

**NATURAL RESOURCES
MANAGEMENT ELEMENT**

V. NATURAL RESOURCES MANAGEMENT ELEMENT

A. INTRODUCTION

The purpose of this section is to identify existing natural resources in the Horseshoe Bar/Penryn area and develop goals and policies to allow for their preservation, use, and enhancement. This Element contains three chapters including Natural Resources, Open Space, and Cultural and Paleontological Resources. The majority of technical data and descriptive information relating to each of the following sections are contained in the Plan's EIR, incorporated herein by reference.

Conservation of natural resources acknowledges that resources are both finite and renewable. The wise use of these resources depends on the willingness to accept their importance and limitations. There are several resource constraints which, when viewed individually or together as a composite, represent impediments to the use of land, water and air. Strategies contained in this section will allow for the necessary compromise in the competition for limited resources while implementing policies of this Community Plan and accommodating expected growth.

B. NATURAL RESOURCES

Natural Resources include soils, geology, hydrology, vegetation, fish and wildlife, and air quality. Together, these natural resources comprise the physical environment. The goals and policies contained in each of the following sections will allow for the necessary compromise in the competition for limited resources.

1. SOILS

a. Goals

- (1) CONSERVATION OF SOILS AS A VALUABLE NATURAL RESOURCE.
- (2) MINIMIZE SOIL LOSS DUE TO ACCELERATED EROSION.
- (3) MINIMIZE THE CONVERSION OF SOILS SUITABLE FOR AGRICULTURAL PURPOSES TO NON-AGRICULTURAL USES.

b. Policies

- (1) Utilize the existing inventory of important soil types to serve as a means of identifying unique and important resources prior to project development. In the absence of more detailed site specific studies, determination of soil suitability for particular land uses shall be made according to the Soil Conservation Service's Soil Survey of Placer County.
- (2) Coordinate with local, state and federal agencies with a trustee responsibility for the management of natural resources when land development activities affect soil resource conservation and management efforts.
- (3) Require slope analysis maps during the environmental review process or at the first available opportunity of project review, as needed, to assess future grading activity, building location impacts, and road construction impacts.

- (4) Ensure implementation of the Placer County Grading Ordinance to protect against sedimentation and soil erosion. Minimize grading during the rainy season to reduce erosion and sedimentation potential to provide for slope stability.
- (5) Developers shall provide adequate drainage and erosion control during construction as described in the Placer County Land Development Manual.
- (6) Require graded slopes to conform to the natural topography to the greatest extent possible.
- (7) Discourage the conversion from agricultural uses to non- agricultural uses by encouraging Williamson Act Preserves and by maintaining large minimum parcel sizes in agricultural areas in order to prevent fragmentation of land ownership patterns that lead to the loss of open space and economic agricultural units.

c. **Discussion**

Soils in the Plan area were completely mapped by the Soil Conservation Service in 1979. A soils maps and interpretive information appears in the EIR. Most Plan area soils are derived from granitic rock or andesitic conglomerates while others are derived from top alluvial deposits and hard volcanic caps. Most areas are well drained on the surface due to the topography, but exhibit a high density of drainage features which create special problems in land development.

The soils in the Plan area, some of which have steep slopes and loose textures, generally exhibit moderate erosion potential and are particularly susceptible to erosion when exposed on embankment faces and slopes. The effects of erosion range from nuisance problems, such as increased siltation in storm drains that require additional maintenance, to extreme cases where watercourses are down-cut and gullies develop that can eventually undermine adjacent structures or vegetation. Each project or development must receive specific consideration of the effects of project associated earth disturbance upon soil stability and resultant water quality.

Grading and excavation activities for future construction projects would disrupt normal soil conditions and remove vegetative cover. Soils in the Plan area exhibit a moderate erosion potential, that, when combined with ground-disturbing activities during construction, could substantially increase the potential for wind and water erosion on graded areas and could increase the potential for sedimentation of local watercourses.

The Plan area contains soils that exhibit moderate constraints to development, including erosion hazard and shrink-swell potential. Development on soils with moderate to high erosion hazard and moderate shrink-swell potential could lead to ground failure, causing structural damage or personal injury.

Liquefaction in soils and sediments occurs during earthquake events, when material is transformed from a solid state into a liquid state by increases in inter pore pressure. Earthquake-induced liquefaction most often occurs in low-lying areas with soils or sediments composed of unconsolidated, saturated clay-free sand and silts, but can also occur in dry, granular soils or saturated soils with some clay content.

The presence of several unconsolidated and saturated sands throughout the Plan area could indicate a moderate liquefaction potential. However, ground shaking in the Plan area from an earthquake on a nearby fault would be moderate and the likelihood of such an earthquake is

considered to be low. Also, future developers would likely excavate these types of soils before constructing building foundation.

Soils in the area are generally quite shallow, mostly between 12 and 40 inches deep. Inherent fertility generally rates from low to moderate. When grouped into categories of suitability for cultivation (using USDA, Soil Conservation Service, capability classification methods) and other agricultural uses, the Plan area soils fall into two categories: land suited for cultivation and land limited in use -- generally not suited for cultivation. The greatest proportion of Loomis area soils falls into the first group which includes Class I-IV. Soils in Class I have few or no limitations and hazards and represent the highest category of arable lands. Class II includes soils which similarly have few limitations. Both classes are capable of producing high quality agricultural products such as row crops, orchard, vineyard, and pasture. Classes III and IV contain soils with more limitations and hazards which require more difficult or complex conservation practices. Even so, these soils are suited for agricultural cultivation.

A smaller proportion of Plan area soils is included within the second group, Classes V through VIII, which soils are largely unsuited for cultivation. There are exceptions in Classes V and VI where, if localized problems can be solved, tree crops can be grown economically. The latter two classes represent less than ten percent of the total Plan area.

Class VII includes almost all the stream channel alluvial deposits which are extensively placer-mined early in this century. Class VIII includes mine tailings in general which take up very little of the Plan area.

d. **Implementation**

The following implementation measures will ensure that the Plan area's natural topography is generally maintained during construction activities associated with buildout of the Community Plan.

- (1) Require submittal of detailed geological reports for new development projects located in potential areas of high hazard.

Responsible Agency/Department: Department of Public Works

Time Frame: On-going ,

Funding: Plan Review Fees

- (2) Encourage the use of PUDs, where appropriate, to preserve large expanses of open space and minimize disturbance of the natural terrain.

Responsible Agency/Department: Development Review Committee

Time Frame: On-going

Funding: Permit Fees

- (3) During the review of private development projects, site specific studies shall be prepared including soil reports, slope analysis, grading plans, and erosion control and rehabilitation plans which demonstrate compliance with the Community Plan's goals and policies.

Responsible Agency/Department: Development Review Committee

Time Frame: On-going

Funding: Permit Fees/Plan Review Fees

- (4) Require Best Management Practices of the Placer County Resource Conservation District and the USDA Soil Conservation Service through developer participation, discretionary fees, general fund monies, etc.

Responsible Agency/Department: Department of Public Works

Time Frame: On-going

Funding: Permit Fees/General Fund

2. GEOLOGY

a. Goals

- (1) MINIMIZE LOSS OF LIFE, INJURY, DAMAGE TO PROPERTY, AND IMPACTS TO HUMAN HEALTH RESULTING FROM GEOLOGIC HAZARDS.
- (2) IDENTIFY AND PROTECT IMPORTANT GEOLOGIC AND MINERAL RESOURCES IN THE PLAN AREA.

b. Policies

- (1) A detailed geological report shall be prepared during the environmental review process for public and private development projects proposed in high hazard areas. Recommendations of said report shall be incorporated as mitigation measures or conditions of project approvals, as appropriate. Such reports shall be completed by a registered geologist, or other qualified specialist, and shall conform to standards adopted by Placer County. A soils report shall be required for all building and grading permits located within areas of known slope instability or where significant potential hazards have been identified.
- (2) Require a soils report on all building permits and grading permits within areas of known slope instability or where a significant potential hazard has been identified.
- (3) Require septic leach fields and drainage plans during the environmental review process to direct runoff and drainage away from steep and/or unstable slopes.
- (4) During project review, consider the development limitations of geologic formations.

c. Discussion

The surface geology map included in the Community Plan EIR shows the distribution of three rock units and two unconsolidated alluvial units within the Plan area. Most of the surface consists of deeply weathered or resistant outcrops of granitic rocks, quartz diorite and granodiorite, which range from 125 to 136 million years old. Remnants of a hard volcanic and conglomerate rock unit occur as a cap rock and isolated ridges and hills within the Plan area.

Present stream channels are very narrow, usually entrenched 4 to 15 feet within older sands and gravels of bordering terrace deposits. Older terrace gravels of reddish granitic sands and quartz pebbles occur in scattered patches bordering terrace deposits. Both indicate the pattern of ancient stream channels. Many small-scale deposits of stream channel and terrace deposit alluvium occur along minor stream tributaries and intermittent drainage swales that are not shown on the map.

Mineral Resources

Mineral deposits are widespread throughout Placer County; known mineral resources in the County include sand, gravel, clay, gold, quartz, decomposed granite, and crushed quarry rock. Clay, stone, gold, and sand and gravel for construction aggregate are currently extracted. No active quarries or mining sites are known to exist in the Plan area. Two inactive mining sites (for extraction of decomposed granite and crushed quarry rock) exist in the northwestern portion of the Plan area along 1-80; no additional potential mineral resource areas have been identified in the Plan area.

Topography

The topography of the Plan area ranges from gently rolling and nearly level land in the western portion to steep slopes in the eastern portion. Elevations range from 200 feet above mean sea level to approximately 1,200 feet above mean seal level; most of the Plan area is 500 to 800 feet above mean sea level and exhibits relatively steep slopes and moderate relief.

The Community Plan EIR includes a generalized slope map of the area that displays slopes in three categories: 0%-14%, 15%-30%, and 30% and above. As shown, most of the area ranges from 0% to 14% slopes with scattered steeper areas. Most of the eastern portion near Folsom Lake and east of Rattlesnake Bar Road ranges from 15% to 30% of steeper slopes. Generally, the land near Auburn-Folsom Road is relatively flat with some pockets of steeper slopes between Auburn-Folsom Road and 1-80. The western portion of the Plan area, primarily north of Penryn and along Antelope Creek, has more rolling land, with slopes of varying steepness.

Portions of the Plan area contain gently rolling hills, scenic ridge lines, and large rock outcroppings. Mass grading during construction activities for future development projects would alter the natural topography of the Plan area and would increase erosion rates in those areas. Development and excavation activities in areas of steep slopes during construction for future projects could increase the potential for unstable slope conditions and group failure, potentially exposing people and property to geologic hazards.

A large single-level structure on a pad requires very large cuts and fills, even on modest slopes. Similarly, roads can require a substantial amount of grading depending on design and width requirements. Given the highly variable nature of the slopes in the Plan area, it is important that these issues be addressed on a project-by-project basis to ensure that project designs are tailored to individual site slopes.

Seismicity

The Plan area is located between two seismically active zones: the San Francisco Bay area to the southwest and the Basin and Range area to the northeast. As a result, earthquake hazards have existed in the regions surrounding the Plan area. Injury to people and damage to structures during earthquakes can be caused by actual surface rupture along an active fault or by ground shaking from a nearby or distant fault. These hazards and their potential effect on the Plan area are described below.

Regional Faulting

The California Division of Mines and Geology (CDMG) defines active faults that have exhibited evidence of displacement during the Holocene (10,000 years ago to present), and defines

potentially active faults as faults that exhibited evidence of displacement during Pleistocene time (10,000 years to 1.8 million years ago).

Although the provisional Fault Map of California prepared by CDMG indicates that there are no active faults in the Plan area, extensive faulting has occurred during past uplift and folding episodes in the Sierra Nevada. Most of the faults generated during those periods were small to medium. Several large, more continuous faults, however, were created; these collectively form the Foothills Fault System. A strand of the Foothills Fault System passes through the eastern portion of the Plan area. Past studies on this fault system have indicated that major elements of the system could be active. CDMG, however, has concluded that there is insufficient evidence to categorize the Foothill Fault System as active (i.e., there is no evidence of significant movement having occurred during the past 11,000 years).

Consequently CDMG has not designated any lands in the Plan area as Alquist-Priolo Special Studies Zones. The Alquist-Priolo Act of 1971 requires that special geologic studies be conducted to locate and assess any active fault traces before development activities begin in areas around known active faults. The law's intention is to minimize damage from fault rupture by preventing construction across an active fault. The law requires that buildings be set back at least 50 feet from any active fault traces found during an investigation.

Surface Rupture

The hazard of surface rupture during earthquake events is generally limited to the narrow strip of land immediately adjacent to the fault on which the event is occurring. Because the Plan area contains no active faults, the likelihood of surface rupture in the Plan area is considered low.

Ground Shaking

Although the hazard of surface rupture during earthquake events generally only occurs along the fault on which the earthquake is occurring, earthquake-induced ground shaking can pose threats to people and structures at locations distant from the fault. Ground shaking at a particular location depends on several factors:

- earthquake magnitude (i.e., a measure of total energy released by the fault rupture,
- epicentral distance (i.e., the distance from the center of the fault rupture to the location of interest), and
- Subsurface conditions of the geologic and soil units at the location of interest.

Earthquake magnitude is measured by the Richter scale of Arabic numbers, for which no theoretical maximum exists. The greater the energy released from the fault during the earthquake, the higher the magnitude measured. Ground motion is most intense at the fault epicenter; the farther an area is from an earthquake epicenter, the less likely it is that ground shaking will occur. Subsurface sediments consisting of unconsolidated, clay-free sands and silts are highly susceptible to instability and shaking during earthquake events; this can result in extensive damage to structures built on them.

According to the USGS's map of United States seismic risk zones, the Plan area is located in Seismic Risk Zone 2 where the severity and probably damage from nearby earthquakes on active strands of the Foothills Fault System would be moderate.

Development as allowed by the Community Plan would result in construction in Seismic Risk Zone 2, as defined by the U.S. Geological Survey. Development in Seismic Risk Zone 2 could subject people and property to moderate ground shaking during a strong earthquake event on a nearby fault, potentially causing moderate structural damage or injury.

d. **Implementation**

- (1) Enforce the Uniform Building Code for seismic concerns.

Responsible Agency/Department: Building Department

Time Frame: On-going

Funding: Permit Fees

- (2) Require the preparation of a soils engineering and geologic- seismic analysis prior to permitting development in areas prone to geological or seismic hazards (i.e., groundshaking, landslides, liquefaction, critically expansive soils).

Responsible Agency/Department: Department of Public Works

Time Frame: On-going

Funding: Permit Fees/Plan Review Fees

- (3) Continue to enforce its Grading Ordinance to ensure that areas of slope instability are adequately investigated and that any development incorporates appropriate design provisions to prevent landsliding.

Responsible Agency/Department: Department of Public Works

Time Frame: On-going

Funding: Permit Fees/Plan Review Fees

- (4) Require the preparation of drainage plans that direct runoff and drainage away from unstable slopes for construction in hillside areas.

Responsible Agency/Department: Department of Public Works

Time Frame: On-going

Funding: Permit Fees/Plan Review Fees

3. **Hydrology and Water Quality**

a. **GOALS**

- (1) CONSERVE AND ENHANCE, AND PROTECT FROM DEGRADATION, SURFACE AND GROUND WATER SUPPLIES AND ADEQUATELY PLAN FOR THE DEVELOPMENT AND PROTECTION OF THESE RESOURCES FOR FUTURE GENERATIONS.

- (2) SAFEGUARD AND MAINTAIN NATURAL WATERWAYS TO ENSURE WATER QUALITY, FLORA AND FAUNA SPECIES DIVERSITY AND UNIQUE WILDLIFE HABITAT PRESERVATION.

- (3) PRESERVE AND PROTECT THE FOLSOM LAKE WATERSHED BY LIMITING THE EXTENT DEVELOPMENT WITHIN THIS SENSITIVE AREA.

b. **Policies**

- (1) Strongly discourage development within the Folsom Lake Watershed.
- (2) Where development at a base zoning density greater than a 4.6-acre minimum parcel size are allowed to occur within the Folsom Lake Watershed, encourage the use of PUDs and/or other mechanisms to locate development as far as possible from the Lake and those drainageways and creeks emptying into the Lake (see Vegetation Policy 13).
- (3) Seek to maintain or improve the quality of waters in Secret Ravine, Miners Ravine, Antelope Creek, and Mormon Ravine.
- (4) Require the application of feasible "Best Management Practices" for all new development to prevent discharge of stormwater pollutants into surface and groundwater.
- (5) Encourage the use of open space to preserve and enhance the watersheds, stream corridors and wetlands significant to the protection of water resources such as the American River/Folsom Lake, Secret Ravine, Miners Ravine, Antelope Creek, and Mormon Ravine.
- (6) Strongly discourage septic systems on property located within the Folsom Lake Watershed within the service boundaries of Sewer Maintenance District No.3, as a means of maintaining the water quality of Folsom Lake.
- (7) Monitor the quality of groundwater in the Plan area as new wells are constructed, to develop baseline data, identify problem areas, and evaluate the success of pollution control strategies.
- (8) Require as part of the environmental review process, a study of the effects of development upon groundwater wherever important watersheds or the groundwater is likely to be adversely affected.
- (9) Reduce the negative impacts on water quality resulting from urban runoff for all commercial, industrial, and residential projects by treating such runoff before it enters intermittent or permanent streams. All feasible mitigation measures should be considered, including, but not limited to, artificial wetlands, infiltration/sedimentation basins, riparian setbacks, oil/grit separators, or other effective means, where appropriate.
- (10) Wherever development may adversely affect the groundwater, require as a part of the environmental review process effective mitigation measures such as the extension of public sewers and treated domestic waters into the area, as well as other restrictions regarding building setbacks, grading activities, and removal of streamside vegetation. Wells for domestic use should only be constructed where the groundwater is of suitable quality and quantity, as determined by the Division of Environmental Health.

- (11) Improve water quality by eliminating existing water pollution sources and by discouraging activities which include the use of hazardous materials around wetland and groundwater recharge areas.
- (12) The community's canal systems should be protected from excessive contamination resulting from spillage or runoff of impurities originating from land development projects.
- (13) Promote water conservation through development standards, building requirements, landscape design guidelines, and other applicable policies and programs.
- (14) Coordinate with the Placer County Health Department and the Department of Public Works in identifying critical watershed areas and in designating Best Management Practices appropriate to those areas for use by new development projects which are undertaken in those watersheds.

b. **Discussion/Implementation**

Concurrent with this Community Plan update, the County-wide General Plan is also undergoing an update. In the Background Report of the County-wide General Plan, watershed management is recognized as beneficial to domestic water supplies.

Implementation measures to protect watersheds throughout the County will not be delineated until later in the General Plan update process, however certain general methodologies for protection of watersheds and water quality mentioned in the General Plan Background Report are pertinent in the Horseshoe Bay/Penryn Community Plan area. These general methodologies are: construction/development controls and regulations; zoning/land use restrictions; watershed/stream/reservoir buffer zones; septic tank permits/restrictions; and watershed monitoring/management programs and practices.

In this Community Plan area, the public water supplied from Folsom Lake will benefit from these types of programs within the watershed. Water uses within other waterways, though somewhat less critical than those of Folsom Lake, can also benefit from such strategies.

(1) **FOLSOM LAKE WATERSHED AND WATER QUALITY PROTECTION**

Folsom Lake is a vital, high quality raw water resource for subsequent treatment and domestic use by families, businesses, and industries in large areas located within as well as outside of Placer County. For instance, the City of Roseville obtains its domestic water supply from Folsom Lake, as does the San Juan Suburban Water District. San Juan serves large areas within both Placer and Sacramento Counties. The Lake's value as the area's high-quality domestic water source cannot be overemphasized in water-poor California. Even after the current drought eases, Folsom Lake water will be crucial to our society. It is incumbent upon this Community Plan to provide protection of Folsom Lake from unnecessary pollution to help insure that this high-quality resource continues to be available over the long-term.

Currently the quality of Folsom Lake water is very good. However, the cumulative effects of pollution from land developments within the watershed can adversely affect this. Pollutants from such sources as roadways with their petroleum and heavy metal pollutants,