are a final type of regulation. While these have yet to be drafted for Glenn County, such measures commonly include trip reduction rules for employers and other sources that attract vehicle trips, management of parking supply and pricing, transit improvement programs, high occupancy vehicle system plans, and development policies to strengthen on-site transit access and motor vehicle trip reduction. Many of these types of regulations are more suitable for urban and metropolitan areas than for a rural, agricultural county such as Glenn, which does not have a transit system at present. The types of measures which Glenn County has proposed in the Air Quality Attainment Plan include government information programs, bicycle parking facilities, and turn restrictions on selected roads.

5.6 Air Quality Opportunities, Constraints and Conclusions

- Although Glenn County air quality meets federal standards, it falls short of meeting State standards for ozone and PM10. Much of the ozone problem is imported from the Sacramento

metropolitan area, over which Glenn County has little control. The particulate problem results in large part from agricultural practices, including cultivation and burning. The County should look to ways to reduce agricultural burning, including rice straw, in accordance with changes in State law.

- The Air Quality Attainment Plan for the northern Sacramento Valley Air Basin does not anticipate that the region will achieve the reductions called for by the California Clean Air Act. Because of the importance of achieving as high a level of compliance as is possible, however, the actions specified in the General Plan should place a very high value on achievement of cleaner air and upon compliance with the measures specified in the Air Quality Attainment Plan.
- Although there has been a perceived problem with gas well compressors, the present practice of using natural gas to power them is the most practical and cleanest fuel available.
- Air quality can be substantially protected and enhanced in Glenn County through land use planning practices which are sensitive to air quality impacts. The General Plan should contain policies and strategies which place people's homes near places of work and shopping and should generally allow design of communities which minimizes automobile trips and maximizes opportunities to walk and bicycle between activity centers.

6.0 FLOOD HAZARDS

Background

As with seismic and other geological hazards, the California Government Code requires that flooding also be addressed. Historical data on flooding, such as frequency and intensity, should be included in the General Plan, as well as the identification and mapping of areas within floodplains or subject to inundation by a 100-year flood.

Flooding becomes a problem when human occupation or activity takes place within the floodplain. Severe flooding is prevented by flood control dams on Stony Creek and the Sacramento River. Most of the mountain and foothill areas drain well, but parts of the valley floor do not. This is due to the relatively level terrain and soils which drain poorly.

Specific Concerns

6.1 Identification of Areas Subject to Flooding

Flood hazard areas in Glenn County have been mapped by the Federal Emergency Management Agency (FEMA) on Flood Insurance Rate Maps (FIRM). These maps are designed for use for flood insurance purposes only and do not necessarily show all areas subject to flooding. The maps designate zones based on 100-year flood inundation and elevations of the base flood where determined. They also depict areas between the limits of 100-year and 500-year floods and areas of minimal flooding. These maps are also used as a basis for establishing building pad elevations, which will protect new development from the impact of flooding. The most recent

FEMA FIRM maps for Glenn County became effective in September of 1980. The information on these maps indicates that areas subject to flooding are generally north of Willows and in the low areas known as the Colusa and Butte Basins. Figure 6-1 is a composite map of flood hazard areas in Glenn County, based on the FEMA FIRM maps.

Designated floodways have been mapped and adopted by the State Reclamation Board for three areas in Glenn County as follows:

- Sacramento River, adopted 3/12/71
- Colusa Drain, adopted 4/23/71
- Stony Creek, adopted 8/15/78

These floodways include the channels and the adjacent land areas that must be reserved in order to discharge flood waters without cumulatively increasing the water surface elevation more than one foot. The State Board of Reclamation has jurisdiction within designated floodways and supercedes local control. Most development activity is precluded within designated floodways, particularly anything that would restrict the flow of water.

The County Zoning Ordinance contains an FP (Flood Plain) zone. According to County staff, the zone is not presently applied in Glenn County. A zoning classification which is no longer in the Glenn County Zoning Code, DF (Designated Floodway) was formerly applied to properties now zoned E-M (Extractive Industrial) along Stony Creek.

The Colusa Basin has been the subject of further studies by the Department of Water Resources (DWR). The Colusa Basin is protected from flooding by a system of levees along the Sacramento River. These levees have not solved local problems of shallow flooding of large areas of the Basin. During the winter months, runoff from tributary drainage areas backs up behind the levees and along inadequate channels. The studies conducted by DWR have been unable to recommend an economically viable solution to the problem. The most recent study, the Colusa Basin Appraisal (May 1990), reached the same conclusions as the previous studies and could not identify any economically justified flood control solutions. This most recent study did conclude, however, that more emphasis needs to be placed on non-structural measures such as:

- Increase floodplain management efforts.
- Require detention basins for mitigation as part of any significant future development that will increase runoff peaks.
- Encourage on-farm storage of flood waters in detention basins where feasible. If implemented on newly developed lands, this would eliminate (or minimize) the impact of increased runoff.

- Consider acquisition of flood easements or development of wetland habitat where physical protection of lands is economically not justified.

6.1.1 Accuracy of Flood Maps

Concern has been expressed at the local level regarding the accuracy of the FEMA FIRM maps in certain areas of the County. Of particular concern are the areas of Hamilton City, North Willows and West Orland.

According to the Reconnaissance Investigation conducted by the U.S. Army Corps of Engineers for the Hamilton City area, the flood plains from historic flooding, the current Reclamation Board designated 100-year floodway, and the flood plains developed by the Corps are fairly consistent. The Corps flood plains differ from the others due to assumptions regarding the railroad embankment. This study reports that a "striking" difference exists, however, between these three flood plains and the flood plains shown in the FEMA FIRM maps. The FEMA flood plains show significant areas outside of the flood plain that are inside of the other three flood plains. Storm drain improvements have been constructed in these areas that are not reflected on the maps now in effect.

The current FEMA FIRM maps were approved in September 1980; however, initial identification of the various flood areas took place in September 1977. No subsequent revisions to these maps have occurred. If there is disagreement regarding the accuracy of these maps, an appeal process exists by which the flood designations can be challenged. This appeal process is handled on a case-by-case basis, however, as development occurs. Based on past experience with FEMA, a more comprehensive update of the maps is not likely in the near term.

6.2 Flooding from Canals and Irrigation

There is a potential for flooding in the agricultural areas of the county due to the existing irrigation water delivery systems and to present agricultural practices. In some cases the existing irrigation canals are at a higher elevation than roads and residences, which can result in flooding of roads and structures. Field flood irrigation practices in areas of poorly drained soils can also lead to flooding of roads and structures. The potential for this type of flooding would not necessarily be reflected on either the designated floodway maps or the FEMA FIRM maps due to its source.

According to the Colusa Basin Appraisal, drainage inundation problems occur when channel capacity is exceeded by a release of agricultural drainage waters or return flows during the irrigation season. This is the source of potential flooding during the "growing season", defined as the period from April 1 through October 31, which is characterized by cultivation, growing and harvesting of crops, and the delivery and drainage of agricultural water. When unexpected rains occur during the growing season, flooding can occur due to the additional runoff on saturated fields, especially rice fields.

Due to the uncertainties surrounding the potential for flooding from canals and irrigation, the prospects for such flooding to occur need to be carefully weighed when development is proposed and appropriate protective measures built into proposed development plans.

6.3 Siltation of Reservoirs

This subject is discussed in Section 3.4 of the Natural Resources Issue Paper. Of the two larger reservoirs in Glenn County, Black Butte Reservoir was built by the Army Corps of Engineers for flood protection purposes. The accelerated reduction in capacity now resulting from siltation has an effect on long-term flood protection and should be closely monitored.

6.4 Avoidance of Flood Hazards

A variety of ways exist to mitigate flood hazards, including construction of flood protection facilities such as levees, dams, bypasses and piped systems. None, however, is more cost effective and long lasting than simple avoidance of areas subject to flooding. Planning efforts should be directed at avoidance to the extent practical. Due to the nature of Glenn County and existing development patterns, avoidance cannot be achieved in every instance. Flood protection measures are, therefore, a necessary fact of life in much of Glenn County.

6.4.1 Land Use Planning

Flood hazards can be avoided in many cases through the planning process. Development policies, standards and restrictions can be incorporated into the General Plan which restrict or limit development within identified floodplains and floodprone areas. These policies, standards and restrictions can be implemented through zoning and subdivision ordinances by establishing development intensity/density standards and by providing for flood control facilities/improvements through development design where necessary. Building foundation heights are regulated through Chapter 16.24 of the Glenn County Code, "Flood Damage Prevention," for areas identified as Zone A on the FEMA FIRM maps. Installation of storm drain improvements as part of subdivision design will ensure that the introduction of impervious surfaces associated with development will not contribute to flooding potential. The FEMA FIRM and Reclamation Board maps should be closely studied when establishing land use distributions and densities under the revised General Plan.

6.4.2 Storm Drain Maintenance Districts

As described in the Environmental Setting Technical Paper, there are currently two storm drain maintenance districts and one county service area providing storm water disposal in the county. Storm Drain Maintenance District #1 provides service to an area southeast of Orland and maintains a natural drain which runs southeast through the District as needed. District #1 has an independent Board of Directors and staff. Storm Drain Maintenance District #3 is governed by the Board of Supervisors and provides service to an area located between the Kanawha Water District and the Willows Airport. The District maintains a natural drain that traverses the area and drains to the east across the south end of the Willows Airport. This District is administered by the County Public Works Department, as is the North Willows County Service Area. Formerly known as Storm Drain Maintenance District #2, the North Willows County Service Area serves an area northeast of Willows by maintaining natural drains and a pipeline system. A

new County Service Area currently being formed, the Parkway Estates County Service Area, will provide storm drainage for the Parkway Estates development located north of Willows in addition to other improvements and services.

The Reconnaissance Investigation conducted of the Hamilton City area by the U.S. Army Corps of Engineers reports that Hamilton City has a problem with interior drainage. The community's stormwater system drains into the area south of Highway 32. Water is also allowed to drain under Highway 32 by culvert into this area from lands north of the highway.

6.4.3 New Flood Control Facilities

Two small flood control projects are currently under consideration by the County. In the North Willows area, the construction of a retention pond northwest of town is proposed to catch water prior to its entering the developed area.

In Orland, a retention pond is proposed to retain storm water entering the Orland Haigh Field Airport property as a result of overflow from Lely Park. Other similar flood control improvements should be considered by the County as development occurs. Improvements can be financed and constructed by assessment districts and maintained through a countywide service area or through the existing storm drain maintenance districts. No new flood control projects of regional importance are presently expected to be constructed in Glenn County or on streams affecting the County.

A reconnaissance investigation was conducted by the U.S. Army Corps of Engineers to evaluate the potential feasibility of providing additional flood control along the Sacramento River near Hamilton City, and to determine whether there appears to be a federal interest in participating in at least one flood control plan. The study was conducted in response to a letter received from the Board of Supervisors in 1986, and included Hamilton City and the surrounding area located between the Sacramento River and the Glenn-Colusa Canal. According to this study, preliminary geotechnical analysis indicates that the existing levees protecting Hamilton City are structurally inadequate, and that a sudden failure of the levee could result in catastrophic flooding and potential loss of life if the community has not been evacuated.

The study developed and evaluated several alternatives for flood control measures in the study area. Channel dredging, clearing and snagging, and all nonstructural measures were eliminated from further consideration. Structural measures which were evaluated included construction of a setback levee to the north, east and south of Hamilton City, or alternatively, enlarging approximately 17,000 feet of existing right bank (west side) levee along the Sacramento River and construction of 3,400 feet of setback levee south of Hamilton City. The study concluded that none of the alternatives had a benefit-to-cost ratio greater than one, based on federal criteria, and after considering the environmental, social, and economic effects and engineering feasibility of the alternatives, the study concluded that there is no federal interest in participating in further studies for a flood control project in this area.

6.5 Flood Hazards Opportunities, Constraints and Conclusions

- The DF (Designated Floodway) Zone should be restored to the Glenn County Zoning Code, and this zone should be applied to lands located within the designated floodways adopted by the State Reclamation Board. The County should use caution in applying such zoning, however, to avoid potential "take" issues.
- The County should request the U.S. Department of Housing and Urban Development, Federal Insurance Administration to undertake revisions to the FEMA FIRM maps for the areas around Hamilton City, Willows and Orland, to reflect flood control improvements that have been constructed since the 1980 effective date and to resolve conflicts with the designated floodway maps of the State Reclamation Board. The conflict in the Hamilton City area must be resolved so that areas where development may occur can be clearly identified.
- As Glenn County grows, areas of flooding should be avoided as a first priority. Where this is not possible, the necessary flood protection measures should be factored into the cost of development, and a mechanism created up-front to pay for the cost of flood protection.
- There appear to be no flood protection projects of major regional significance on the horizon, and it is anticipated that flood protection measures will be small-scale and incremental during the planning period.

7.0 WATER QUALITY

Background

Water quality in Glenn County is generally good. There have been cases of groundwater contamination reported in the West Orland area due to the use of individual septic tank systems in an area characterized by extremely porous soils and a high water table. With the widespread use of individual septic systems throughout the county, the potential for groundwater contamination in other areas will increase if not properly monitored.

Water quality in the Colusa Basin in the southern part of the county is influenced by several factors including rainfall, irrigation water supplies, cropping patterns and practices, district water management and soil characteristics. According to the California Department of Water Resources (DWR), the quality of water in the basin is generally good to fair because of the excellent quality of the main source, the Sacramento River, and also because most groundwater supplies are considered excellent. Water quality concerns have developed at the lower end of the Basin, however, primarily related to the use of agricultural chemicals. Point sources that drain into the Colusa Basin in Glenn County which influence the water quality within the Drain include wastewater treatment plant effluent from the City of Willows, and food-processing wastes and cooling water effluent from the Glenn Milk Producers Association.

Special Concerns

7.1 Prevention and Control of Pollution of Rivers, Streams, Groundwater and Other Waters

Because the main source of domestic water in Glenn County is groundwater, maintenance of groundwater quality is of primary importance to most county residents. Protection of the groundwater can be difficult in rural areas where the economy is agriculturally-based due to the chemicals used in the growing and processing of agricultural products. The use of individual septic systems, which is common throughout the county, can also contribute to groundwater contamination if not properly installed and monitored. This is particularly true in gravelly soils such as in West Orland. The County has adopted sewage disposal regulations as part of its Land Division Ordinance and Land Development Ordinance. These regulations and septic system limitations within the county are discussed in Section 5.2.4 of the Community Development Issue Paper. The County also has adopted a well ordinance which regulates the installation of water wells. These regulations help prevent problems with new wells, but do not eliminate potential contamination of older, more shallow wells. The County has adopted a separate well ordinance for injection wells used to dispose of salt water from gas well operations. These wells require issuance of a conditional use permit.

Contamination of surface water is regulated through the National Pollutant Discharge Elimination System (NPDES) which is a federal program administered by the Environmental Protection Agency (EPA) and locally by the State Regional Water Quality Control Board (RWQCB). The NPDES permitting process has as its goal the reduction, to the maximum extent practical, of pollutants entering waterways, and a NPDES permit is required for any discharge into surface water.

There are currently two facilities under NPDES permit in Glenn County: the City of Willows wastewater treatment facility which discharges into the north branch of Logan Creek, and Glenn Milk Producers Association which discharges into Walker Creek. NPDES permits must be renewed every five years. Although traditionally applied to point discharge of industrial waste, NPDES permits are now applied to stormwater discharge from industrial sites and may eventually be applied to municipal stormwater systems in Glenn County, where discharge to surface waters occurs.

RWQCB also requires waste discharge permits for any wastewater discharge to land. According to RWQCB, Sacramento Basin Division, there are sixteen permits currently on file for wastewater discharge in Glenn County:

- Butte Creek Rock Company
- CALTRANS Willows Roadside Rest
- California Department of Forestry, Alder Springs Camp
- Concrete Products Industries
- Elk Creek Community Services District
- Fulton Reclamation Facility
- Glenn Milk Producers Association (in addition to NPDES permit)
- Hamilton City Community Services District

- Holly Sugar
- Manville Sales Corporation
- Meadow Glenn Farms
- City of Orland wastewater treatment plant
- Orland Sand and Gravel
- Sun Sweet Dryers
- U.S. Fish and Wildlife Service (Sacramento National Wildlife Refuge)
- Valley Rock Products, Inc.

Guidelines for use of reclaimed wastewater are established under Title 22 of the California Administrative Code (Div. 4, Environmental Health) and are included as part of every waste discharge permit issued by RWQCB. These guidelines set standards for minimum level for treatment and list acceptable uses of treated effluent. These standards are summarized in Table 7-1.

Contamination of ground or surface water from solid waste disposal is also controlled through waste discharge permits issued by RWQCB under Title 23, Chapter 15. Current facilities under permit in Glenn County include: Valley Rock, used for disposal of drilling mud; and the Glenn County Landfill. Discharge requirements for the Von Bargon Ranch, used for septage disposal, are currently under review by RWQCB.

There is also a potential for groundwater contamination from leaking underground storage tanks. Refer to Section 9.8 of this Issue Paper for further discussion of underground storage tanks.

Table 7.1-1

**TABLE 7-1
ACCEPTABLE USES FOR TREATED EFFLUENT**

Standard	Acceptable Uses
Primary effluent (< 0.5 ml/liter/hr settleable solids)	<ul style="list-style-type: none"> • Irrigation of fodder crops • Irrigation of fiber crops • Irrigation of seed crops
Median coliforms < 23 per 100 ml	<ul style="list-style-type: none"> • Dairy pasture • Landscape impoundments
Median coliforms < 23 per 100 ml Maximum coliforms < 240 per 100 ml in any 2 consecutive samples	<ul style="list-style-type: none"> • Landscape irrigation (low public exposure)
Median coliforms < 2.2 per 100 ml	<ul style="list-style-type: none"> • Restricted recreation impoundments

Median coliforms < 2.2 per 100 ml Maximum coliforms < 23 per 100 m. within a 30-day period	<ul style="list-style-type: none"> • Spray irrigation of food crops • Surface irrigation of food crops • Surface irrigation of orchards/vineyards where the fruit does not come in contact with the wastewater • Non-restricted recreation impoundments
Median coliforms < 2.2 per 100 ml Maximum coliforms < 23 per 100 ml in any sample	<ul style="list-style-type: none"> • Irrigation for parks (high public exposure) • Irrigation for playgrounds • Irrigation for schoolyards

Source: California Administrative Code, Title 22, Division 4, "Wastewater Reclamation Criteria".

The present permitting system administered by Regional Water Quality Control Board and the county is sufficient in scope to protect ground and surface waters in the County from non-agricultural sources of pollution, if adequately staffed and implemented. The General Plan should support the present permitting system in order to assure that water resources are properly safeguarded.

7.2 Agricultural Practices and Water Quality

The use of rice herbicides in the Colusa Basin and their impact on the Colusa Basin Drain and the Sacramento River was the subject of much study during the 1980s. Impacts associated with the use of herbicides included the loss of fish in the Colusa Basin Drain and problems with the taste of drinking water downstream in the City of Sacramento. In response to these problems, the Department of Food and Agriculture developed the Rice Herbicide Action Plan in 1984, which uses best management practices to reduce off-site movement of rice herbicides to the Drain and Sacramento River. Best management practices set out in the Plan include: holding times for treated field waters to allow dissipation of the chemicals; restrictions on the number of acres treated with thiobencarb; and incentives to growers using water management practices such as recirculation or tail-water recovery.

This Plan has been revised yearly and has greatly reduced the concentrations of the herbicides molinate and thiobencarb in both the Drain and Sacramento River. According to the DWR Colusa Basin Appraisal, there have been no fish losses observed since implementation of the Plan in 1984, and the careful control and management practices appear to have eliminated most of the problems associated with their use. Drinking water taste problems have also been reduced significantly. DWR's report recommends that the Rice Herbicide Action Plan be continued, including current management practices and monitoring programs, and encourages experimentation with new cultural practices that would reduce the drainage of agricultural chemicals. It is also recommended that the Action Plan be adjusted according to changing practices, and that herbicides and pesticides continue to be monitored weekly.

7.3 Effluent from Wastewater Treatment Plants and Industries

Effluent from wastewater treatment plants and industrial uses is subject to waste discharge permits issued by RWQCB. If wastewater is discharged into surface water, an NPDES permit is required. As indicated in Section 7.1, the only wastewater treatment plant under NPDES permit

is the City of Willows facility for its discharge into Logan Creek. Glenn Milk Producers Association is the only industrial use currently under NPDES permit for its discharge into Walker Creek, and is also under a waste discharge permit for its land discharge of wastewater.

Dischargers in the county subject to a land discharge permit are listed in Section 7.1, including the City of Orland and Hamilton City wastewater treatment plants. Orland and Hamilton City pond wastewater effluent as opposed to discharging it to surface waters.

7.4 Regulation of Land Use in Stream Channels

Regulation of land use in stream channels is frequently handled through the establishment of a designated floodway by the State Board of Reclamation as discussed in Section 6.1. Local jurisdictions can also regulate land use in stream channels through the Zoning Ordinance. At present, Glenn County applies no special zone to stream channels. The E-M (Extractive Industrial) Zone is applied to Stony Creek, but it does not have as its goal the protection of water quality or the water carrying capacity of the channel. The County should seriously consider application of zoning complementary to designated floodway regulations where such floodways exist, and should also consider use of stream channel zoning elsewhere, if the stream channel could be threatened by development or other activity. Such zoning may be complementary to the Streamside Riparian Zoning discussed in the Natural Resources Issue Paper.

7.5 Water Quality Opportunities, Constraints and Conclusions

- Due to the substantial period of time programs have been in place at the federal and State level to protect water quality, a substantial body of regulation already exists. The General Plan should focus on supporting ongoing regulatory and compliance efforts as opposed to new initiatives.
- The County should support continued utilization of the Rice Herbicide Action Plan and other agricultural practices which reduce the threat of surface water pollution from agricultural chemical use.
- The County should consider the application of zoning complementary to designated floodways, where such floodways exist, and should also consider use of stream channel zoning elsewhere, if the stream channel could be threatened by development or other activity.

8.0 NOISE

Background

The General Plan Guidelines require that noise be addressed in the County's General Plan and that major noise sources be identified and quantified. Noise surveys were performed and described in the Environmental Setting Technical Paper. For ease of reference, some of that material is presented here again. Major sources previously identified in Glenn County include vehicular traffic on major roadways, railroad operations, Orland Haigh Field Airport, Willows

Glenn County Airport, industrial sources, agricultural processing facilities, and miscellaneous farming operations.

Specific Concerns

8.1 Evaluation of Existing Noise Conflicts

Some of the noise sources identified in the Environmental Setting Technical Paper are located within close proximity to noise sensitive land uses, including but not limited to residential development, schools and churches. Figures 8-1 and 8-2 show the locations of the existing and future noise contours for the two airports, and Tables 8-1 and 8-2 show the distances to the existing noise contours for major roadways and the railroad.

As a means of evaluating the noise level data contained in Tables 8-1 and 8-2, refer to Table 8-3 for representative noise exposure standards.

Table 8.1-1

**TABLE 8-1
TRAFFIC NOISE CONTOUR DATA
DISTANCE (FEET) FROM CENTER OF ROADWAY
TO Ldn CONTOURS**

Segment	Description	Existing	
		60 dB	65 dB
Interstate 5:			
1	Colusa County Line to S.R. 162	752	349
2	S.R. 162 to County Road 33	872	405
3	County Road 33 to S.R. 32	766	355
4	S.R. 32 to Tehama County Line	750	348
State Route 32:			
5	I-5 to County Road South	163	75
6	County Road South to S.R. 45 S	212	99
7	S.R. 45 S to Butte County Line	228	106
State Route 45:			
8	Colusa County Line to S.R. 162 E	116	54
9	S.R. 162 E to County Line 56	97	45
State Route 45:			
10	County Road 56 to S.R. 162 W	97	45
11	S.R. 162 W to County Road 29	101	47
12	County Road 29 to S.R. 32	391	182
State Route 162:			

13	County Road 307 to County Road 306 N	36	17
14	County Road 306 N to County Road 306 S	49	23
15	County Road 306 S to I-5	92	43
16	I-5 to Willows City Limit West	199	92
17	Willows City Limit East to County Road P	101	47
18	County Road P to S.R. 45 N	71	33

Table 8.1-2

TABLE 8-2

Railroad Noise: Southern Pacific Transportation Company

Distance to Ldn Contour	
60 dB	65 dB
108 feet	50 feet

Table 8.1-3

TABLE 8-3

**MAXIMUM ALLOWABLE NOISE EXPOSURE
TRANSPORTATION NOISE SOURCES**

Land Use	Outdoor Activity Areas ¹ Ldn/CNEL, dB	Interior Spaces	
		Ldn/CNEL, dB	Leq, dB ²
Residential	603	45	--
Transient Lodging	603	45	--
Hospitals, Nursing Homes	603	45	--
Theaters, Auditoriums, Music Halls	--	--	35
Churches, Meeting Halls	603	--	40
Office Buildings	603	--	45
Schools, Libraries, Museums	--	--	45
Playgrounds, Neighborhood Parks	70	--	--

¹Where the location of outdoor activity areas is unknown, the exterior noise level standard shall be applied to the property line of the receiving land use.

²As determined for a typical worst-case hour during periods of use.

³Where it is not possible to reduce noise in outdoor activity areas to 60 dB Ldn/CNEL or less using a practical application of the best-available noise reduction measures, an exterior noise level of up to 65 dB Ldn/CNEL may be allowed provided that available exterior noise level reduction measures have been implemented and interior noise levels are in compliance with this table.

Based upon noise measurement data collected during the community noise survey for the Environmental Setting Technical Paper, the majority of noise sensitive areas within Glenn County are relatively quiet. Typical noise levels in noise sensitive areas are in the range of 48 dB to 60 dB Ldn. Noise from traffic on local roadways and neighborhood activities is the

controlling factor for background noise levels in most of the county. However, in some cases residential and industrial activities are located close together, as in the case of Holly Sugar Corporation in Hamilton City, and the noise levels produced by the industrial activities may be incompatible with the adjacent land uses.

Agricultural activities which include aerial application aircraft (crop dusters) flying at relatively low levels, and agricultural processing plants, often produce noise levels which may be considered annoying. These operations can occur during the late evening and early morning hours, which increase the chance for adverse public reaction to these activities.

8.1.1 Extent of Noise Problems in the County

The majority of Glenn County is rural. The primary activities in the rural areas are oriented toward agriculture. As noted above, the noise level data collected during the community noise survey indicates that the majority of the county is relatively quiet. Table 8-4 shows the results of the ambient noise survey.

8.2 Avoidance of Future Noise Conflicts

To avoid future noise conflicts, the General Plan needs to provide mechanisms to protect county residents from the harmful and annoying effects of exposure to excessive noise, and to prevent incompatible land uses from encroaching upon existing or planned noise-producing uses. This can be accomplished through the adoption of goals and policies which recognize the importance of noise protection measures, including adequate separations of different land uses, and by implementing a local Noise Control Ordinance.

8.2.1 Protection of Noise-Sensitive Land Uses From Noise-Generating Uses

To protect noise-sensitive land uses from noise-generating uses, criteria should be established to determine what noise levels may be considered to be acceptable at noise-sensitive land uses. There is also a need to establish procedures for determining projected noise levels that may result from proposed noise-producing uses, and for ensuring the compatibility of proposed noise-sensitive uses.

Table 8.2-1

**TABLE 8-4
SUMMARY OF MEASURED NOISE LEVELS AND ESTIMATED
DAY-NIGHT AVERAGE LEVELS (Ldn) IN AREAS
CONTAINING NOISE SENSITIVE LAND USES**

Site	Location	Date	Time	Sound Level, dB					
				L90	L50	L10	Leq	Lmax	Est. Ldn
1	*Near Jensen Park	5/23/91	10:001	48.0	52.0	56.0	53.5	66.5	59.8 dB
		5/23/91	7: 00	49.0	53.0	57.0	55.0	71.5	
		5/24/91	0:00	39.0	42.0	48.0	45.0	55.5	

2	*Near Roosevelt Avenue	5/23/91	11:00	34.0	39.0	51.0	47.5	65.5	54.2 dB
		5/23/91	18:00	37.0	41.0	51.0	48.0	70.0	
		5/14/91	1:00	30.0	33.0	47.0	42.5	56.0	
3	Spence Park	5/23/91	11:40	41.0	43.0	49.0	47.0	64.0	52.5 dB
		5/23/91	22:00	42.0	45.0	47.0	46.0	61.0	
		5/24/91	11:28	41.0	44.0	48.0	46.0	65.5	
4	Road 25 & Road C	5/23/91	12:17	30.0	34.0	40.0	36.5	47.0	51.9 dB
		5/23/91	22:26	41.0	43.0	44.0	42.5	45.0	
		5/24/91	12:29	30.0	36.0	49.0	54.5	77.0	
5	Road 200 & 306	5/23/91	13:23	26.0	29.0	37.0	51.0	75.0	51.9 dB
		5/23/91	22:58	41.0	42.0	43.0	42.5	44.0	
		5/24/91	10:31	26.0	31.0	41.0	52.0	75.0	
6	Elk Creek	5/23/91	14:06	36.0	38.0	53.0	52.0	70.0	58.5 dB
		5/23/91	23:21	46.0	47.0	48.0	47.0	48.0	
		5/24/91	9:54	38.0	40.0	53.0	52.5	72.0	
7	Fruto Road & Road 303	5/23/91	15:31	31.0	38.0	45.0	41.5	57.5	50.9 dB
		5/23/91	23:37	40.0	45.0	46.0	45.0	49.0	
		5/24/91	9:28	31.0	35.0	39.0	36.5	51.0	
8	Road B & Road 60	5/23/91	16:10	33.0	40.0	44.0	51.5	74.5	50.0 dB
		5/23/91	23:50	41.0	42.0	43.0	41.5	44.0	
		5/24/91	8:12	34.0	36.0	40.0	38.5	54.5	
9	Road P	5/23/91	11:00	39.0	42.0	51.0	54.3	75.7	54.1 dB
		5/23/91	23:50	46.0	47.0	48.0	47.5	50.5	
		5/24/91	8:12	47.0	49.0	53.0	52.4	67.8	
10	Road 50	5/23/91	11:40	35.0	39.0	56.0	53.2	70.3	54.4 dB
		5/23/91	23:20	43.0	45.0	46.0	46.6	60.0	
		5/24/91	8:40	38.0	41.0	53.0	51.0	64.5	
11	Open Field East of S.R. 45 Approximately @ Road 37	5/23/91	12:25	35.0	38.0	45.0	41.5	53.0	53.2 dB
		5/23/91	22:50	46.0	47.0	48.0	47.2	50.0	
		5/24/91	8:40	34.0	39.0	48.0	44.2	61.0	
12	South of Intersection of Road 24 and Road V.	5/23/91	13:12	28.0	36.0	48.0	42.7	51.0	58.8 dB
		5/23/91	22:20	51.0	53.0	54.0	53.0	55.8	
		5/24/91	9:55	40.0	43.0	48.0	44.9	53.3	
13	4th and Los Robles in Hamilton City	5/23/91	13:35	36.0	39.0	46.0	46.3	63.0	48.7dB
		5/23/91	22:00	28.0	36.0	41.0	38.9	52.8	
		5/24/92	10:20	42.0	45.0	50.0	50.1	69.0	

* = 24-hour monitoring site

Land use compatibility criteria and noise level standards should be included in the General Plan (See Figure 8-3 and Table 8-5). These criteria and standards are complex in that they account for the type of land use which may be affected by a noise-generating use, time of day at which the noise levels are produced, duration of the noise source, and the type of noise source.

Table 8.2-2

**TABLE 8-5
NOISE LEVEL PERFORMANCE STANDARDS
FOR NEW PROJECTS AFFECTED BY OR INCLUDING NON-
TRANSPORTATION SOURCES**

Noise Level Descriptor	Daytime (7 a.m. to 10 p.m.)	Nighttime (10 p.m. to 7 a.m.)
Hourly Leq, dB	50	45
Maximum level, dB	70	65
Each of the noise levels specified above shall be lowered by five dB for simple tone noises, noises consisting primarily of speech or music, or for recurring impulsive noises. These noise level standards do not apply to residential units established in conjunction with industrial or commercial uses (e.g., caretaker dwellings).		

8.3 Airport Noise and Land Use Compatibility

Comprehensive Land Use Plans have recently been developed and adopted for the Orland Haigh Field Airport and the Willows Glenn County Airport. These documents provide policies specific to land use compatibility within and surrounding the airports.

Land use compatibility criteria for the two airports should be developed as a part of the General Plan process, based upon the Community Noise Equivalent Level (CNEL) descriptor. The CNEL is a 24 hour time-weighted energy average of aircraft noise levels.

8.4 Agricultural/Urban Noise Conflicts

Based upon discussions with the County staff, one of the major noise complaints associated with agriculture results from aerial application aircraft (crop dusters) flying at low altitudes during the early morning hours. The CNEL descriptor does not necessarily reflect perceived annoyance from single noise events of short duration, such as those produced during cropduster overflights.

Sound exposure levels (SEL's) associated with aerial application aircraft during the early morning hours may cause sleep disturbance. Aerial application aircraft generally do not follow any prescribed flight path, and fly at relatively low altitudes.

Noise from agriculture also includes tractors, pumps, and other mechanical equipment. Protection from such noise will best be accomplished through separation of uses. A Right to Farm Ordinance, as discussed in Section 2.1 of the Community Development Issue Paper, although not a noise control tool, can protect agriculture from noise complaints.

8.5 Noise Ordinance

As discussed above, minimization of future noise conflicts and protection of noise sensitive land uses can be substantially aided through adoption of a local Noise Ordinance supported by the General Plan. The following is the text of a suggested Noise Control Ordinance for Glenn County:

DRAFT NOISE CONTROL ORDINANCE

I. *Purpose:*

The County Board of Supervisors declares and finds that excessive noise levels are detrimental to the public health, welfare and safety and contrary to the public interest as follows:

A. *By interfering with sleep, communication, relaxation and the full use of one's property;*

B. *By contributing to hearing impairment and a wide range of adverse physiological stress conditions; and*

C. *By adversely affecting the value of real property.*

It is the intent of this chapter to protect persons from excessive levels of noise within or near a residence, school, church, hospital or public library.

II. *Definitions:*

The following words, phrases and terms as used in this chapter shall have the following meanings:

A. *"Agricultural property" means land used for or devoted to the production of crops and livestock.*

B. *"Ambient noise level" means the composite of noise from all sources excluding the alleged offensive noise. In this context it represents the normal or existing level of environmental noise at a given location for a specified time of the day or night.*

C. *"Construction" means construction, erection, enlargement, alteration, conversion or movement of any building, structures or land together with any scientific surveys associated therewith.*

D. *"Decibel" means a unit for measuring the amplitude of a sound, equal to twenty times the logarithm to the base ten of the ratio of the pressure of the sound measured to the reference pressure, which is twenty micropascals.*

E. *"Emergency Work" means the use of any machinery, equipment, vehicle, manpower or other activity in a short term effort to protect, or restore safe conditions in the community, or work by private or public utilities when restoring utility service.*

F. *"Enforcement officer" means the Planning Director or his duly authorized deputy.*

G. *"Equivalent Hourly Sound Level (Leq)" means the constant sound level that contains the same total energy as the actual time-varying sound level over a one-hour period.*

H. *"Fixed noise source" means a device or machine which creates sounds while fixed or stationary, including but not limited to motor vehicles operated off public roads, and residential, agricultural, industrial and commercial machinery and equipment, pumps, fans, compressors, air conditioners and refrigeration equipment.*

I. *"Hospital" means any building or portion thereof used for the accommodation and medical care of the sick, injured or infirm persons and includes rest homes and nursing homes.*

J. *"Impulsive noise" means a noise of short duration, usually less than one second, with an abrupt onset and rapid decay.*

K. *"Intruding noise level" means the sound level created, caused, maintained or originating from an alleged offensive source, measured in decibels, at a specified location while the alleged offensive source is in operation.*

L. *"Mobile noise source" means any noise source other than a fixed noise source.*

M. *"Noise disturbance" means any sound which violates the quantitative standards set forth in this chapter.*

N. *"Residential property" means a parcel of real property which is developed and used either in whole or in part for residential purposes.*

O. *"School" means public or private institutions conducting regular academic instruction at preschool, kindergarten, elementary, secondary or collegiate levels.*

P. *"Simple tone noise" means any noise which is distinctly audible as a single pitch (frequency) or set of pitches as determined by the enforcement officer.*

Q. *"Sound level" or "noise level" means the sound pressure level in decibels as measured with a sound level meter using the A-weighting network. The unit of measurement is referred to herein as dBA.*

R. *"Sound level meter" means an instrument meeting American National Standard Institute Standard S1.4A-1985 for Type 1 or Type 2 sound level meters or an instrument and the associated recording and analyzing equipment which will provide equivalent data.*

III. Noise Measurement Criteria:

Any noise measurement made pursuant to the provisions of this chapter shall be made with a sound level meter using the A-weighting network at Slow meter response, except that Fast meter response shall be used for impulsive type sounds. Calibration of the

measurement equipment utilizing an acoustical calibrator shall be performed immediately prior to recording any noise data.

The exterior noise levels shall be measured within fifty feet of the affected residence, school, hospital, church or public library. Where practical, the microphone shall be positioned three to five feet above the ground and away from reflective surfaces.

The interior noise levels shall be measured within the affected dwelling unit, at any number of points at least four feet from the wall, ceiling or floor nearest the noise source, with windows in the normal seasonal configuration. The reported interior noise level shall be determined by taking the energy average of the readings taken at the various microphone locations.

IV. Exterior Noise Standards:

A. It is unlawful for any person at any location within the County to create any noise, or to allow the creation of any noise, on property owned, leased, occupied or otherwise controlled by such person which causes the exterior noise level when measured at any affected single-or multiple-family residence, school, hospital, church or public library situated in either the incorporated or unincorporated area to exceed the noise level standards as set forth in Table I.

TABLE I
Exterior Noise Level Standards

<i>Time Period</i>	<i>Allowable Equivalent Hourly Sound Level (Leq)</i>
<i>7 am to 10 pm</i>	<i>50 dBA</i>
<i>10 pm to 7 am</i>	<i>45 dBA</i>

B. In the event the measured ambient noise level exceeds the applicable noise level standard, the applicable standard shall be adjusted so as to equal the ambient noise level.

C. Each of the noise level standards specified above shall be reduced by five dB for simple tone noises, noises consisting primarily of speech or music, or for recurring impulsive noises.

D. Where there is a conflict between noise level standards adjusted in accordance with Sections IV.B. and IV.C., the standard established by IV. B. shall prevail.

E. If the intruding noise source is continuous and cannot reasonably be discontinued or stopped for a time period whereby the ambient noise level can be measured, the noise level measured while the source is in operation shall be compared directly to the noise level standards.

F. Table II may be used to determine whether the measured equivalent sound level in a given measurement period will cause the equivalent hourly sound level to exceed the noise level standards of this ordinance. If the measured Leq during a given time period exceeds the level corresponding to the noise standard in the column labeled "Equivalent Hourly Leq," the noise standard shall be considered to have been exceeded.

Example of Table II Usage: The average noise level of an air compressor is measured to be 67 dB within 50 feet of a nearby residence. The measurement was conducted for 4 minutes. Table II indicates that the equivalent hourly noise level would be at least 55 dB Leq at that location, even if the air compressor were turned off for the remainder of the hour.

TABLE II
Short Term Determination of Equivalent Hourly Sound Level (Leq)

<i>Measurement Period (minutes)</i>											<i>Equivalent Hourly Leq, dBA</i>
	<i>Measured Leq, dBA</i>										
											35
											40

level measured while the source is in operation shall be compared to the noise level standards.

F. Table II may be used to determine whether the measured equivalent sound level in a given measurement period will cause the equivalent hourly sound level to exceed the noise level standards of this ordinance. If the measured Leq during a given time period exceeds the level corresponding to the noise standard in the column labeled "Equivalent Hourly Leq," the noise standard shall be considered to have been exceeded.

VI. Noise Source Exemptions:

The following activities shall be exempt from the provisions of this chapter:

A. Activities conducted in public parks, public playgrounds and public or private school grounds, including but not limited to school athletic and school entertainment events;

B. Any mechanical device, apparatus or equipment used related to or connected with emergency activities or emergency work;

C. Noise sources associated with construction, provided such activities do not take place before seven a.m. or after seven p.m. on any day except Saturday or Sunday, or before eight a.m. or after seven p.m. on Saturday or Sunday.

D. Noise sources associated with the maintenance of residential property provided such activities take place between the hours of seven a.m. and seven p.m. on any day except Saturday or Sunday, or between the hours of eight a.m. and seven p.m. on Saturday or Sunday;

E. Noise sources associated with agricultural activities on agricultural property.

F. Noise sources associated with a lawful commercial or industrial activity caused by mechanical devices or equipment, including air conditioning or refrigeration systems, installed prior to the effective date of this chapter; this exemption shall expire on one year after the effective date of this chapter;

G. Noise sources associated with work performed by private or public utilities in the maintenance or modification of its facilities;

H. Noise sources associated with the collection of waste or garbage from property devoted to commercial or industrial uses;

I. Any activity to the extent regulation thereof has been preempted by state or federal law.

VII. *Air Conditioning and Refrigeration:*

Notwithstanding the provisions of Sections IV or V where the intruding noise source when measured as provided in Section III is an air conditioning or refrigeration system or associated equipment installed prior to the effective date of this chapter, the exterior equivalent hourly sound level shall not exceed fifty-five dBA, except where such equipment is exempt from the provisions of this chapter. The exterior equivalent hourly sound level shall not exceed fifty dBA for such equipment installed or in use after one year after the effective date of this chapter.

VIII. *Electrical Substations:*

Notwithstanding the provisions of Sections IV and V, the equivalent hourly sound level produced by sources associated with the operation of electrical substations shall not exceed fifty dBA when measured as provided in Section III.

IX. *Variances:*

A. *The owner or operator of a noise source which the enforcement officer has determined violates any of the provisions of this chapter may file an application with the enforcement officer for variance from strict compliance with any particular provisions of this chapter where such variance will not result in a hazardous condition or a nuisance and strict compliance would be unreasonable in view of all circumstances. The owner or operator shall set forth all actions taken to comply with such provisions, and the reasons why immediate compliance cannot be achieved. A separate application shall be filed for each noise source; provided, however, that several mobile sources under common ownership or fixed sources under common ownership on a single property may be combined into one application.*

B. *Upon receipt of the application and within thirty days, the enforcement officer shall either (1) approve such request in whole or in part, (2) deny the request, or (3) refer the request directly to the Planning Commission for action thereon in accordance with the provisions of this chapter. In the event the variance is approved, reasonable conditions may be imposed which may include restrictions on noise level, noise duration and operating hours, an approved method of achieving compliance and a time schedule for its implementation.*

C. *Factors which the enforcement officer or the Planning Commission must consider shall include but not be limited to the following:*

- 1. Uses of property within the area affected by noise;*
- 2. Factors related to initiating and completing all remedial work;*
- 3. Age and useful life of the existing noise source;*
- 4. The general public interest, welfare and safety.*

D. Within ten (10) days following the decision of the enforcement officer or Planning Commission on an application for a variance, the applicant may appeal the decision to the County Board of Supervisors for a hearing by filing a notice of appeal with the County Clerk. The County Board of Supervisors shall either affirm, modify or reverse the decision of the enforcement officer. Such decisions shall be final and shall be based upon the considerations set forth in this section.

X. *Violation-Enforcement:*

The violation of any of the provisions of this chapter shall be an infraction punishable as provided in Section _____ of this code. The provisions of this chapter may also be enforced by an injunction issued out of the superior court upon suit of the county. Any violation of the provisions of this chapter shall be deemed to be a public nuisance.

The Planning Director shall enforce the provisions of this chapter. Right of entry for inspection shall be as provided in Section _____ of this code.

APPROVED NOISE PREDICTION METHODOLOGY

The following noise prediction methodologies are approved for use in acoustical analyses submitted to Glenn County. Other methodologies may be used if approved by the County Planning Department after review of supporting technical justification.

Traffic Noise:

1. The Federal Highway Administration Highway Traffic Noise Prediction Model (FHWA RD-77-108) is the preferred traffic noise prediction methodology. The CALVENO standardized noise emission factors must be used (published in FHWA-CATL-84/13, "California Vehicle Noise Emission Levels"). Any form of the FHWA Model may be used, such as manual calculation and versions for programmable calculators and computers, including STAMINA.

2. Noise barrier insertion loss shall be calculated using the FHWA Model methodology. The effective center frequency of the noise sources shall be assumed to be 550 Hz. Source heights of 0, 2 and 8 feet above roadway centerline shall be assumed for autos, medium trucks and heavy trucks, respectively.

3. Noise sensitive receiver locations are assumed to be the back yards of single-family dwellings, and the patios and balconies of multi-family dwellings. The exterior receiver height shall be assumed to be 5 feet above back yard or patio elevation for ground-floor receivers, and 4 feet above balcony elevation for upper-floor receivers. The exterior ground-floor receiver shall be placed 10 feet from the building facade. The exterior upper-floor receiver shall be placed midway from the building facade to the edge of the balcony, and a correction factor of +2 dB shall be applied to account for reflections from the building facade.

4. For multi-family developments, common outdoor activity areas are also considered to be noise sensitive receiver locations. The assumed exterior receiver height is 5 feet above ground level, and the assumed receiver location is normally in the center of the recreation area.

5. Traffic noise attenuation with distance for ground level receivers should be consistent with an acoustically "soft" site, at 4.5 dB attenuation per doubling of distance. Noise attenuation for receivers and building facades at upper floors, and for receivers overlooking the roadway, should be consistent with an acoustically "hard" site, at 3 dB attenuation per doubling of distance. These assumptions may be modified on the basis of onsite noise measurements at proposed receiver locations and elevations.

6. Noise measurements for traffic noise analyses should include at least one 15-minute sample of daytime traffic noise levels (including the Leq value) under free-flowing traffic conditions, with a concurrent traffic count. Nighttime traffic noise levels may be estimated from 24-hour noise measurement data or published hourly traffic distribution data. For major arterials and highways, continuous hourly noise measurements over a 24-hour period are recommended to describe the effective day/night traffic distribution and to supplement the 15-minute sample(s). Noise measurement sites should be selected to represent proposed receiver locations and representative sound propagation conditions.

7. Existing traffic volume, truck mix and day/night distribution should be obtained from the County Department of Public Works or Caltrans as appropriate. Projected future traffic volume may be obtained from those agencies or the project traffic consultant. Traffic speed shall be assumed to be the posted or projected design speed, unless shown otherwise by observation or noise measurements. Typical traffic data for Glenn County are shown by the FHWA Model input data listed in the Noise Element.

Railroad Noise:

1. The preferred method of predicting railroad noise exposure is to calculate Ldn values at the proposed receiver locations based upon onsite single event and cumulative noise level measurements, assuming noise attenuation of 4.5 dB per doubling of distance for all receiver elevations. Alternative methods include the "Simplified Procedure for Developing Railroad Noise Exposure Contours," prepared by Jack W. Swing of the California Office of Noise Control, and the more detailed procedures prescribed in the Assessment of Noise Environments Around Railroad Operations, Wyle Research Report No. WCR 73-5. Variations in site topography, railroad grade and use of warning horns may require adjustments to the modeling assumptions. For this reason, onsite noise measurements and observations are preferred. The Noise Element lists railroad noise measurement results in the Glenn County.

2. *Noise barrier insertion loss for railroad noise sources should be calculated using standard methods, such as those described by the FHWA Model or in Noise and Vibration Control, by Leo Beranek. Receiver locations for railroad noise exposures are the same as for traffic noise exposures. To account for differences in source heights and frequency content, it may be necessary to determine the relative contribution of different noise sources, such as wheel/rail interaction, locomotives or horns. For a generalized railroad noise source on smooth rails, the effective center frequency of the source may be assumed to be 1000 Hz with a source height of 10 feet above the rail bed. Other assumptions may be used as supported by published data or experimental results.*

3. *Day/night distribution of railroad freight operations may be assumed to be uniform over a 24-hour day, unless otherwise indicated by noise measurements or information from the railroad company. Passenger train operations should be distributed according to the published schedules. The numbers and distribution of freight operations may be obtained from the railroad company dispatcher. Refer to the Noise Element for typical railroad operations in Glenn County.*

4. *Railroad noise measurements should include a representative number of single event noise levels from freight and passenger operations. Noise levels recorded over a 24-hour period are normally sufficient. The data collected should include the Sound Exposure Level (SEL) and maximum sound level (Lmax) due to the passage of the train, and a notation of whether a warning horn or whistle was used. The noise levels due to bells at rail crossings should also be described.*

Aircraft Noise:

1. *Noise produced by aircraft operations at an airport may be described by reference to published noise exposure contours for that airport. If the project site is within the 60 dB CNEL contour of an airport, predicted single event aircraft noise levels at the project site should be described. Predicted single event noise levels may be based upon noise measurements at the project site, or by using the FAA's Integrated Noise Model (INM). Aircraft noise levels should be expressed in terms of the Community Noise Equivalent Level (CNEL) and (where applicable) typical SEL and Lmax values.*

2. *Noise produced by aircraft operations at other than an established airport should be described in terms of predicted Community Noise Equivalent Level (CNEL), SEL and Lmax values. Predicted noise levels may be based upon noise measurements at the project site or other representative locations, or may be predicted using the FAA's Integrated Noise Model (INM). Helicopter noise level predictions may also be based upon the data reported in Helicopter Noise Exposure Curves for Use in Environmental Impact Assessment, FAA-EE-82-16.*

Interior Noise Levels:

1. *Interior noise levels should be calculated from the predicted exterior sound level and source spectrum at the affected building facades, and the sound transmission characteristics of the building facades. The calculation should account for the types and sizes of the building elements used in the facade, the amount of exposure of each facade to the noise source, and the cumulative noise exposure from each facade. If detailed building plans are not available, generalized building descriptions may be employed, subject to review when detailed plans are provided.*

2. *One-third octave or 1/1 octave band analysis is preferred, describing the source frequency content and facade transmission loss characteristics from 125 Hz to 4000 Hz. Corrections should also be made for absorption of sound by the receiving room. A safety factor of 3 dB is recommended to allow for potential degradation of acoustical performance from variables in construction and materials. Source spectra and transmission loss values should be obtained from published test results, if available.*

3. *If it is necessary to close windows and doors to achieve the required interior noise level standard, the analysis should indicate that adequate ventilation must be provided to meet the fresh air exchange requirements of the Uniform Building Code. Recommendations should also be made to ensure that the ventilation system does not compromise the acoustical integrity of the building facades, and that it does not create excessive interior noise levels due to its operation.*

4. *The report should cite the assumptions used for building elements and design features. Any building design features required to achieve the interior noise level standard should be clearly specified.*

8.6 Noise Opportunities, Constraints and Conclusions

- Existing noise conflicts may be difficult to remedy. In some instances, only relocation can solve problems resulting from proximity of incompatible uses. Control of transportation related noise sources such as airports, railroads and highways is preempted by State and federal government, leaving local government with few options when dealing with existing transportation facilities. Existing fixed noise sources can be regulated through adoption of a local Noise Control Ordinance.
- When dealing with existing and future noise problems, a local Noise Control Ordinance can perform a very valuable function and can mitigate many nuisances. Such regulation, however, must be based on noise exposure criteria and standards contained in the General Plan.
- When considering future proposed projects which may generate noise in excess of established standards, the County should require acoustical analyses to be performed in order to develop data specific to the project and to determine ways to mitigate noise impacts from the proposed use.

- The best mitigation will continue to be separation of uses through sound land use planning. Significant noise generators should be separated from noise sensitive uses. Also, noise sensitive uses should not be permitted in areas devoted to high noise generators such as heavy industry, major highways and many agricultural activities.
- Airport noise does not appear to be a significant concern during the planning period with the exception of noise generated from aerial application aircraft. This is due to the lack of standard operating procedures for such aircraft. Although the daily operations of airports is outside the scope of authority of both the General Plan and the Comprehensive Land Use Plans adopted by the Glenn County Airport Land Use Commission for each of the airports, the County should encourage the development of standards to minimize associated impacts on residential areas. In addition, land use patterns around airports should reflect the future reality of increased airport noise as airport activity expands.
- There are cost implications to the County associated with enforcement of a local Noise Control Ordinance. Ways to pay for such enforcement must be factored into the decision to adopt an Ordinance. It should also be noted that acoustical analysis, when requested, will be an additional developer-borne cost.

9.0 SOLID AND HAZARDOUS WASTE

Background

Legislation adopted at the State level in recent years has greatly increased local attention to, and emphasis on, solid and hazardous waste disposal programs and facilities. Legislation adopted in 1986 (AB 2948, Chap. 1504) provided for counties to prepare and adopt hazardous waste management plans in lieu of the (then required) hazardous waste provisions of a solid waste management plan. Within a specified time following approval of a hazardous waste management plan by the State Department of Health Services (DHS), the County must incorporate the plan, by reference, into the General Plan or enact an ordinance which requires that all applicable zoning, subdivision, conditional use permit, and variance decisions are consistent with the plan.

The requirement for solid waste management plans has been replaced by legislation requiring all cities and counties to adopt integrated waste management plans (AB 939, 1989). Among other provisions, the legislation calls for a 25 percent reduction in solid waste by 1995 and a 50 percent reduction by the year 2000.

These two subject areas, therefore, will receive much greater attention in the revised General Plan than in previous Glenn County General Plans. The State General Plan Guidelines suggest that a general plan include the following data and analysis related to solid and hazardous waste:

- Inventory of existing solid waste disposal sites and facilities, correlated with the County Integrated Waste Management Plan and the County Hazardous Waste Management Plan.

- Identification of land uses near existing solid waste facilities, and sites reserved for future such facilities.
- Assessment of the need for additional facilities, based upon the projected levels of land use and population and correlated with the County Integrated Waste Management Plan and the Hazardous Waste Management Plan.

These issues are addressed in the section which follows.

Specific Concerns

9.1 Landfill Capacity and Siting

The Glenn County Solid Waste Management Plan was adopted in 1975 and revised in 1984. The County is now in the process of preparing and adopting an Integrated Waste Management Plan, as required by AB 939 (1989). Portions of that document have been prepared in draft form.

The Preliminary Draft Source Reduction and Recycling Elements submitted in October 1991, includes a disposal facility capacity component. This document reports that the Glenn County Solid Waste Site is located on approximately 192 acres at the westerly terminus of County Road 33, about five miles west of Artois. The site is currently zoned exclusive agricultural, while the lands surrounding the site are zoned agricultural preserve. The site is a Class III facility that uses an area method of landfill disposal. The total capacity of the site has been estimated to be 1,742,000 cubic yards with a life expectancy of 32 years. It is estimated that, by the year 2005, the facility will still have 1,479,600 cubic yards of disposal capacity remaining.

Case law (*Concerned Citizens v. Calaveras County* (1985) 166 Cal. App. 3d90) requires that the General Plan address future solid waste disposal sites. However, since no new solid waste disposal sites are needed during the planning period, there is no need to address this issue in the revised General Plan. However, attention should be given to land use compatibility on sites surrounding the existing landfill.

9.2 Septage Disposal Practices

Concern has been expressed at the local level regarding limitations on septage (septic tank) disposal. According to the Glenn County Health Department, there is one site in the county used for this purpose located at Road 35 and Road N. The site is approximately 500 acres in size and is used for sheep grazing. The property owner has allowed the local pumping companies under permit with the County Health Department to spread septage over 85 acres of the ranch at no charge.

The site is currently under review by the State Regional Water Quality Control Board (SRWQCB) for establishment of waste discharge requirements. If for some reason a permit is not issued by this agency, alternative disposal sites will need to be identified and established. The County landfill does not currently accept septage, and a revision to the County's operating permit would most likely have to be obtained from the California Integrated Waste Management

Board prior to accepting septage. Another possible alternative is disposal at the Willows, Orland or Hamilton City wastewater treatment plants. Use of these facilities would require approval of the respective cities or districts prior to disposal. In other jurisdictions, individual pumping services are required to maintain their own disposal sites. This approach could also be considered by the County. If a site is not identified within the county, septage would have to be transported out of the county, increasing the cost of septic tank maintenance.

9.3 Composting

There are currently two organized composting or co-composting programs operating within Glenn County, resulting in a diversion rate of 1 percent of yard waste, wood waste or slash material. The cities of Willows and Orland have leaf collection programs in the fall months; however, only the City of Willows composts the leaf material.

According to the Preliminary Draft Source Reduction and Recycling Elements, a very large percentage of the local waste stream can be composted. Given the significant proportion of the waste stream that yard and wood waste represent for Glenn County, this document concludes that "...the philosophy of identifying these wastes as disposable and easily degradable must be altered. That fraction of the waste stream that is compostable must be recognized as representing a significant component, with an economic value that may be easily separated, processed and returned to commerce." It is essential both to evaluate and determine the volume of compostable waste, and to develop and secure markets for products recovered from compostable material to achieve a successful composting program.

Issues relevant to the General Plan include the impact of composting on landfill capacity and the siting of composting facilities. To the extent that vegetation waste material is composted and is thus diverted from the landfill, the remaining capacity of the existing landfill site will be extended for a longer period of time. The composting objectives included in that document include exploring the siting and development of a yard and leaf material composting facility (either separate or part of a larger integrated facility). While a composting facility will not have the same environmental impacts as a landfill, it is still an industrial use and must be carefully sited to avoid creating land use conflicts.

9.4 Source Reduction, Recycling and Compliance with State Resource Recovery Goals

The Preliminary Draft Source Reduction and Recycling Elements identify source reduction, waste diversion and recycling programs currently in operation in Glenn County. Source reduction is defined as any action which causes a net reduction in the generation of solid waste. It includes such activities as reusing grocery bags, shopping at garage sales, composting food and yard waste, repairing or reselling clothing or appliances and reducing packaging materials. Recycling is a two-step process that involves the collection and separation of materials from the waste stream, followed by the processing or conversion of those materials into similar or dissimilar uses from their original states. According to this document, the constraints which most directly affect the feasibility of recycling programs in Glenn County are the relatively small resident population and the distance from markets for recovered materials. AB 939 (1989)

requires the County to achieve a 25 percent reduction of solid waste disposed to landfill by 1995 and 50 percent by 2000.

As with composting, the two issues relevant to the General Plan are the impact of source reduction and recycling on landfill capacity and the siting of recycling facilities. To the extent that materials are recycled and are thus diverted from the landfill, or reduced at their source, the remaining capacity of the existing landfill site will be extended for a longer period of time. The recycling objectives included in that document include additional recycling bins (both permanent and at special events).

While recycling facilities will not have the same environmental impacts as a landfill, they are nevertheless an industrial use and must be carefully sited to avoid creating land use conflicts. If curbside collection programs are to be feasible, residential densities must be sufficiently high and distances from recycling centers must not be too great.

It is also recommended that ordinances be adopted requiring construction sites to recover a predetermined percent of their construction waste or use a predetermined percent of recycled products within the development site, and to establish design requirements for new developments that address the integration of recycling containers into the newly constructed units. These actions would require adoption of a new ordinance and amendment to the County Zoning Ordinance, respectively.

9.5 Hazardous Waste Facility Siting

The 1991 Glenn County Hazardous Waste Management Plan (CHWMP) contains siting criteria for proposed specified hazardous waste facilities. There are currently no hazardous waste treatment, transfer or disposal facilities located in Glenn County. The Plan establishes a policy that any proposed specified hazardous waste facility shall be consistent with the goals and policies of the CHWMP. The Plan adopts by reference the siting criteria contained in the State Department of Health Services (DHS) Guidelines for the Preparation of Hazardous Waste Management Plans. Included are siting criteria related to high hazard areas; active faults; floodplains; wetlands; endangered species habitat; unstable soils; major aquifer recharge areas; public safety; distance from residences; distance from immobile populations; proximity to major transportation routes; physical limitations of the site area; location-specific criteria; permeable strata and soils; nonattainment air areas; PSD (prevention of significant deterioration) air areas; prime agricultural lands; depth to groundwater; proximity to public facilities; proximity to waste generation stream; industrial, commercial and specially zoned lands; recreational, cultural or aesthetic areas; mineral resources areas; military lands; and other State, federal and Indian lands.

The Plan also contains siting criteria for the designation of general areas for hazardous waste facilities in Glenn County, which generally avoid areas characterized by active faults; flood zones; wetlands; critical habitat areas for endangered species; unstable soils and areas subject to landslides; regional aquifer recharge areas; residential dwelling units; prime agricultural land and agricultural preserves; federal lands; and areas designated on the Land Use Element as Public Facility, Agriculture Intensive, Industrial and Commercial/Industrial Reserve. The Plan contains

several maps which illustrate general areas to which site selection criteria might be applicable for various types of facilities.

Areas which might be suitable for repositories are generally located in the eastern portion of the county, east of I-5 and the cities of Willows and Orland, and west of SR 45. Slightly larger areas are depicted as being potentially suitable for treatment and recycling facilities and storage facilities (transfer stations), which also includes area east of the Sacramento River. Maps of Willows and Orland and surrounding unincorporated area indicate industrially designated sites south of Orland and north and south of Willows which may be suitable for treatment and recycling facilities. Please refer to the maps on pages 91-97 of the CHWMP for more precise locations.

State law requires that the County adopt the CHWMP, once it is approved by DHS, as part of the General Plan or by ordinance. As described in the CHWMP, the relationship of the Plan to the elements of the General Plan is as follows:

- **Land Use Element.** The Land Use Element of the General Plan has the broadest scope of the required elements of the General Plan. The Land Use Element provides basic information on Glenn County and designates each area of the County for specified land uses to provide a balanced and functional mix of land uses. The Revised Land Use Element was adopted in 1985. The Siting Criteria section of the County Hazardous Waste Management Plan may refer to the Land Use Element or Land Use Designations.
- **Housing Element.** The Housing Element identifies the housing needs and specifies standards and plans for the improvement of housing conditions. The Housing Element was revised in 1989 and provides data on the number of households in Glenn County. The County Hazardous Waste Management Plan may use this data to calculate household hazardous waste.
- **Circulation Element.** The Circulation Element identifies the general location of existing and proposed major thoroughfares, transportation routes and facilities. The Revised Circulation Element was adopted in 1987 and provides information on transportation routes, this information will be considered in the County Hazardous Waste Management Plan.
- **Conservation Management Element.** The Conservation Management Element of the General Plan includes the Open Space and Conservation elements as well as the Scenic Highways and Recreation elements and was adopted in 1987. The Conservation Management Element provides guidance for the County Hazardous Waste Management Plan by showing areas subject to flooding, and areas in the Agriculture Preserve (under Williamson Act Contracts).
- **Noise Element.** The Noise Element of the General Plan was adopted in 1974. This Element would affect the siting of hazardous waste facilities because any such facilities would have to meet the noise standards of the Noise Element

- **Seismic Safety Element.** The Seismic Safety Element of the General Plan was adopted in 1974 and provides information regarding the potential for earthquakes. This information will be considered in the Siting Criteria Section of the Glenn County Hazardous Waste Management Plan. The Seismic Safety Element will be part of the Safety Element in the Revised General Plan.
- **Safety Element.** The Safety Element of the General Plan was adopted in 1974 and the Fire Safety Sub-Element was adopted in 1985. The County Hazardous Waste Management Plan will also consider various safety concerns.

The County adopted the Revised Glenn County Hazardous Waste Management Plan as part of the Glenn County General Plan in December 1991. Any revisions to the County's Zoning Ordinance necessary to implement the CHWMP must also be adopted. In addition to the siting criteria described above, the CHWMP provides that the County would also require conditions of approval for any hazardous waste facility as part of the conditional use permit process required by the Glenn County Code. The conditions are listed on pages 85-86 of the CHWMP. These conditions should be incorporated into the County Zoning Ordinance for the zones in which hazardous waste facilities are allowed as conditional uses.

Because of the internal consistency requirement under State law for the general plan, when the CHWMP is adopted as part of the County's General Plan, it is necessary to assure that there is consistency among the goals, policies, plan proposals, standards and implementation measures of the CHWMP and all general plan elements. Because the entire County General Plan is being revised and updated at the same time, it is comparatively easier to assure that this consistency will be achieved.

The CHWMP siting criteria appear to be consistent with other County goals and priorities such as preservation of prime agricultural land and wetlands, separation from incompatible uses, and protection of people and property from hazards. The selection of general areas to which site selection criteria might apply has implications for existing and future planned land uses in the vicinity of any hazardous waste facilities which are ultimately developed. New development within these general areas may preclude use of some potential sites for hazardous waste facilities; conversely, the siting of a hazardous waste facility within these areas may preclude other types of development in the vicinity that would normally be permitted. Transportation and air quality impacts are related issues, for which policies are also included in the CHWMP. These types of considerations would, however, be thoroughly addressed as part of the permit review process for a specific proposed hazardous waste facility.

Certain opportunities also present themselves in association with hazardous waste facilities. In addition to employment opportunities, counties also have the option of imposing a "gross receipts tax" of up to 10 percent upon the revenues of such a facility if privately operated. These taxes can generate significant revenues for a county's general fund, as in Kings County in which a Class I disposal facility is located in the Kettleman Hills.

9.6 Drilling Mud Disposal

According to the Energy Facility Siting in Glenn County - Working Paper, during gas well drilling, specially treated mud is pumped down the drilling pipe to remove the pieces of rock (or "cuttings") dislodged by the drill from the well. Small holes in the drill bit allow the mud to spray through, picking up rock cuttings from the drill bit. The pressure of this pumping forces the mud back to the surface in the space between the drilled hole and the drilling pipe. When it reaches the surface, the mud is screened to remove the cuttings, then recirculated back down the hole to pick up more cuttings.

Because of additives used to create drilling mud, such mud may be considered hazardous waste, and this may require special disposal facilities. Drilling mud is classified by the State as "designated waste", which is "...nonhazardous waste which consists of or contains soluble pollutants in concentrations which exceed applicable water quality objectives, or could cause degradation of the water of the state" (Glenn County Hazardous Waste Management Plan, p. 30).

According to the CHWMP, there are two drilling mud disposal sites in the county. Both are located south of Orland and are limited to accepting nonhazardous drilling mud (nonhazardous drilling mud is certified by the driller and/or hauler as containing only those additives that are listed in the DHS Nonhazardous Drilling Mud Additive List). The California Regional Water Quality Control Board classifies the drilling mud being disposed of at the Glenn County sites as a "designated waste" on the basis of the total dissolved solids (salts) in the fluid derived from a Wet Extraction Test. High total dissolved solids are not hazardous but may cause degradation of groundwater if not properly managed.

At the present time, drilling mud is received at the Fulton Reclamation and Recycling Facility, which operates under a waste discharge permit from the Regional Water Quality Control Board. The drilling mud is spread over the land in order to increase the agricultural capacity of the very gravelly native soils.

The other facility, the Valley Rock drilling mud disposal site, is an old borrow pit that was filled with drilling mud. Although this facility has a current permit from the Regional Water Quality Control Board, it is not operating at this time. The site originally operated under a Conditional Use Permit from the County. The facility was closed by the County for noncompliance with the conditions of approval and the Conditional Use Permit was subsequently revoked. The site is now closed. The CHWMP does not estimate the projected life of this facility; however, according to the Energy Facility Siting in Glenn County - Working Paper, both facilities are approaching capacity.

In addition to the drilling mud disposed of at these two sites, DHS reported 13.44 tons of drilling mud exported from Glenn County in 1986 from the Bounde Creek gas field. This drilling mud was sent to a Class I disposal site.

It has been assumed in the three Issue Papers that gas well drilling and production will continue during the planning period for the General Plan. It is also fairly safe to assume that regulations

for disposal of drilling mud will become more, rather than less, restrictive. Accordingly, the Energy Element of the General Plan should estimate needs and address the issues and potential sites for additional and/or expanded drilling mud disposal facilities in Glenn County.

9.7 Production Water Injection Wells

Natural gas occurs in marine deposits that also contain salt water. This salt water, known as "production water", is discharged from gas wells along with the natural gas. The production water is stored at the gas well site in plastic or steel tanks and carried to injection wells for disposal into gas wells that are no longer productive. Injection is permitted only into salt water bearing formations. There are four injection wells in the county, regulated by Glenn County (through a well ordinance and the conditional use permit process) and the Division of Oil and Gas.

As with drilling mud disposal sites, the availability of production water injection wells will need to keep pace with gas well development and production. The Energy Element should estimate needs and address issues and potential sites for additional injection wells.

9.8 Contaminated Sites

As is the case with most California cities and counties, leaking underground tanks comprise a large percentage of known contaminated sites in Glenn County. The Glenn County Agricultural Commissioner has responsibility for the County's underground tank testing and cleanup program. It is estimated in the CHWMP that approximately 10 percent of all registered tanks are not in compliance, and that exposure of contaminated soil to air will be the accepted cleanup practice.

Other known and potential contaminated sites include a former aircraft wash rack at the Willows Airport (a County-owned facility); the Orland Haigh Field Airport; a former Louisiana Pacific Corporation sawmill site in Elk Creek and two old Forest Service landfill sites, a building and steel drums near Alder Springs. A map of contaminated sites is included in Appendix I of the CHWMP. Any additional sites which are identified will be added to the Plan as it is updated. The Plan states that it is anticipated that all contaminated sites in Glenn County will be cleaned up by the year 2000.

The CHWMP concludes that the government owned sites on Forest Service land and the Willows Airport are not likely to be sold to private parties. The low number of contaminated and potentially contaminated sites leads to the conclusion that this does not represent a significant planning issue for Glenn County.

9.9 Solid and Hazardous Waste Opportunities, Constraints and Conclusions

- There is no need for an additional landfill site in Glenn County within the time frame of the revised General Plan. The existing site has adequate capacity throughout the planning period, and this capacity will be extended to the extent that planned composting, recycling, and source reduction programs are successful.

- Land use compatibility issues in the vicinity of the existing landfill and potential sites for recycling and composting facilities should be addressed in the Land Use Element of the General Plan.
- Limitations on septage disposal may present one of several constraints to new development on septic systems. The General Plan should consider potential alternative sites for septage disposal.
- County goals and policies with respect to solid waste source reduction, recycling, composting and special waste should be incorporated into the revised General Plan.
- The goals, policies, siting criteria and implementation measures of the Glenn County Hazardous Waste Management Plan have been incorporated into the Glenn County General Plan. The maps depicting general areas to which site selection criteria might be applicable for various types of facilities should be taken into consideration when assigning land use designations to these areas. Necessary ordinance amendments to implement and assure compliance with the CHWMP should be initiated immediately following adoption of the revised General Plan.
- If a hazardous waste facility proposes to locate in Glenn County at some point, the County should consider imposition of a "gross receipts tax" to enhance County revenues.
- The Energy Element of the General Plan should address the need, and possible locations, for additional drilling mud disposal sites and production water injection wells in light of continued natural gas exploration and production.
- Contaminated sites do not appear to pose any serious constraints upon new development at this time.

10.0 ALTERNATIVES

For each Issue Paper, three alternative scenarios are to be developed and reviewed with the staff, Citizen's Advisory Committee and decision makers. As suggested in the State General Plan Guidelines, for any set of circumstances, a number of possible courses of action or planning scenarios exist. It is our purpose in this Section to identify a reasonable range of alternatives related to Public Safety in Glenn County and to explore the various pros and cons of the potential courses of action. The alternatives should also be examined for consistency with the goals and policies in the previous Section of this Issue Paper.

The alternatives need not be mutually exclusive and ultimately the decision makers may choose to consolidate ideas from more than one scenario. Further, it must be kept in mind that decisions concerning Public Safety alternatives will have an impact on alternatives identified for Community Development and Natural Resources, and vice versa, requiring alternative futures in all three areas to be reviewed and absorbed prior to decision making.

The General Plan Guidelines recommend that each alternative be evaluated for its short-term and long-term environmental and social effects. This Issue Paper will use the suggested format, to the extent it is applicable to public safety issues. Evaluation of the environmental effects of each alternative will also be the focus of evaluation of project alternatives pursuant to the California Environmental Quality Act, at such time as the EIR for the General Plan is prepared.

The role of Glenn County and that of present and future cities will also be explored. Public safety is greatly influenced by the degree to which cities and the County engage in development practices which lend themselves to effective and efficient servicing of future population. This is particularly true in areas of fire protection and law enforcement. Public safety is also influenced by the degree to which the County and its cities cooperate to deliver those services.

10.1 Scenarios

Three general scenarios which are potentially possible in the public safety area include one in which public safety concerns dominate the agenda, leading to an inability to approve new development which is economically feasible and which would foster new economic activity (Alternative 1PS), one which balances public safety concerns against the need for housing, jobs and economic activity (Alternative 2PS), and a third which deemphasizes public safety concerns in order to capture greater economic activity (Alternative 3PS). Each scenario is described and evaluated in the following paragraphs.

Alternative 1PS

Description

As noted previously, this scenario assumes public safety will be of sufficient concern that the County will be left with an inability to approve new development which is economically feasible. Change in the manner in which public safety services are delivered is resisted and there is a strong bias in favor of leaving things as they are, with present organizations and institutions remaining in place. Efforts to consolidate services or create new mechanisms for delivery of services will be unpopular and will remain untried. Growth will be resisted as present institutions fear they will be incapable of accommodating growth and change. Concerns for public safety are often a proxy for broader concerns about growth in general and the effect growth may have on the present character of communities and quality of life.

Shifting growth to new communities or to foothill areas will be difficult to achieve as agencies focus on present plans and capabilities, without searching for new means to fund services and deal with potential opportunities to create economic activity. As a means to combat unwanted growth, costly standards and regulations dealing with geologic hazards, flooding, water quality, noise and hazardous waste may be advocated which cripple economic development. Air quality concerns will extend beyond those identified in approved air quality attainment plans and relatively undefined perceived air quality impacts may become the basis for turning away economic development opportunities. Alternative forms of transportation will be emphasized to reduce air quality problems, even though their economic viability may be many years away.

Discussion

Alternative 1PS would severely constrain economic development in the County. It would essentially assure the status quo with little institutional change and little change in the present economic mix. Most proposals which fostered change would likely be defeated under the theory that present institutions cannot support the change or that such change would result in irreparable harm to the environment.

Without question, the County's physical environment will undergo less impact in the short-term and long-term under this scenario. Less growth will mean less exposure to seismic activity, less air quality degradation, less waste to dispose of, less noise generated, and less need to disturb floodplains or other potentially hazardous areas.

The social effects are less encouraging, both short-term and long-term. A policy such as that outlined will not permit change, thus the problems of employment opportunity and general lack of economic activity will remain with the County. In the long-term this protectionist posture will only exacerbate the problem. Quality of life in Glenn County, if viewed in terms of economic opportunity and standard of living, will likely diminish under this scenario. Present institutions and ways of life will, however, be protected and perpetuated. This has value of its own and must be weighed against the relative attractiveness and value of other opportunities.

Alternative 2PS

Description

As noted above, this alternative attempts to balance public safety needs against the need to foster new economic activity. Means would be sought to accommodate new development while providing for reasonable protection of the public health and safety. In this effort, institutional change would be actively pursued in order to meet the demands of changing times.

Consolidation of services would be explored and effectuated where more cost effective or efficient patterns of service delivery would result. The County would look to play a role in service areas in which it had not previously participated, if necessary, to bring about improved service levels. Paid fire personnel would be added in urbanizing areas, and urban fire departments as distinct from rural departments would be considered. Consolidations of police services in urbanizing areas would also be explored, either through annexation or other service agreements. Financing for services, as well as needed capital outlay, would be built into new project approvals to assure adequate levels of service while accommodating new development. The latter could be accomplished in part through service impact fees and financing mechanisms such as Mello-Roos.

New communities would be permitted as long as the necessary financing and physical safeguards were built into the development, including appropriate measures to protect development from flooding and wildland fires. Appropriate standards sufficient to protect development from

various geologic and water quality hazards will be adopted and applied to all new projects. Adopted air quality attainment plans will be implemented and necessary steps will be taken to encourage alternative transportation, where it is feasible, as well as jobs/housing balance, in order to avoid degradation of the County's air resources. Source reduction of solid and hazardous waste will be encouraged through the many programs outlined in the applicable plans and will include the County's active involvement.

Discussion

Alternative 2PS recognizes the legitimate concerns of public safety service providers and actively seeks solutions to identified problems, including institutional change and new sources of financing. It assumes the County will play an active and direct role in solving public safety service problems and will facilitate change and consolidation of responsibility, when appropriate. While recognizing public safety concerns, growth and new economic activity are seen as vital to the County's future and ways are sought to accommodate development which is in accordance with County plans.

Emphasis is placed on finding ways to finance change and growth for the future and some risk is assumed in order to expand economic opportunity. Short-term and long-term environmental impacts include more land utilized for development than would be the case if public safety concerns were used as a basis for discouraging growth. Because additional growth can be accommodated under this scenario, there is greater environmental risk, which may include development in areas of high fire hazard or areas subject to flooding or geologic hazard. The County must have adequate yet reasonable standards and regulations in place to assure that hazards are mitigated. To accomplish this, the County must be willing to form various financing and maintenance districts to deal with issues as they arise.

There is also the potential for an increase in noise levels and air quality will be a continuing concern requiring close attention. Implementing a reasonable set of standards in these areas that are in step with those of other jurisdictions should mitigate concerns to an acceptable level. Additional space and processes will be required for waste disposal. Adequate fees must be charged for this service and emphasis must be placed on source reduction.

Balancing safety concerns with the opportunities of economic development should have long-term social benefit. Short term benefits will also result from increased development activity. Long-term, unemployment should be reduced and greater choice in goods and services should become available. Greater opportunity for younger persons to remain in Glenn County will be present and the general quality of life should increase. There are, of course trade-offs as more people bring greater service burdens, and changes in the manner in which institutional activities have been carried out are required.

This scenario requires a proactive approach to problem identification and solution. It assumes people are constantly looking for better ways to do things. Although tradition will always have its place, the challenges of the future will require an appetite for change as well.

Alternative 3PS

Description

Under this scenario it is assumed that capturing economic development takes precedence over perceived safety concerns. Existing service providers remain in place and struggle to meet the demands of growth and development. Little in the way of additional revenue programs are implemented for fear of dampening development activity. As a consequence, service levels decline.

There is reluctance to adopt new standards and regulations which protect property and people from safety hazards, including fire, flood, noise, crime, air and water quality for fear that it will increase the cost of development and make Glenn County less competitive. Issues of jobs/housing balance and alternative forms of transportation to improve air quality are given little weight in decision making even though remote development, including new communities, is entertained.

The County views its role in the domain of public safety as limited, deferring to the actions of others. Little effort is exercised in the area of institutional change with the individual agencies left to cope. Fragmentation of responsibility is compounded as growth continues, and problems in public safety service delivery are commonplace.

Discussion

From an institutional perspective, this scenario is not far from Alternative 1PS. The difference, however, is that under Alternative 1PS, limited growth allows agencies to continue to cope. Under this scenario, the agencies will ultimately break down and the public will demand change or will revert to an Alternative 1PS approach to solution of the problem.

Environmental impacts under this scenario will be most severe as growth unconstrained by safety concerns proceeds. Resulting development patterns will have a greater impact on air quality, geologically hazardous areas, and areas subject to flooding, as well as areas which experience wildland fire. The lack of new revenue sources will compound environmental impacts as potential mitigation measures go unfunded. Long-term financial burdens will be created for the County as areas require remedial action and protection, years after the development is complete. This can include drainage, fire flow and access improvements, among others.

Social impacts may well be positive short-term as development proceeds unconstrained by safety concerns and costs, resulting in greater economic activity and jobs. Long-term, however, the costs that will ultimately be borne by the public to correct problems created through poor development practice or underfunding of services will be substantial and may result in a backlash against further economic expansion. An additional point that should not be overlooked concerns the question of liability at the County level. Inattention to safety concerns can expose the County and its citizens to substantial claims by property owners that believe they have been

harmed through the County's lack of diligence when approving new development. Issues which may arise include failing septic systems, unstable building sites, and exposure to destructive fires. Although such problems may not surface in the short-term, the long-term impacts can be substantial to the County's financial resources and credibility.

10.2 Role of County vs. City

In most aspects of public safety, the County and cities have a shared role. For such matters as air quality, water quality and flood hazards, similar regulations promulgated at the regional, State and federal level apply equally to all jurisdictions, although there is some local discretion. In other areas such as noise, geologic hazard, fire and law enforcement, decisions are generally made locally. If cities and the County can adopt the same or similar standards and regulations in areas of local discretion, more coherent development patterns and decision making will result. This is especially true with regard to public safety, since safety impacts, such as flood, fire and geologic hazard don't always follow political boundaries.

The public safety issues generally of greatest shared interest among cities and counties are law enforcement and fire protection. Inefficient service delivery patterns often result through development decisions and/or annexations. Although this is a very limited issue in Glenn County at this time, an increased rate of growth could lead to problems requiring solutions. Ideally, cities would operate fire and law enforcement departments geared to delivering service to compact urban areas, while counties and rural districts would concentrate on service delivery to rural areas with a different mix of land use and infrastructure. If all development of an urban nature were annexed to cities, and occurred in compact fashion, few problems would result. Where this does not occur, cities and the County should explore service agreements for law enforcement permitting the city police department to take responsibility for urban areas, while the Sheriff's patrol focuses on rural areas. As has been noted earlier, it also makes sense to operate urban fire departments in urban areas and rural fire departments in rural areas, since the required mix of equipment and personnel are often different.

Recognizing that both the County and cities share a similar role in the public safety area, it is in the public interest if the jurisdictions work cooperatively to serve the public, sharing information and procedures where possible and making land use decisions which protect public safety. Where it is found that one jurisdiction is in a better position to provide the necessary level of protection, jurisdictional lines should be changed, if possible, or agreements entered into that permit the most suitable agency to serve the area.

SECTION 3 - COMMUNITY DEVELOPMENT ISSUE PAPER

1.0 INTRODUCTION

The Community Development Issue Paper is one of three papers prepared to assist in the formulation of an updated Glenn County General Plan. The other two papers are the Public Safety Issue Paper and the Natural Resources Issue Paper. Originally published separately, as draft documents, the three papers have now been updated and bound into a single volume (Volume II). Each paper focuses on several topics which have been identified for discussion in the General Plan. Topics were suggested either by participants in the process or are identified by the State General Plan Guidelines as matters which must be addressed.

The Community Development Issue Paper focuses on topics which are related to growth and development in Glenn County. Included are land use and growth, preservation of agricultural lands, transportation and circulation, housing, public services and facilities, and economic development. The focus is on the urbanized and urbanizing areas of Glenn County and on programs and ways to direct, enhance and serve new development to the County's benefit. In addition to a discussion of issues, the document contains three alternative community development scenarios for Glenn County. The draft Community Development Issue Paper also contained recommended goals, policies, implementation strategies and standards. These goals, policies, implementation strategies and standards have been reviewed and have been incorporated, with modifications, in the Policy Plan document (Volume I).

The series of papers was preceded by the Environmental Setting Technical Paper which was released in September 1991. The Technical Paper contains much of the data on which the present papers are based. Where necessary, that data was supplemented through additional research. References are made to the Technical Paper and it will be helpful for the reader to have access to a copy of the previous document when reviewing the issue papers.

2.0 LAND USE/GROWTH

Background

Land use and growth is a subject somewhat daunting in its potential breadth. According to the 1990 State of California General Plan Guidelines:

The land use element has the broadest scope of the seven mandatory elements. In theory, it plays the central role of correlating all land use issues into a set of coherent development policies.

In terms of issues which must be discussed, and the depth with which they are treated, a "shoe fits" doctrine is applied. In other words, land use issues identified in State law which are of the most importance to Glenn County will be discussed in the greatest detail, others will be given cursory attention, and still others (such as coastal issues) will not be discussed at all.

As concluded in the Environmental Setting Technical Paper, based on historical growth rates and development patterns, the region has been largely unaffected to date by the unprecedented growth, and its attendant opportunities and problems, impacting many areas of California. This situation may, however, be on the verge of change due to the area's scenic beauty, quality of life, proximity to Chico and housing affordability.

Next to budgetary issues, land use issues often occupy the greatest attention of the Board of Supervisors. As described below, land use and budgetary issues are frequently related to one another. New and proposed developments are typically of great interest to private citizens, property owners and the media, so land use decisions have a high profile in the community.

As stated in the General Plan Guidelines, "an adequate general plan is one that serves as a useful guide for local decision making." This section includes a discussion and analysis of agricultural lands, distribution of land uses, zoning and quality of life. These analyses are used to formulate suggested goals and policies, which form the policy basis for making consistent decisions on land use and development proposals.

The predominant land uses in Glenn County are agriculture, forests and open space/grazing lands. The mountainous portion of the county is primarily forest land, including approximately 200,000 acres within the Mendocino National Forest. Two-thirds of the county's area is encompassed by agriculture, approximately half of which is grazing land in the western foothill areas, with the remaining land on the valley floor used for production agriculture.

Generalized land use for Glenn County is depicted on Figure 4-1 of the Environmental Setting Technical Paper. Urbanized areas, including the cities of Willows and Orland and the unincorporated communities of Bayliss, Glenn, Ord Bend, Capay, Codora Four Corners, Artois, Hamilton City, Butte City, North Willows, Northeast Willows and East and West Orland, make up a minor percentage of the total land area, most of which is located on the Valley floor. Agriculture is the single most important component of the county's employment and economic base. Accordingly, agricultural land use issues are of great importance in Glenn County. Please refer to Section 2.1 of the Natural Resources Issue Paper for a related analysis of agricultural resource issues.

Specific Concerns

2.1 Preservation of Agricultural Lands

Several counties in California have elected to adopt an agricultural element as part of their general plans which addresses agricultural issues exclusively. There has been some discussion at the State level of requiring an agricultural element. Agricultural issues can be addressed in the land use, conservation and open space elements, and will obviously figure quite prominently in the Glenn County General Plan. The General Plan can make a strong statement in support of local agriculture and affirm the County's commitment to maintaining agriculture as an important part of the local economy and way of life.

2.1.1 Urban/Agricultural Interface

The potential for land use conflicts exists wherever agricultural and urban land uses are in proximity to one another. In Glenn County, this situation occurs around the edges of the cities of Willows and Orland, and around unincorporated communities such as North Willows, Northeast Willows, East and West Orland, Artois, Butte City, the Capay area, and Hamilton City. Such conflicts can also occur, and may even be more acute, when residences are located on relatively small, scattered parcels in agricultural areas. Potential sources of conflict include noise from agricultural operations (including farm equipment and crop dusting), drift of agricultural chemicals, restrictions on application of agricultural chemicals due to nearby residences, dust, odors, and vandalism of farms. Nearby residents may resent the intrusion of farm operations, and farmers may resent limitations imposed on their operations by encroaching development.

Glenn County has adopted a "Right to Farm" ordinance as a tool for reducing potential urban/agricultural land use conflicts. This ordinance, which has been adopted in various forms by numerous agricultural counties throughout the state, requires purchasers of property and applicants for discretionary permits in commercial agricultural areas to acknowledge in writing that their property may be subjected to noise, dust, fumes, odors and chemicals from agricultural operations. State law (Civil Code Section 3482.5) also provides that using land for commercial agricultural production cannot be deemed a nuisance to surrounding land uses if it has been operating for at least three years. The Glenn County ordinance provides that no commercial agricultural activity, operation, or facility, which is conducted or maintained in a manner consistent with proper and accepted customs and standards, shall become a public or private nuisance, if it was not a nuisance when it began. While this ordinance establishes commercial agriculture as a priority and puts would-be purchasers and permit applicants on notice that such impacts may occur, it is not clear that it actually reduces complaints or prevents civil nuisance actions from being pursued.

Agricultural processing plants and facilities, such as food processing or packing operations, may also result in land use conflicts, whether inside or adjacent to a community. It is important to recognize that such uses are industries, and present the same potential or actual conflicts as many manufacturing uses, including noise, light and glare, odor and traffic. Examples of such facilities in Glenn County include the Holly Sugar plant in Hamilton City and the Sun Beet Plant near the Orland airport. The County Zoning Code currently requires conditional use permits for these facilities, which allows potential land use conflicts to be addressed and mitigated.

Because a large percentage of Glenn County residents are employed in agriculturally-related occupations, and there has not been a large influx of residents from outside the area, actual complaints arising from land use conflicts have been very minimal to date. The increase in new dairies locating in Glenn County, and the potential for rural residences to be built and occupied by new residents on existing small parcels in agricultural areas, represent a potential for increase in land use conflicts in the future. The General Plan offers the opportunity to set clear policy regarding appropriate locations for new dairies and agriculturally-related industry, as well as rural residential development. Locational policies for dairies should support present adopted dairy standards.

2.1.2 Urban Limit Lines.

Urban boundaries, or urban limit lines, can be adopted as part of the County General Plan to establish the limits of urban development, or the urban/agricultural interface, around cities. According to Professor Irving Schiffman, in the guidebook *Alternative Techniques for Controlling Land Use*, the definition of an urban boundary is:

A planning device that defines the ultimate growth area around incorporated cities, within which the cities and the county seek to cooperate in matters affecting land development. County land use policies are designed to discourage urban-type growth from occurring outside of urban area boundaries. Some communities establish several lines within the urban area boundary, intending them to correspond with the phasing of growth over an extended period of time. (p. 84)

Urban boundaries can also be established around unincorporated communities to define the area where urban development can occur. Its other function--as a means of coordinating planning between a county and a city--does not apply in this type of situation, as the County is the planning agency for the community as well as the surrounding area. A discussion of city/county land use planning interface is contained in Section 2.2.4 below.

Professor Schiffman's guidebook provides the following description of the customary procedure followed in establishing urban boundaries or urban limit lines:

- Population growth is projected over a specific time period. The population forecast is then used as a basis on which to predict land demand within the urban area.
- The boundary is drawn in conformity with planning criteria, employing natural physical barriers and existing road patterns where possible. Planning objectives may include the promotion of contiguous and fiscally sound growth along with protection of open space and agricultural lands, scenic corridors, environmentally sensitive areas, and archeological and historic sites.
- The boundary is related to the projected ultimate service area of the city as determined in its general plan.
- The boundary should include land necessary to fill in and complete existing neighborhoods while utilizing existing public investments to the fullest.
- The boundary is drawn so as to minimize urban interference with agricultural or other resource uses. Where necessary, low-density development is proposed for the boundary's edge. (p. 84-85)

He has also identified the following potential benefits and limitations of this approach:

Potential Benefits.

- Unlike the sphere of influence designation, it commits the county to the policy that urban development take place in locations where urban services can be provided in the most efficient and economical manner.
- Preserves agricultural, forested, and open space lands outside the boundary area while reducing leapfrog development.
- Lessens uncertainty about future urban use, thus reducing the amount of long-term speculation and development buying in fringe areas not designated for future urban development.
- Allows county officials to concern themselves primarily with the delivery of rural services.

Limitations.

- To the extent that adoption of an urban area boundary reduces the supply of developable land, it could lead to higher land prices. Planning policies may need to be adopted to assure that such goals as providing affordable housing are not compromised.
- Potentially shifts land values from rural to urban service areas, creating political problems.
- After the boundary is adopted, county decisionmakers may face pressure from those seeking to develop within the urban areaboundary at a time or in a place not acceptable to the city. (p. 85-86)

As alluded to above, the primary benefit of urban limit lines to agricultural land preservation is defining and limiting the areas within which non-agricultural development can occur. Large, contiguous and commercially viable areas can thus be retained for agriculture. Urban development can also be guided to less productive agricultural lands, where there is an opportunity to make such a choice around an existing city or community.

The land use element of the general plan is an appropriate forum for establishing urban boundaries or limit lines around the cities and communities in Glenn County, taking into consideration population projections, physical constraints and opportunities, road patterns, projected development densities, and plans for public services and facilities. In response to the first limitation listed above, it is important that these boundaries accommodate sufficient land to allow for choice and to accommodate property owners who may not choose to develop their land within the General Plan time frame. The cities of Willows and Orland and the community services districts for Artois, Butte City, Elk Creek, Hamilton City, Northeast Willows and Ord need to be involved in these deliberations.

2.1.3 Old "Paper" Subdivisions in Agricultural Areas

This topic refers to the existence of old subdivisions (subdivisions "on paper" only) created in agricultural areas, prior to modern regulations and practices regarding the division of land. The

State Subdivision Map Act and the Glenn County Land Division Ordinance require that new subdivisions be consistent with the General Plan and that roads and other infrastructure be installed prior to the sale of lots and construction of dwellings. Land must also be properly zoned to permit subdivisions.

The existence of these old lots represents a potential that they may be sold and developed at some point in the future, in inappropriate locations and without necessary facilities and services. Problems which may result include an unanticipated demand for County services at remote locations and urban/agricultural land use conflicts. The greatest concentrations of such subdivisions are in the vicinity of Hamilton City, Ord Bend, Butte City and the Capay area. The lots in the Butte City area are reportedly being purchased by duck hunters from the Bay Area to use for hunting purposes.

The State Subdivision Map Act provides that the local agency (in this case, the County) can initiate the merger of contiguous parcels under common ownership in accordance with Government Code Section 66451.10 et seq. The law requires that the County adopt an ordinance to implement the procedures prescribed in the Map Act. A merger can be initiated if any one of the contiguous parcels does not conform to the standards for minimum parcel size in the County Zoning Code, and all of the requirements in the Map Act are satisfied, which include absence of structures on at least one parcel, substandard lot area, lack of compliance with laws and ordinances in effect at the time the subdivision was created, lack of compliance with current standards for sewage disposal and domestic water supply, legal access, health and safety hazards, and consistency with general and specific plans. Other restrictions on mergers apply as set forth in the Map Act.

The local ordinance may establish the standards described above which are applicable to parcels to be merged, regarding sewage disposal and water supply, slope stability standards, access, health and safety hazards, and plan consistency. Adoption of such an ordinance would provide the County with the necessary tools to merge old paper subdivisions which remain under common ownership. The difficulty with actually accomplishing such mergers is that there is normally a high level of opposition to such mergers by property owners, who may view such action as depriving them of property rights and future development potential.

Chapter 17.26 of the Glenn County Land Division Ordinance provides for the merger of two or more contiguous parcels or units of land by the Planning Commission when the standards and requirements of Government Code Section 66451.11 are met. However, this ordinance does not establish standards unique to Glenn County.

2.1.4 Variances for Parcel Size in Agricultural Areas

The County's existing agricultural zones establish the following minimum parcel sizes:

Foothill Agricultural/Forestry Zone	(FA)		160 acres
Agricultural Preserve Zone	(AP)	prime land	80 acres
		non-prime land	160 acres

Exclusive Agricultural Zone	(AE)		
Sub-Zone		AE-20	20 acres
		AE-40	40 acres
		AE-80	80 acres
Agricultural Transitional Zone	(AT)		
Sub-Zone		AT-5	5 acres
		AT-10	10 acres
		AT-20	20 acres

The zoning classifications are designed to maintain viable agricultural parcels. The AP zone, which is applied to lands covered by a California Land Conservation Act (Williamson Act) contract, specifically does not permit variances for parcel size. County staff has identified a need to provide for variances from the minimum parcel size requirement in cases where circumstances beyond a property owner's control have resulted in parcels which fall short of the acreage required for land division (e.g. 79 acre parcel in an AE-80 zone) but are still consistent with the overall densities established in the General Plan. Examples of such situations include parcels that are portions of a section which contain less than the normal acreage due to an anomaly in the original survey and parcels crossed by roads, canals, levees or some other physical feature which create a nonfunctional parcel.

The purpose of a variance is to prevent unnecessary hardships that would result from a strict or literal interpretation and enforcement of the Zoning Code. The Code (Chapter 19.16) requires that the Planning Commission make the following findings in order to approve a variance:

- Due to special circumstances applicable to the property, including size, shape, topography, location or surroundings, the strict application of the zoning ordinance deprives such property of privileges enjoyed by other property in the vicinity and under identical zoning classification.
- The adjustment authorized by the variance shall not constitute a grant of special privileges inconsistent with the limitations upon other properties in the vicinity and zone in which such property is situated. The Planning Commission shall impose such conditions as will assure continued compliance with this finding.
- The variance does not authorize a use or activity which is not otherwise expressly authorized by the zone regulation governing the parcel of real property.

These findings can be limited to the types of situations described above, and can be further limited so as not to exceed a given percentage (such as 10 percent) of the minimum acreage and to assure consistency with the General Plan. The General Plan can establish such a policy, to be implemented through an amendment to the Zoning Code. As an alternative to the granting of variances, the County could establish "exceptions" in its Zoning Code for specified circumstances, which are supported by policy in the General Plan. This procedure would allow

for administrative handling of such matters and would eliminate the need to make the findings for a variance in each instance.

2.1.5 Irrigation Water.

As noted in the Environmental Setting Technical Paper, there are water and irrigation districts, as well as some private water companies, in Glenn County. These special districts and companies were originally formed to provide irrigation water to farmers within their district boundaries. Some of these districts now are supplying domestic water to rural residential parcels in addition to their traditional role as a purveyor of agricultural water.

An example of such a situation is the Orland Unit Water Users Association; which, however, is a private association, and not a public special district. According to the Orland Area General Plan:

The Orland Unit Water Users' Association supplies water for irrigation to land around Orland. The Orland Unit Water User's Association secured a water right to water from Stony Creek in 1902 and the first water was delivered to the Orland Project in 1910.

At this time (1990) the Orland Unit Water User's Association has 1100 share holders...Only 90 share holders have forty (40) or more acres. Six hundredseventy nine (679) share holders farm from five to forty acres. There are 331 parcels with less than five acres in the Association. These farming operations can be considered as hobby farms or supplemental income since all the owners have other jobs for their main source of income.

The apparent trend toward conversion of water users from large-scale farming operations to five-acre "hobby farms" marks a change in the Association's original mission, and may raise dilemmas within the Association should issues arise which divide their diverse clientele. Although the Association does not provide drinking water to its users, by providing irrigation water to small parcels (5 acres or less), it can be argued that the Association encourages, or at least does not discourage, the creation of parcels of a size not viable for commercial agriculture, and may thwart County land use policies. It can also be argued that water delivery to non-viable agricultural parcels represents a waste of a public investment intended to support agricultural operations.

In the case of special districts, LAFCO can amend their Spheres of Influence and/or require detachments from a district upon annexation to a city. However, in the case of a private water company, the decision as to whom they will serve is a matter for the board of directors and/or shareholders of the company.

2.2 Distribution of Residential, Commercial and Industrial Uses and Open Space

Section 65302(a) of the California Government Code states that the general plan shall include "a land use element which designates the proposed general distribution and general location and extent of the uses of the land for housing, business, industry, open space, including agriculture, natural resources, recreation and enjoyment of scenic beauty, education, public buildings and

grounds, solid and liquid waste disposal facilities, and other categories of public and private uses of land."

2.2.1 Land Use Needs

The physical distribution of planned land uses in the county will be expressed generally in the required land use diagram for the general plan, which is a reflection of the goals, policies and standards which are a part of the general plan. The proposed distribution of uses is based upon existing land use patterns and proposed future land use patterns. These proposed uses are normally based upon projections of needs for residential, commercial, industrial and other uses, which are in turn based upon projections of future population and economic conditions. With regard to open space (including agricultural lands), parks and recreation facilities, the amount of land proposed to be devoted to these uses depends upon the County's goals, anticipated population growth, and the existing open space and parks to population (acres/thousand inhabitants) ratios. The amount of land needed for public facilities (such as schools, public buildings and grounds) must also be projected based upon existing and projected numbers of school aged children, projected increases in land use intensity and population, and the correlated need for additional services.

Forecasts of economic conditions and market demand also enter into the land use projection equation. However, it must be kept in mind that the general plan is a long-term planning document, and that most economic cycles will even out over the twenty-year time frame. Any known or anticipated large new development (such as a university campus) should be incorporated into the plan, but none are currently contemplated for Glenn County. Suffice it to say that it is important that land use projections be grounded in reality, and that simply designating land for some desired use does not cause it to actually be developed.

When calculating the acreages needed for various land uses, other factors must also be taken into consideration. One factor is the amount of vacant land already planned and zoned for each particular use. Another factor is the assumptions made with regard to density of development. For example, if it is assumed that residential development in the unincorporated area will occur on one and five acre parcels, obviously far more land will be needed for residential use than if all new development were planned for 6,000 square foot lots. Finally, the general plans for the cities need to be considered, and an allocation made of projected population growth between the two cities as well as the unincorporated area of the county and unincorporated communities such as Artois, Elk Creek and Hamilton City.

The 1991 Glenn County Profile has projected a population increase of 5,400 persons by 2005. Projected out to 2010, the increase is an estimated 8,563 persons. The 1991 Orland Area General Plan is based on an assumption that the rate of growth in Orland is expected to increase from its present level of under 2.0 percent annually to around 5.0 percent annually as a result of growth pressures from Chico. Based on this assumption, the City's population growth would account for 8,344 persons, or 97.4 percent of the county total by 2010.

The Land Use Element of the Willows General Plan projects a population increase of 1,199 persons between 1990 and 2000, at an estimated annual growth rate of 2.0 percent. Projected out to 2010, the City's population growth would account for 2,697 persons, or 31.5 percent of the county total by 2010.

The total 1990-2010 projected population growth for the two cities is 11,041, which is higher than the projected population growth figure of 8,563 for the total county. Several explanations can be advanced for this discrepancy. It is possible that the county could lose population to the cities through annexations and/or relocation of persons from the unincorporated area to the cities. It is also possible that the county projections are too low, the city projections are too high, or some combination of both scenarios. The assumptions upon which the county and city projections are based need to be examined as part of the General Plan revision process, and decisions made regarding assumptions and population projections to be utilized, before land use forecasts can be formulated.

2.2.2 Land Use Designations

According to the State of California General Plan Guidelines (1990):

A land use element should contain a sufficient number of land use categories to conveniently classify the various land uses identified by the plan. Land use categories should be descriptive enough to distinguish between levels of intensity and allowable uses and there should be categories reflecting existing land use as well as projected development.

The County's existing Land Use Element, adopted in 1985, contained the following land use designations:

- Open Space/Recreation
- Timber/Forestry
- Agriculture Upland Grazing
- Agriculture Intensive
- Agriculture General
- Rural Residential
- Residential
- Commercial
- Industrial
- Commercial/Industrial Reserve
- Mineral Extraction
- Public Facilities

The Land Use Element also includes, for each category, a statement of purpose, a description of the character of each land use, a listing of typical permitted uses, and the parcel size/density range for the category.

In 1990, a general plan amendment was adopted which included revisions to the "Industrial" land use category, and which established the following commercial land use categories:

- Local Commercial
- Community Commercial
- Service Commercial
- Highway and Visitor Serving Commercial

For each of these categories, there is a statement of purpose and definition, a listing of typical permitted uses, a description of development intensities and criteria, and designation criteria which must be met for zoning proposals.

As part of the General Plan revision process, the existing land use categories (including their population density and land use intensity standards) will be reviewed to determine whether any categories need to be added, deleted or revised. It will be necessary, at the very least, to conform the text format for all of the categories. The current residential designation does not differentiate between single and multiple family residential uses, and a multiple family residential category may be desirable. In addition, there is local interest in eliminating the Mineral Extraction designation. Other categories may arise through the citizen and staff participation and review process.

2.2.3 "Fiscalization" of Land Use.

The "fiscalization" of land use, or "zoning for dollars", refers to the practice of planning and zoning to attract land uses which generate revenues for local government above and beyond the costs of the services they receive. Such uses are typically retail uses which generate large volumes of sales taxes, including automobile dealerships and regional shopping malls. The advent of "auto malls" throughout the state, some successful and some not, is an outgrowth of this trend.

This phenomenon has largely occurred in response to the decreasing percentage of local government revenues from property taxes since passage of Proposition 13, and the inequitable and insufficient distribution of sales tax and other revenues by the State of California. This situation is particularly acute for rural counties, which typically receive a low percentage of sales tax revenues (because most retail uses are located in cities), have high health and welfare caseloads, high unemployment rates, a low rate of property tax increase, and receive inadequate State funding to cover State-mandated programs.

The problem with "zoning for dollars" is that it is often at odds with sound land use planning principles. As stated succinctly in *Alternative Techniques for Controlling Land Use*, "Government decisions based solely on fiscal considerations may conflict with other explicit or implied community objectives such as adequate housing or a balanced community." Policies which value the preservation of agricultural land, and promote compact development within urban limit lines (see Section 2.1 above), are not compatible with the creation of commercial and industrial uses in agricultural areas or on the edge of an existing city. Yet counties which have

adhered to sound land use policies, including Glenn County, face serious budgetary problems every year. For this reason it is important that the County seek out areas that may be appropriate for commercial and industrial development outside of established urban areas and designate those areas accordingly on the land use diagram. Decisions should weigh the development potential due to location, access and availability of urban services, against the agricultural viability of the sites and surrounding area.

Another problem that is created is that of "unwanted" land uses. Residential development is considered to require more services than it generates in tax revenues (fiscal impact assessment methods typically do not take into consideration sales taxes paid by residents or the multiplier effect of their incomes; however, these monies may be spent in other jurisdictions). Planning and zoning to maximize one jurisdiction's tax revenues results in competition for land uses between cities and counties, cities and other cities, and attempts to "shuffle off" less lucrative uses into other jurisdictions.

Glenn County needs to determine its priorities and make land use planning decisions based on its vision and goals for the county over the long term. At the same time, fiscal issues cannot be ignored. Other counties, such as Yolo County, have agreed to refrain from urban development around cities in exchange for agreements to receive a share of city sales tax, redevelopment fund pass-throughs, and/or other funds. Similar tax-sharing agreements can be achieved through the annexation process, which requires that an agreement for sharing property taxes be reached between the annexing city and the county before an annexation can become final. Other counties have used this process as an opportunity to share in sales taxes as well. Finally, counties (through the California State Association of Counties and other means) must continue to work for changes at the State level to achieve an equitable distribution of tax revenues.

2.2.4 City/County Land Use Planning Interface

The two incorporated cities, Willows and Orland, have Spheres of Influence adopted by the Glenn County Local Agency Formation Commission (LAFCO). These boundaries are defined in State law as "A plan for the probable ultimate physical boundaries and service area of a local agency" (Government Code Section 56076), taking into consideration present and planned land uses, present and probable need for public facilities and services, present capacity of public facilities and adequacy of public services, and the existence of any relevant social or economic communities of interest (Section 56425). All annexations to these cities must be consistent with (that is, within) their adopted Spheres of Influence.

There are no such boundaries for the unincorporated communities in Glenn County, although there are adopted Spheres of Influence for community services districts and other special districts. The County has also adopted a planning boundary for the community of West Orland (in the West Orland Specific Plan), and has jointly adopted the Orland Area General Plan with the City of Orland, which establishes a Planning Area around the city.

Even though adopted Spheres of Influence exist for the two cities, there are several advantages to having a county- and city-adopted urban boundary or limit line as well. One reason is time

frame; while the Sphere of Influence, as an "ultimate growth boundary", represents an indefinite time frame, cities and counties typically plan in 10 to 20-year increments, and a Sphere of Influence may be too large for that purpose. The Sphere of Influence is also not a specific land use planning tool, in that it does not establish land use designations within the boundary. Finally, a Sphere of Influence is adopted by LAFCO only and does not represent a commitment on the part of the city or the county.

Cities and counties can use urban boundaries as a tool to achieve concurrence on land use issues on the edge of a city, by striving to adopt identical, or at least compatible, land use plans for the area within the boundaries. Glenn County has already largely achieved this goal with the joint adoption of the Orland Area General Plan. The Orland Area General Plan includes land use and zoning plans for both the city and county and establishes policy regarding changes in land use designation, annexation and development within the planning area.

In addition to urban/agricultural interface issues, it is not uncommon for cities and counties to disagree on land use plans for the area surrounding a city. Speaking hypothetically, the County has jurisdiction over an area which may one day be part of the adjacent city, and the city normally desires that the area develop in accordance with city policies and standards. The County may feel obligated to accommodate county residents and property owners, or simply take a different view as to which policies and standards are appropriate. In the case of Glenn County, it would be necessary for the County to develop and administer two sets of improvement standards, for example, to satisfy the different standards adopted by Willows and Orland. Another approach, which largely eliminates the need to adopt similar land use controls and improvement standards, is for the County to adopt policy that urban uses will not be allowed in the unincorporated area around cities, and that agricultural uses will be retained until such time as annexation and development occur.

The Orland Area General Plan establishes policy regarding the respective roles of the City and County in annexation and development. The Plan does not allow certain lands within the Orland Planning Area to be designated or zoned to allow parcels smaller than ten (10) acres in size prior to annexation. The stated purpose of this policy is to preserve land in parcel sizes large enough that it will be possible to annex them into the City and develop them. According to the Plan, "Since there are only a few areas which are adjacent to the City and which can be served by City services they should not be used for other types of less intensive development".

It is further stated that those areas shall be annexed to the City of Orland and shall be developed to full City of Orland development standards. Areas which will be part of the City of Orland in the future are required to be developed with streets and other infrastructure that will be compatible with City standards. According to the Plan, "this will prevent problems for the City in the future because the City will not be saddled with areas which do not meet the City standards and are thus more expensive to serve, a safety hazard, an aesthetic nuisance, and/or provide land use conflicts."

Other issues arise when substantial areas of urban settlement have developed over time in the unincorporated area adjacent to the cities. The communities of East and West Orland and North

and North East Willows are cases in point. Residents of such areas typically do not want to annex to the city (unless a particular service is needed or desired by residents) and, through the election process, can prevent annexation from occurring. However, cities often feel that residents of such areas use city services without supporting them through taxes or fees, and counties typically do not provide a level of service equivalent to cities (although services may also be provided by a community services district or other entity).

The General Plan revision will address land use planning issues around the City of Willows, including the unincorporated communities of North Willows and North East Willows. Those two communities have been largely developed for many years, no major changes are anticipated (except to upgrade existing conditions where needed), and annexation is considered unlikely. Areas to the south and east of the city are currently planned to remain in intensive agricultural use. The area to the west of the city, including the airport, is an area where city and county land use designations and a planning area boundary need to be coordinated.

2.3 Zoning

Zoning is the regulatory tool used most frequently to implement a general plan. The State Supreme Court has stated that "...zoning is intended to represent a considered, specific, and lasting implementation of the broad statements of policy of the general plan." It is a precise, immediate, property-specific method of land use control and regulation. State law requires zoning to be consistent with the adopted general plan. The County intends to change zoning on properties as necessary to achieve consistency with the revised General Plan.

In the American Farmland Trust publication *Saving the Farm*, three factors for effective zoning of agricultural areas for the protection of agricultural land are identified:

- Defining precisely the permitted uses within the zone.
- Determining the characteristics of agriculture in the area that is to be protected.
- Determining the suitability of a particular parcel for inclusion into an agricultural zone.

Glenn County has already applied exclusive agricultural zoning to large areas in the foothills and on the valley floor which meets the criteria set forth above. However, with the exception of lands in Williamson Act contracts, property owners can apply for general plan amendments and changes of zone to a nonagricultural classification. The current General Plan does not address the circumstances under which such requests should be approved or denied.

The County's agricultural zones allow individual residences, and farm labor camps and structures for transient labor with a conditional use permit, but do not allow subdivisions. Additional residences are permitted in some zones if they are occupied by relatives of the owner or employees who work on the property. Such provisions are practical in light of the distances, in many cases, between farms and communities, as well as the need for an on-site presence to prevent theft and vandalism.

This is also an opportune time to review the County's Zoning Code to determine whether any new zones should be added to the code to promote the implementation of the land use designations which are a part of the General Plan. The County may find it desirable to add some provisions to the code to provide more flexibility in land use control. The major disadvantage of such approaches is the additional staff time and resources required to administer them. If the County determines to eliminate the "Mineral Extraction" land use from its General Plan, it will also be desirable to examine the need for the E-M, Extractive Industrial Zone. Examples of some potential zoning tools which the County may wish to consider are described below.

2.3.1 Gross vs. Net Acreage

Gross and net acreage refer to total lot or site area and total area minus easements, rights of way, public and private roads and streams and other unbuildable areas, respectively. The Zoning Code establishes minimum lot areas for the rural residential zones, as follows:

Rural Residential Estate Zone	(RE)		
Sub-Zone		RE-1	40,000 sq. ft.
		RE-2	2 acres
		RE-5	5 acres
		RE-10	10 acres

The ordinance is silent as to whether it refers to gross or net acreage. However, in the Single Family Residential (R-1) and Multiple Family Residential (R-M) zones, the ordinance states that the minimum lot area refers to net square feet or acreage. The lack of specificity for the RE zone can lead to confusion on the part of County officials and the public. In practice, the County Planning Department has applied a gross acreage standard to parcels of five or more acres, and a net acreage standard to parcels smaller than five acres. This standard is not uncommon in other counties. It would however, provide greater clarity to establish a policy regarding density standards which guides this interpretation, implemented by amendment to the Zoning Code.

2.3.2 Conditional Zoning and Development Agreements

Conditional rezoning, also known as contract zoning, is defined in the guidebook Alternative Techniques for Controlling Land Use as follows:

The attachment to a rezoning of special conditions that are not set forth in the text of the ordinance and do not generally apply to land similarly zoned. Conditional rezoning adds flexibility to the land use control process by allowing local decisionmakers to tailor zoning restrictions to the character and location of the rezoned land and to the potential impacts of the proposed use.

The guidebook describes three categories of conditional rezoning, while noting that other variations may exist:

- A requirement that final development plans be submitted for approval to the board of supervisors
- A restriction of the uses allowable on the rezoned property; for example, disallowing uses otherwise permitted within the zone classification if they will generate a high volume of traffic
- The imposition of special development requirements, such as an extra large setback from an adjoining use or more intensive landscaping

Conditional zoning offers a greater opportunity to control the type and quality of permitted uses, and/or mitigate environmental impacts, than is afforded by zoning alone. Examples of some permitted uses in County zoning categories which might generate interest in conditional zoning include sawmills in the FA zone, fish farming operations in the AT and RE zones, and auto repair in the RE and R-1 zones. Conditional rezoning is implemented through execution of an agreement between the property owner and the County, which is recorded and runs with the land.

Similar, but not identical, to a conditional zoning agreement is the development agreement, a tool established by Section 65864 et. seq. of the Government Code. The major difference between the two types of agreements is that a development agreement locks in place the applicable land use regulations and development standards of the County at the time the agreement is executed, while the conditional zoning agreement may not. Either tool would be useful in providing Glenn County with a greater measure of land use control.

2.3.3 Clustering

Cluster zoning is defined in the 1990 State of California General Plan Guidelines as:

...a district which allows the clustering of structures upon a given site in the interest of preserving open space. Cluster zones typically set an allowable density and minimum open-space requirement to encourage the clustering of structures.

According to the publication of the American Farmland Trust, *Saving the Farm*, clustering can reduce sprawl in rural areas where limited development is allowed to occur. The cluster zoning is typically achieved through a concentration of the overall gross density of development permitted on a site to a smaller portion of that site. For example, instead of ten houses on a 40-acre parcel, using four-acre lots, a clustered development would place the ten houses on ten acres, using one-acre lots, or five acres, using half-acre lots. Using this tool, agricultural land, open space and sensitive environmental areas can be preserved, while at the same time allowing some development (usually residential) to occur. In theory, clustering should reduce development costs by reducing the length of roads and utility lines which must be constructed. If such developments are outside urban limit lines, however, the overall costs of providing public services will not be reduced.

In Alternative Techniques for Land Use Control, it is noted that cluster development "can be used as a form of buffer where residential development is permitted next to farmland; the housing is clustered away from the farmland and the development's open space acts as a buffer between the two uses." This concept is valid only if the location is determined to be a permanent urban development boundary. If development is ever permitted to occur beyond the buffer, it will cease to function as a buffer, it will probably lose its agricultural viability, and the cost of providing services beyond the buffer will increase.

Cluster development is defined in the Glenn County Zoning Code as "three or more detached buildings located on a parcel of land and having common open space areas." The Glenn County Zoning Code provides for clustering in its Planned Development Residential (PDR) and Planned Development Commercial (PDC) zones, which require a conditional use permit for a specific plan of development. As with all zoning, such zoning must be consistent with the general plan. Clear policy on this subject in the General Plan would provide guidance to staff, the public and decision makers regarding the suitability of cluster development in various parts of the county.

2.3.4 Planned Developments

Local interest has been expressed in providing for new, larger-scale planned developments in Glenn County which are not part of existing communities. It is anticipated that such communities would be somewhat self-contained, providing some employment opportunities, commercial development, public facilities and recreation as well as residential uses. New development at a sufficiently large scale provides opportunities for higher density development and a community design with a pedestrian orientation. Such an orientation provides an alternative to the private automobile for short trips by providing more direct, "pedestrian-friendly" access within a development rather than cul-de-sacs, circuitous street systems and routes which are unpleasant or dangerous to negotiate on foot.

The County's Zoning Code already includes zoning districts which allow these types of developments. The County's existing Planned Development Residential ("PDR") zone allows "creative and innovative developments that are environmentally pleasing through the application of imaginative land planning techniques not permitted within other residential zones with fixed standards." This zone also allows local commercial uses and resort commercial uses when the development is of a certain size, as well as recreation facilities and community facilities. A conditional use permit for a specific plan of development is required, and a rezoning application must be accompanied by a general plan of development unless the rezoning is initiated by the County to implement the General Plan or an adopted community plan.

The Zoning Code also includes a Planned Development Commercial ("PDC") district for "creative and innovative commercial or industrial developments that are environmentally pleasing through the application of imaginative land planning techniques not permitted within other zones with fixed standards." This zone allows commercial and industrial uses and recreation facilities, and has requirements similar to the PDR zone.

While the Zoning Code currently provides the tools for implementing the planned development concept, the General Plan should provide guidance as to the suitable location for such developments. Appropriate locations can be designated on the land use diagram, or can be determined through policies and performance criteria such as existing land use, surrounding land use, soil capability, agricultural preserve status, existing parcel size, surrounding parcel size, cropping history, access, jobs/housing balance, etc.

2.4 Quality of Life

The term "quality of life" does not have a precise definition. When applied to a community, it usually refers to such value-related factors as a feeling of personal safety, knowing one's neighbors, good schools, a sense of community, scenic quality, clean air and the absence of some more urban characteristics such as traffic congestion, noise, smog and gang violence. While a general plan cannot create a desirable quality of life, it can establish policies designed to maintain and enhance the qualities which already exist in Glenn County.

2.4.1 Design Review.

The cities and communities in Glenn County are still small and unchanged enough that they embody a rural, small-town atmosphere which is regarded by many as a community asset worth preserving. The older homes and commercial buildings evoke an earlier era which many communities today are working hard to restore. "Neo-traditional town planning", which promotes grid street systems and shopping within walking distance of homes, already exists in most Glenn County communities. While the County General Plan does not apply inside the cities of Willows and Orland, it can include policies designed to preserve the desirable physical and design features in communities such as Hamilton City, and carry them over into new development, so that old and new development appear compatible with one another. According to the State Office of Planning and Research, 23 counties currently have design review boards, and 29 (including Glenn County) have design review procedures.

The County's Zoning Code includes design guidelines and a development review process for multiple family, commercial and industrial development. The development review process may be waived if a conditional use permit is required. The guidelines establish desirable and undesirable design characteristics and guidelines for community/neighborhood commercial uses, heavy commercial/light industrial uses, shopping centers, signs, landscaping, circulation and parking, site preparation, utilities and lighting, and energy conservation. The inclusion of policies in the General Plan would evidence a firm commitment by the County to the principles embodied in the guidelines. The goals established in the guidelines are as follows:

- To encourage attractive buildings and landscaping which reflect the values of the County.
- To project a positive image to the traveling public which enhances local business opportunities.
- To promote architectural diversity and creative, cost effective design solutions which are compatible with the rural agricultural environment of Glenn County.

- To provide safe and efficient access and parking while minimizing conflicts between vehicles and pedestrians.

In practice, the County has found these guidelines to be ineffective. Some level of design review has been achieved through the Planned Unit Development process, which is also a part of the Zoning Code. The County may want to consider limiting the application of a design review process to selected areas of the county, such as within the Spheres of Influence of Willows and Orland, compatible with city requirements, and along the I-5 corridor (see Section 2.4.2 below).

2.4.2 I-5 Corridor

The Interstate 5 corridor through Glenn County represents a major opportunity for the County, as well as the cities of Willows and Orland, to attract development which is highway or visitor oriented, as well as industries which value freeway access. The design guidelines in the Zoning Code state that "it is important that development provide a positive initial impression which complements the natural setting and predominantly rural character of the area...Retail and tourist trade in an area can be greatly enhanced by the projection of a positive image to the traveler and resident alike."

The land along I-5 in Glenn County is primarily agricultural. The General Plan can designate specific sites in the unincorporated area along I-5 for highway commercial and industrial uses based on such criteria as access, availability of public services, agricultural capability, flood zones, etc. The designation of such sites would provide for future development and limit the conversion of agricultural land to these specific areas. The Plan can also establish unique design standards for such areas to assure that an aesthetic appearance is achieved.

2.5 Land Use/Growth Opportunities, Constraints and Conclusions

- Although the County does not intend to adopt a separate agriculture element of the General Plan, the role of agriculture and preservation of agricultural land will figure prominently in the revised General Plan, receiving special attention in the land use, conservation and open space elements. The existing Land Use Element has goals and policies to protect agricultural land and the County has zoned large areas for exclusive agricultural use. In order to assure the continued preservation of agricultural lands, the General Plan should establish standards and criteria under which General Plan amendments and zone changes will be permitted or denied. Such criteria might include existing land use, surrounding land use, soil capability, existing parcel size, surrounding parcel size, cropping history, etc., and assure that the best agricultural land is retained for agricultural use, while allowing some less valuable land to be developed.
- Although actual complaints related to urban/agricultural land use conflicts are few in number, as growth and development increase so does the potential for such conflicts. The General Plan should limit scattered rural residential development and establish urban limit lines in order to minimize potential conflicts, by continuing to require conditional use

permits for agricultural processing plants and facilities in exclusive agricultural zones, and also by expressing continued support for the Right to Farm Ordinance.

- A planning area which functions as an urban limit line has already been established jointly by the County and the City around the City of Orland. Urban limit lines should be established around the City of Willows and the unincorporated communities of Hamilton City, Artois, Elk Creek, Butte City and the Capay area in order to allow adequate land for new urban development and protect surrounding agricultural lands. These boundaries should be based upon realistic projections of population growth and local service delivery capabilities. The General Plan should include policies which define and establish standards for the location of such boundaries, and provide for city/county coordination of land use planning within the boundaries. Policies should encourage infill of existing urbanized areas and provide for higher densities where public facilities and services allow.
- In exchange for establishing urban limit lines around Willows and Orland and directing new development to the cities, the County should seek equitable tax-sharing agreements for proposed annexations which address property tax, sales tax and (if applicable) redevelopment funds.
- Some consideration should be given to the utility of providing "buffers" between existing or planned urban development and agricultural lands. Where it can be determined that urban development will not expand beyond a certain point, potential land use conflicts may be minimized by designating areas adjacent to agricultural parcels for lower densities, such as rural residential, and/or clustering development away from adjacent agricultural parcels. Buffers should not be utilized in areas where it can reasonably be determined that urbanization will continue to occur, since the lower density areas could ultimately be surrounded by urban development, resulting in increased public services costs and inefficient land use patterns.
- Old "paper" subdivisions pose potential problems for the County in the future should lots be sold and developed at some point. The County should prioritize areas with such subdivisions which qualify for the merger process under State law, and proceed to merge lots in these potential problem areas. To address lots which may have already been sold individually, the County's Land Division Ordinance should also be amended to reference specific standards which such lots would be required to meet prior to development, including but not limited to standards for sewage disposal, domestic water supply, and access.
- In order to maintain the integrity of the exclusive agricultural zones and the General Plan, while also promoting the spirit of the law, the Zoning Code should allow for variances or exceptions for parcel size which are consistent with the General Plan, which are within 10 percent of the required minimum parcel size, or which are necessary due to short sections or existing physical barriers such as canals, roads, streams, levees, etc.

- Policies regarding irrigation water service to rural residential parcels by water suppliers may conflict with County land use policies. The County should request private water companies to increase the minimum parcel size for service, and request LAFCO to require that parcels below 10 acres in size be detached from water or irrigation districts.
- The General Plan should not attempt wholesale changes in existing and planned land use patterns, but rather refine existing plans to assure that adequate provision is made for all types of uses and that land use patterns are coherent. The issue of population projections and distribution must first be resolved before land use needs can be determined.
- The General Plan Guidelines require that general plans include standards for population density and building intensity for each land use category. In order to distinguish between different types of residential uses, the General Plan should provide for single and multiple family residential categories.
- The General Plan should establish locational criteria and standards for planned developments which are not part of existing communities, based in part on agricultural suitability, jobs/housing balance and availability of public services. This performance approach allows greater flexibility than specific designations on the land use diagram. New developments within existing communities should also attempt to incorporate a pedestrian-oriented design if feasible.
- The Zoning Code should be revised as necessary to achieve consistency with the revised General Plan and to provide the full range of implementation tools and flexibility desired by the County. A standard for gross vs. net acreage should be established. Provision for conditional zoning, development agreements, and clustering should be incorporated into the Zoning Code. The design review guidelines should be refined and applied to specific areas in order to be more workable and effective.

3.0 TRANSPORTATION/CIRCULATION

Background

A broad range of issues exists for the transportation system in Glenn County. This results from the variety of travel modes which provide the movement of freight and persons for a diverse group of users. The County is faced not only with maintaining the adequacy of the existing system but providing for future needs. The analysis of transportation issues is a four-step process, as follows:

- Identify issues;
- Establish the appropriate role for Glenn County;
- Establish priorities, and
- Generate adequate funds to meet, at a minimum, all high priority needs.

Of particular importance in this analysis is the Glenn County Regional Transportation Plan (RTP), prepared in 1986 and updated every two years, and the 1990 Transportation Needs Assessment and Funding Study.

At this stage in the development of the General Plan, the focus is on step 1 but the other steps are given consideration, as appropriate and where adequate information exists. Step 2 recognizes that the potential role of the County will vary significantly from issue to issue. For example, the County has very limited jurisdiction for rail services but full responsibility for County roads.

Many of the elements of the transportation system are in part funded or operated by other public agencies or private companies. Addressing the issues in many cases will not be the sole responsibility of the County but will require a cooperative and coordinated process. Steps 3 and 4 require the matching of needs with available funding. Funding is an important issue by itself but also impacts many of the other issues.

Specific Concerns

3.1 Transportation Priorities and Funding

Funding for road projects within Glenn County is derived from five sources, as follows: (1) categorical federal funds for Interstate, Primary, and Secondary road mileage administered by the State; (2) categorical federal funds for miscellaneous federal programs, such as the Forest Highway program; (3) miscellaneous categorical funds administered by the State for safety, railroad crossings, and bridge rehabilitation; (4) non-categorical road funds from the State (priorities selected by County), and (5) locally-generated funds. Table 3-1 presents a comparison of the estimated needs and revenues based on existing funding programs. It shows that over the next twenty years needs are estimated to be approximately 27 percent greater than the existing source of revenues. The shortfall will exist primarily for the maintenance and upgrading of existing County roads. Table 3-2 presents a percentage breakdown by cost of the estimated road and public transit needs.

The County is confronted with the difficulty of matching increasing needs with a fixed amount of revenue from existing sources. This process involves a combination of prioritizing needs to distinguish essential projects from those that are only desirable or perhaps even unnecessary and also to develop new sources of local funding. Separate issues listed in the 1986 Regional Transportation Plan, as follows, address both the supply and demand sides of the equation -- prioritizing needs and developing adequate funding resources.

- A 5-year prioritized listing of desired highway improvements and unmet needs is necessary to make the best use of funds and provide an emphasis toward improving those routes most frequently used within Glenn County (p. 34).
- Since the transportation facilities and transit systems of the Glenn County region have needs greater than those obtainable by available funding under current revenue sources and allocation procedures, new sources of funding should be sought (p. 35).

The County in 1990 took a major step towards development of a long-range prioritization of road improvements with the Transportation Needs Assessment and Funding Study, prepared by CHEC Consultants, Inc. in co-operation with California State University, Chico. It provides a needs assessment in five-year increments for the 20-year period 1991-2010 and relied heavily on the results of a Pavement Management System developed concurrently by the study team.

The program assumes that all structural needs will be met within the first five years of the program and redone ten years later, and that all roads with substandard widths will be widened within the 20-year period. The study balanced the needs so that the range of the five-year programs was approximately \$38 to \$49 million. The needs assessment, however, did not include any additional road mileage that might be required by new residential or commercial/industrial development.

The needs assessment study analyzed several strategies to address the forecast shortfall between needs and existing revenue sources. Table 3-3 shows four different scenarios for a county-wide sales tax and unchanged income from assessment districts and developer impact fees, based on that analysis. Scenario 1 has a 1/2 cent sales tax. Scenario 2 is based on the minimum sales tax (0.53 cents) to meet the 20-year needs, Scenario 3 is based on the minimum sales tax (0.93 cents) to meet forecast needs during each five-year period, and Scenario 4 is based on the minimum sales tax (0.76 cents) to meet all needs by itself.

The funding analysis shows that the County needs to raise a significant percentage of road construction revenues from local sources if it is to meet future needs (27.2 percent of total 20-year needs in constant dollars). The issue of whether or not all needs should be funded is addressed in more detail in issues related to maintenance of existing systems (Section 3.2) and functional classification (Section 3.5). It is possible that standards need to be relaxed for certain conditions so that needs can be more in line with revenues. Whatever sources are selected, their applicability to identified needs and their reliability over time need to be addressed. The accuracy of estimates for traffic impact fees, for example, depends upon the amount of development that actually occurs. Assessment fees require special elections and can only be used for projects within the boundaries of the assessment district. Even if these funding sources are implemented, the need exists for a flexible funding source to pay for maintaining the existing system. Projects related to pavement management (structural needs and seal coating) over the next twenty years will account for approximately 44 percent of total projects not on State highways. These projects in general are not those that are funded by assessment districts or impact fees, but require a flexible, ongoing source of income such as a sales tax or property tax.

The role of categorical State and federal funding over time also needs to be addressed. It is possible that the federal contribution to non-Interstate roads will decrease over time and that the County minimum allocation of State funds will continue to be spent primarily on Interstate 5. In this case, it might be necessary for the County to generate local funds to improve sections of the State highways. Numerous counties in the State have included projects on State highways in programs funded by an increase in the county sales tax.

3.2 Maintenance and Improvement of the Existing Road System

The size of the road system within Glenn County is not expected to change significantly over the next twenty years. In the 1986 Regional Transportation Plan, the inventory of existing mileage was 1,421 miles for all categories, and the only change forecast by 2005 was an additional ten miles of local road mileage. Also, no mileage was expected to change from one category to another. Although growth that may have been unforeseen in 1986 may occur, clearly the emphasis during the next twenty years will be on maintaining and improving the existing system.

Projects on the existing road system can be divided into four categories, as follows:

1. Maintaining the existing roadway with its present dimensions and surface type. Virtually all of the projects in this category are identified through either the State or County pavement management systems. They range from reconstruction where major surface and subsurface failures exist to periodic seal coating.
2. Major improvements within and outside of the right-of-way to minimize potential damage from flooding. For example, projects have been identified on Route 162 east of Willows.
3. Functional improvements. These improvements include widening of the roadway surface to reduce congestion or to bring the roadway up to County width standards.
4. Spot improvements to improve safety. Such improvements can include installation of traffic control devices, realignment of intersections, and at-grade rail crossing controls as well as others.

The listing of issues in the 1986 Regional Transportation Plan highlights categories 2 and 4, as follows:

- The need for flood prevention along Glenn County's system of roads is a major issue (p. 33).
- The need for replacement fill dirt to stabilize highway shoulders, medians, and fills at various bridge structures and County road approaches along Interstate 5 is a problem that is extensive in Colusa County and occurs along portions of Interstate 5 in southern Glenn County (p. 34).
- The need for highway intersection traffic signals, turning pockets, and other safety improvements to the roadway network in Glenn County should be determined and focused on locations with greater than average accident histories (p. 34).
- The need for improved safety at railroad grade crossings within Glenn County is an issue that should be dealt with as funds become available (p. 34).

Despite the justifiable concern about flooding and safety, projects in these categories are estimated to account for only ten percent of County road needs in the next twenty years, as follows: Flood Protection: \$8 million on Highway 162; Minor Street Improvements: \$2.5

million; and Bridge Rehab, Safety, and Rail Crossings: \$6.8 million. Except for minor street improvements, a high percentage of the funding for these projects will come from State categorical programs. The ability to meet needs in the other two categories -- pavement management and functional improvements to County roads -- should also be of concern. The functional improvements indirectly address safety issues because accident rates will increase on roads that do not meet design standards or have an acceptable level of service. Projects derived from the pavement management system protect a considerable investment in the existing road system.

3.3 Alternative Transportation Modes

Alternative modes for the transportation of persons include public transit, and for the transportation of persons and freight include rail and aviation. Issues related to rail and aviation are discussed under Section 3.4, Promotion of Economic Development. The 1986 Regional Transportation Plan did not list any issues associated with public transit, but the results of the public opinion survey conducted as part of the development of the Plan showed a strong desire for improved public transit. Respondents were asked to prioritize the importance of the following four transportation elements: public bus or taxi system, bikeways along existing roads, better maintenance on the existing road system, and improvements to the existing road system. Public transit was selected as the number one priority most often, and it ranked second when a point system was used to rank responses.

Public transit demand in low-density areas correlates strongly to the number of elderly and disabled persons. The 1990 Census shows that from 1980 to 1990 not only the number but the percentage of elderly in the county increased (12.6 to 13.4 percent), and the percentage of disabled remained approximately the same at 2.5 percent.

In 1991, the County completed a Transit Feasibility Study, which analyzed four service alternatives, as follows: Alternative 1: minor modifications to existing taxicab and social service operations; Alternative 2: expand service through better coordination; Alternative 3: add accessible vanservice between Orland and Willows; and Alternative 4: add service to Chico. Based on that report, the following issues need to be addressed:

- Improve existing demand-responsive services through better coordination and expansion of services as demand warrants. The 1986 Regional Transportation Plan includes an action plan for the coordination of social service transportation services, and the recommendations need to be carried out and updated on a regular basis.
- Participate in cooperative planning efforts to develop new intercity bus services if financially feasible. The two priorities would be service between Hamilton City and Chico and service between Orland and Willows.

Available local funds for public transit come from the State's Transportation Development Act (TDA). Counties are required to first meet all reasonable public transit needs with these funds, and remaining funds can then be used for road projects. Glenn County at the present time

expends approximately one-third of the funds on public transportation. If it is established that there are unmet transit needs and additional TDA funds are expended on public transit, additional local funds would be required to meet road needs.

3.4 Promotion of Economic Development

Economic development, as it relates to transportation, has three components: (1) increased recreational usage requiring access on State and County roads; (2) industrially-related activities, such as timber, agriculture, and manufacturing; and (3) medium-scale commercial development to serve concentrations of residential development. Refer to Section 6.0 of this Issue Paper for a complete discussion of economic development issues.

No new major recreational destinations have been identified during the next twenty years. One objective would be to increase participation of both residents and visitors in small-scale recreational activities, such as fishing, hunting, camping, and general tourism. If increased residential development is planned in the corridor between Orland and Chico, it will stimulate new commercial development.

The availability of efficient transportation services and facilities can play a role in promoting existing industrial activities and attracting new activities. Elements of the transportation system related to industrial activity include the following: road systems with adequate structural strength to support large truck movements on a regular basis; road systems with adequate levels of service throughout the day for freight and employee movements; availability of adequate rail loading and unloading sites for freight and regular service to these sites; and airport facilities to support agricultural operations (crop dusting and limited freight and passenger movements in small, private planes). Most of the transportation services that would serve development activities in the county are located outside of the county, including trucking companies and railroads.

Four issues were identified in the 1986 Regional Transportation Plan that relate to economic development, as follows:

- The need for improved motor vehicle transportation facilities in Glenn County for moving commodities oriented to farming, ranching, and forestry activities is a high priority (p. 33).
- The need for developing and extending Forest Highway 7 (State Route 162) westward to Covelo should be assessed to determine if Federal funds could be obtained to provide better access for timber hauling and recreation (p. 34).
- The need to limit adverse impacts to public airport facilities from commercial and residential encroachment, through height and proximity restrictions is a future issue that should be pursued (p. 35).

- The need for more local rail service should be explored to determine if the construction of a local railroad freight depot in Orland (rather than carload service only) would improve transportation options to Glenn County agrarian, forestry, and local businesses (p. 34).

The first issue recognizes that the road system is the primary means of moving development-related freight to, from, and within the county and that this system must be maintained and upgraded as necessary to acceptable standards. It emphasizes that truck loadings need to be considered in the design and maintenance of both low and high-volume County roads. This issue corresponds to Section 3.2 above. The Forest Highway issue also relates to an existing road facility, but the emphasis is on recreation and forestry rather than farming and ranching. The ability to address this issue will depend on the availability of Federal funds and road improvements in Mendocino County, but it appears likely that funds will be made available by the Federal Highway Administration.

For the rail mode, the ability of the County to influence the extent or quality of rail service is very limited. It can serve in an advocacy position and possibly help finance rail loading and unloading facilities for common or private uses. However, it must ensure that any expenditures will generate the intended results and not adversely affect the ability of the County to address other transportation needs, and demonstrate that the project would not have been accomplished without County involvement.

The County addresses the issue of the aviation mode primarily through regular updates to the comprehensive land use plans for the two public airports it operates. The latest updates were in 1991 for the Willows Glenn County Airport and the Orland Haigh Field Airport. These plans specify allowable land uses in the clear, approach, and overflight zones. Long-term aviation needs of economic activities in the county can be met as long as leases on airport land are aviation-related.

3.5 Design Standards and Functional Classification

Three categories of road systems are relevant to the planning and implementation of roads in Glenn County. They are the Federal classification system, a county-wide functional classification system, and County road design standards. Although these systems are related, each serves a separate purpose, and problems arise in trying to make one system totally consistent with another. In 1991, a major change in the Federal classification system occurred. The Interstate system and major Primary roads now make up the National Highway System (NHS). What used to be the Federal Aid to Secondary System (FAS) and Federal Aid to Urban Systems (FAU) now make up the Surface Transportation Program (STP) system. New system designations have not as yet been made within the State of California. With increased flexibility for all Federal and State funding programs, distinctions between programs are less important than they have been in the past.

The functional classification system is used to establish construction standards and to ensure the efficient movement of traffic between origins and destinations. It is based on projected land use and traffic conditions at the end of the planning period, in this case twenty years. In

development of the system, consideration is given to traffic levels as well as network continuity and the location of major trip generators. Generally, the designations for the Federal-aid system reflect the functional classification system, but there is no requirement that the two coincide in all respects.

The official documents specifying functional classifications for roads within Glenn County include the State/County Road System Map developed jointly by the County and the State, the Circulation Element of the County General Plan, and the Regional Transportation Plan. The current functional classification system categories and the road designations vary significantly between each of these documents. The classifications in each of the documents are as follows:

State/County Road System Map (updated 1990)

- State Highway
- Arterial
- Collector (no designations)
- Minor

Circulation Element of County General Plan (1987)

- Major Divided Street or Road
- Major Street
- Collector Street or Road
- Local Street or Road

Regional Transportation Plan (1986)

- Principal Arterial
- Minor Arterial
- Major Collector
- Minor Collector
- Local Road
- U.S. Forest Service Road

The Glenn County Regional Transportation Plan, first adopted in 1975 and last updated in 1986, based the functional classification system on Federal funding categories. For example, interstates were classified as Principal Arterials, primary roads as minor arterials, and secondary roads as major collectors. The reliance on the Federal aid system for classification prevented any County roads not on the FAS system from being classified as a major collector.

In the current Glenn County Circulation Element (adopted in 1987), the classification system was based on the three major classifications in the subdivision design standards, as follows: (1) Major Divided; (2) Major Road (4 lanes), and (3) Two-Lane Collector/Local/Cul-de-Sac. Separate standards are provided for urban, estate, and rural/agricultural conditions. These classifications are confusing because they equate function with number of lanes, which is not

always the case. For example, many of the roads classified as Major certainly will not have four lanes within 20 years.

Examples of current inconsistencies between the three documents are as follows:

- Road 99W between Orland and Willows and Road 200 West of Orland. Listed as an Arterial in State/County System Map, a Major Street in Circulation Element, and a Minor Collector in RTP.
- State Route 162 between Road 306 and Road 406. Listed as a State Highway on the System Map, a Collector in the Circulation Element, and a Major Collector in the RTP.
- Black Butte Road from Newville Road to south end of Black Butte Reservoir. Listed as an Arterial in System Map, a Major Collector in RTP, and a Local Road in Circulation Element.

No issues were listed in the 1986 Regional Transportation Plan. Specific concerns identified at this time include the following:

- Need for a consistent, county-wide functional classification system. The functional classification systems used in the RTP and circulation elements should be identical and, to the extent possible, should be as consistent as possible with the System Map jointly developed by the State and County. Such consistency will become more important if increased development outside of city boundaries is planned. Decisions regarding the functional classification system should reflect the following considerations: traffic volumes, alternate routes, breakdown of local vs. regional traffic, adjacent land uses, and truck usage. At the present time, the functional classification definitions are based solely on traffic volumes.
- Difference between design and traffic requirements for rural and urban streets and roads with the same functional classification. The design requirements for arterials, collectors, and local roads can differ significantly between rural and urban areas because of traffic characteristics (travel speed, truck percent, and time-of-day distributions) and abutting land uses. It is recommended that classifications be given separate rural and urban designations, where appropriate. The urban designations would be used not only around city boundaries but in unincorporated areas that are around incorporated cities or in larger unincorporated communities such as Hamilton City. As an example, narrowing the width requirements for rural local and minor collector roads to less than 40 feet of road surface would reduce the functional needs and make it easier to focus available resources on high priority projects.
- Status of the unbuilt section (5.90 miles) of FAS V455 between Road 305 on the west and Road 200A on the east. No projects on this road have been identified in the 1990 Road Needs Assessment Study or in the 1986 RTP. The County has decided that needs on FAS mileage already in place are greater than the construction of this segment. The County should consider eliminating this road section from the FAS system and reducing its

functional classification from major collector. It is likely that the next Federal Surface Transportation Act will significantly alter the existing Federal classification system.

3.6 Corridor Studies to Identify Long-Range Transportation Needs

Highway 32 between I-5 and the county boundary at the Sacramento River is the only major road section with level of service below "C" at the present time. Significant growth in Chico and Hamilton City is expected to create additional congestion unless capacity is increased. The Caltrans Route Concept Plan, which is based on traffic forecasts to the year 2010, calls for widening of the road section between Hamilton City and the county boundary to provide continuous left-turn channelization. The ultimate transportation corridor planned by Caltrans is five lanes for the first one mile of State Route 32 east of I-5, two lanes for the next 8.6 miles, and five lanes again for the next 1.3 miles to the county boundary.

The Needs Assessment Study conducted for Glenn County in 1990 recommends a more aggressive improvement program for Highway 32 than is contained in the Caltrans Route Concept document. Widening to four lanes is recommended for the entire section within Glenn County by the year 2000, with widening of the section from State Route 45 to the Butte County line by 1995. The study suggests that an Orland bypass should be studied because State Route 32 cannot be widened within the city limits within the existing right-of-way.

Highway 32 currently passes through the center of Orland and on the northern edge of Hamilton City. Widening Highway 32 in these areas to the ultimate width of five lanes likely would eliminate some existing businesses and create a barrier effect that would impact the overall development of the community. An alternative would be a bypass route to the north of the two communities. If the bypass route proved to be desirable from both traffic and land use perspectives, Caltrans would relocate State Route 32 to the bypass route, and the County/City of Orland, as appropriate, would then be responsible for maintenance of the existing road section. County road maintenance costs, thus, would increase; and the County as well as the City of Orland would need to determine whether the advantages of a bypass route are adequately offset by the additional road maintenance costs and other factors, such as the loss of land that would be required by the bypass route.

3.7 Regional Transportation Planning Process

The on-going process of updating the multi-modal Regional Transportation Plan, including its goals, objectives and policies, is a cooperative, coordinated, and comprehensive process that involves elected officials, technical staff, and the general public throughout. The decision-making body for the process is the Glenn County Transportation Commission, which consists of three members of the County Board of Supervisors and three representatives of the two incorporated cities in the County, Orland and Willows. The Commission ensures that the plan is updated on a regular basis and is based on up-to-date data and the input of affected groups and agencies. A Technical Advisory Committee (TAC) includes representatives of staff from city and county public works departments, Caltrans, the California Highway Patrol, and the U.S. Forest Service. The committee is the focal point for establishing overall priorities and coordinating the development of projects that affect more than one jurisdiction or organization.

3.8 Cooperative Planning and Funding

The role that the County can play in planning for, funding, and operating the various services and facilities that make up the overall transportation system varies significantly. At one extreme, the County has major responsibilities for County roads that are not on the Federal-aid system. On the other hand, the County has little impact on the rail services that are provided within its boundaries. The timely implementation of needed improvements in the transportation system will require a coordinated and cooperative process that identifies needed projects, prioritizes them, and obtains adequate funding for implementation. In some cases, the County does not have a direct role in the funding or operation of services and facilities and is limited to an advocacy or brokerage role, e.g. promoting coordination among providers of social service transportation. The updating of the Regional Transportation Plan serves as the focal point for coordinating the policies and programs of existing agencies and companies funding or operating transportation facilities and services.

No specific issues were listed in the 1986 Regional Transportation Plan that were oriented primarily towards cooperative planning and funding. This issue is one that cuts across other categories of issues. Its importance depends upon who has responsibility for the funding and operation of services and facilities as well as such factors as location of problem areas. Specific issues listed below are items where coordination and/or cooperation by the County is critical to project implementation:

- Improved coordination of social service transportation providers.
- Timely funding for the improvement of intercounty routes, specifically Forest Highway 7 into Mendocino County and Highway 32 to Chico in Butte County.

In addition, the County could take a leadership role in advocating improvements to transportation services operated by private companies, such as Southern Pacific Transportation Company and Greyhound Bus Lines, where a consensus position can be generated.

3.9 Compatibility of Land Use Designations and Transportation Facilities

Incompatibilities between land use designations and transportation facilities can generate transportation impacts that may be expensive to mitigate and, in some cases, unable to be mitigated. Of particular concern would be the location of schools and hospitals and land uses along arterials, adjacent to railroad tracks, and in close proximity to interchanges and major at-grade intersections.

3.9.1 Land Uses Adjacent to Interchanges

Lands adjacent to interchanges which are not in Williamson Act contracts should be available for commercial development as long as the potential for congestion can be adequately mitigated for long-range traffic forecasts in a cost-effective manner. At the major interchanges serving Willows and Orland, the first priority should be on serving traffic unrelated to nearby development. Otherwise, congestion caused by nearby developments could result in areawide

impacts. Development at more rural interchanges likely will emphasize travel-related services, such as gas stations, restaurants, and overnight lodging. The same criteria should be applied at such locations, but the lower background volumes likely will make such developments feasible from a traffic perspective.

3.9.2 Appropriate Land Uses for the Functional Classification of a Roadway

Arterials emphasize the movement of through traffic, local streets emphasize access to adjacent property, and collectors provide a balance between access and mobility. It is important that land use designations reinforce the intended long-range function of a street. Single family dwellings should abut local streets and not arterials, and small commercial businesses serving neighborhood needs are more appropriately located on collectors than on arterials. Policies should be placed in the General Plan reinforcing this concept including limited or restricted access to arterial streets.

3.10 Transportation/Circulation Opportunities, Constraints and Conclusions

- The County will have difficulty over the next twenty years acquiring the necessary funding for transportation facilities and services to meet countywide needs, as currently described. The solution likely will be to address both the supply and demand side of the funding equation. On the demand side, design standards need to be carefully reviewed, as well as thresholds dividing essential from desirable improvements. On the supply side, the introduction of development fees likely will be the easiest to implement because they will require new developments to pay their fair share of roadway improvements and will not affect existing businesses or residents. Uncertainty exists as to the extent local residents are willing to support sales tax or assessment measures to support the maintenance and improvement of County transportation facilities.
- The management of the existing road system to achieve safe and efficient travel and to protect the existing infrastructure should be a top priority in the development of short and long-range capital programs. The County should have adequate resources to address concerns related to safety and flood protection issues. However, unless major new funding sources are developed, the County will have difficulty meeting all functional and pavement management needs on County roads.
- The likelihood exists that public transit needs will increase over the next twenty years throughout the county as population increases. The focus will be on the elderly, whose percent of the population can be expected to slowly increase. Also, the growth of traffic in the Highway 32 corridor between Orland and Chico likely will generate sufficient demand to support fixed-route bus service.
- The recommendation of the Needs Assessment Study regarding the Orland bypass for SR 32 should be expanded to include a Hamilton City bypass. No widening beyond three lanes (40 foot paved section), which is the current Route Concept Plan, should occur before a decision is made concerning whether a bypass route is needed.

- The County does not have direct responsibility for addressing some of the transportation issues which involve economic development, such as the desire for less-than-carload freight service. It should be careful about subsidizing projects that might not otherwise be financially feasible. Maintaining the existing system to acceptable design and level of service standards will have a positive impact not only on travel by the general public but in providing favorable conditions for economic development.
- The development of a revised functional classification system will be important in establishing a realistic road improvement program for the next twenty years and in developing realistic funding requirements for developers on a countywide basis. It is recommended that a consistent system be developed that can be adopted by the State, incorporated cities, and the County. The new system should reflect the different traffic characteristics and land use patterns that exist in urban and rural areas.
- For many elements of the transportation system, the County does not have the major responsibility for funding or operations. Problems related to these elements can only be addressed through development of formal or informal coordination and cooperation with appropriate agencies and affected interest groups. Combining resources to maintain and improve existing services will become more important because the gap between needs and financial resources is likely to increase.
- A compatible functional classification road system and land use designations can minimize traffic impacts, reduce the need for costly improvements to the road system, and promote orderly development of the General Plan.

4.0 HOUSING.

Background

The housing element is one of the seven mandatory general plan elements. Section 65580 et. seq. of the California Government Code contains directives for preparation of local housing elements. It is intended to direct residential development and renewal efforts in ways that are consistent with the overall economic and social values of the County and that work towards achievement of the State goal of accommodating the housing needs of Californians at all economic levels. The residential character of the county is, to a large extent, dependent upon the variety of its housing units, their location and maintenance.

The housing element is the County's official response to findings by the State Legislature that availability of decent housing and a suitable living environment for every Californian is a high priority. By identifying local housing needs, adopting appropriate goals and policies, and providing local legislation and programs to meet these needs, local government may be more effective in dealing with the housing needs of its residents.

In 1983 Glenn County adopted the Tri-County Housing Element which was prepared by the Tri-County Planning Council. The Tri-County Housing Element was a regional approach to meeting State and local housing objectives through a cooperative effort between Glenn, Colusa and Tehama counties and the cities within those counties. This served as Glenn County's Housing Element until 1984, when a revision was undertaken to reflect specific changes for Glenn County and the unincorporated area of Glenn County. The other counties and cities are responsible for maintaining their own respective housing elements. The existing Housing Element was adopted in 1989. Unlike other general plan elements, the time frame for adoption and updates of housing elements is specified in State law. Glenn County is required to adopt a housing element update by July, 1992 which has a planning period of five years (1992-1997).

Specific Concerns

4.1 Provision for Existing and Projected Housing Needs for all Economic Segments of the Community

Like most other areas of the State, Glenn County's goal of providing a decent home and suitable living environment for every family has not yet been achieved. The following analysis of current housing conditions documents Glenn County's housing needs relative to various segments of the population.

Housing need is a complex issue, consisting of at least three major components: housing affordability, housing quality, and housing quantity. In addition, certain segments of the population have traditionally experienced unusual difficulty in obtaining adequate housing. Those unusual difficulties experienced by the elderly, the handicapped, female heads of household, large families, the homeless and farm workers are discussed as special housing needs in this section.

Section 4.4 of the Environmental Setting Technical Paper contains a community profile with 1980 and 1990 data on the existing housing stock, housing types, total households, average household size, housing tenure, housing condition, overcrowding, elderly and disabled population, large families and female heads of household.

Table 4.1-1

**Table 4-1
Household Income by Monthly Owner Costs as a Percentage of Household Income
Glenn County Unincorporated Area**

Household Income	Percentage of Income					Total
	0-19%	20-24%	25-29%	30-34%	35%+	
Less than \$10,000	56	19	7	6	94	1901
\$10,000 - \$19,999	110	5	32	20	72	239
\$20,000 - \$34,999	150	72	29	5	47	303
\$35,000 - \$49,999	182	54	40	8	0	284
\$50,000 or more	277	45	0	0	0	322

1 Does not include 8 households not computed
 Source: 1990 Census of Population and Housing Summary Tape File 3 (Corrected)

Table 4.1-2

Table 4-2
Household Income by Gross Rent as a Percentage of Household Income
Glenn County Unincorporated Area

Household Income	Percentage of Income					Total1
	0-19%	20-24%	25-29%	30-34%	35%+	
Less than \$10,000	0	6	7	22	127	162
\$10,000 - \$19,999	22	42	26	70	140	300
\$20,000 - \$34,999	183	104	21	7	10	325
\$35,000 - \$49,999	100	13	0	0	0	113
\$50,000 or more	23	0	0	0	0	23

1 Totals do not include 271 households not computed.
 Source: 1990 Census of Population and Housing Summary Tape File 3 (Corrected)

4.1.1 Targeting of Most Serious Needs
Housing Affordability

State housing policy recognizes that cooperative participation of the private and public sectors is necessary to expand housing opportunities to all economic segments of the community. A primary State goal is the provision of a decent home and a satisfying environment that is affordable. The private sector generally responds to the majority of the community's housing needs through the production of market-rate housing. There are many components involved in housing costs. Some of these factors can be controlled at the local level, others cannot. The County can establish a goal to adopt local policies and procedures which do not unnecessarily add to housing costs.

Some of the effects or problems which result from increased housing costs include the following:

- **Declining Rate of Homeownership:** As housing prices and financing rates increase, fewer people can afford to purchase homes. Households with median and moderate incomes who traditionally purchased homes compete with less advantaged households for rental housing. This can be expected to result in lower vacancy rates for apartment units and higher rents. By the same token, stable housing prices and lower financing rates result in greater numbers of people who qualify to purchase homes.
- **Overpayment:** When housing prices rise, lower income households must be satisfied with less house for the available money. This can result in overcrowding which places a strain on physical facilities, does not provide a satisfying environment, and eventually causes conditions which contribute to both deterioration of the housing stock and neighborhoods. Buying a new home has become a major obstacle for many families, particularly first-time home buyers.

The 1990 Census provides information regarding the numbers of Glenn County residents overpaying (paying more than 25 percent of their income for housing). Tables 4-1 and 4-2 below present the number of households by tenure (owner and renter) who are overpaying. Lower-income households are defined as those at or below 80 percent of median income. The median household income for the Glenn County unincorporated area in 1990 was \$24,683; 80 percent of median income would be \$19,746. Therefore, the first two categories in the tables (less than \$10,000 and \$10,000 - \$19,999) represent the lower-income households and the three categories showing lower-income households paying 25 percent or more of their income for housing represent those overpaying. A total of 231 lower-income owner households in the Glenn County unincorporated area, or 17.3 percent of all owner households, are therefore determined to be overpaying. If 30 percent of income is used as the measure of overpayment, the figures are 192 and 14.3 percent, respectively (Table 4-1).

For renter households, 392 lower-income households (42.5 percent) are paying over 25 percent of household income for housing, while 359 households (38.9 percent) are paying over 30 percent for housing (Table 4-2). Not surprisingly, the number and percentage of renter households overpaying is significantly greater than the number and percentage of owner households overpaying.

The 1991 study prepared by the Community Housing Improvement Program (CHIP), *The Need for Migrant Housing in Northern Glenn and Southern Tehama Counties*, reported that 92 percent of migrant farmworkers are paying 37 percent or more of their income on housing needs as compared to the overall county average.

- **Overcrowding:** Table 4-34 of the Environmental Setting Technical Paper shows that 10.7 percent of the total housing units within the Glenn County unincorporated area were overcrowded in 1990. The U.S. Census bureau defines overcrowded housing units as those in excess of 1.00 persons per room average. Of the total households, 8.5 percent of owner and 15.3 percent of renter units were overcrowded in 1990.

Overcrowding is often reflective of one of three conditions: a family or household living in too small a dwelling; a family housing extended family members (i.e. grandparents or grown children and their families living with parents); or a family renting inadequate living space to non-family members (i.e. families renting to migrant farm workers). Whatever the cause of overcrowding, there appears to be a direct link to housing affordability. Either homeowners/renters with large families are unable to afford larger dwellings, older children wishing to leave home cannot do so because they cannot qualify for a home loan or are unable to make rental payments, grandparents on fixed incomes are unable to afford suitable housing or have physical handicaps that require them to live with their children, families with low incomes may permit overcrowding to occur in order to derive additional income, or there is an insufficient supply of housing units in the community to accommodate the demand.

The existing housing stock in Glenn County consists predominantly of low- and moderate-income housing. According to the 1989 Glenn County Housing Element:

The largest housing developments in the County in the 1980's have been entirely for low-income families. These developments include the Holly Subdivision in Hamilton City (29 units of self-help housing), 14 units of self-help housing constructed on scattered lots in Hamilton City, Ledgerwood Estates Subdivision in Orland (67 lots for self-help housing) and the Pine Ridge Apartments in Willows (180 apartments).

Special Needs

State law requires that the special needs of certain disadvantaged groups be addressed. The needs of the elderly, handicapped, large families, and female heads of household are described below; the needs of farm workers and migrant workers are described in Section 4.3 below.

- **Elderly Persons:** The special housing needs of the elderly are an important concern since they are likely to be on fixed incomes or have low incomes. Besides this major concern, the elderly maintain special needs related to housing construction and location. The elderly often require ramps, handrails, lower cupboards and counters, etc., to allow greater access and mobility. They may also need special security devices for their homes to allow greater self-protection. The elderly have special locational needs, including access to medical and shopping services and public transit. In some instances the elderly prefer to stay in their own dwellings rather than relocate to a retirement community, and may need assistance to make home repairs.

Table 4-35 of the Environmental Setting Technical Paper indicates that 1,583 residents, or 12.6 percent, of the unincorporated area population was age 65 or over in 1980, as compared with 1,849 residents, or 13.4 percent, in 1990, consistent with a national and statewide trend toward a growing elderly population.

- **Disabled Persons:** There are many types of disabilities and definitions are not simple. Local governments utilize the definition of "handicapped" person as contained in Section 22511.5 of the California Administrative Code for vehicle and building code enforcement.

Disabled persons often require specially designed dwellings to permit free access not only within the dwelling, but to and from the site. Special modifications to permit free access are very important. Title 24 of the California Administrative Code mandates that public buildings, including motels and hotels, require that structural standards permit wheelchair access. Rampways, larger door widths, restroom modifications, etc., enable free access to the handicapped. Such standards are not mandatory for new single family or multi-family residential construction.

Like the elderly, the disabled also have special locational needs. Many desire to be located near public facilities and transportation facilities that provide services to the disabled. It should be noted that many government programs that group seniors and disabled persons (such as HUD Section 202 housing) are inadequate and often do not serve the needs of the disabled.

Table 4-36 of the Environmental Setting Technical Paper indicates the number of persons in 1980 and 1990 who had disabilities that either restricted them from working or from using public transportation. It should be noted that the listing of those persons with transportation disabilities includes a large number of persons 65 years of age and older. The table indicates that 5.1 percent of Glenn County unincorporated areahouseholds contained members unable to work because of a disability, and 2.5 percent had transportation disabilities. These statistics give only a general idea of the problem and are not conclusive.

- **Large Family Households:** Large families are indicative not only of those households that require larger dwellings to meet their housing needs, but also are reflective of a large number that live below the poverty level. Table 4-37 of the Environmental Setting Technical Paper indicates the number and percentages of those households that had five or more members and those that had six or more members in 1980 and 1990. In the Glenn County unincorporated area, 16.0 percent of owner households had 5 or more persons, as compared to 17.8 percent of renter households.
- **Female Heads of Household:** Families with female heads of household experience a high incidence of poverty. The Glenn County unincorporated area had 267 female headed households with one or more child in 1990, compared to 241 in 1980. Table 4-38 of the Environmental Setting Technical Paper lists the numbers and percentages for 1980 and 1990. A high poverty level often results in poorly maintained dwellings since income is more likely to be spent on more immediate needs such as food, clothing, transportation, and medical care.
- **Homeless:** Housing programs for the homeless are generally targeted for two client groups as follows:
 - Local residents in need of emergency and/or long-term shelter and
 - Transients

Transients requiring housing generally only require short-term or emergency shelter.

An inventory of homeless persons in the unincorporated portions of Glenn County was conducted by the Glenn County Sheriff's Department during the first two weeks of September 1991. The Sheriff's Department conducted this survey between the hours of 2 a.m. and 6 a.m. every day. The survey identified two male persons camping within automobiles. These individuals, however, appeared to be transient since they did not remain at the identified site for more than one night.

A probable reason for the low homeless count is that the unincorporated area of Glenn County is rural with few services and facilities. It appears that homeless persons entering Glenn County stay within the incorporated cities of Willows and Orland.

The housing needs of the homeless have become an ever increasing problem. The County of Glenn administers programs to meet the needs of the homeless. The Social Services,

Community Services and Mental Health Departments administer these programs. All of these programs have certain criteria that the applicant must meet to qualify for assistance.

Glenn County Community Services Department: The Glenn County Community Services Department, the County's community action agency, receives funding from the Emergency Shelter Program (ESP) and from the Federal Emergency Management Agency (FEMA). These two programs are the Emergency Motel Vouchers Program (funding from both ESP and FEMA) and the First Month's Rent Payment Program (FEMA funds).

The Emergency Motel Vouchers Program provides housing for qualifying homeless clients in local motels for a defined period of time to allow them sufficient time to find permanent housing. The First Month's Rent Payment Program will pay up to \$300.00 for one month rent for a homeless family to move into permanent housing.

The applicant must meet certain income criteria to qualify for Emergency Shelter. Once the income criteria has been met, a voucher for a motel is issued. If funds are available, families are housed in a room with a kitchenette. These funds are generally available for two to three weeks. The assistance is dependent on the efforts of the people to help themselves. For example, assistance can be extended until a paycheck is received from a new job to meet the housing payment.

The only motels used for this program are located within the city limits of the two incorporated cities of Orland and Willows. The homeless are not sheltered in the unincorporated area of the county. There are no public facilities available for housing the homeless such as the National Guard Armory.

From August 1990 to August 1991, the Emergency Motel Voucher programs housed 214 people county-wide for 1,605 nights. From January 1, 1991 to August 1, 1991, the First Month's Rent Payment program assisted 41 people county-wide for a total of 1,103 sheltered nights. These programs help people from both the cities of Willows and Orland as well as people from the unincorporated area of Glenn County.

The Community Services Department reports that there is an increasing demand for these funds. They are often pressured to allocate these funds before the funds are received. The gap in service is being filled by a Memorandum of Understanding with Catalyst-Women's Advocates, Inc. and Community Action Agency of Butte County.

The Catalyst-Women's Advocates Program in Chico is directed to help battered wives and their children. This program provides shelter as well as services to battered wives and their children. The Community Action Agency of Butte County will accept referrals from Glenn County for their transitional shelter located at 2505 The Esplanade in Chico. This transitional facility will allow families to be sheltered up to six months while waiting for permanent shelter.

Glenn County Social Services Department: The Glenn County Social Services Department administers a State funded homeless program. The applicant is eligible for a maximum sixteen

days housing every 24 month period. Usually, these people will have eviction notices. The Social Services Department has a computer tie-in with other State agencies to prevent people from garnering excess benefits by moving from one area to another. For the month of July 1991, Glenn County had three transfer cases.

The total number of cases for July 1991 was 32. All of these cases were also receiving Aid to Families with Dependent Children (AFDC). The 32 cases benefitted 30 adults and 48 minors. For the previous fiscal year, July 1990 through June 1991, this program made provisions for 2,313 nights for approximately fifty people per month.

Effective on August 1, 1991, the State changed the benefits for this program. Previously, qualifying applicants were eligible for a maximum of four weeks housing every twelve month period. Now the applicant is entitled to sixteen days housing every 24 months; this assistance granted for three days, then for seven days, then for six days. The applicant is usually housed in a motel. Assistance is provided by a check made out to the motel.

Glenn County Mental Health Department: The Glenn County Mental Health Department's program is very limited since qualification for funding under this program is based upon the applicant's having a diagnosed mental illness. Cases of stress, for example, do not qualify. These people are generally housed in board and care homes. There are two board and care homes in the City of Willows and one for senior citizens in the City of Orland. Most of these people are housed out of the county. Motels may be used occasionally. Food can be provided by a restaurant or grocery store. Clothing may be obtained from the Discovery Shop which is a used clothing store located in Willows.

For Fiscal Year 1989-90, 30 clients were served: 28 single people, 2 married people, 28 males, 2 females. Two were under the age of 21 years and 28 were between 21 and 64 years of age. Approximately \$7,900.00 was spent for the year.

This program will assist people until they are covered by Social Security or welfare. The process for Social Security takes time, but the applicant is paid retroactively; in these cases, the agency gets paid back from these retroactive funds. This program is funded by Federal McKinney funds consisting of a \$2528.00 allocation; the remainder is from Short-Doyle State Mental Health funds.

General Plan and Zoning Analysis for the Provision of Housing for the Homeless

The County's General Plan allows for the location of special housing for persons and families in need of emergency shelter. The "Residential" designation states the following:

- The goal of Glenn County is to promote a diversity of Residential Densities which are consistent with the social economic, transportation and environmental goal of the County.

The County's Land Use Element designates 2076 acres of land allowing densities of one unit per acre or more.

The "RM" (Multiple family) Zoning District of the Glenn County Zoning Code allows single family and multiple family dwellings. Boarding and rooming houses require a conditional use permit. A shelter for the homeless would require a conditional use permit in that zone. Requirements for a homeless shelter are not more restrictive than any other use requiring a conditional use permit. The process normally takes approximately two to three months with a conditional use permit processing fee of \$685.00.

The "RM" (Multiple family) Zoning District provides for the development of apartments as a permitted use. Apartment units used as temporary shelter is permitted in Glenn County's "RM" Zoning District.

Temporary housing utilizing a hotel or a motel for the homeless is also permitted in the "C" (Commercial) Zone, the "C-M" (Commercial/Industrial Reserve) Zone, and the "HVC" (Highway and Visitor Commercial District) without a conditional use permit. The "CC" (Community Commercial Zoning District) permits a hotel or a motel with a conditional use permit.

Information presented in Sections 4.1 and 4.4 of the Environmental Setting Technical Paper documented recent growth which has occurred in the population and housing stock of the Glenn County unincorporated area. Between 1980 and 1990, the population has increased by 7.7 percent, while the total number of housing units has grown by 10.7 percent. Long-range projections indicated that the total population of Glenn County will expand from 25,000 in 1990 to 27,780 in 1997. The total number of households in the unincorporated area generated by this growth is predicted to expand from 4,770 in 1990 to approximately 5,300 in 1997.

The Tri-County Planning Council is required to determine housing market areas for the Tri-County Planning Area (consisting of Colusa County, Tehama County and Glenn County) and define the regional housing need for persons at all income levels within each city and the unincorporated area within the counties. The distribution of regional housing needs takes into consideration market demand for housing, employment opportunities, availability of suitable sites and public facilities, commuting patterns, type and tenure of housing need, the loss of units contained in assisted housing developments, and the housing needs of farm workers. The law stipulates that the distribution shall seek to avoid further impaction of localities with relatively high proportions of lower income households. This distribution will be used to determine the number of new housing units, or basic construction need, for Glenn County.

This Regional Housing Needs Plan projects household need for Glenn County between 1992 and 1997, based upon current conditions. It also gives a basic construction need unit figure between 1992 and 1997, by income level (very low income, other lower income, moderate income, and above moderate income), as well as the annualized new construction need. It is convenient to analyze the need for housing assistance in this manner because the increase in need can be annualized, providing a numerical goal for yearly housing assistance programs, the attainment of which will result in no increase in need. Programs can be structured to address the annual increase in need, and to minimize the existing need. This format will enable the performance of

housing programs to be readily monitored and progress toward meeting both components of need quantified in future revisions of the housing element.

4.1.2 Low Income Housing at Risk of Conversion

State law requires that housing elements address subsidized housing units at risk of conversion to market rate units. Three developments in Glenn County have been identified which are at risk of conversion; however, one is in the City of Orland and two are in the City of Willows, and will be addressed in the cities' respective housing elements.

There are several low-income housing programs in Glenn County. These programs consist of rehabilitation loans in targeted areas with a condition that the dwelling shall remain for low-income housing for the period of time required by the revenue source; i.e. Community Development Block Grant (CDBG) is for five years. There has been no new construction of low-income housing in the unincorporated portion of Glenn County using federal funds with the exception of single family detached self-help housing in Hamilton City using CDBG funds. These dwellings are to remain low-income units as long as CDBG funds are involved.

None of these housing areas is in danger of being converted to a nonresidential use at this time. Also because of the regulations of the programs, most are not in danger of being converted to other than low-income housing at this time.

The following is an inventory of assisted housing programs in the unincorporated portion of Glenn County:

1. U.S. Department of Housing and Urban Development (HUD) programs:
 - a) Section 8, Lower-income Rental Assistance project based programs. Please see Community Development Block Grant below. There are no Section 8 units in the unincorporated area of Glenn County.
 - b) Section 101, Rent Supplements. The County has not participated in Section 101.
 - c) Section 213, Cooperative Housing Insurance. The County has not participated in Section 213.
 - d) Section 221 (d) Below-market interest rate mortgage insurance program. The County has not participated in Section 221.
 - e) Section 236 Interest Reduction Payment Program. The County has not participated in Section 236.
 - f) Section 202, Direct Loans for Elderly or Handicapped. The County has not participated in Section 202.

g) Community Development Block Grant Programs.

With the exception of the Community Development Block Grant Program (CDBG), Glenn County has not participated in federal housing assistance programs for low-income rental assistance. In 1986, CDBG monies were used in Hamilton City to construct 34 low-income single family units (self-help housing). These units were built by low-income residents meeting CDBG criteria. These units are to remain low-income during the 15 year loan pay back period.

Community Development Block Grant funds have recently been used to upgrade single family homes in the North East Willows area, and applicants must have low income. This project was to allow owners to rehabilitate their homes to Section 8 Housing Quality Standards.

Low income is defined as an annual income of \$13,600.00 for a single person and goes up to \$24,300.00 for a household of 8 persons.

The owner who rehabilitates rental property must consent to rent to the lower income population for a period of five years since this is a CBDG regulation. There were nineteen owners who participated in this program. Of the nineteen, three owners rehabilitated their rental properties.

CDBG reuse funds have been made available to continue CDBG eligible activities such as low income single family detached home repairs/rehabilitation. The Community Housing Improvement Program (CHIP) project funded single family detached self-help homes in the Hamilton City area for low-income persons (through loans and grants) in the unincorporated North East Willows area. Owners who rent properties must agree to rent to a low-income person for a period of at least five years.

1. FmHA Section 515 Rural Rental Housing Loans. The County has not participated in FmHA Section 515 loans.
2. State and local multi-family revenue bond programs. There have been no bonds issued in the unincorporated area of Glenn County for low income housing.
3. Redevelopment programs. The County has not participated in a Redevelopment program.
4. Local in-lieu fee programs. The County has no local in-lieu fee program.
5. Developments which obtained a density bonus: Glenn County has provisions for increasing the density of housing for low-income through its "planned development process".

The only State program in which the County participates is a California Energy Commission Grant. The Glenn County Community Services Department has recently been awarded the California Energy Conservation Rehabilitation Program for Glenn, Colusa and Trinity Counties. This program would allow thirty single family units for all three counties to be rehabilitated, of

which fifteen dwellings must be rental units. Under this program, the owners must also rent to the low income person or family for a five-year period.

4.1.3 Ability of the County to Assist in Housing Element Program Requirements

According to a publication of the State Department of Housing and Community Development (HCD) entitled Housing Element Questions and Answers, local governments are not expected to solve their housing problems alone. However, having identified the housing needs of low- and moderate-income households, the State expects local agencies to employ strategies which can assist in meeting those needs:

Localities can offer direct support for the development of affordable housing through bonding and redevelopment powers. Assistance can also be provided through the utilization of appropriate federal and State financing and subsidy programs, such as HUD Section 8, Section 202, State Rental Housing Construction Program and Community Development Block Grants. Localities can also establish an equity sharing program to provide affordable homeownership or rental housing opportunities for low- or moderate-income households, or establish a local housing authority or nonprofit development corporation to develop or operate low- and moderate-income housing. Local governments can also indirectly facilitate the development of more affordable housing.

Examples given of programs that have been successfully implemented by California cities and counties in order to comply with State law and address their housing needs include density bonus programs; provision of one or more regulatory concessions or incentives to developers of projects with 20 percent of units reserved for lower income households; designation of housing opportunity sites (also known as inclusionary zoning); requiring developers of commercial and industrial projects to contribute to the development of affordable housing for employees; use of land write-downs or sale of surplus lands for affordable housing; development agreements for developers to provide public facilities in exchange for certain development rights such as land use changes and density increases; and fast-track processing for low- and moderate-income housing projects.

While these examples may not represent direct costs to the local government, the cost in terms of staff time and resources is not acknowledged. Especially in a relatively small county such as Glenn, the administration of relatively complex State and federal housing programs would require a fairly significant staffing commitment from a department or departments which already operates with limited staff. Another concern is the cost of programs which require developer participation. In an area with comparatively low property values, the type and scale of proposed developments most often will not support the types of exactions that are more common in metropolitan areas.

This is not to say that the County is incapable of facilitating or assisting in the provision of affordable housing, simply that proposed programs must be realistic in light of County resources. The HCD publication states that "Many localities have found that working with local nonprofit

housing groups makes assisting in the development of affordable housing much easier and more effective."

Glenn County has worked cooperatively over the years with the Community Housing Improvement Program (CHIP), a nonprofit housing corporation, to accomplish a number of housing objectives. CHIP has worked with families to construct virtually all of the self-help housing in Glenn County, most of which is located in Hamilton City. CHIP has also constructed multiple family dwellings and assisted in the administration of Community Development Block Grants (CDBG) for housing rehabilitation.

Although there is no local housing authority, the Glenn County Community Services Department operates a weatherization program for low-income households and administers the HUD Section 8 rent subsidy program and a Rent Eviction Prevention Program. A continuation and enhancement of these existing relationships and programs appear to offer the greatest opportunity for housing assistance at the local level.

4.2 Housing Rehabilitation and Preservation

In 1991, QUAD Consultants completed a windshield housing condition survey of the unincorporated communities of Artois, Bayliss, Blue Gum area, Butte City, Capay area, Codora Four Corners, Elk Creek, Glenn, Hamilton City, North East Willows, North Willows, Ord Bend and West Orland. For the communities of Artois, Butte City, Elk Creek, Hamilton City, and North East Willows, this survey updated information from a 1987 survey completed by the Colusa-Glenn-Trinity Community Action Agency. The results of the 1991 survey are presented in Table 4-33 of the Environmental Setting Technical Paper. The rating system used in the 1991 survey was based on the system prescribed by the State Department of Housing and Community Development. Since there is no survey data prior to 1987, it is not possible to compare housing conditions over time.

The results of the survey show that the communities of Bayliss, Blue Gum area, Capay area, Codora Four Corners, North Willows and West Orland have the highest percentages of sound housing (all over 70 percent), and the communities of Artois, North East Willows, Elk Creek and Butte City have the highest percentages of dilapidated housing (all over 7 percent). Although the data is not available for Glenn County there is normally a high correlation between age of the housing stock and housing condition. Because available State and federal programs do not provide adequate funding to address all housing rehabilitation needs, it is essential that the County target its efforts to obtain funding to communities with the greatest needs.

While age certainly is contributory to housing quality problems, another factor which partially explains housing condition is overcrowding. This factor, which often correlates with substandard conditions, is a problem in many of the sparsely populated agricultural areas of the county. Lack of appropriate size housing units, low incomes, large families, and other conditions encourage severe overcrowding, especially during the harvest season when migrant farmworkers expand the local labor force and compete for housing accommodations.

4.3 Farmworker and Migrant Worker Housing Needs

The State of California Employment Development Department (EDD) reported that in 1988, 1,375 persons were directly employed in agriculture in Glenn County; in 1993, the figure is forecast to remain the same. The figures include farmers and unpaid family members and do not include a breakdown of the permanent and seasonal workforce. The State of California defines seasonal employees as those who are employed fewer than 150 consecutive days by the same employer. Seasonal workers may be migratory or they may be persons or family members who are temporarily employed but permanently located in Glenn County. The State defines a local worker as a seasonal laborer who resides close enough to the job site to return home each night.

Farmworker and migrant worker housing needs are one of the more important housing issues in Glenn County because of the county's agriculture-based economy. According to the County's existing Housing Element, there is no housing allocated specifically for seasonal farm workers, leading to temporary conditions of overcrowding in conventional housing on the valley floor which is rented to seasonal workers. Housing shortages may exist during peak seasonal labor periods when a large influx of migrant workers occurs, such as during the olive harvest. During these periods, every form of temporary, substandard and standard shelter may be occupied.

The Department of Housing and Community Development contracted with the Community Housing Improvement Program (CHIP) in 1991 to conduct an assessment of migrant housing needs in northern Glenn and southern Tehama counties. Two surveys were conducted to collect data for the study: in-field interviews with migrant laborers and a grower survey, both conducted during the 1991 fall harvest season. Results of the surveys are reported for both counties, and are not provided for Glenn County alone (Community Housing Improvement Program, The Need for Migrant Housing in Northern Glenn and Southern Tehama Counties, 1991).

The purpose of the migrant worker survey was to:

- determine the adequacy, availability and cost of housing in which farmworkers reside in Glenn and Tehama counties
- determine the agricultural employment patterns of farmworkers (migrant, local, seasonal and permanent)
- gather demographic information on the farm labor population (age, sex, marital status, income, etc.)
- provide data for purposes of securing public funding for migrant worker housing

The goals of the grower survey were to:

- determine the characteristics of the employed migrant worker (including duration of employment, place of residence, and salary levels)

- determine the number of crops and acreage
- determine anticipated changes in the counties' work force and crop production over the next five years
- determine the types and amounts of grower-provided housing and growers' experiences in its provision
- determine grower interest in the construction of additional migrant worker housing

The grower survey concluded that, of workers employed at the time the survey was taken (Fall 1991 harvest season), 12 percent were permanent (long-term), 40 percent were seasonal workers, and 48 percent were migrant workers (migrant workers are defined as those that travel more than 50 miles one way from their home base and establish one or more temporary residences). The study notes that these percentages differ from Employment Development Department (EDD) statewide employment data. Compared to EDD data, Glenn and Tehama counties have twice as many migrants employed by local growers as statewide estimates. Projections based on all 1600 Glenn and Tehama County growers employing farmworkers show that a total of 3,128 permanent, 10,712 seasonal, and 12,712 migrant workers are employed.

The statistics for provision of housing by growers in Glenn and Tehama counties indicate that one third of the growers provide housing. Of that third, only 3 percent provide housing for seasonal workers and 2 percent provide housing for migrant workers. Glenn County has no registered labor camps. The study estimates that, based on an estimated range of 1,589 to 12,712 migrants employed in both counties during peak harvest season, between 1,340 and 12,463 beds are needed for migrant housing.

4.4 Governmental Constraints

Governmental constraints on housing are potential and actual policies, standards, requirements, or actions imposed by the various levels of government or development which constrain the maintenance, improvement and development of housing. Although federal and State programs and agencies play a role in the imposition of governmental constraints and increases in housing costs, they are generally beyond the influence of local government and cannot be effectively addressed in this document.

An analysis of potential local governmental constraints in Glenn County is presented below. HCD has indicated that, for each policy or procedure identified as a constraint, the housing element should include a program to eliminate or modify the constraint or demonstrate how it will be offset by another policy or program. When a city or county determines that it is inappropriate or not legally possible to remove a potential constraint (e.g. for public health and safety reasons), the analysis used to reach that conclusion should be presented.

4.4.1 Land Use Controls

Land use controls are basically minimum standards included within the County's zoning and land division ordinances. Zoning regulations control such features as height and bulk of buildings, lot area, yard setbacks, population density, building use, etc. If zoning standards are too rigid and do not allow sufficient flexibility, housing development costs could increase, and interest in development may decrease. The Land Division Ordinance governs the process of converting raw land into building sites. It allows the County to control the internal design of each new subdivision so that its pattern of streets, lots, public utilities, and any amenities will be safe, pleasant and economical to maintain. As with zoning, overly restrictive standards may result in higher land development costs and/or lack of interest in development.

Glenn County offers many housing incentives in its Zoning Code and Land Division Ordinance, including the following:

- The Zoning Code allows Planned Unit Developments. The maximum density of a planned unit development may exceed the permitted density allowed for the underlying zones in the AE and RE zones up to twice the permitted density; and may exceed up to 1.25 times the permitted underlying density in the R-1 and R-M zones.
- The Zoning Code allows a second residential dwelling unit on all residential and agricultural parcels upon the issuance of an administrative permit. The second unit may be an attached unit, a detached unit or a mobile home. It may be rented or occupied by a family member or employee. This ordinance provision has allowed many second units which were previously illegal in the R-1 zone to be brought up to code.
- The Zoning Code allows mobile homes in all zones provided they meet certain standards. Planned mobilehome parks are allowed, with a conditional use permit, in the commercial and industrial zones as well as in residential zones.
- The Zoning Code allows agricultural labor camps in the AP and AE zones, upon the issuance of a conditional use permit.
- The environmental impact report (EIR) prepared for the General Plan will be used as a base document for the preparation of environmental findings for private development proposals.

As described in Sections 5.1.7 and 5.1.8, the County does not currently require dedication of open space or payment of in-lieu fees as a condition of the subdivision approval process. With regard to parking, the County does not require garages to be provided for residential. Setbacks and yard requirements are fairly typical; however, less restrictive standards are available in the Planned Development Residential zone.

While counties are not required to have a zoning ordinance or subdivision ordinance, they are required to adopt a general plan and to implement that general plan. Zoning is one of the most common tools for implementing a general plan. The County is required to comply with the State

Subdivision Map Act, certain provisions of which are required to be implemented by local ordinance. The county has determined that while not illegal, the lack of a zoning or subdivision ordinance would endanger the public health, safety and welfare, and that, as constituted, they do not pose a constraint to the development of housing for all income groups.

4.4.2 Building Codes

Building codes regulate the physical construction of dwellings and include plumbing, electrical and mechanical divisions. The County adopts and follows the Uniform Building Code as established by State law. The County operates a one-stop building permit processing procedure. Refer to Sections 4.4.4 and 4.4.5 below; the County has determined that it is not legally possible or safe to repeal building codes, and that application and enforcement of building codes do not pose a constraint to the development of housing for all income groups.

4.4.3 Site Improvements

Site improvements are regulated by the County Land Division Ordinance, and through conditions and standards imposed through the Zoning Code, including the conditional use permit process. On- and off-site improvements include required off-street parking, roads, sidewalks, landscaping, walls, and policies regarding connection to existing sewer, water and storm drainage systems. The County's improvement standards are typical of rural counties and are not unusual or excessive in nature. Many rural roads in Glenn County are unpaved. Standards are reduced for rural and agricultural developments, as compared to urban developments. Off-site improvement requirements are quite limited, involving only connection to a dedicated and improved street and improvement of abutting roads to County standards. The County does not require any improvements other than those deemed necessary to maintain the public health, safety and welfare, and it has been determined that the improvement requirements do not pose a constraint to the development of housing for all income groups. Refer to Section 5.0 of this Issue Paper for a comprehensive discussion of public facilities and services.

4.4.4 Fees

Although development processing fees do contribute to the total cost of development, and therefore housing, the fees charged by Glenn County are very modest in comparison to fees charged by other counties and cities in the region. The current fee schedule is included in Appendix A of this Paper. However, the County is not the only public agency which imposes fees on new development. Impact fees are also charged by school districts, the State (for review of environmental documents by the Department of Fish and Game), and special districts for hookup fees. In addition to hookup fees, fees are normally charged for future water system expansion and sewer treatment plant expansion based on each development's share of projected costs.

By law, fees cannot exceed the cost of providing the particular facility or service for which they are charged. As stated above, application fees for development projects are very modest in Glenn County. Building permit fees are as established by the 1986 edition of the Uniform Building Code, and charges are lower than most cities and counties. It is not economically feasible for the County to reduce fees and continue to provide necessary and mandated services.

Planning and building fees are therefore determined not to pose a constraint to the development of housing for all income groups.

4.4.5 Development Processing

The Glenn County Planning Department has published Development Processing Guidelines to assist property owners and developers with the development process. This publication describes the development review process, including the local government structure, development standards and regulations, environmental determinations, and applications for general plan amendments, zone changes, administrative permits, conditional use permits, variances, reclamation plans, Williamson Act, parcel maps, lot line adjustments, certificates of compliance, annexations, and the appeals process. For each type of application, the Guidelines provide a step-by-step description of the process.

Applications are processed in an expeditious manner within State-established time limits. Items are advertised for hearing at the Planning Commission even before they are considered by the Technical Advisory Committee, so that the hearing can be held as quickly as possible. As an example, tentative parcel maps and conditional use permits can be approved in as little as two months if the required information is supplied at the time of application. Administrative permits for second dwelling units are normally processed within two days. The Building Department usually completes plan checking within one week, a significantly shorter period than most other county building departments in California. Most residential projects do not require environmental impact reports, the most time-consuming process. Development processing is therefore determined not to pose a constraint to the development of housing for all income groups.

4.5 Nongovernmental Constraints

Non-governmental constraints are those generated by the private sector which are beyond the control of local government, as well as physical/environmental constraints. With respect to Glenn County, these include availability and cost of financing, price of land, construction costs, and consumer preference.

4.5.1 Availability and Cost of Financing

Interest rates for both construction and take-out financing probably have more impact on housing than any other factor, at least in the short term. When interest rates are high, or financing is not generally available, an increasing number of households cannot afford home ownership even if housing prices are affordable. A 1992 analysis of the components of monthly housing cost for a single family dwelling costing \$100,000, purchased with a 10 percent down payment and financed at 8.5 percent for 30 years, indicates that a \$10,000 reduction in land and development costs results in a 10 percent reduction in monthly payment, while a 4 percent increase in take-out financing interest rates results in a 38 percent increase in the monthly payment.

The November 20, 1991 edition of the Willows Journal listed 54 existing single-family homes for sale ranging in price from \$35,000 to \$260,000. The average price was \$111,340, with 8 homes below \$50,000 and 16 homes over \$100,000. Thirty homes fell between \$50,000 and

\$100,000, comprising 55 percent of the homes listed for sale. A number of these homes were located either on farmland or on a ranch. One listing advertised a 40-acre farm with a three bedroom/one bath home, two barns and storage buildings for \$260,000. Rent for homes and apartments ranged from \$250 to \$900 per month. The average rent for an apartment was \$316 per month, and \$559 per month for a house.

As this Issue Paper is written, interest rates for fixed-rate mortgages are the lowest they have been in two decades. To mitigate the impact of high interest rates, when they occur, one of the few options available to local government is to find a means of subsidizing those rates for the home buyer and/or developer. This has been accomplished in the past primarily by the sale of mortgage revenue bonds, often coordinated at the county level. This process has been complicated by changes in federal law and State caps on the amount of bonds that can be issued statewide. State and federal mortgage subsidy programs are available at various times to qualifying projects and developers. While mortgage interest rates are currently at their lowest point in twenty years, as stated above, the availability of construction and development financing is very tight, primarily in response to savings and loan institution failures and foreclosed development projects on the national level.

4.5.2 Price of Land

According to the California Building Industry Association, the cost of land represents an ever-increasing proportion of the total housing development cost. In 1980, land cost represented approximately 30 percent of the cost of a new home in California, but by the end of the decade that component accounted for nearly 35 percent of the costs. In Glenn County, land costs are still reasonable compared to other, similar areas in California.

Vacant lots for single family homes ranged from \$20,000 to \$30,000 for one acre lots to \$71,000 for 19 acres. The average cost of a multiple family lot is difficult to estimate due to the small number and unique characteristics of such lots (most are located within the two incorporated cities in Glenn County).

Measures available to local government to address land costs include the use of redevelopment funds to write down land costs, and development of housing by a nonprofit corporation such as a Housing Authority. Use of surplus government-owned land for housing is an option not often available to a small county, due to a general lack of suitable publicly-owned land. However, this option should be kept in mind when such an opportunity occurs. Finally, attempting to stabilize or reduce land prices through increasing the supply of available land can only be effective if a full range of public services and facilities are available at a reasonable cost.

4.5.3 Cost of Construction

Rising costs of labor and materials have contributed to nongovernmental constraints on housing development and improvement. These costs, plus energy costs, formed a substantial part of housing cost increases during the 1970s, increasing by 10 percent during that decade. Labor and materials costs continued to increase during the 1980s. The cost of wood is expected to continue to increase due to significant projected cutbacks in timber harvesting in the United States for

environmental reasons. Labor costs for publicly constructed housing are higher than for privately-constructed housing due to the requirement to pay prevailing wage rates, which in an area such as Glenn County are significantly higher than local wage rates.

Because land costs in Glenn County are relatively low, construction costs represent a higher percentage of the cost of new housing. Fees are addressed in Section 4.4.4 and included in Appendix A, and financing is addressed in Section 4.5.1. Labor costs are also relatively low. Materials and labor represent approximately 70 to 75 percent of the total new housing cost. A majority of the new dwellings erected in the unincorporated area are mobilehomes, at less than half the construction cost of a new conventional dwelling.

Local governments can use Community Development Block Grant (CDBG) funds and redevelopment funds to finance infrastructure improvements (e.g. water and sewer lines), which assist in lowering housing costs. Glenn County has participated in this program, as described elsewhere in this document.

4.5.4 Consumer Preference

Part of the increase in housing costs in the 1980s has been due to consumer preference and lifestyle expectations regarding dwelling unit size and amenities. All of these lifestyle choices have costs associated with them. As housing costs and/or interest rates make detached single family dwellings less affordable, alternatives such as smaller lots, smaller units, and attached housing become more acceptable, but are still not the housing of choice for the majority of households. Local government can assist in making a variety of housing types available through permitting higher densities, zero-lot-line housing and smaller lots; only, however, if infrastructure permits.

4.6 Equal Housing Opportunity

Although essential to meeting housing needs, the provision of a sufficient number of dwelling units will not in itself ensure that the entire population will be adequately housed. A large segment of the population lives on very low incomes, and as housing costs increase, they are forced to apply an excessive amount of their budget to housing costs. In order to remain in the housing unit of their choice, some residents pay such a large portion of their income on housing that they are unable to purchase other basic necessities. In the case of a large family, lack of sufficient income usually restricts housing choice to a dwelling which is inadequate for their needs in size and quality. For many other households with sufficient income to purchase quality housing, choice of housing location is sometimes not available because appropriate housing at acceptable cost is not equally dispersed geographically throughout the county or within individual communities.

Although inadequate geographic distribution of affordable housing within a community or region is an important constraint, discrimination due to race, religion, or ethnic background is an equally significant factor affecting equal housing opportunity. Actions which result in illegal discrimination in the rental or sale of housing violate State and federal laws and should be reported to the proper authorities for investigation. The State agency responsible for

investigation of housing discrimination complaints is the State Department of Fair Employment and Housing.

4.7 Residential Land Resources

In order to properly plan for future housing needs, undeveloped lands available for housing within existing communities and projected growth areas must be inventoried. Figures 4-2 through 4-14 of the Environmental Setting Technical Paper show existing vacant parcels within the communities of Artois, Bayliss, Blue Gum, Butte City, Capay area, Codora Four Corners, Elk Creek, Glenn, Hamilton City, Ord Bend, North East Willows, North Willows and West Orland. Table 4-3 below presents the total acres of vacant land potentially suitable for residential development for each community and East Orland as well.

Development of vacant bypassed lands within these communities can be encouraged by the County through general plan policies in order to protect agricultural lands on the fringes and provide greater utilization of existing infrastructure. Incentives can be provided to encourage development of bypassed remnant parcels, such as higher densities.

State law requires that zoning be consistent with adopted general plans (except charter cities). Glenn County's undeveloped lands have been zoned in accordance with the present Land Use Element and specific plans, and will be rezoned as necessary to achieve consistency with the updated General Plan. Development potential may be determined based on the maximum allowable density of each zoning district. Table 4-3 includes estimated holding capacity for each community based on existing land use plans and zoning.

It is more difficult to determine the development potential of fringe areas where agricultural zoning is in place, and dwelling unit potential in agricultural areas. However, for planning purposes, future development may be estimated based on average densities.

Table 4-4 indicates the development potential for each residential zone by minimum lot size and density in units per acre. Since the previous Housing Element was adopted in 1989, only one subdivision has been applied for and approved in the unincorporated area. The subdivision created five-acre lots on a site zoned for five-acre lots. While the Glenn County Zoning Code allows lower densities to be developed within zones allowing higher maximum densities, the County's experience has been that projects are developed to the maximum density permitted in the zone, where community sewer and water service are available.

Table 4.7-1

**TABLE 4-4
GLENN COUNTY RESIDENTIAL ZONING DEFINITIONS**

Zoning Category	Minimum Lot Size	Density in Units per Acre
RE -1 Zone	40,000 sq. ft	1
RE-2 Zone	2 acres	.5
RE-5 Zone	5 acres	.2

RE-10 Zone	10 acres	.1
RE-NW Zone	40,000 sq. ft.	1
R-1 Zone1	5,000 sq. ft.	8
R-1 Zone2	20,000 sq ft.	2
R-1 Zone3	40,000 sq. ft.	1
R-M Zone1	5,000 sq. ft.	20

1Served by public sewer and water facilities

2Served by public sewer or water facilities

3Served with septic tank and well

Source:Glenn County Zoning Code

4.8 Housing: Opportunities, Constraints and Conclusions.

- Because Glenn County does not have the resources to meet or assist in meeting all local housing needs, the County needs to determine which housing needs are most critical and focus its efforts on those needs.
- When reviewing State mandates, Glenn County is fortunate that the existing housing stock, including the largest recent developments, is predominantly in the low and moderate income range. It is recommended that the County target its efforts and programs at improving the condition of the housing stock (housing rehabilitation) and facilitating the provision of housing for farm workers, including migrant workers, which will help to alleviate overcrowding. Housing rehabilitation programs should be targeted in the communities of Artois, North East Willows, Elk Creek and Butte City.
- Most of the homeless in the unincorporated area of Glenn County appear to be transients, and the numbers are relatively low. Existing programs and sites to accommodate emergency shelter facilities are adequate to meet existing need. However, State funding to support State-mandated assistance to the homeless is not adequate to cover County costs.
- The County will need to review the regional housing need figures provided by the Tri-County Planning Council and determine the most appropriate way to incorporate them into the Housing Element.
- There are a number of ways in which the County does currently and can in the future assist in meeting the housing needs of its residents which are suited to the housing market conditions and local government constraints of the Glenn County environment. The types of programs which have been successful in the past and hold most promise for the future include Community Development Block Grant programs for infrastructure and housing rehabilitation, continued operation and enhancement of the programs managed by the Community Services Department, and continued cooperation with the housing development efforts of CHIP.
- Several types of housing assistance programs which are employed in more urbanized jurisdictions with higher property values are inappropriate or unworkable in the context of

Glenn County. These include density bonus programs, developer participation programs, inclusionary zoning and write-down of sale of surplus lands.

- The County's existing land use controls, building codes, site improvement standards and fees are necessary for public health, safety and welfare and do not represent undue constraints on housing development in Glenn County. Compared to more urbanized areas, the County's processing procedures and time frames are already greatly streamlined. The County may wish to consider a multiple family zone which allows higher densities for appropriate areas where public sewer and water facilities are available.
- The land use element and housing element are interrelated in the sense that the land use element designates sites and areas for residential development, and the housing element is required to provide for adequate sites for residential development with adequate services for all economic segments of the community. The housing element is concerned with a five-year time frame (1992-97), while the land use element plans for a 20-year time frame (1992-2012). The General Plan revision will take this requirement into account when proposing land use plans for the unincorporated communities, as well as the larger unincorporated area.
- If urban limit lines are established around unincorporated communities, the restrictions on location of new residential development may impact housing costs unless the supply of vacant land is adequate to meet expected needs. However, infrastructure costs should be reduced or stabilized due to availability of existing facilities and the limitation of distances required to extend roads, sewer and water lines.

5.0 PUBLIC SERVICES AND FACILITIES.

Background

The public services and facilities topic covers the necessary hardware and related services which are directly supportive of community growth and development. Included are water systems, sewage collection and disposal systems, gas and electricity, schools, parks and recreational facilities, and public buildings. Police and fire services are covered in the Public Safety Issue Paper.

Domestic water is provided in Willows and Hamilton City by California Water Service. Orland supplies its own domestic water, while the Black Butte Water Company supplies domestic water in West Orland. There are three community services districts which supply domestic water in Glenn County: the Elk Creek Community Services District, Butte City Community Services District and Artois Community Services District. Other domestic water in Glenn County is supplied by individual wells.

There are three wastewater treatment facilities and collection systems serving most of the urbanized portions of Glenn County: Willows, Orland and Hamilton City. All other waste disposal is by individual septic system with the exception of Caltrans' I-5 rest stop, and Glenn

Milk Producers and Holly Sugar's industrial wastewater treatment ponds. Natural gas and electricity are provided by Pacific Gas and Electric Company.

There are ten public school districts in Glenn County, each with its own Board of Trustees. The districts operate ten elementary schools, two intermediate schools, five high schools, and three continuation schools. The districts are: Capay Joint Union, Lake School, Plaza School, Hamilton Union Elementary, Orland Joint Union, Hamilton Union High, Willows Unified, Princeton Joint Unified, Stony Creek Joint Unified, and Orland Joint Union High.

The Glenn County Building and Grounds Department operates nine parks encompassing approximately 100 acres. The cities of Orland and Willows each maintain four parks totalling forty-two acres of park land in Orland and thirty-two acres of park land in Willows. Willows and Orland also operate recreational programs for residents while the County does not. Most County offices are located in Willows, including County administration and the courts, with some departments maintaining offices in Orland as well.

Specific Concerns

5.1 Growth/Development and Service Delivery Capabilities

The ability to grow is closely tied to service delivery capability. By most standards, Glenn County has a relatively low service capacity (primarily a function of size) and is constrained financially from expanding that capacity. To grow without addressing service capacity will soon lead to serious problems and reactions on the part of those who have had their services diluted. It is incumbent upon the County to find ways to pay for growth in services, if the County intends to accommodate or encourage growth. There can be very positive economic spinoffs of growth. There can also be unexpected negative results, if the County does not have a plan in hand to pay for services.

Glenn County could choose to direct development to incorporated cities and to discourage growth in unincorporated areas. Although this position often looks attractive to land use planners, the economic consequences of such a policy is generally negative due to the way in which local government is financed in California.

In most counties, traditional forms of government revenues such as property tax are not sufficient to cover the cost of needed infrastructure. It is mandatory, therefore, that newer and creative ways of meeting up-front costs as well as operations and maintenance be identified. Such need has become particularly acute since voter imposed limitations on local taxes while at the same time the State has continued to ask counties to do more and more. No help can be expected from State and federal government, nor can the developer be expected to cover all of the front-end costs of desirable development. If Glenn County is to attract desirable development and compete with other jurisdictions for economic development, financing plans must be put in place which permit County government to meet public infrastructure and service demands while at the same time making development economically feasible in Glenn County from the private sector perspective.

5.1.1 Infrastructure Financing and Fees.

There are a variety of ways to finance facilities and services that are needed to implement the General Plan. Four principal funding sources are taxes, exactions, fees and assessments. While taxes raise revenue for general purposes, the other sources are used to finance specific improvements or services. Exactions include dedications of land, improvements, or in-lieu payments imposed on new development to fund construction of capital facilities. The type and intensity of exactions imposed are limited by the finding of a burden-created nexus (i.e., connection) between the actual proposed development and General Plan-mandated infrastructure requirements. Types of fees include impact and/or in-lieu fees, which are in the category of exactions, or user fees that can be used to defray the operating costs of providing facilities or services. Special assessments are one of the oldest means of funding construction of infrastructure, facilities, and in some cases, services. Special assessments are charges made by a government against a property owner for that part of the cost of public improvements made adjacent to his/her property that is especially useful or beneficial to that property.

A number of infrastructure financing methods are listed and summarized below. Some may be better suited to Glenn County's needs than others and these will be emphasized in further discussion.

Mello-Roos Districts, also known as community facilities districts (CFDs), Mello-Roos districts can be created to finance a broad range of facilities and services, including those that benefit property in a general way, as opposed to benefiting specifically identified parcels. This versatile method of financing public facilities, infrastructure, and services associated primarily with new development arose from the Mello-Roos Community Facilities Act of 1982. More than one agency may enter into a joint community facilities agreement to allow for the disbursement and utilization of proceeds from one CFD. The types of facilities and services that can be financed through Mello-Roos is limited only by the scope of authority of the particular agency to construct, own or operate such facilities. A Mello-Roos district may finance the purchase, construction, improvement, expansion, or rehabilitation of any real or tangible property with an estimated useful life of five or more years. The following types of facilities and services are authorized (but not limited to) by the Act: parks, recreation, and open-space facilities; school sites and buildings; libraries; child care facilities; utilities facilities; police and fire protection services; ambulance and paramedic services; flood and storm protection systems; hazardous substance cleanups; and many other purposes (Merritt and Robinson 1991:1-4). Mello-Roos financing is particularly suited to large-scale new development where the landowners/developers are cooperative and supportive of forming a district in order to publicly finance the needed infrastructure and services to accommodate their development. Formation of CFDs in developed areas may be more difficult because of the requirement to obtain a two-thirds vote in order to levy the special tax.

Special Assessment Districts can be used to finance improvements when a direct and specific benefit can be established between the improvements and specified parcels of real property. Revenue generated from bonds sold for special assessment districts can be used for construction, installation or maintenance of facilities.

General Obligation Bonds may be used for financing the acquisition or improvement of real property only. The issuance of general obligation bonds requires approval by two-thirds of the voters casting ballots.

Revenue Bonds may be used for financing projects which generate revenues, such as wastewater treatment plants and convention centers. The revenues generated by these projects are used to repay the bonds, and no voter approval is required.

Certificates of Participation generally involve a form of lease transaction, and a source of repayment must be identified. This method does not require a public hearing or election.

Integrated Financing District. A fairly new mechanism, integrated financing districts can be used on their own or in conjunction with other financing tools to construct improvements without imposing a financial burden on the portions of the districts not yet ready to develop. Major infrastructure improvements can be financed when only a portion of the benefitted land is initially able to bear the costs of such improvements by providing for contingent liens to be placed on land to be developed later, so that each property will bear its fair share of the cost of the improvement at the time the development begins. This type of district can be used when a developer is resistant to forming a Mello-Roos district and when the particular development project has significant infrastructure needs that must be constructed before the development can occur, but which will also benefit other developers that are developing their property on slower schedules.

Community Rehabilitation Districts provide financing for the rehabilitation, renovation, repair or restoration of existing public facilities.

Infrastructure Financing Districts use tax increment financing in areas outside of redevelopment areas. The tax increment may be used for payment of Mello-Roos bonds. "Tax increment" is the property tax "increment" above the property tax level for a base year, which increases over time as property is improved and/or sold.

Redevelopment. Adoption of a redevelopment plan, and establishment of a redevelopment project area, also enables the County to use tax increment financing, either on a "pay-as-you-go" basis or to repay tax increment bonds to fund capital improvements within the project area. Because of the requirements under State law, as a practical matter this type of funding is only an option for the unincorporated communities in Glenn County where a potential for redevelopment exists.

Developer Fees differ from the above examples of "pay-as-you-use" financing, where revenue becomes available on a "lump-sum" basis through the issuance of bonds or similar instruments that are repaid through taxes or assessments. In contrast, developer fees are a form of "pay-as-you-go" financing where funds become available for construction of public improvements or acquisition of land, etc., on an "incremental" basis. Developer fees can ensure that new development will pay its fair share for providing the necessary facilities, or in some cases, its fair

share of the cost of mitigating identified environmental impacts. Developer fees can generate supplemental revenues that can reduce future special taxes or assessments or free up tax increment. They also can generate reimbursement revenues for property owners or public agencies who have previously paid more than their fair share of public improvement costs.

Once areas are designated for desired growth, a Public Facilities Financing Plan can be developed that can provide an overall strategy for financing required facilities and identify an equitable mix of developer fees and public financing mechanisms to provide the necessary improvements to adequately serve new development and/or correct existing deficiencies.

5.1.2 Ability of County General Government to Accommodate Growth and Development

When new development is proposed and planned for, most attention is generally given to public services which are directly impacted by development, such as police, fire, schools, sewer and water service, etc. General governmental services are also impacted by growth and development, yet typically are not addressed in evaluations of new plans and projects. These services include the courts and correctional system, health, welfare, County administration, Auditor, Treasurer and Assessor, to name a few. Fee recovery by such County departments is typically minimal. Like most rural counties in the State, Glenn County government is struggling to meet State mandates and still provide some discretionary services desired by residents (such as Sheriff's patrols, parks and libraries).

The ability of County general government to accommodate growth and development will depend a great deal on the rate at which growth takes place. A slow, steady growth is obviously easier to plan for and to adjust operating budgets accordingly. Unfortunately, development does not always occur at a slow, steady pace. Planning for anticipated growth by designating specific growth areas, establishing strong development policies through the General Plan process, and developing a financing plan to accommodate necessary services needed for anticipated growth will provide some assistance by freeing some of the general fund revenues that might otherwise be encumbered for those needs. A comprehensive financing plan which also recognizes the needs of general government is critical if Glenn County is to benefit from future growth rather than becoming its victim.

5.1.3 Use of County Service Areas

Glenn County currently has two County Service Areas, however, only one is active. The Ambulance Service Area is not funded and is inactive. The North Willows County Service Area (CSA), formerly referred to as Storm Drain Maintenance District #2, provides storm drain maintenance to a defined area northeast of Willows. Storm Drain Maintenance District #3 provides service to an area between the Kanawha Water District and the Willows Airport but does not function as a CSA. County Service Area No. 3 will serve the Parkway Estates development located north of Willows. Formation is expected to be completed in February 1992. Improvements and services to be provided include common leachfields, water for fire protection, storm drainage and street lights.

CSAs, once formed, can provide multiple services where assessment districts generally serve a single purpose. One advantage of using CSAs is to avoid overlapping or stacked assessment districts. Another advantage of forming CSAs, as opposed to a special district, is that the Board of Supervisors acts as the governing board of the district so that the County retains authority and discretion over its activities. Also, because a CSA operates under a separate budget, costs for improvements, maintenance, staffing, etc., will not dilute existing County revenue and personnel.

5.1.4 Public Utilities.

As indicated in the Environmental Setting Technical Paper, natural gas and electrical service within the county is provided by Pacific Gas and Electric Company (PG&E). The existing transmission lines in the county are currently operated below their capacity because of relatively low demand. According to Phil Longo, Service Planning Representative for the Glenn District (PG&E), natural gas service in the unincorporated area of the County is limited due to the lack of peak demand. Natural gas service can readily be extended but demand for service has to warrant extension in relatively remote areas. In general, PG&E will extend service if a developer or individual is willing to put up money for the cost of extension, unless the anticipated recovery from the extension is not considered adequate by PG&E.

Pacific Telephone Company provides telephone service to Glenn County. According to Pacific Telephone Company, there are no major limitations for service within the county. As distance from existing development increases, service extension becomes more costly. Rural subdivisions with larger lots of one acre or more typically do not meet the company's density standards and line extension costs for this type of development are more costly.

5.1.5 School Capacity and Overcrowding.

Eight of the ten school districts in Glenn County currently assess school impact fees on new development. In order to assess these fees, each district must first adopt findings of need. Section 65996 of the Government Code states that payment of impact fees on new development shall be deemed adequate mitigation and that no public agency shall deny approval of a development project based on the adequacy of school facilities.

There have been three court decisions which have bearing on the issue of school impact fees. The first was a 1988 decision, *Mira Development Corp. v. City of San Diego*, which ruled that the issue of school overcrowding could be used as a basis for denying a rezoning application. It was reasoned that Section 65996, referenced above, applied only to "development projects" and not rezoning actions which are legislative acts. In 1991 the *William S. Hart Union High School District v. Regional Planning Commission of the County of Los Angeles* reaffirmed the *Mira* decision and ruled that Section 65995(e) of the Government Code, like Section 65996, applied only to requirements for school facilities financing imposed by a local agency on a development project. In the *Murrieta Valley Unified School District v. County of Riverside* decision, it was ruled that because a general plan amendment is also a legislative act, such an amendment is not a "development project" and subject to the exclusive mitigation measures stated in Section 65996.

The County should include Mira language in the General Plan in order to clarify the County's position on development and its impact on school facilities. This language would make it clear that prior to approval of a legislative action, a finding must be made that approval of such action would not adversely impact existing schools.

5.1.6 Need for Paid Staff for Special Districts

In general, most special districts, including fire districts, within the county operate on a volunteer basis. Because special districts have their own boards of directors and operate independently of the County, funding and staffing for special districts is not an issue typically addressed through the General Plan process. It can be said, however, that the need for paid staff, in a variety of capacities, will grow as Glenn County grows. If districts are not capable of responding to growth pressures, the County's efforts to expand its economic base could be frustrated. The increasingly complex and demanding State and federal regulations also make it ever more difficult to operate sewer and water systems without full time certified staff.

An option to small understaffed and underfunded special districts is to create County Service Areas to replace them. The resulting centralized administration and decision-making will allow for cost efficiencies and permit the hiring of full time staff where such staff may not be justified on a district-by-district basis. The issue of staffing for fire districts is discussed in Section 3.1 of the Public Safety Issue Paper.

5.1.7 Parks and Recreation Acquisition and Staffing.

As indicated in the Environmental Setting Technical Paper, the Glenn County Building and Grounds Department operates nine parks throughout the unincorporated area of the county. These recreational areas cover approximately 100 acres and serve the unincorporated population of 14,050 (1991 Glenn County Profile). Based on these figures, the existing park land to population ratio is approximately seven acres per 1,000 persons. This is slightly higher than the generally accepted ratio of three to five acres per 1,000 persons. Additional park land will be required to maintain this level of service as the county grows.

The location, acquisition, development and management of public and private parks and recreational areas will be addressed during the General Plan process by adopting goals, policies and implementation programs. Once these goals, policies and implementation strategies are adopted, the County can adopt an ordinance requiring the dedication of park land or payment of fees in lieu of dedication for new development that occurs in the county pursuant to the Quimby Act. Land dedicated or fees paid pursuant to a Quimby ordinance can be used for acquiring and developing new parks or rehabilitating existing facilities needed to serve new development. The standards for adopting such an ordinance will be discussed in Section 5.1.8 of this Issue Paper.

Dedications and/or fees received through the implementation of a Quimby ordinance can only be used as described above. The County will need to look at other ways of funding to staff and maintain park sites. One way would be to form a Parks and Recreation District. Another would be to include park development and maintenance as a function of a County Service Area. User fees could also generate revenue to help defray the cost of park maintenance.

5.1.8 Standards for Quimby Act Fees.

The enabling legislation for adoption of a Quimby ordinance is contained in Section 66477 of the Government Code. Once adopted, the local legislative body may require dedication of land, payment of in-lieu fees, or a combination of the two for park and recreational purposes, as a condition of tentative or parcel map approval. The ordinance must include standards for determining the amount of land to be dedicated or fee to be paid based on the residential density of the proposed subdivision and the average number of persons per household (based on the most recent available federal census data). The dedication or payment required cannot exceed the proportionate amount necessary to provide three acres of park land per 1,000 persons proposed to reside in the subdivision, unless the ratio of existing park land per capita is higher. In such case, the legislative body may adopt a higher standard not to exceed five acres per 1,000 residents.

Section 66477 includes additional specifications for inclusion in a Quimby ordinance which will need to be addressed at the time of adoption, if the County decides to pursue such a path. The General Plan should contain language that will support the adoption of an ordinance based on definite principles and standards. Standards to be considered include:

- An established park land per capita ratio
- A formula for determining the amount of an in lieu fee to be paid when dedication of land is not made
- Under what circumstances payment of a fee in lieu of dedication of land will be accepted
- The minimum size of park that will be maintained

Because the existing park land/per capita ratio is approximately seven acres per 1,000 persons, adopting a ratio of five acres per 1,000 persons, the maximum allowed under State law, would seem reasonable and justifiable. When considering the amount of the fee to be paid in lieu of dedication, the fee should be based on the cost per acre to purchase land in accordance with the established land/per capita ratio. If land is dedicated for park and recreational purposes as part of the Subdivision Map Act, the land would typically be zoned for residential use. It would, therefore, be equitable to assess a fee based on the average cost per acre of land zoned and assessed for single family residential use.

Section 66477(g) of State law states that only the payment of fees may be required in single family subdivisions containing 50 parcels or less. The word "may" indicates that this standard is a permissive one and not mandatory. The County will need to establish a threshold under which only fees will be assessed and dedication of land will not be required. For an example, based on the per capita ratio of five acres per 1,000 persons, a 50 lot subdivision would require .7 acres of park land; a 72 lot subdivision would require one acre of park land; and a 357 lot subdivision would require five acres of park land. One factor to take into consideration in establishing this threshold would be the minimum size of park sites the County wishes to develop and maintain.

If a 50 lot threshold is established, the County could end up with numerous small parks with little or no recreational development potential. A five-acre park site could be developed as a neighborhood playground. If five acres is established as the minimum which the County will develop and maintain, only subdivisions of 357 lots or more would be required to dedicate land; divisions of 356 lots or less would pay an in-lieu fee equivalent to the proportionate acreage requirement.

5.2 Wastewater Treatment.

Within the three areas presently served (Orland, Willows and Hamilton City), wastewater treatment should not be a major problem. Present facilities have surplus capacity and future expansions can be planned and accommodated. Regardless of jurisdiction, all future wastewater should be collected and treated at a single plant within each of these three communities.

In other areas of the county, provision of wastewater treatment facilities will be much more difficult due to the tremendous capital costs associated with plant construction. Densities in newly developing areas can be planned so as to make centralized collection and treatment of wastewater feasible. In addition, the number of new communities or PUDs should be severely limited to assure adequate concentrations of population in those which are developed to support operation and maintenance of facilities.

5.2.1 Plant Capacities and Facilities Planning.

There are three community wastewater treatment facilities which serve most of the urbanized area of Glenn County. The Hamilton City Community Services District treatment system is operating at approximately one-half of its design capacity. This facility can serve an additional 2,500 residences before expansion will be necessary. The City of Orland is planning for expansion of its sewer treatment ponds to accommodate expected future growth. This wastewater treatment plant presently operates at approximately one-third of its capacity. The City of Willows operates its wastewater treatment facility at a little over half of its design capacity. The facility is capable of handling the area's current annual growth rate.

5.2.2 Location of Future Wastewater Treatment Facilities.

The siting of new wastewater treatment facilities should be undertaken as a coordinated effort between the County, cities and special districts. If these facilities are not adequately planned for, the potential for land use conflicts is more likely to result. Establishing policies through the General Plan process will not only assist in the siting of new facilities but can also encourage concentric growth and infill development by directing new development to the areas which can be served by current facilities. The potential for new facilities will depend on County growth location policies, the demand created and funding for construction.

5.2.3 Sewage Disposal in West Orland.

Individual septic tank systems are the method of wastewater disposal in the West Orland area. In general these systems have been satisfactory. Because the soils are extremely porous and the groundwater table is fairly high in this area, there have been cases of groundwater contamination reported. In 1986 the County adopted the West Orland Specific Plan which included a policy

statement setting the minimum parcel size for parcels served by an on-site well and septic tank at two acres. This policy was based on a residential development density study prepared by Carroll/Resources Engineering and Management in 1985. In 1991 the Specific Plan was amended to include objectives and policies to implement the Plan. One policy which was adopted, Policy II.A, requires that development at a density of one acre or less shall occur on a sewer system.

Because of the extremely porous character of the soils, the County should set extension of sewer service to West Orland as a high priority. As noted in the Natural Resources Issue Paper, West Orland is situated in an area of high groundwater recharge. This also means that septic effluent can easily enter groundwater aquifers. Unfortunately, expansion of the Orland sewer system to serve West Orland is blocked by I-5 which will make extension of sewer service a very expensive proposition.

5.2.4 Septic System Limitations.

Limitations on the use of individual septic systems include soil permeability, topography, depth to groundwater and other physical characteristics. Septic tanks operate well in the parts of the county where the soil drains well and is considered gravelly. The soils characterized by rapid percolation, such as those in the West Orland area, provide inadequate treatment for the sewage before it reaches the groundwater. The southern part of the county is dominated by heavy clay soils with a slow percolation rate and high groundwater table. The soils in the North Willows area are deep, well-drained and slowly permeable, resulting in the need for large leach fields to adequately treat the sewage. Septic tanks in the foothills are difficult to install, primarily due to the limited amount of soil covering rock. Installation of individual disposal systems in areas containing soils with specific limitations typically have to be specially designed or engineered to accommodate or compensate for those limitations.

In May 1990, the County adopted new sewage disposal regulations for on-site wastewater disposal systems. These regulations are contained in the Land Division Ordinance, Title 17, and in the Land Development Ordinance, Title 20. Title 17 sets forth the requirement that public or community sewage disposal systems are required on lots less than 10,000 square feet, and on lots larger than 10,000 square feet if no public or community water system is available and site conditions are not conducive to individual systems. Site conditions include the limitations described above. Title 20 specifies the procedure for obtaining a permit for installation of a disposal system as well as site evaluation requirements for designing the system. The County Health Department is in the process of initiating a study to further evaluate these regulations with regard to adequate filtration, the design of alternative systems in areas of extreme soil conditions, and the development of construction standards for the installation of trench systems.

5.2.5 Septage Disposal Limitations.

Concern has been expressed at the local level regarding limitations on septage disposal. The County generated 636,000 gallons of septage in 1991. According to the Glenn County Health Department, there is one site in the county used for this purpose located at Road 35 and Road N. The site is approximately 85 acres in size and is used for sheep grazing. The property owner has

allowed the local pumping companies under permit with the County Health Department to spread septage over the ranch on a gratis basis. The site is currently under review by the State Regional Water Quality Control Board (SRWQCB) for establishment of waste discharge requirements. If for some reason a permit is not issued by WQCB, alternative disposal sites would need to be identified and established. The County landfill does not currently accept septage. A revision to the County's operating permit would most likely have to be obtained from the California Integrated Waste Management Board prior to accepting septage at the landfill. Alternative disposal sites within the county would be the municipal wastewater treatment plants. If a site is not identified within the county, septage would have to be transported out of the county, increasing the cost of septic tank maintenance.

5.2.6 Identification of Development Densities Requiring Community Sewer Systems.

Chapter 17.42 of the County's Land Division Ordinance states that proposed development on lots less than 10,000 square feet shall be required to connect to a public or community sewage disposal system. A review of the minimum parcel size requirements of the zoning categories that allow the creation of parcels one acre or less is contained in Table 5-1. The standard for these urban classifications is 20,000 square feet when served by either public sewer or water. The standards contained in the two ordinances are not consistent. The 20,000 square foot standard contained in the various zoning regulations is more restrictive than the standard set by the Land Division Ordinance. The more restrictive standard provides for a larger area which is more appropriate to ensure adequate setback is provided from property lines, adequate separation is maintained from water sources, whether on- or off-site, and adequate replacement area is available should leach lines fail. The County may want to establish minimum standards through the General Plan process and amend the ordinances to reflect that standard.

5.3 Water Service.

Groundwater is relatively abundant in Glenn County and can normally be found in sufficient quantities to serve development. Its availability could become problematic, however, should the County determine to direct development to the foothills where geologic conditions add difficulty to the search for water and typically reduce yields. Surface supplies are not presently utilized for domestic purposes and it is unlikely present growth rates and groundwater conditions will require pursuit of surface supplies.

Table 5.3-1

**TABLE 5-1
URBAN ZONES MINIMUM PARCEL SIZE REQUIREMENTS**

Zone	Minimum Parcel Size if Served by Both Public Sewer and Water1	Minimum Parcel Size if Served by Either Public Sewer or Water1	Minimum Parcel Size if Served with On-site Septic System and Well1
R-1 (Single Family Residential)	5,000 s.f.	20,000 s.f.	40,000 s.f.

R-M (Multiple Family Residential)	5,000 s.f.	20,000 s.f.	40,000 s.f.
C (Commercial)	6,000 s.f.	20,000 s.f.	1 acre net
M (Industrial)	10,000 s.f.	20,000 s.f.	1 acre/5 acre ²
LC (Local Commercial)	8,000 s.f.	20,000 s.f.	40,000 s.f.
CC (Community Commercial)	8,000 s.f.	20,000 s.f.	40,000 s.f.
SC (Service Commercial)	12,500 s.f.	20,000 s.f.	40,000 s.f.
HVC (Highway and Visitor Commercial)	8,000 s.f.	20,000 s.f.	40,000 s.f.

¹Except in a Planned Unit Development project.

²Varies on sub-zone requirements of M-1 or M-5.

Source: Glenn County Zoning Code

5.3.1 Water Distribution System Planning

As noted earlier in this Issue Paper, domestic water is provided throughout the county by several sources: California Water Service Company, the City of Orland, Black Butte Water Company, Elk Creek Community Services District, Butte City Community Services District, and Artois Community Services District. These water distribution systems are not under County control. Coordinating with these individual districts and companies is vital to the planning process. Each agency should be consulted during the development application/permit review process to evaluate the impacts of development on the existing system and to facilitate extension/expansion design.

State law requires special districts and other public agencies proposing to undertake capital improvements to submit a list of projects to the local planning agency for a general plan finding of consistency prior to undertaking any construction (Government Code Section 65401). The County should assure that special districts are complying with this requirement in order to facilitate general plan implementation.

In newly developing areas, the County may choose to establish systems under the auspices of a County Service Area. This will provide greater control over the planning and development of such systems and will permit closer coordination between infrastructure availability and development opportunities. Where existing special districts are unable to meet the demands of new regulations and growth, the County may wish to consider taking over such operations. Water facilities can be operated without posing a burden to County taxpayers as long as a realistic rate structure is adopted.

5.3.2 Identification of Development Densities Requiring Community Water Systems

The Land Division Ordinance of Glenn County, Chapter 17.44, addresses when a public or community water system shall be required as a condition of subdivision map approval. A water system is required when either of the two following conditions exists:

- The development is within the Urban Development classification with lots smaller than 10,000 square feet; or
- The development is within the Urban Development classification with lots larger than 10,000 square feet and no public or community sewage disposal system is available.

A review of the minimum parcel size requirements of the "urban density" zoning classifications is shown on Table 5-1. The minimum parcel size requirement if a parcel is served by either public sewer or water is 20,000 square feet for all the classifications listed. This standard, which approximates one-half acre, is generally more appropriate when individual wells are utilized in order to provide adequate setbacks from property lines and separation from septic systems, whether on-site or on adjoining property. The County may want to establish minimum standards through the General Plan process and amend the ordinances to reflect that standard.

Another aspect to consider in identification of development densities in relation to community water systems is the requirement for adequate fire flow. The Land Division Ordinance sets forth the requirements for fire flow and this subject is discussed in more detail in Section 3.5 of the Public Safety Issue Paper.

5.4 Location and Distribution of Public Facilities.

The location and distribution of public facilities needed to serve new development should reflect the demand created by the anticipated growth. In order to address this issue the County must first determine where the growth will occur. Once land use patterns are established, the location and distribution of public facilities can be identified. When dealing with specific plans, actual sites for facilities can be established and developers can be requested to dedicate such sites.

Policies and standards, including level of service standards, addressing public facilities should be included in the General Plan. The County should be careful, however, in actually designating lands for such uses in the General Plan in order to avoid claims of inverse condemnation and property devaluation. Policies and standards, if well written, can guide future decision-making to assure that adequate sites are reserved. As growth continues in the north part of the county, it is likely that greater concentrations of public service facilities will be required in that area.

5.4.1 Schools and Other Educational Facilities.

The acquisition of school sites, as well as the disposition of sites/facilities, is at the discretion of the individual school districts. State law requires that school districts consult with the local planning agency prior to acquiring, disposing or development of property. This process provides for a review by the local agency in the context of the general plan and its various components.

By the same token, the County is required by State law to include in its General Plan the proposed general distribution, location and extent of educational facilities.

5.4.2 2Parks and Recreational Facilities.

The acquisition of park land and standards for adoption of a Quimby ordinance were discussed in Sections 5.1.7 and 5.1.8 of this Issue Paper.

5.4.3 Trail Systems and Trail-Oriented Recreational Use.

The potential for developing bicycle trails exists throughout the valley floor of the County because of its flat terrain. As indicated in the Environmental Setting Technical Paper, two major bicycle routes have been proposed as part of regional systems: one paralleling I-5 which would eventually extend from Bakersfield to the Oregon border and one along the Bayliss-Blue Gum Road connecting with a Butte County system. Development of these routes should be coordinated with Caltrans and Butte County.

5.4.4 Public Buildings and Grounds.

As discussed earlier, the need for public buildings and grounds will be dictated by the established growth and land use patterns. Among the types of uses which should be addressed are: libraries, health facilities, governmental offices, maintenance facilities, and utility structures. To address new facilities, policies and standards should be included in the General Plan which guide their development. For the development of libraries, as an example, the County may want to establish a per capita ratio in order to ensure that library services are adequate to serve the residents of the county. For health facilities, policies should be adopted which address access for emergency vehicles, availability to residents, and noise tolerance levels. As noted above, it is likely more facilities will be required in northern county areas if present growth patterns continue.

5.5 Public Services and Facilities Opportunities, Constraints and Conclusions

- Glenn County has limited service delivery capability, particularly in unincorporated areas. Of special note is the fact that the County has no sewer or water capacity. If the County is to embark on a path toward more intensive development in unincorporated areas, large sums of money must be found to pay for infrastructure development. Development adjacent to the two cities or Hamilton City where existing systems can be extended will be less difficult. This assumes, however, that the cities will cooperate in the extension of sewer and water systems to newly developing unincorporated areas.
- There will be no assistance from other governmental levels as the County seeks ways to finance infrastructure and services. Further, the private sector cannot provide all of the required up-front investment on its own and still remain competitive, and Glenn County cannot remain competitive with other jurisdictions unless it has a program in place to assist with infrastructure financing.

- There are a variety of ways to finance needed facilities. Glenn County needs to pursue several avenues at one time including exactions, fees, and assessments. Mello-Roos district financing should be made available and the County should consider tax increment funded redevelopment within existing unincorporated communities. An overall public facilities financing plan should be prepared which describes the mix of techniques to be utilized and the circumstances for their use. A Capital Improvements Plan will be prepared in conjunction with the General Plan effort which will contain the major components of the countywide infrastructure system along with a methodology for allocating costs. This can form the basis for a more detailed and comprehensive public facilities financing plan.
- The impacts of growth and development on general County government services should not be overlooked. These costs should be factored into plans for cost recovery, where possible, when considering impact fees and other mitigations.
- Where new service delivery agencies are required to deliver services and equitably establish a financing mechanism, the County should utilize the County Service Area approach, retaining control and avoiding a proliferation of small special purpose governmental units.
- Availability of gas and electricity is not a constraint in Glenn County although cost of line extensions in remote areas may be cost prohibitive due to the low overall population density in the county.
- The County should include Mira language in the General Plan in order to clarify the County's position on development and its impact on school facilities. The public facilities financing plan discussed above should include provision for schools.
- The County should take the lead in determining if special districts are capable of meeting their service commitments and in the event they are not, should consider forming County Service Areas to handle delivery of services, particularly in areas where the County wishes to encourage growth.
- Within the communities of Willows, Orland and Hamilton City, all wastewater treatment should be collected and treated at a single facility within each of the three communities. The General Plan should establish policy to this effect, and require all new development of a specified density and land use intensity to hook up to a sewer system.
- The siting of new wastewater treatment facilities should be undertaken as a coordinated effort between the County, cities and special districts. Establishing policies through the General Plan process will not only assist in the siting of new facilities, but can also encourage concentric growth and infill development by directing new development to areas which can be served by current facilities.
- Densities in newly developing areas should be planned so as to make centralized collection and treatment of wastewater treatment feasible. In addition, the policies of the General Plan

should be designed to limit the number of new communities or PUDs to assure that there are adequate concentrations of population to support operation and maintenance of facilities.

- A high priority should be placed on the extension of sewer service to West Orland in order to protect health and safety and, in particular, a valuable groundwater recharge area.
- Septic system and septage disposal limitations should be taken into consideration when determining which areas are suitable for new development not served by wastewater treatment facilities. Soil types and groundwater levels will have a significant influence on septic tank suitability. Because of the large number of septic systems in the county, it behooves the County to assure that an adequate area for septage disposal is permitted within the county for that purpose.
- The County should establish a minimum parcel standard of 20,000 square feet for lots created without public or community water service. Establishing this standard will require amendment to the Land Division Ordinance, however, it will provide consistency among the ordinances.
- Coordination and cooperation should be maintained between the County and water purveyors. The County should assure that special districts are complying with State law by referring project lists to the County for review and evaluation for general plan consistency in order to facilitate General Plan implementation.
- The County should consider establishing a County Service Area which can provide a variety of public services, including water. Where existing special districts are unable to meet the demands of new regulations and growth, the County should consider taking over such operations under the auspices of a County Service Area, particularly in areas where the County wishes to encourage growth.
- Decisions need to be made concerning how park and recreation services will be funded in the future. Quimby Act fees should be imposed to pay for park acquisition and development. The County should consider a County Service Area to cover the ongoing costs of park and recreation services.
- The location and distribution of public facilities needed to serve new development will be dictated by where the growth occurs. Policies and standards should be adopted which guide decision-making to assure that adequate sites are reserved; however, caution should be taken in actually designating lands for public uses if they are privately owned.
- Level of service standards should be established for public services. The standards can then be used to evaluate the impact of development on the various services. Level of service standards can also be used to evaluate distribution and expansion needs.

- The County should coordinate with Caltrans and Butte County in development of regional bicycle routes through the county.

6.0 ECONOMIC DEVELOPMENT.

Background

Economic development looms as one of the preeminent issues confronting Glenn County as it plans for its long-term future. The vitality of the county's economy is a direct determinant of the extent to which local residents can afford, and will enjoy, an adequate level of public services. A healthy economy is also necessary to ensure adequate employment opportunities for those living in the county. The availability of income to local wage earners and households, the natural consequence of economic vitality, is one key to county residents' enjoyment of a desirable quality of life.

The Environmental Setting Technical Paper, previously referenced, documents a number of conditions identified as characterizing the current state of the Glenn County economy. As noted in that document, "a general characterization of the economy of Glenn County would be that it is comparatively dependent upon a narrow range of activities, is heavily dependent upon public sector (government) employment, generates employment and income at rates slightly below the average rate for the State of California and the United States, and is somewhat static (that is, relatively little change occurs in the distribution of economic activity among the various segments of the economy from year to year)." The referenced document further cites the vulnerability of the Glenn County economy to deterioration. Its predominant dependence upon agriculture, in a period of intense drought and increasing regulation, coupled with a proportionately equal dependence upon government employment in an era of greater public concern than ever before with public sector spending and growth, are noted as key examples of the extent to which Glenn County's economic health is susceptible to erosion.

Glenn County, notwithstanding many of the issues which currently act to constrain local economic vitality, has a number of potential opportunities for economic improvement. Moreover, local public and political commitment to economic development is strong. Importantly, as well, there are formidable resources in place in the county to pursue and take advantage of economic development opportunities -- local leaders, University faculty members with specialized expertise, professional economic development staffs, and government agency staffs are all evidently well-prepared and well-qualified to undertake and carry out an economic improvement agenda.

Economic issues are perceived as inextricably linked to the process of determining overall policies and development proposals for the County's General Plan. To the degree that land use decisions and the creation and maintenance of public infrastructure are outcomes of the Plan, the County's potential for economic development is significantly affected by General Plan goals, policies and programs. It has been made clear since the outset of the General Plan revision process that the County is seeking a proactive, rather than passive, role in stimulating growth and

diversification of the local economy. Equally clear is the County's intent to utilize the General Plan, in combination with other available tools, to accomplish these objectives.

What, then, are the key issues upon which the General Plan can focus which will enable existing economic conditions to be improved in Glenn County? In the following sections, these issues are identified and discussed. Wherever possible, local perceptions of economic issues, and opportunities and constraints attending these issues, are presented, derived from input from individuals and organizations active in the local economic development milieu. In each instance, the consultants' own judgments also are offered.

Specific Concerns

6.1 Unemployment and Seasonal Employment

Glenn County has an average annual unemployment rate which is substantially higher than those of the State and the country as a whole. The countywide average annual rate of unemployment hovers in the vicinity of twelve percent, compared to about five percent for California and the balance of the U.S. In raw numbers, of the county's total labor force in 1990 of about 10,350, nearly 1,300 were unemployed on the average.

On a seasonal basis, these figures, and the gap between the rate of employment in Glenn County and in the balance of California and the nation, become even more discouraging. Because of the large number of local workers employed in agriculture, and the corresponding seasonal nature of the harvest cycles, peak unemployment rates in the county reach or exceed fifteen percent or more regularly from December to March each year.

From the planning perspective of the County, these characteristically high unemployment rates, both year-round and seasonally, create several concerns. First, it is obvious that an appreciable number of county residents are not earning significant income, and consequently are contributing little support to the county's economic activity in the form of consumer expenditures. Second, it is reasonable to conclude that unemployed segments of the population are contributing comparatively little in the form of tax revenues necessary to fund local, State and federal programs and services. Simultaneously, all residents, regardless of whether employed or not, require at least minimal public services (e.g. police and fire protection, health services, streets and roads, etc.). Beyond basic services, many unemployed residents require subsidy or support from the public assistance system; Glenn County had 12.5 percent of its population receiving some form of public financial assistance in June, 1991.

A related concern is the relatively low average wage scale paid for employment in Glenn County. This is a function of the predominance of agriculture in the overall makeup of the county's job market. Per capita income in Glenn County is only eighty-one percent of the statewide average, and growth in personal income from year to year in Glenn County lags behind the rate of growth for income earned by Californians and Americans as a whole. Again, it is reasonable to conclude that the availability of less income to residents of Glenn County means that there is a lower proportionate rate of per capita economic activity being generated in the

county and a corresponding lower rate of tax revenue generation to finance basic public services, as well.

Two issues, therefore, are regarded as key in planning for the economic development of Glenn County through the General Plan update. Stated as simply as possible, these issues are: (1) How can the number of jobs available to the residents of Glenn County be increased? (2) How can the amount of income earned per capita by county residents be increased? In addressing and, hopefully, resolving these issues, the corollary concerns of the extent to which high unemployment, seasonal fluctuations in employment, and comparatively low wages being paid to the labor force create burdens on public services and financial assistance programs should also be addressed.

6.2 Economic Diversity

As noted in the Environmental Setting Technical Paper, agriculture represents about twenty-two percent of the total countywide jobs base. Government employment comprises nearly a quarter of all jobs available in the county. Among the remaining major categories of employment, jobs in industry represent approximately twenty percent of the countywide total, although significantly, virtually all industries in Glenn County are related to agricultural operations. Commercial retail employment is about 13.5 percent of the countywide jobs total, and growth potential in this sector of the economy is constrained by the general lack of spendable income alluded to in the preceding paragraphs. Also reflecting the static state of the local economy, the construction industry employs only about 3.5 percent of all workers countywide. Forestry, predominantly timber management and harvesting, employs about 4.4 percent of the county's jobholders. From the standpoint of the desirability of long-term economic vitality, the overall lack of diversity of jobs available in Glenn County is problematic.

Government employment is the largest single source of jobs in the Glenn County economy. Federal agencies such as the National Forest Service and the U.S. Fish and Wildlife Service have a long-established presence in the area, a consequence of the county's natural resource base. Local governments (County, cities and schools) employ a very substantial number of Glenn County residents. In many respects, government employment is one of the most stable anchors of any local economy. Job security is often high, annual increases in wages tied to inflating costs of living are standard policy in many government agencies, and employees are usually well-protected by laws and regulations addressing working conditions, benefits and prerogatives. Moreover, although funding constraints have increased in recent years, in comparison to many segments of the private sector economy, government employment enjoys a relatively constant and secure financial base. Similarly, the demand for services provided by government agencies generally grows in proportion to population growth, at a minimum, ensuring that the public sector of most local and regional economies experiences little or no shrinkage. In the words of one contemporary California political figure, "Government is great at addition, but weak at subtraction."

Many economists argue, however, that the size of government, and the corresponding tax burden to support it, have a directly proportionate negative effect on real economic growth in a region. The diversion of economic resources, in the form of taxes, from private enterprise and

production reduces the extent to which local investment can be made in the private sector. Additionally, as evidenced beginning with the passage of Proposition 13 in the late 1970's, Californians and Americans are demonstrating that there is a finite limit on how much of a tax burden is tolerable. Consequently, the potential for government as a segment of the economy to grow without severe limits no longer exists.

Finally, government consumes the county's economic resources almost entirely internally to Glenn County. It does not create products for sale to outside agencies, bringing new dollars into the county. Government services are "consumed" locally, having been provided using the tax dollars (including federal and State) which were paid locally.

In view of the foregoing concerns, the large degree to which Glenn County's economy is dependent upon government employment is regarded to be a signal of that economy's overall lack of vitality.

Agriculture, the second largest source of local employment, is plagued as an industry by uncertainties in weather, increasingly scarce and/or costly water supplies, unpredictable shifts in markets and pricing, and expanding government regulations which affect the potential financial success of segments of the industry. As noted above, the compensation scale paid to most agricultural employees is typically near the minimum legal wage. Added to the seasonally fluctuating nature of agricultural employment, these characteristics make the predominance of agriculture in the county's economy a substantial concern.

The combination of agricultural employment and government jobs make up nearly half of all work available to Glenn County residents at this time. Add to this fact the knowledge that most of the county's industrial employment is in agriculturally-oriented businesses, and it is abundantly clear that lack of economic diversity in the county should be a major worry to be considered in planning for more stable long-term economic growth. At issue in the General Plan update process, therefore, is how to create new economic activity, including employment opportunities, in segments of the economy beyond government and agriculture.

6.3 Regional Competition

The Environmental Setting Technical Paper notes that "...substantial 'leakage' of retail sales, particularly for so-called 'comparison shopper goods' (e.g. furniture, appliances, automobiles, high-ticket clothing, and electronics), takes place in Glenn County. Many shoppers are presumed to travel to Chico and even to Sacramento to make major retail purchases." The Technical Paper goes on to cite that the type of sales leakage being experienced by Glenn County is characteristic of market areas which are in proximity to larger trade centers but which lack their own population and/or economic base to support major retail outlets locally. The Technical Paper also summarizes historic sales data which shows that Butte County and the City of Chico experience per capita taxable and retail sales roughly twice the levels of the sales in Glenn County and the Cities of Orland and Willows. This sales leakage represents a substantial export of economic activity and resources out of the County. Whether, much less how, such resources can be recaptured and retained in Glenn County is a key issue to address in the economic component of planning for Glenn County's future.

During the assembly of data for the Environmental Setting Technical Paper, local officials identified what were regarded as signals that Glenn County was beginning to experience "spillover" growth from the Chico area in Butte County. Because housing prices in Glenn County are generally lower than for comparable housing in Chico, commuter settlement patterns are thought to be emerging, wherein employees of Chico area businesses are relocating their places of residence to Glenn County sites. Although potentially a source of impetus for the creation of additional attractive housing stock in Glenn County, such a pattern is also problematic -- studies routinely demonstrate that residential development does not "pay its own way" in terms of government services (i.e. the cost of providing police and fire protection, street and road maintenance, etc. generally exceeds the tax revenues generated by such development). This is particularly true when residents export their taxable purchase activity outside the local jurisdiction. Consequently, the potential for Glenn County to increasingly serve as a "bedroom community" for the larger nearby employment and trade center in Chico is an issue which should be addressed in the context of the General Plan update.

Conversely, there is also some discussion among local officials and economic development practitioners regarding the relocation of businesses from the Chico area to Glenn County. Economic dislocation, as the cost of land in Chico grows, has been cited as one incentive for businesses to consider Glenn County sites as alternatives to Butte County. Proximity to the resident workforce, given the discussion in the preceding paragraph, also has some relationship to the desirability of business locations in Glenn County. Discussion of this topic is often guarded among local officials, because of the competitive aspects of economic development among communities. At the same time, there is a healthy recognition by many local and responsible officials that regional, as opposed to strictly local, economic growth is of general benefit to all concerned. The issue, therefore, to be included in consideration of plans and priorities for Glenn County's economic future is the extent to which balance can, and must, be achieved between competitive and cooperative efforts to encourage local and regional economic development.

6.4 Local Business Retention and Expansion

A common key element of virtually all successful economic development programs at the local level in California is a strong emphasis on retention and expansion of existing local businesses. Such businesses have already established that they have at least some preferences for operating locally. Consequently, working to ensure that they remain in the area and, if expanding, that they consider local expansion before looking at out-of-area sites, is often a far more efficient utilization of economic development program resources than ventures into the comparatively competitive environment of seeking new industry and business from outside the locale.

Glenn County already offers substantial support, through its various active economic development agencies, to existing businesses in the area. Technical assistance, loan programs, and other aspects of the activities of the Glenn Chamber of Commerce Economic Development, Inc., the Tri-County Economic Development Corporation, California State University Chico's University Center for Economic Development and Planning, and the City of Orland's Economic

Development Commission are all currently supportive of existing local business and industry, as well as directed to new business recruitment.

In the framework of the County's General Plan update, however, it will be necessary to ensure that policies and programs are established which, while consistent with other planning goals (e.g. environmental sensitivity, land use compatibility, etc.), accommodate and encourage the continued operation and expansion of existing local businesses. At issue will be the extent to which Glenn County may be perceived by local businesses, as well as prospective new industries, as a viable and productive location for operations.

6.5 Implications of State and Federal Actions.

Aspects of the Glenn County economy are both directly and indirectly subject to State and federal policies, programs and actions. Issues in this context include:

- Federal and State employment represents an important segment of the local workforce. Were major changes in local levels of federal or State employment to occur, the local economy would be affected proportionately.
- Statutory and regulatory policy promulgated by the State and federal governments can affect the Glenn County economy, based as it is on agriculture and timber resources, both closely-regulated industries. For example, upgraded federal protection status for the Northern spotted owl has resulted in decreased timber harvesting activities throughout northwestern California. Similarly, State regulation of rice field stubble burnoff appears imminent, with unavoidable consequences for growers of this major crop commodity in Glenn County.
- California's Governor has proposed material changes in the State's welfare system, including a reduction in paid benefits. In view of Glenn County's comparatively large number of public assistance program recipients, a reduction in payments will have an appreciable impact on county economic activity.
- Recent reports from the California Business Roundtable and other organizations suggest that the regulatory environment and the tax structure in this state have driven the cost of business up in comparison to other regions of the country to such an extent that industry and business are relocating. Estimates that range as high as 160,000 jobs statewide being transferred out of California have been published. If these estimates prove reliable, they represent ample illustration of potential negative consequences attributable to the effort to balance critical environmental and fiscal concerns with the need for economic stability and growth.
- On the plus side, various federal initiatives loom which could potentially result in economic benefits to Glenn County. For example, a major highway funding bill was recently passed by Congress, a portion of which will result in highway construction and reconstruction throughout California. It has been projected that each billion dollars of highway construction funding will result in the creation of one thousand new jobs in the industry and related businesses. Importantly, as well, there is discussion at the Congressional level regarding the

need for aid to economically distressed rural areas, in the form of tax incentives through creation of new rural enterprise zones. This concept is perceived as having bipartisan support in Congress and given a good likelihood of passage and funding.

- On an even more concrete level, officials with the U.S. Fish and Wildlife Service talk optimistically of expanding programs and staffing at the national wildlife refuges in Glenn County. Effects on the local economy associated with such expansion would be both in the form of direct job creation and indirect benefits from increased visitation to the area by tourists, hunters and others.

Glenn County officials and staff with the local economic development organizations all profess to maintain good relationships with local State and federal elected officials. The importance of keeping such officials apprised of the issues which are critical to the local economy should not be understated.

6.6 Economic Development Opportunities, Constraints and Conclusions

- The county has a readily available, low-cost labor force potentially to offer to new industry. Glenn County's year-round unemployment rate, although costly in both economic and social terms, simultaneously represents an accessible pool of prospective workers for unskilled and semi-skilled employment at probable low cost to industry.
- The general flight of industry from the State's urban areas to more rural settings, including the previously-referenced displacement of industry from the expanding Chico area, may result in businesses being interested in Glenn County as a potential base of operations. The county has excellent highway transportation access, adequate rail access, and is not so remote from urban area shipping terminals and markets that it is infeasible as an industrial location. The economic development policies of the General Plan should build on the county's strengths and should set clear policy to target the County's economic development efforts.
- The two airports located in Willows and Orland offer some opportunity to attract smaller industries and businesses. Although growth in general aviation nationwide is projected to be relatively flat, airport facilities have been demonstrated to be attractive to a number of types of small businesses as sites for operations. The General Plan should include policies regarding protection and development of the county's airport resources.
- The availability of a substantial number of national forest campgrounds and other recreational opportunities will attract visitors to the county. The southerly I-5 corridor through Glenn County particularly may be positioned to capitalize upon such visitor traffic as it passes through from the Sacramento area to forest destinations. Policies promoting tourism should be included in the economic development policies of the General Plan. It is also important to emphasize the improvement of access to the national forest, if the County is to truly capitalize on this asset.

- Overall, the county's highway and service commercial sectors of the economy may not be capturing the share of traffic-generated business along I-5 that may be possible. Strategies for improving this sector of the economy should be included in the economic development policies and other General Plan policies as appropriate.
- The Hamilton City area may offer the potential for development of an industrial park which can capture spinoff growth from the Chico urban area. This may occur as certain types of industries are squeezed out of the Chico area by growth and changing local priorities. The Hamilton City area is receptive to growth and jobs, and has potentially serviceable sites.
- The wildlife refuges in the region, particularly as visitor amenities improve, will continue to attract thousands of visitors annually to Glenn County. The extent to which these visitors can be induced to stay and spend money locally is indeterminate, but may represent a substantial potential opportunity which should be addressed in the economic development policies of the General Plan.
- The county's natural gas and aggregate resources may have an expanded market in future years. Although not proportionately employment-intensive, this segment of the economy would provide some additional jobs and income to County residents. Policies regarding development of energy resources will be included in the Energy Element of the General Plan and should be reflected, as appropriate, in the economic development policies of the General Plan. Aggregate resources extraction is discussed in the Natural Resources Issue Paper. The County needs to make some policy decisions as to whether to encourage, discourage or simply accommodate increased mineral extraction in light of environmental issues associated with that process.
- The tourism study previously performed for the County identifies farm and ranch-related tours and special events as potential attractions for tourism in Glenn County. Local response to this suggestion indicates that this idea may have limited utility in Glenn County. Local economic development officials need to decide whether there is any merit to this idea and proceed accordingly.
- The presence of California State University, Chico, and to a somewhat lesser extent, Butte College in close proximity to Glenn County represents a substantial resource. Technical assistance to businesses, the appeal of a university environment, training and research capabilities, and other factors make the two colleges an attribute in attracting and retaining businesses locally.
- The commitment of substantial portions of valley floor land to agriculture, including many parcels under Williamson Act contracts along the I-5 corridor, limits development potential for industrial and highway-oriented commercial uses. Similarly, land ownership with little inclination to develop and/or unrealistic economic expectations pertaining to development may retard local ability to capitalize on the I-5 corridor as an economic resource. Land use

policies of the General Plan should address and resolve appropriate locations for nonagricultural development.

- Expansion of the tourism economy associated with the National Forest and the wildlife refuges will be incremental. There is not sufficient capacity and/or potential activity associated with either of these resources to have "wholesale" impacts on the local economy.
- The labor force available to industry in Glenn County is comparatively untrained and unskilled. Some industries require a greater diversity of education and training than is currently available in labor resident to the county. As a consequence, the county may be bypassed if it maintains an unskilled work force. This must be overcome through linkage with Butte College, U.C. Davis, and C.S.U. Chico.
- It is difficult to attract businesses and industry to communities which are not large enough to offer substantial amenities. Although the rural environment and lifestyle offered in Glenn County are appealing to many, analysis of industrial site location decisions across the nation indicates that community amenities rank relatively high on decision-makers' lists of criteria.

7.0 ALTERNATIVES

For each Issue Paper, three alternative scenarios were developed and reviewed with the staff, Citizens Advisory Committee and decision makers. As suggested in the State General Plan Guidelines, for any set of circumstances, a number of possible courses of action or planning scenarios exists. It is the purpose of this Section to identify a reasonable range of alternatives related to community development in Glenn County and to explore the various pros and cons of the potential courses of action. The alternatives should also be examined for consistency with the goals and policies described in the previous section of this Issue Paper.

The alternatives need not be mutually exclusive and ultimately the decision makers may choose to consolidate ideas from more than one scenario. Further, it must be kept in mind that decisions concerning community development will have an impact on alternatives identified for natural resources and public safety, and vice versa, requiring alternative futures in all three areas to be reviewed and absorbed prior to final decision making.

The General Plan Guidelines recommend that each alternative be evaluated for its short-term and long-term environmental, economic and social effects. This Issue Paper uses the suggested format, to the extent it is applicable to community development issues. Evaluation of the environmental effects of each alternative will also form the basis for evaluation of project alternatives pursuant to the California Environmental Quality Act, at such time as the EIR for the General Plan is prepared.

The role of Glenn County and that of its cities is also explored. Community development is a responsibility shared with incorporated cities. City and County practices can lead to coordinated efforts which place a high priority on orderly and planned growth, or can lead to a competitive atmosphere in which planning takes a back seat to short term opportunities to capture revenue

producing activity, often at the expense of the neighboring jurisdiction. Counties can also opt to minimize their involvement in the community development realm, directing future growth to the incorporated cities.

In addition to the three scenarios concerning community development, Section 7.3 contains three additional scenarios focusing on and contrasting economic development potentials. This has been done in order to emphasize the importance of economic development in the Glenn County planning process.

7.1 Scenarios

It is generally most illustrative to tie different scenarios for community development to differing rates of growth. Typically low, medium and high rates of growth are described. In addition to rates of growth, another approach which suggests itself examines patterns of development, ranging from direction of virtually all growth to the two incorporated cities to a scenario which spreads growth evenly between various established and future communities. A plausible scenario which also bears consideration is a distribution pattern which emphasizes growth in the northern county with a slower rate of growth in the southern county area. Finally, a scenario which should be discussed is one which directs growth to foothill areas, away from the higher value agricultural lands. These various approaches to growth distribution will be discussed under the three primary scenarios, as appropriate.

Three rates of growth will be utilized for purposes of this analysis. For the low range, an annual growth rate of 1.5 percent will be used. This rate of growth is similar to the annual average rate of growth in Glenn County during the decade of the 1980s and is similar to the annual average increase utilized in the 1991 Glenn County Profile prepared by the California State University, Chico, Center for Economic Development and Planning. A rate of growth of 3 percent will be assumed as a mid-range based on the actual rate of growth during the past three years. Finally, for comparison purposes, an annual average rate of growth of 5 percent will be assumed for the high end.

Alternative 1CD

Description

Alternative 1CD assumes an annual average rate of growth:1.5 percent of 1.5 percent which would result in a countywide population of approximately 34,500 people by the year 2012, or an increase of 9,200 people over the 20 year life of the Plan. This projection makes no distinction between incorporated and unincorporated area. If we assume that a constant 55.5 percent of the countywide population will continue to reside in the unincorporated area (as was the case in 1991), then unincorporated population would increase by approximately 5,100 people with the balance of the growth occurring in the two cities. Of course, decisions made during the General Plan process will determine whether unincorporated growth increases or decreases as a percentage of total county growth. As noted above, the County may choose to direct greater

amounts of growth to the incorporated cities or to direct growth away from the incorporated cities to existing and future unincorporated communities, including communities in the foothills.

The absorption of 5,100 people is a relatively modest undertaking by California standards. However, in the context of Glenn County, it will be the equivalent of adding the City of Willows to the county landscape. It is most likely that such growth will be spread between Hamilton City (due to the Chico influence), the fringes of Willows and Orland, and potential planned communities along I-5, including Artois. It is unlikely that growth of any consequence would be shifted to the foothills due to the lack of services and other infrastructure, and due to the limited demand created by this relatively modest growth scenario.

The rate of growth described under this scenario would create a demand for 1,500 to 2,000 additional jobs. Although commuters to the Chico area could be a substantial factor, the County will need to emphasize job creation and opportunities for industry to locate in the county, in order to avoid a continuation of an historically high unemployment rate and a growing public assistance burden. It is assumed that agriculture will continue to dominate the local economy.

Based on 1990 Glenn County household size the added population will also generate a demand for approximately 1,800 housing units in the unincorporated areas with an additional 1,450 units required in the two incorporated cities. Again, this assumes current conditions in terms of household size and distribution of population between cities and the unincorporated area.

Discussion

Although Glenn County's infrastructure is limited, it is likely that service providers could meet the demands suggested by this scenario and that financing mechanisms could be created which would allow the County to capture the cost of infrastructure and services brought on by additional development. Of concern is whether such a modest rate of growth will allow the county to attract development of sufficient scale and quality to be able to spread the cost of amenities and environmental protections suggested during the planning process, including buffer areas, open space, general upgrades in public services, and attraction of a greater array of retail shopping opportunities.

The environmental impacts of this potential scenario will be modest. Fewer than 100 housing units a year will be required to meet the demand. This, coupled with the range of opportunities available within the county for housing development, will permit the selection of sites with limited impacts on agricultural lands and natural resources. Total acreage needed to accommodate the projected growth should not exceed a thousand acres, assuming relatively compact growth patterns. Emphasis on growth in the Hamilton City area does, however, require close attention to the effects of flooding on development, and the impact such development may have on groundwater recharge areas through overcovering and potential degradation of groundwater quality.

Impacts on air quality and transportation facilities will occur, although the rate of growth should not result in significant impacts; however, there will be cumulative impacts which must

addressed through expansion of alternate modes of transportation. This will dictate a higher density development pattern and a need to locate development along major transportation corridors, such as I-5 and Highway 32. Some sections of Highway 32 are approaching unacceptable levels of congestion. Growth, even of a modest nature, will dictate improvements to the present facility.

From an economic perspective, growth will improve present conditions, if handled properly. As noted above, however, it is questionable whether the modest rate assumed in this scenario will be significant enough to measurably alter conditions during the 20 year period, particularly if it is assumed that commuting to Chico for jobs and shopping may intensify.

Social effects include a broadening of job and housing opportunities. Increased activity could have some effect on the County's social service burden but again, the rate of change is relatively modest and may have little effect. A comparison with the County's projected "fair share" of the regional housing needs as reported by the Tri-County Area Planning Council reveals a greater numerical need in Glenn County for housing over the next five years than will be constructed under this alternative. As an example the fair share allocation predicts 661 housing units are required, while this alternative is premised on fewer than 500 units being constructed over a five year period. If the Tri-County Area Planning Council numbers are used in the General Plan, adoption of this alternative would lead to inconsistencies within the text of the General Plan.

As noted under Section 2.2.1 of this Issue Paper, the cities of Orland and Willows have projected their populations to the year 2010. Taken together, the cities are anticipating a population increase of 11,041 persons by 2010. Assuming the cities are correct, a 1.5 percent rate of growth underestimates future growth impacts on Glenn County.

Alternative 2CD

Description

The second alternative assumes a rate of growth:3 percent of 3 percent per year resulting in a countywide population of approximately 47,000 people. This is an increase of 21,700 persons by the year 2012. Although this may appear high in the context of Glenn County, it is not unrealistic based on growth trends and projections in growing areas of California and is consistent with Glenn County's rate of growth during the past three years. For comparison purposes, the City of Willows assumes a growth rate of 2 percent while Orland is looking to a growth rate as high as 5 percent. As is the case with Alternative 1CD, no distinction is made in this figure between incorporated and unincorporated area population. Taking such a split into consideration and using the same assumption (55.5 percent unincorporated population) as in 1CD, approximately 12,000 additional people would reside in the unincorporated area, while the two cities would gain another 9,700 persons. A decision on the amount of growth to direct to unincorporated areas must be made prior to formulating the General Plan, and projecting areas necessary for growth. As noted under Alternative 1CD, the two cities are anticipating a planned increase of 11,041 people, or slightly more than 50 percent of the projected growth.

The accommodation of 12,000 additional people in the unincorporated area will be a much greater undertaking than that described in Alternative 1CD. Again, it is assumed that much of the growth will be concentrated in the Highway 32 corridor and to a lesser degree in the vicinity of Willows and along I-5. The amount of growth suggested by this scenario may be sufficient to generate interest in foothill development, if infrastructure and service costs are addressed through Mello-Roos or other assessment district financing.

The demand for new jobs generated by this scenario will approach 5,000. Again, commuting to Chico may partially offset in-county demand for jobs. If the county determines to utilize a 3 percent rate of growth for General Plan development purposes, it is obvious that the Plan must contain a strong strategy for job creation and economic diversification. If not, the county could end up with a substantial unemployment problem and social service obligation. Agriculture's role in the overall economy will be somewhat diminished under this scenario but will remain dominant.

More than 4,000 additional housing units will be required in the unincorporated area under this scenario in order to meet demand, and an additional 3,500 housing units will be required within the two cities. Acreage necessary to accommodate unincorporated area growth will be in the range of 2,000 acres, although this cannot be determined with any precision until densities are established along with other standards for development. Urban limit lines and other growth areas must be able to accommodate the projected population and must be shown on the land use diagram.

Discussion

The type of growth anticipated by this scenario will have a considerable impact on the county and will change the character and scale of present communities. It will require a concerted effort to upgrade and expand infrastructure and services. In order to be able to generate the dollars necessary to pay for costs to County government, a financing plan must be in place which requires developers and future residents to pay for these costs. In addition, the County must be careful to assure that jobs and other revenue generating activities accompany housing and that the county does not simply become a cheap place for people to live, who work and shop in the incorporated cities and adjoining counties.

At least 200 housing units will be needed each year under this scenario. This should not present a substantial burden to the County if properly planned for, including a government service financing plan, and use of urban limit lines to control scattered growth. Approximately twice the acreage will be needed for development under this scenario as the first, however, adequate sites are available without undue impact on other activities. In the Hamilton City area and elsewhere, larger areas subject to flooding or utilized for groundwater recharge will become subject to development pressure. Air quality and transportation impacts will increase, and considerable attention must be given to jobs/housing balance and alternative transportation to reduce commutes and the resultant impacts on air and roads. Planning should focus on greater utilization of the I-5 Corridor where sufficient capacity exists for additional trips.

The assumed rate of growth will generate considerable in-county economic activity over time, if the county can capture the jobs and retail sales that accompany such growth. The rate of growth will not, however, create a "boom" environment, as it remains relatively modest by most measures.

Social effects will include a broadening of job and housing opportunities as in Alternative 1CD. In addition, growth should be brisk enough to attract larger scale development that can afford to include some of the amenity and features desired in new development, particularly those that protect and enhance the environment. Growth of this scale will undoubtedly have some positive effect on the County's social service burden as new opportunities for housing and employment arise.

Alternative 3CD

Description

The final scenario assumes a growth rate of 5 percent. This is comparable to the growth rate assumed by the City of Orland for a similar planning period and is not out-of-line with rates of growth occurring elsewhere in the State, although maintenance of such a growth rate over a 20 year period is problematic. Approximately 43,000 people could be added to the county's population base under this scenario, bringing the countywide population to approximately 68,000. If the unincorporated area share is assumed to be 55.5 percent of the total, 24,000 people could be added, tripling the population of the unincorporated area. The amount allocated to the two cities under this scenario exceeds present projections for the two communities by several thousand people.

This scenario must assume that substantial improvements will be made to Highway 32, including bypasses for Orland and Hamilton City. As in Alternative 2CD, it may be desirable to focus development along I-5, and to look to a large integrated development in the foothills. The amount of growth suggested should justify serious consideration of a foothill alternative and should make financing of infrastructure and services feasible.

As many as 10,000 additional jobs could be required over the life of the Plan to provide in-county employment opportunities. Butte County may partially fill this need if job generation is not actively pursued in Glenn County, leaving the County with service burdens and inadequate income to cover its costs, resulting in little direct benefit to the County from the growth. Agriculture's dominance in the local economy will be diminished considerably under this scenario; however, the actual amount of land required for development should be less than 4,000 acres, leaving substantial acreage available for agricultural production. This acreage calculation does not include land necessary for development within the two cities.

Approximately 8,500 new housing units will be required to meet demand in the unincorporated area, necessitating careful planning and regulation of growth to assure that substantial problems are not created and the county left in a deficit position. An additional 7,000 housing units will be required within the two cities.

Discussion

Approximately 425 housing units must be added in the unincorporated area each year to under this scenario to keep pace. This is more than twice the number presently constructed. The scale of growth depicted by this scenario will have a significant effect on present communities and will generate considerable demand for establishment of new development areas along I-5 and, perhaps, in the foothills. The need to plan properly and to upgrade and expand infrastructure will be magnified, as will the need to assure jobs/housing balance in the county. Unincorporated growth will consume approximately 4,000 acres of land presently devoted to other uses and incorporated growth will require another 3,000 acres.

As with other scenarios, it is likely that growth will focus along Highway 32 and I-5, resulting in severe traffic problems without Highway 32 upgrades. Air quality problems will be magnified and alternative transportation systems will be a necessity. Again, the conflict with areas which flood and with groundwater recharge areas will be magnified. Conflicts over resource use within the county will undoubtedly arise as the nonfarm related population requires more water, more land and worries more about the impacts that agricultural practices have on the environment. Political power will shift away from agriculture and will rest with newer residents of the area with few ties to agriculture. Commuting to Chico will be prominent, regardless of the County's efforts to create jobs due to the presence of the University, and the fact that growth and activity in Chico will undoubtedly accelerate along with the acceleration in Glenn County.

A great deal of economic activity will be generated by this scenario; however, it may be of the boom and bust variety since the county may not be able to sustain the level of activity described on a constant basis. Considerable speculation in raw land will occur, harming agriculture and impeding its continuation in some instances.

As with other scenarios, social effects include a broadening of job and housing opportunities. However, the boom and bust potential could result in overbuilding accompanied by layoffs and considerable unemployment. Schools and other service providers will have difficulty keeping up, leading to overcrowding and less than optimum conditions. The pace of growth will result in the attraction of large scale and fully integrated developments that will improve the quality of development and will allow for features and amenities only possible in large scale undertakings. This, of course, assumes the County has plans and standards in place which give developers clear guidance as to what is expected. Because of the substantial population growth, the county's retail mix will be greatly enhanced, keeping more shoppers at home.

7.2 Role of County vs. Cities

Important decisions lie ahead for the County in the area of County role versus the roles of Orland and Willows. As alluded to under the alternatives discussion, the County could choose to adopt a "no growth" plan for the unincorporated areas around the two cities, allowing development only upon annexation to the city. This would avoid the necessity to develop County-owned and maintained infrastructure and to provide urban services in competition with the two cities. At the other extreme is the absence of coordination and general competition with cities for

development, frequently leading to land developers playing one jurisdiction off against the other. An approach that should also be discussed between the County and the cities is the concept of sharing of taxes from new development, if there is interest in diminishing the County's development role.

The role of the County should be carefully thought out and prescribed in the General Plan. The goals and policies portion of this Issue Paper lays the foundation for this work through the urban limit line concept and by tying policies on County versus city responsibility to those lines.

It is unlikely that Glenn County can avoid being in the urban service delivery business, even if it desired such a course of action, due to the considerable growth pressures that will be experienced during the term of the General Plan in the Hamilton City area and elsewhere. Special districts can, of course, deliver some basic services. It is likely, however that the districts, where they exist, will require support and assistance from the County. In addition, the County must still typically deliver planning and building services, road maintenance, storm drainage and law enforcement. Given that the County will be required to deliver urban levels of service in parts of the county, it is assumed that the County will not wish to preclude that option in proximity to the two incorporated cities.

In regard to the larger issue of whether the County should be in the urban development business at all, reality dictates that it must. Growth pressures in the Hamilton City area and along I-5 will not be deterred by the County's reluctance to participate. In addition, financial survival of County government requires that it actively court enterprises which generate revenue to the unincorporated county area and its residents. This was not always true, but the structure of government finance has changed radically during the past fifteen years, making it exceedingly difficult for a resource-based county to adequately fund county government, without diversification.

The Plan should provide a framework in which the County can share generously in future residential, commercial and industrial development opportunities, recognizing that this requires a commitment on the part of the County to develop its service capacity and to aggressively pursue new service delivery structures and financing mechanisms. As noted above and in the other two Issue Papers, it also requires that a course of action be worked out with the two cities, and incorporated into the General Plan, if unnecessary inefficiencies and conflicts are to be avoided.

7.3 Economic Scenarios

Three economic scenarios suggest themselves as potentially worthwhile to consider and speculate about during the Plan preparation process. Each represents a prospective approach to economic development by the County over coming years, and each has different implications for the probable intensity and direction of economic growth which the county might experience.

Alternative 1ED anticipates a condition under which the County deemphasizes economic development in proportion to other land use and planning priorities and, in fact, discourages growth. Alternative 2ED is presented as a laissez faire County position with respect to economic development and growth, including provisions to accommodate economic expansion and further development, but incorporating no overt County initiatives to encourage such activity.

Alternative 3ED presents the County as an active participant in, and supporter of, economic expansion and the promotion of additional local economic development.

Each of the referenced alternative scenarios is described and discussed conceptually in the following paragraphs.

Alternative 1ED

Description

Under this alternative, the County would adopt an emphasis in its planning policy framework which discourages additional growth in Glenn County and its various communities. Throughout California, and Glenn County is not exceptional in this particular regard, there is increasing concern by many residents and interest groups that the State's very rapid growth in recent years has severely taxed the capabilities of our public institutions and of society as a whole to provide adequate public services and sustain a desirable quality of life. Growth projections for California fuel such concerns, since forecasted immigration and birth rates continue to place California growth, and the growth of many of its rural areas in particular, near the top of the national profile for population expansion.

Glenn County, under Alternative 1ED, would withdraw funding and technical support for, and would discontinue participation in, established local economic development and business promotion programs (e.g. the Tri-County Economic Development Corporation, Glenn Chamber of Commerce Economic Development, Inc.). No new economic development initiatives would receive County support, and overtures from outside agencies, such as the State Department of Commerce and/or private business interests, would be discouraged.

County land use designations and development policies included in the General Plan would reduce to the maximum extent possible the availability of sites in the unincorporated area upon which non-agricultural uses could be established. Some downzoning of existing commercially and industrially-designated properties not yet developed would occur. Policies applicable to the placement of dairies and other agriculturally-based new industries would be narrowed to discourage the relocation of such facilities to Glenn County. The CEQA review process would be applied to the fullest extent possible to identify, establish and emphasize concerns which might discourage new business development in the county.

Emphasis on the preservation of the county's natural resources and open lands would take precedence over other land use policies. Urban limit lines around the incorporated cities and unincorporated communities in the county would be established and rigorously enforced to restrict land availability for new development.

Discussion

Alternative 1ED might be characterized as the representation of the "no growth" philosophy. Throughout California, this philosophy has found its voice in recent years among residents and

citizens fearful that the historic influx of population and business into the State has compromised the ability to support even basic public services and has contributed significantly to virtually irreversible environmental damage. No-growth initiatives proliferated on the ballots of many jurisdictions in the late 1980's, with mixed results. California's growth-related challenges have become a central focus for both the executive and legislative branches of California State government.

It can be concluded without dispute that a "no growth" posture by the County would discourage virtually any significant industrial, commercial or other economic development in Glenn County. There are literally several thousand localities throughout the western United States aggressively and proactively recruiting new business development and operating under policies which accommodate and encourage such development. Moreover, in the current recessionary environment, and given a perception, whether true in proportion to its described magnitude or not, that California is an anti-business state, the number of new or expanding business opportunities which might otherwise be attracted to Glenn County is limited somewhat to begin with. It is highly unlikely, therefore, that appreciable new industry or business would locate in Glenn County under this alternative.

As discussed in the Natural Resources Issue Paper, the establishment of a policy framework corresponding to Alternative 1ED would achieve benefits to the Glenn County environment. The County's natural resource base would be protected from the effects of development and the extent of lands committed to agricultural uses would not be jeopardized by encroaching non-agricultural development. Current residents who oppose any significant perceivable change in the conditions and character of their communities and the county in general would not be exposed to those changes typically accompanying population growth.

Offsetting such benefits and perceived advantages, however, would be the persistence of comparatively high unemployment in Glenn County, of the county's low family and per capita income levels, of the substantial portion of the county's population dependent upon public assistance programs to subsist, and of the increasing difficulty of financing basic, essential public services with proportionately diminishing fiscal resources at the County and city levels. Quality of life in Glenn County, if viewed in terms of economic access to goods and services and to a corresponding standard of living, would gradually diminish under this alternative. Moreover, many services and amenities identified by Glenn County residents as desirable but lacking in the county would not be likely to evolve over time.

Arguably, the no growth approach to the issue of economic development in Glenn County offers net benefits to some segments of the county's population -- their environment and lifestyles would not be altered from existing conditions currently satisfactory to them -- and to the general population of California and the broader region as a whole -- vast open spaces and agricultural lands would remain largely unaffected as aesthetic and productive amenities. At the same time, substantial portions of the county's population would suffer increasing economic and social hardship under this alternative, ultimately compromising the quality of life for virtually all county residents.

Alternative 2ED

Description

This alternative would create a policy framework in Glenn County which was accommodating toward economic development activities and business expansion; however, it would not provide for active County participation in, or support of, economic development initiatives and programs. Given limited County resources, Alternative 2ED as a General Plan policy approach effectively would say, "We welcome new business and economic growth here in Glenn County. If new business or industry wants to come here, we'll accommodate them. If you want to go out and recruit those businesses and industries, we'll be the first to wish you good luck. Just don't ask us for money or other material assistance, because we can't provide it."

Under this alternative, Glenn County would adopt land use and development policies, and General Plan and zoning designations, favorable toward new commercial and industrial development. Sites along I-5, near the airports, in Hamilton City, and elsewhere when surrounding conditions and infrastructure potential would render such uses feasible and appropriate would be targeted for industrial and commercial development. Private sector initiatives for such development would be received favorably by the County and the creation of employment or tax-generating land uses would be encouraged and facilitated by staff cooperation and decision-maker support.

The County would nominally support Glenn Chamber of Commerce Economic Development, Inc., the Tri-County EDC and other economic development programs and activities, but would not contribute funds, technical support or other material assistance. A perception that the County was actively involved in economic development or business recruitment would be avoided.

No other potential County investment in infrastructure improvements, recreational facilities, planning efforts or other activities which would encourage business and economic development in Glenn County would be made. The County's approach to economic development would, under this alternative, be strictly reactive, with no proactive component.

Discussion

Even blind squirrels occasionally find acorns, it has been said, and under Alternative 2ED, Glenn County may find the occasional project materializing which helps boost the local economy. The efforts of The Tri-County EDC, Glenn Chamber of Commerce Economic Development, Inc., the State of California and others to promote local economic development would inevitably attract some new business activity to the county and its communities, even without active County support. County commitment, and even County funding, are invaluable assets to local economic development efforts and initiatives, however, and their absence would certainly somewhat compromise the extent and potential effectiveness of such programs, in proportion to their capacity to succeed with such County support.

Under this alternative, it is possible that some inroads would be made to address the existing high countywide unemployment rate and the seasonal fluctuations in employment and income generation. It should be acknowledged that some growth in population and corresponding increases in traffic, housing demand and other environmental impacts would occur as well. So, too, would demands for municipal and County services be likely to increase, potentially without offsetting increases in local government revenues to help fund the costs of such services.

Given current trends, it seems likely that an outcome of the approach represented by Alternative 2ED would be continuing expansion of housing in Glenn County, given its comparative affordability, to support households of persons employed in nearby Chico. The acknowledged liability of a jobs/housing ratio imbalance of the type which would potentially evolve under such a scenario is the service requirements of residential land uses with disproportionately small revenue-generating capabilities to pay for those services under existing local financing structures.

Alternative 3ED

Description

Alternative 3ED would provide for Glenn County to continue and expand its role as an active participant in and supporter of the local and regional economic development processes. Under this alternative, the County would establish a pro-economic growth policy framework in its General Plan, giving reasonable priority to employment-generating land uses over natural resource preservation, agricultural land utilization and other environmental concerns. The County would also contribute funding and staff resources to active economic development programs and initiatives operating on behalf of Glenn County and the region.

General Plan and zoning designations would establish sites for employment-generating commercial and industrial land uses at appropriate key locations, such as along I-5, at the airports, in or near Hamilton City, and at other sites where infrastructure and other factors indicate feasibility. The County would seek and implement public improvements (e.g. road improvements, wastewater disposal, etc.) supporting commercial and/or industrial development.

County officials would actively participate in the activities of Glenn Chamber of Commerce Economic Development, Inc., the Tri-County EDC and other local and regional economic development and business promotion organizations. County funding support, and technical assistance from County staff, would be provided at appropriate and affordable levels to such organizations. County contact with the State Department of Commerce and other outside agencies would be established and maintained to ensure that Glenn County stays "in the loop" on regional and Statewide business development opportunities.

Processing of applications for employment-generating projects and new businesses by the County would be expedited by County staff through the decision-making hierarchy. Staff would afford project applicants with whatever technical assistance in formulating application materials as might be feasible and reasonable.

The County would, through its own day-to-day operations, promote local business, in the form of local procurement of goods and services whenever possible, in the form of a cooperative regulatory enforcement environment, and through the provision of adequate public services.

This alternative can best be characterized as a very proactive County approach to economic development, with the County as a key player in local economic and business development initiatives and projecting a pro-growth and pro-business attitude.

Discussion

At least in its intent, Alternative 3ED is the approach under which the greatest amount of new industrial and business development would occur in Glenn County. To the extent that such development were to be induced, the county would experience the inevitable related consequences of growth: new population, conversion of open and agricultural lands to urban uses, increased demands for public services, traffic, and other typical outcomes of development projects. Accompanying such development, however, should also be more jobs for county residents, less seasonal fluctuation in employment, more disposable income to put back into the county's economy, and more tax revenue available to meet growing public service demands.

A proactive County government and an active and competent economic development program, however, are not enough to ensure that industrial growth and business development in Glenn County will take place. Economic development and business recruitment occur in a highly competitive environment throughout rural California, and the number of new or expanding businesses which might locate in California is small in proportion to the number of jurisdictions and geographic regions which would welcome them. The experience of other communities and counties throughout the State, though, has been that active and effective local business recruitment and business retention programs, in a pro-business environment, are far more successful in generating economic expansion, with its corresponding benefits, than are those areas who are anti-growth or laissez faire.

Consequently, to the extent that Glenn County places a policy priority on successful economic expansion for the benefit of county residents, experience suggests that the proactive and committed approach represented by Alternative 3ED would be required to achieve the County's economic objectives.