8F.0 NATURAL ENVIRONMENT: MINERAL RESOURCES

8F.1 OVERVIEW

LEGAL BASIS AND REQUIREMENTS

Government Code Section 65302(d) mandates a conservation element for the conservation, development, and utilization of natural resources, including water and its hydraulic force, forests, soils, rivers, and other waters, harbors, fisheries, wildlife, minerals and other natural resources. That portion of the conservation element including waters should be developed in coordination with any County-wide water agency and with all district and agencies, which have developed, served, controlled, or conserved water for any purpose for the County for which the plan is prepared.

8F.2 PURPOSE AND METHODOLOGY

The purpose of this analysis is to provide a synopsis of current mineral resources within Tehama County as well as to provide for the conservation and production of mineral resources consistent with the preservation of values deriving from recreation, watershed, wildlife, fish, agriculture, air quality, soils and aesthetic enjoyment.

8F.3 EXISTING SETTING

MINERAL AND AGGREGATE RESOURCES

In 1975, the California Legislature enacted the Surface Mining and Reclamation Act (SMARA) to prevent adverse environmental impacts of mining operations, to reclaim mined lands, to encourage production and conservation of minerals, and to also consider the value and potential uses of mineral areas for recreation, watershed, wildlife habitat and scenic enjoyment and the elimination of public health and safety hazards associated with mining activities (Public Resources Code 2712). The requirements of this Act are described in further detail in the Findings section, which follows.

The majority of Tehama County's mineral wealth is derived from the extraction of non-metallic sand, gravel, and volcanic cinder, which are used primarily by local paving and construction industries. Because of their bulky, heavy character, aggregate resources are expensive to transport, and given increasing transportation costs, the sand and gravel deposits located close to the developing areas of Tehama County are valuable assets. As of May 1981, there were 32 mineral extraction operation permits granted in Tehama County. See **Figure 8F-1** for a full location of mining sites.

Other mineral resources found in the County include aragonite, borax, chalcopyrite, chromite, copper, cristobalite, galena, garnet, opal, pectolite, penninite, sassolite, and Wallstonite. Of these, chromite offers the best possibilities for development. Chromite is an important metal used in steel production, yet almost all of the nation's demand for this metal is currently met by import rather than domestic production. In future years, domestic production of chromite may become a necessity due to rising importation costs and/or decreasing foreign supplies. At such a time, the demand for chromite deposits in Tehama County may increase, resulting in future development of chromite mining operations. The Raglin Ridge area along the North Fork of Elder Creek in the Western Planning Area contains the most significant deposits of this metal.

The earliest record of production of chromite was in 1886 when the Tehama Consolidated Chrome Co. located deposits and mined lenses of high-grade ore from open cuts. Shipments were made by rail to San Francisco and then by boat to Philadelphia. The properties were then

closed and remained idle until World War I in 1915. From 1915 until the collapse of the market in 1918, the Noble Electric Steel Co., the American Refractories, and several other operators produced 3,800 long tons of chromite ore. Significant production was resumed in 1942.

Tertiary continental deposits cover a majority of the older rocks in which chromite occurs in the Sacramento Valley. Eastward-dipping sedimentary rocks of late Jurassic to Cretaceous age border the Klamath Mountains. Separated from the southern Klamath Mountains by a long, tabular, north-trending body of peridotite is the Elder Creek mass, which, in some places attains a thickness of more than 2 miles. The Elder Creek mass terminates to the north at the South Fork of Cottonwood Creek.

Another large body of peridotite, the Beegum Creek body, crops out in the northwest corner of the county and extends more than 6 miles in a northwesterly direction into Trinity County. It lies within Paleozoic and Triassic metasedimentary and metavolcanic rocks. It is irregular in shape, and much of it has been sheared to slickentite. Many thousands of long tons of lump ore and concentrates have been mined from the Elder Creek and Beegum Creek peridotite masses over the last 125 years.

Natural gas and geothermal resources are also located in Tehama County. Natural gas fields are found in the South I-5 Planning Area to the northeast and to the south of the City of Corning. Geothermal springs are located in the Eastern and Western Planning Areas and in Lassen National Forest (portions of Eastern Planning Area of Tehama County, Plumas, Lassen and Shasta Counties.) The thermal springs in Lassen National Park are of a moderate surface temperature ranging from 66°C to 129°C (150°F to 264°F). If located on private lands, these springs could be used for direct heat application such as space heating or cooling. Two geothermal springs are located on private lands in Tehama County. The first is situated at the junction of Salt and Dry Creeks in the Western Planning Area. The second is located in the Eastern Planning Area, also along Salt Creek, Northeast of Red Bluff. Both of these are low temperature springs, 38°C and 30°C respectively (100°F and 86°F). As such, they may be suitable for direct heat application or for agricultural purposes if used in conjunction with other energy resources. At the present time, however, little direct use has been made of these resources.

Construction and mining constitute only 4% of Tehama County employment reflecting the relatively low intensity of mineral development in the County today. Though this figure is small, mining should not be considered an insignificant contribution to the County's economy and is worthy of protection under General Plan policies and programs.

8F.4 REGULATORY FRAMEWORK

THE SURFACE MINING AND RECLAMATION ACT

Requirements to the Surface Mining and Reclamation Act of 1975 (hereinafter the "Act") state that cities and counties must adopt an ordinance(s) "…which establishes procedures for the review and approval of reclamation plans and the issuance of a permit to conduct surface mining operations." (Public Resources Code Section 2774.) The intent of this legislation is to ensure the prevention or mitigation of the adverse environmental impacts of mining, the reclamation of mined lands, and the production and conservation of mineral resources are consistent with recreation, watershed, wildlife, and public safety objectives (Public Resources Code 2712).

The Tehama County Zoning Code complies with the requirements of the Act by permitting "the commercial excavation of natural materials…in any (zoning) district upon the securing of use

permits in each case. The excavation of natural materials shall be in conformance with all provisions of the Surface Mining and Reclamation Act of 1975 and future amendments thereto."

Also according to the Act, in association with regulations of the State Board of Mines and Geology, the State Geologist must identify mineral areas of the state, which are threatened by incompatible land uses that would preclude mining activities. These areas are to be classified as one of four Mineral Resource Zones (MRZ) or as a Scientific Zone as explained in Table M-1. This classification system must be incorporated into the General Plan of cities and counties supporting mining operations, including dredging and quarrying, and is intended to ensure that mineral resources will be available when their development is necessary or economically feasible.

8F.5 ISSUES AND OPPORTUNITIES

Four gravel extraction operations are presently functioning along Dibble and Blue Tent Creeks in the North I-5 Planning Area and are in close proximity to lands designated as future suburban residential areas by the General Plan.

The General Plan should provide for the future protection of these sites by means of setback requirements and land use buffers.

As residential development increases, these requirements may need to be supplemented by regulations limiting house of operations and noise and/or dust generation.

These regulations should be incorporated into the Tehama County Zoning Code, as they are applicable as impact mitigations for a variety of land use conflicts.

8F.6 IMPLICATIONS FOR THE GENERAL PLAN

The 1983 Tehama County General Plan listed the following objectives relating to minerals:

- M-1: Encourage the use of the County's energy and mineral resources.
- M-2: Encourage commercial and industrial development of mineral resources in accordance with an acceptable plan covering methods of operation and in a manner that does not preclude the fulfillment of other stated objectives.

The 1983 Tehama County General Plan included the following policies:

- M-A: Mineral extraction operations and accessory uses shall be conditionally permitted in areas inherently compatible with mining. These lands are characterized by their low economic value in both land and improvements.
- M-B: To protect both mineral and non-mineral related land uses, future development adjacent to conditionally permitted mineral extraction operations shall be regulated to avoid conflict with mineral resource development.

Regulations as delineated in the Zoning Code shall be responsive to the type/intensity of the mining operation and the nature of the adjacent land use.

- M-C: A reclamation plan shall accompany all applications for mining or mineral extraction use permits.

According to the 1983 General Plan, implementation of policies M-A should be achieved through land use designations on General Plan Maps and enforced through the revised Zoning Ordinance.

Policy M-B and M-C should be implemented on a case-by-case basis through the Tehama County use permit process, as prescribed by the Tehama County Zoning Code.

According to the 1983 General Plan, the future of mineral mining in the more densely populated areas of the County shall be protected through the requirement of mitigation measures and reclamation plans which reduce or eliminate impacts from adjacent land uses on mining operations and, conversely, the impacts of mining operations on adjacent land uses. These mitigation measures and plans shall be prepared in compliance with the State Surface Mining and Reclamation Act of 1975.