4.5 Mineral Resources

4.5.1 Abstract

The primary mineral commodities currently mined in Monterey County are sand, gravel, and petroleum. This section characterizes the mineral resources setting and regulatory framework applicable to mineral resources in Monterrey County.

The 2007 General Plan policies affect mineral resources in the County by defining methods for their long-term protection. The 2007 General Plan policies guide land use activities in order to avoid adverse impacts to identified mineral resources. This section also evaluates the potential loss of availability of known mineral resources due to land use conversions associated with the implementation of the 2007 General Plan.

All potential mineral resource impacts from development and land use activities by the 2007 General Plan would be less than significant and would not require mitigation.

4.5.2 Existing Setting

This section describes the existing setting related to mineral resource production in Monterey County.

Historic mineral production in Monterey County included sand and gravel mining for construction materials, mining for industrial materials (diatomite, clay, quartz, and dimension stone) and metallic minerals (chromite, placer gold, manganese, mercury, platinum, and silver).

The public depends on several categories of minerals found in Monterey County for a variety of everyday uses. For example, minerals such as sand and gravel are used to make concrete for buildings and asphalt to pave roads. Crude oil, natural gas, and coal are fuel minerals used for producing petroleum and petrochemicals.

The predominant non-metallic minerals found in the county include sand and gravel, limestone and dolomite, gemstones (mainly jade and jasper), asbestos, barite, clay, diatomite, feldspar, phosphate, sodium compounds, and stone.

Of the non-metallic minerals, construction-grade aggregate (sand, gravel, and crushed stone) is the most abundant and commonly used mineral resource in the county.

4.5.2.1 Non-Metallic Minerals

Sand and Gravel

The California Surface Mining and Reclamation Act (SMARA) of 1975 requires the classification of land into Mineral Resources Zones (MRZs) according to known or inferred mineral potential of that area. The classification process is based solely on the underlying geology without regard to existing land use or land ownership. The primary goal of the mineral land classification is to ensure that the mineral potential of the land is recognized by local government decision-makers and is considered before making land use decisions that could preclude mining.

Aggregate resources are classified by the State Geologist into four mineral resources zones based on the likelihood of the presence of mineral deposits and their economic value. This mineral land classification is used to help identify and protect mineral resources in areas within the State subject to urban expansion or other irreversible land use changes that would preclude future mineral extraction. The four divisions are "Areas of No Mineral Resource Significance (MRZ-1)," "Areas of Identified Mineral Resource Significance (MRZ-2)," "Areas of Undetermined Mineral Resource Significance (MRZ-3)," and "Areas of Unknown Mineral Resources Significance (MRZ-4). See the *Regulatory Setting* section of this section for more detailed information about the MRZ classifications.

Exhibit 4.5.1 displays the location of the MRZs in Monterey County, as well as the location of existing mines and oil wells. Nearly all of the areas classified as MRZ-1 are located in the urbanizing areas around Salinas, Castroville, and the Pajaro region. These are areas where, based on available geologic studies and information, no significant mineral resources were identified. The only area in Monterey County designated as MRZ-2, or as an area of identified mineral resource significance, is in the vicinity of Marina, Sand City and Seaside. Monterey and Pacific Grove are designated as MRZ-3, with undetermined mineral resource significance. Land near Del Rey Oaks is designated MRZ-4, or as an area of unknown mineral resource significance. At present, no aggregate resources have been classified beyond the more urbanized northern portions of the County. There are no areas designated by the State Geologist as MRZ in southern Monterey County. However, as shown in Table 4.5-1 and in Exhibit 4.5.1, there are multiple existing sand and gravel facilities located in southern Monterey County, including the Brinan Pit located in San Ardo and the Clark Pit located in King City. However, because these areas were not urbanizing as swiftly as the northern portion of the County, they were not evaluated by the State Geologist.

Table 4.5-1. Existing Aggregate Resources in Monterey County

Name	Operator	Location	Product
Arroyo Seco	Clark	Arroyo Seco	Sand, gravel
BLM Rock Pile	Clark	San Ardo	Stone
Brinan Pit	Swift Tectonics, Inc.	San Ardo	Sand, gravel
Chalone Creek	Swift Tectonics, Inc.	Soledad	Sand, gravel
Clark Pit	William J. Clark Trucking Service	King City	Sand, gravel
Del Monte Quarry	Granite Construction	Del Monte Forest	Sand, gravel
DKD Echo Valley DG Pit	DKD	Prunedale	Sand, gravel
Echenique Pit	Swift Tectonics	San Ardo	Sand, gravel
Jefferson Pit	Don Chapin Co., Inc.	Marina	Sand
Handley Mine	Granite Construction	Gonzales	Sand, gravel
Hidden Canyon	San Benito Supply Inc.	Greenfield	Crushed stone
Lapis	RMC Lonestar	Marina	Sand
Metz	Granite Construction Co.	Greenfield	Sand, gravel
Pine Canyon	Granite Construction	Salinas	Sand, gravel
Stonewall Canyon	Syar Industries	Soledad	Crushed stone

Source: California Department of Conservation, Office of Mine Reclamation 2008. *AB3098 Mine Reclamation List.*

The California Geologic Survey estimates that the Monterey Bay Production-Consumption Region, which includes Monterey, San Benito, Santa Cruz, and southern Santa Clara Counties, will require 379 million tons of aggregate through the year 2047. Currently, with only 269 million tons of permitted reserves, it is estimated that there is only enough aggregate to supply the region until 2033, resulting in an aggregate shortfall (California Geological Survey 1987).

In addition, the Department of Conservation forecasts a 30-percent shortfall of construction aggregates statewide over the next four decades (Hill 2006). The development of new and a gravel mines, along with aggregate recycling would likely be necessary to meet the projected aggregate shortfall in the Monterey Bay Production-Consumption Region.

Limestone and Dolomite

Limestone is an important mineral used in cement, agriculture, sugar refining, and glass manufacturing. Limestone, some of which is metamorphosed to marble, and dolomite are found mainly in the Gabilan Range and in the Santa

Lucia Range, most notably the Pico Blanco limestone deposit near Big Sur (California Division of Mines and Geology 1973). Except for the dolomite in the Natividad area near Salinas, there has been no commercial development of these deposits. The Natividad dolomite deposit in the Gabilan Range is an important source of raw material for extracting magnesium (Perozzo 2007).

Limestone is locally abundant in the Santa Lucia Range; however, most deposits have little economic value because of their remote location. The largest and most important are the extensive deposits at Pico Blanco near Big Sur. The Pico Blanco limestone deposits have a high purity and high calcium content, which make the limestone suitable for whiting and as an ingredient in paints, plastic fillers, and rubber. In response to a petition from the Granite Rock Company, the State Geologist evaluated the Pico Blanco deposits. The State Geologist classified areas owned by the Granite Rock Company as in the MRZ-2, indicating that significant mineral reserves are present (Exhibit 4.5.1). However, the lack of access to the Pico Blanco limestone deposits and concerns about the environmental impacts to the Big Sur area make mining of this limestone deposit difficult. In addition, in 1987, the California Coastal Commission denied the Granite Rock Company a use permit to mine in this area of the California coast.

4.5.2.2 Metallic Minerals

The major metallic minerals found in Monterey County include chromite, copper, gold, lead, manganese, mercury, molybdenum, silver, tungsten, and uranium. Of these minerals only chromite, gold, and mercury were produced in commercial quantities from the 1850s to the 1950s (Perozzo 2007).

Gold was widely prospected in Monterey County following the Gold Rush in the Sierra Nevada in the 1850s (Breschini 1983). Most of the gold occurs as vein deposits associated with Franciscan rock in the Los Burros Mining District near Cape San Martin on the Big Sur Coast. Minor amounts of gold were found in placer deposits in the Jolon area, the Carmel River, and the Cholame Valley. Despite the widespread prospecting, only a small amount of gold was recovered.

Chromite is used mainly as an alloy for steel and for plating metal. It was also stockpiled by the U.S. Government as part of the Strategic Mineral Program during World War II. Known deposits in Monterey County are associated with Franciscan Complex and serpentine in the Los Burros Mining District and in the Diablo Range (Perozzo 2007). The Los Burros deposits in Lilly Group and South Slope Mine were more productive than the Diablo Range deposit at Mee Ranch.

Mercury ore, more commonly known as quicksilver, was widely mined for its use in the amalgamation of gold and silver from their ores. The host rock for quicksilver deposits in Monterey County is cinnabar, found in silicacarbonate rock associated with the Franciscan Complex. Most of the mercury was produced in Parkfield, with a small amount near Dutra Creek (in the southwestern corner of Monterey County), and in Bryson.

4.5.2.3 Fuel Minerals

Oil

The Monterey Formation of California is part of a wide swath of unique sediments deposited around the Pacific Rim during the Miocene period, between about 17.5 and 6 million years ago (Behl 1998). The sediments in this formation are rich in organic matter, and its strata have been extensively investigated and mapped for petroleum exploration. This is a major oil-producing geological formation, and it provides the source rock for much of the oil and gas in California (Behl 1998).

Substantial oil reserves are believed to underlay parts of the Salinas Valley. The San Ardo Oil Field is the largest oil field in Monterey County. It is located in the lower Salinas Valley, about five miles south of the small town of San Ardo (Exhibit 4.5.1). The Energy Information Agency of the United States Department of Energy reports that the San Ardo oil field produced 3.2 million gallons of oil in 2006, which ranks the San Ardo Oil Field as forty-first in the nation in terms of oil production (U.S. Energy Information Administration 2006).

Other oil fields in the Salinas Valley include the Lynch Canyon, McCool Ranch, Monroe Swell, Quinado Canyon, and Paris Valley fields. Only San Ardo and King City have produced significant quantities of oil. Wildcat oil wells also were drilled at Fort Ord and Laguna Seca, in the Spreckels foothills, and in Seaside. None of these wells produced significant quantities of oil.

Coal

Historically, several coal deposits in Monterey County were commercially produced at the turn of the century. Two of these deposits were in the Diablo Range, in the southeastern part of the county. The first and most successful was the Stone Canyon mine. The Stone Canyon mine produced about 250,000 tons of coal from 1870 to 1935. A large amount of infrastructure, including a railway and tramway were built to bring the coal to market. The other Diablo Range coal deposit is near Priest Valley, located halfway between Coalinga and King City on Highway 198. Two mine shafts and 75 feet of drifts were excavated, but no production is recorded from this area. At this time, there is no known coal production underway in Monterey County, nor is coal production anticipated in the near future.

4.5.2.4 Abandoned Mines

As discussed above, existing mining operations in Monterey County are regulated by the State of California under SMARA. However, older mines that were abandoned prior to 1975 are not regulated by SMARA. Exhibit 4.5.2 depicts the locations of several recorded abandoned gold, mercury, and coal

mines of potential concern in Monterey County. As shown on Exhibit 4.5.2, the Plaskett Mines, Buclimo Mine and Old Murray Mine are located within the boundaries of the Los Padres National Forest and outside of the jurisdiction of the County. The Stone Canyon Mine, Partiquin Mine and Gillette Mines are located in a remote, mountainous area on the far eastern edge of the South County Area Plan.

Some of these mines may have been filled in, while others may still have open access. In addition to the public safety risk from entering improperly abandoned mines, some of the mines may be leaching acidic waters or heavy metals into local drainages. Proper closure of these mines is prudent and public funding may be available through State and Federal agencies to accomplish closure.

In California, abandoned mines are regulated by both the Federal government and State agencies. Federal agencies include the EPA and the U.S. Department of Labor, Mine and Safety Administration. State agencies include the State Water Resources Control Board (SWRCB), the Regional Water Quality Control Board (RWQCB), and the California Department of Conservation Office of Mine Reclamation (OMR). These agencies have authority in the mitigation and reclamation of these historic abandoned mines (Central Valley Regional Water Quality Control Board 2007).

Pollution and water quality impacts from abandoned mines in Monterey County are beyond the scope of required CEQA analysis for mineral resources and are not addressed further in this section.

4.5.3 Regulatory Framework

The management of mineral resources is subject to numerous laws and regulations. Summaries of state and local laws related to the management of mineral resources are presented in this section.

4.5.3.1 State

Surface Mining and Reclamation Act of 1975 (SMARA)

As discussed above under the *Existing Setting* section, SMARA (Public Resources Code Section 2710 et seq.) mandated the initiation by the State Geologist of mineral land classifications in order to identify and protect mineral resources in areas within the State subject to urban expansion or other irreversible land uses which would preclude mineral extraction. SMARA was enacted in response to land use conflicts between urban growth and essential mineral production. SMARA also allowed the State Mining and Geology Board (SMGB), after receiving classification information from the State Geologist, to designate lands containing mineral deposits or regional and statewide significance (California Geological Survey, 1999). Construction aggregate was

selected by the SMGD to be the initial commodity targeted for classification because of its importance to society, its unique economic characteristics, and the imminent threat that continuing urbanization poses to that resource. In 1980, SMARA was amended to also provide the classification of non-urban areas subject to land-use threats incompatible with mining. Currently, the State Geologist's SMARA classification activities are carried out under a single program for urban and non-urban areas of the state.

The provisions of SMARA are administered by Monterey County. In accordance with SMARA, permits are required for all mining industries commencing operation on or after January 1, 1976.

Classification of land within the State of California takes place according to a priority list that was established by the SMGB in 1982, or when the SMGB is petitioned to classify a specific area. The SMGB established MRZs to designate lands that contain mineral deposits. Lands designated MRZ-2 are to be protected, as feasible, from land uses that would eliminate their future availability. Throughout California, only construction-grade aggregate minerals are classified by the State Geologist. The classifications used by the State to define MRZs are as follows:

- MRZ-1: Applies to areas where adequate information indicates that no significant mineral deposits are present, or where it is judged that little likelihood exists of their presence.
- MRZ-2: Applies to areas where adequate information indicates that significant mineral deposits are present, or where it is judged that a high likelihood exists of their presence.
- MRZ-3: Applies to areas containing mineral deposits, the significance of which is undetermined and cannot be evaluated.
- MRZ-4: Applies to areas where available information is inadequate for assignment to any other zone (i.e., where there is not enough information available to determine the presence or absence of mineral deposits).

According to the Guidelines for the Classification and Designation of Mineral Lands, there are two general categories to exclude lands from an MRZ-2 designations, the first is an economic exclusion and the second a social exclusion (California Geological Survey 1999). Social exclusions include cemeteries, public parks and recreation areas, schools, hospitals, prisons and military bases and reservations. Economic exclusions include the following:

- Residential areas, and areas committed to residential development, such as approved tracts,
- Commercial areas with land improvements (buildings)
- Industrial areas (buildings and adjacent storage and parking facilities)
- Major public and private engineering projects, such as canals, freeways, bridges, airports, dams, and railroads.
- Small areas isolated by urbanization (generally less than 40 acres).

AB 3098 List

The Office of Mine Reclamation periodically publishes a list of mines regulated under SMARA that meet provisions set forth under California's Public Resources Code, Section 2717(b). This list is generally referred to as the AB 3098 List, in reference to the 1992 legislation that established it. Sections 10295.5 and 20676 of the Public Contract Code preclude mining operations that are not on the AB 3098 List from selling sand, gravel, aggregates or other mined materials to state or local agencies (California Department of Conservation 2008).

For the Office of Mine Reclamation to place a mining operation on the AB 3098 List, the operation must meet all of the following conditions:

- The operation has an approved reclamation plan;
- The operation has an approved financial assurance;
- The operation has filed its annual report;
- The operation has paid its reporting fee;
- The operation has had its annual inspection by the lead agency which reflects the operation is in full compliance with the law.

California Division of Oil, Gas and Geothermal Resources

The California Division of Oil, Gas and Geothermal Resources (DOGGR) is mandated by Section 3106 of the Public Resources Code (PRC) to supervise the drilling, operation, maintenance and abandonment of oil wells for the purpose of preventing damage to life, health, property, and natural resources. DOGGR is charged with implementing Section 3208.1 of the PRC. The Construction-Site Plan Review Program was developed to assist local permitting agencies in identifying and reviewing the status of oil or gas wells. Before issuing building or grading permits, local agencies review and implement the DOGGR's preconstruction well requirements. Interaction between local permitting agencies and the DOGGR helps resolve land use issues and allows responsible development in oil and gas fields.

4.5.3.2 Local

Monterey County Zoning Ordinance

Title 16, Section 16.04 of the Monterey County Zoning Ordinance, entitled "Surface Mining and Reclamation," specifies zoning regulations and policies for mineral resource extraction. Specifically, the Monterey County Zoning Ordinance addresses mineral resource extraction land use classifications and mine reclamation.

16.04.010 Purpose and intent

Section 16.04.140 (B) "Purpose and Intent" states that the "the extraction of minerals is essential to the continued economic well-being of the County and to the needs of the society, and that the reclamation of mined lands is necessary to prevent or minimize adverse effects on the environment and to protect the public health and safety." In addition, "reclamation of mined lands will permit the continued mining of minerals and will provide for the protection and subsequent beneficial use of the mined and reclaimed land." The purpose and intent of the ordinance is to ensure the continued availability of important mineral resources, while regulating surface mining operations as required by California's Surface Mining and Reclamation Act of 1975 (Public Resources Code Sections 2710 et seq.), as amended, hereinafter referred to as "SMARA", Public Resources Code (PRC) Section 2207 (relating to annual reporting requirements), and State Mining and Geology Board regulations (hereinafter referred to as "State Regulations") for surface mining and reclamation practice (California Code of Regulations [CCR], Title 14, Division 2, Chapter 8, Subchapter 1, Sections 3500 et seq.), as those provisions may be amended, to ensure that:

- Adverse environmental effects are prevented or minimized and that mined lands are reclaimed to a usable condition which is readily adaptable for alternative land uses.
- The production and conservation of minerals are encouraged, while giving consideration to values relating to recreation, watershed, wildlife, range and forage, and aesthetic enjoyment.
- Residual hazards to the public health and safety are eliminated. (Ord. 4029, 1999; Ord. 2402 § 011, 1978)

16.04.140 Mineral resource protection

Specifically, Section 16.04.140 calls for mine development in areas compatible with mining operations, and designating such areas prior to encroachment from conflicting land uses. Mineral resource areas that have been classified by the State Department of Conservation's Division of Mines and Geology or designated by the State Mining and Geology Board, as well as existing surface mining operations, shall be protected from intrusion by incompatible land uses that may impede or preclude mineral extraction or processing.

In addition, Section 16.04.140 states that the County General Plan and resource maps shall be updated to reflect mineral information (classification and/or designation reports) within twelve (12) months of receipt from the State Mining and Geology Board of such information. Land use decisions within the County would be guided by information provided on the location of identified mineral resources of regional significance. Conservation and potential development of identified mineral resource areas will be considered and encouraged. Recordation on property titles of the presence of important mineral resource areas may be encouraged as a condition of approval of any development project in the impacted area. Prior to approving a use that would otherwise be incompatible with mineral resource protection, conditions of approval may be applied to encroaching development projects to minimize potential conflicts. (Ord. 4029, 1999)

4.5.4 Project Impacts

4.5.4.1 Thresholds of Significance

The impact assessment for Mineral Resources relies on the significance criteria in the CEQA Checklist presented in Appendix G of the CEQA guidelines. The 2007 General Plan would result in a significant impact on mineral resources if it would:

- Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state;
- Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan.

The above thresholds of significance are closely related, and are therefore combined for the purposes of the following impact assessment.

In addition, as described under "*Abandoned Mines*," pollution and water quality impacts from abandoned mines in Monterey County are beyond the scope of required CEQA analysis for mineral resources and are not addressed further in this section.

4.5.4.2 Impact Analysis

Loss of Availability of Known Mineral Resources

Impact MIN-1: Implementation of the 2007 General Plan would potentially result in the loss of availability of known mineral resources of value to the region and the residents of the state. (Less-Than-Significant-Impact.)

Impact MIN-2: Implementation of the 2007 General Plan would potentially result in the loss of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan. (Less-Than-Significant-Impact.)

2030 Planning Horizon

Impact of Development with Policies

Implementation of the 2007 General Plan to the 2030 planning horizon would result in new urban development in some undeveloped areas of the County. Policies identified in the 2007 General Plan require the identification and conservation of areas with significant mineral resources, as well as the development of new mining activities where environmental

impacts and land use conflicts would be avoided. In addition, the 2007 General Plan emphasizes compact city-centered growth in and near existing urbanized areas. This land use concept is designed to preserve significant undeveloped areas and minimize encroachment into mineral resource extraction areas.

2007 General Plan Policies

The 2007 General Plan and Area Plan policies summarized below establish comprehensive measures to avoid the loss of known mineral resources of value to the region and the residents of the state.

Conservation and Open Space Element

Policies in the 2007 General Plan Conservation and Open Space Element address the conservation of mineral resources. Conservation and Open Space Element Policy OS-2.1 (Protection of mineral resources sites) states that potentially significant mineral deposits and existing mining operations identified through the State Division of Mines and Geology, including idle and reserve properties, shall be protected from on-site and off-site land uses that would be incompatible with mineral extraction activities.

Conservation and Open Space Element Policy OS-2.2 (SMARA requirements) requires mineral extraction operations to adhere to sound conservation practices consistent with SMARA and other applicable standards. Adequate financial security shall be required to insure reclamation of the extraction site to a condition consistent with the surrounding natural landscape and environmental setting.

Conservation and Open Space Element Policy OS-2.3 (Recycling) supports efforts to conserve raw mineral resources through recycling.

Conservation and Open Space Element Policy OS-2.4 (Mapping) incorporates the use of GIS mapping to maintain up-to-date records on the locations of valuable mineral deposits in the county.

Conservation and Open Space Element Policy OS-2.5 (Abandoned mines) requires the county to inventory, assess, and characterize the location and condition of identified pre-SMARA abandoned gold, mercury and coal mines and implement such measures as may be necessary to ensure that such mines do not contribute to a significant risk to public health or safety or non-compliance with water quality standards and criteria.

The 2007 General Plan Conservation and Open Space Element establishes goals and corresponding policies to provide for the conservation, utilization and development of the County's mineral resources (Monterey County 2007). The policies provide for the

protection of mineral resources by supporting the careful placement of land uses that would be compatible with protection of these mineral resources. In addition, the policies support the updating of mapping information for accurate identification of existing known mineral resources within the county. Therefore, implementation of the policies outlined in the Conservation and Open Space Element of the 2007 General Plan would avoid the loss of known mineral resources of value to the region and the residents of the state.

Area Plan Policies

North County Area Plan

The North County Area Plan does not contain any land use compatibility policies related to the development of mineral resource sites or the protection of mineral resource sites. However, as shown on Exhibit 4.5.1, portions of the North County Area Plan within the Pajaro Valley are designated MRZ-1 by the State Geologist. Lands designated MRZ-1 are areas where adequate information indicates that no significant mineral deposits are present, or where it is judged that little likelihood exists of their presence. Therefore, implementation of the 2007 General Plan would not result in the loss of availability of known mineral resources within the North County Area Plan because there are no known mineral resources of value designated by the State Geologist in this area.

In addition, the North County General Plan Land Use Map (Exhibit 3.1a) depicts two existing sites designated as Mineral Extraction. These sites would remain under this designation with implementation of the 2007 General Plan. Therefore, there would be no loss of availability of a locally-important mineral resource site delineated on a local land use plan.

Greater Salinas Area Plan

The Greater Salinas Area Plan does not contain any land use compatibility policies related to the development of mineral resource sites or the protection of mineral resource sites. However, as shown on Exhibit 4.5.1, portions of the Greater Salinas Area Plan are designated MRZ-1 by the State Geologist. Lands designated MRZ-1 are areas where adequate information indicates that no significant mineral deposits are present, or where it is judged that little likelihood exists of their presence. Therefore, implementation of the 2007 General Plan would not result in the loss of availability of known mineral resources within the Greater Salinas Area Plan because there are no known mineral resources of value designated by the State Geologist in this area.

Central Salinas Valley Area Plan

The Central Salinas Area Plan does not contain any land use compatibility policies related to the development of mineral resource sites or the protection of mineral resource sites. In addition, as shown on Exhibit 4.5.1, there are no lands within the Central Salinas Valley Area Plan that are designated or mapped by the State Geologist. Therefore, implementation of the 2007 General Plan would not result in the loss of availability of known mineral resources within the Central Salinas Valley Area Plan because there are no known mineral resources of value designated by the State Geologist in this area.

As shown on Exhibit 4.5.1, numerous oil wells are present within the Central Salinas Valley Area Plan on the westside of the valley in the between Greenfield and King City. The Central Salinas Valley Area Plan does not contain any specific land use compatibility policies related to oil field sites, or their protection. However, these oil wells are located in areas predominantly under agricultural production or grazing. Agriculture is generally compatible with oil and gas production, and continued agriculture production or grazing in these areas is not expected to impact oil production. Therefore, implementation of the Central Salinas Valley Area Plan is not expected to adversely affect the continued operation of these existing oil wells, or any future oil wells, due to the current and projected global demand for oil.

Greater Monterey Peninsula Area Plan

The Greater Monterey Peninsula Area Plan does not contain any land use compatibility policies related to the development of mineral resource sites or the protection of mineral resource sites. However, as shown on Exhibit 4.5.1, portions of the Greater Monterey Peninsula Plan are designated MRZ-1, 2, 3 and 4 by the State Geologist. The areas designated MRZ-2 include the incorporated cities of Sand City, Seaside and Marina which are located outside of the County's jurisdiction. The MRZ-3 designation applies to lands containing mineral deposits, the significance of which is undetermined and cannot be evaluated. The areas designated MRZ-3 include the incorporated cities of Monterey, Pacific Grove and Carmel-By-The-Sea which are located outside of the County's jurisdiction. The MRZ-4 designation applies to areas where available information is inadequate for assignment to any other zone (i.e., where there is not enough information available to determine the presence or absence of mineral deposits). The areas designated MRZ-4 include areas on the outskirts of Monterey and Del Rey Oaks.

Implementation of the 2007 General Plan would not result in the loss of availability of known mineral resources within the Greater Monterey Peninsula Area Plan because the areas designated MRZ-2 (the lands containing known mineral deposits) are located in areas that are not under the County's jurisdiction. In addition, the State's Guidelines for Classification and Designation of Mineral Lands applicable to MRZ-2 zones identifies multiple exclusions to the MRZ-2 designation, including residential areas, commercial areas with land improvements, industrial areas, and major public and private engineering works (California Geological Survey 1999). Therefore, many of the urbanized and developed areas currently designated MRZ-2 are actually exempt.

Carmel Valley Master Plan

There are no lands within the Carmel Valley Master Plan that are designated or mapped by the State Geologist. However, Carmel Valley Master Plan Policy CV-1.19 (mines and quarries) encourages land use compatibility with mineral extraction activities by requiring visual screening, safe vehicular access, and noise reduction practices. In addition, policy CV-1.19 allows for development on slopes over 30% within the limits of the quarry.

Therefore, implementation of the 2007 General Plan would not result in the loss of availability of known mineral resources within the Carmel Valley Master Plan because there are no known mineral resources of value designated by the State Geologist in this area. In addition, implementation of Carmel Valley Master Plan Policy CV-1.19 would ensure land use compatibility between proposed mineral resource extraction sites and existing land uses.

Toro Area Plan

The Toro Area Plan does not contain any land use compatibility policies related to the development of mineral resource sites or the protection of mineral resource sites. In addition, as shown on Exhibit 4.5.1, there are no lands within the Toro Area Plan designated or mapped by the State Geologist. Therefore, implementation of the 2007 General Plan would not result in the loss of availability of known mineral resources within the Toro Area Plan because there are no known mineral resources of value designated by the State Geologist in this area.

In addition, the Toro Area Plan Land Use Map (Exhibit 3.10) depicts one existing site designated as Mineral Extraction. This site would remain under this designation with implementation of the 2007 General Plan. Therefore, there would be no loss of availability of a locally-important mineral resource site delineated on a local land use plan.

Cachagua Area Plan

There are no lands within the Cachagua Area Plan designated or mapped by the State Geologist. However, Cachagua Area Plan Policy CACH-3.5 (mining/timber operations) requires that future mining or other resource production operations include visual screening and safe vehicular access. In addition, proposed new mining operations must consider impacts on roadways from truck traffic, noise impacts, drainage impacts and mitigate for impacts to watersheds, flora and fauna. Reclamation plans are also required per SMARA requirements and Zoning Ordinance requirements.

Implementation of the 2007 General Plan would not result in the loss of availability of known mineral resources within the Cachagua Area Plan because there are no known mineral resources of value designated by the State Geologist in this area. In addition, implementation of Cachagua Area Plan Policy CACH-3.5 would ensure land use compatibility between proposed mineral resource extraction sites and existing land uses.

South County Area Plan

The South County Area Plan does not contain any land use compatibility policies related to the development of mineral resource sites or the protection of mineral resource sites. In addition, as shown on Exhibit 4.5.1, there are no lands within the South County Area Plan are designated or mapped by the State Geologist.

Therefore, implementation of the 2007 General Plan would not result in the loss of availability of known mineral resources within the South County Area Plan because there are no known mineral resources of value designated by the State Geologist in this area.

The South County General Plan Land Use Map (Exhibit 3.12) depicts several existing sites designated as Mineral Extraction sites, including the San Ardo oil fields. These sites would remain under this designation with implementation of the 2007 General Plan. Therefore, there would be no loss of availability of a locally-important mineral resource site delineated on a local land use plan.

As shown on Exhibit 4.5.1, numerous oil wells are present within the South County Area Plan centered around the San Ardo Oil Fields. The South County Area Plan does not contain any specific land use compatibility policies related to oil field sites, or their protection. Therefore, implementation of the South County Area Plan is not expected to adversely affect the continued operation of these existing oil wells, or any future oil wells, due to the current and projected global demand for oil.

Agricultural Winery Corridor Plan

The AWCP does not contain any land use compatibility policies related to the development of mineral resource sites or the protection of mineral resource sites. In addition, as shown on Exhibit 4.5.1, there are no lands within the South County Area Plan designated or mapped by the State Geologist.

Therefore, implementation of the 2007 General Plan would not result in the loss of availability of known mineral resources within the AWCP because there are no known mineral resources of value designated by the State Geologist in this area.

As shown on Exhibit 4.5.1, numerous oil wells are present within the AWCP throughout the Jolon Road corridor, as well as the River Road/Arroyo Seco/Central Avenue corridor. The AWCP does not contain any specific land use compatibility policies related to oil field sites, or their protection. However, implementation of the AWCP is not expected to adversely affect the continued operation of these existing oil wells, or any future oil wells, due to the current and projected global demand for oil.

Community Area Policies

Fort Ord Master Plan—Conservation Element

As shown in Exhibit 4.5.1, a small area in the southwest portion of the Fort Ord Master Plan is designated MRZ-2 by the State Geologist. The MRZ-2 designation applies to areas where adequate information indicates that significant mineral deposits are present, or where it is judged that a high likelihood exists of their presence. Another small, adjacent area is designated MRZ-4, or as an area where available information is inadequate for assignment to any other zone.

In addition, there are many land use compatibility policies related to the development of mineral resource sites or the protection of mineral resource sites in the Fort Ord Master Plan Conservation Element. Objective B of the Conservation Element provides for mineral extraction and reclamation activities that are consistent with the surrounding natural landscape, proposed future land uses, and soil conservation practices.

Soils and Geology Policy B-1 (mineral resources classification) states the County shall identify areas of highly valuable mineral resources within the former Fort Ord area based on the State of California Division of Mines and Geology's mineral resources "classification-designation" system, and provide for the protection of these areas.

Soils and Geology Program B-1.1 (mineral resource designation) states that if the County determines that valuable mineral resources warranting protection are contained within the former Fort Ord, the County shall designate these areas in a mineral resource or similar land use category that would afford them protection. In addition, this area shall also be zoned in a district consistent with this designation.

Soils and Geology Program B-1.2 (property title) requires the County to record a notice identifying the presence of valuable mineral resources on property titles in the affected mineral resource protection areas.

Soils and Geology Policy B-2 (land use compatibility) states that the County shall protect designated mineral resource protection areas from incompatible land uses.

Soils and Geology Program B-2.1 (zoning compatibility) states that, if so provided, the County shall specify in its mineral resource protection-zoning district those uses that are deemed compatible with mining activities.

Soils and Geology Policy B-3 (reclamation plans) states that prior to granting permits for operation, the County shall require that mining and reclamation plans be prepared for all proposed mineral extraction operations.

Soils and Geology Program B-3.1 (reclamation requirements) states that the County shall develop and make available a list of issues to be considered and mitigated in mining and reclamation plans, including but not limited to, the following: buffering, dust control, protection of water quality, noise impacts, access, waste disposal, security and reclamation.

Soils and Geology Policy B-4 (reclamation bonds) states that the County shall require the posting of bonds for new mining permits if it determines that such a measure is needed to guarantee the timely and faithful performance of mining and reclamation plans.

Implementation of the 2007 General Plan would not result in the loss of availability of known mineral resources within the Fort Ord Master Plan because the areas designated MRZ-2 and MRZ-3 by the State Geologist would be protected under Soils and Geology Program B-1.1. In addition, the State's Guidelines for Classification and Designation of Mineral Lands applicable to MRZ-2 zones identifies multiple exclusions to the MRZ-2 designation, including residential areas, commercial areas with land improvements, industrial areas, and major public and private engineering works (California Geological Survey 1999). Therefore, any portion of the residential or commercial developed areas currently designated

MRZ-2 with the Fort Ord Master Plan area are actually exempt. In addition, implementation of Fort Ord Master Plan policies listed above would ensure land use compatibility between proposed mineral resource extraction sites and existing land uses.

Significance Determination

Implementation of the 2007 General Plan policies through the 2030 planning horizon would not result in the loss of availability of a known mineral resource of value to the region or the residents of the state. In addition, the 2007 General Plan and Area Plan policies address the need to protect access to mineral resources in the County. This would be achieved through compliance with applicable laws that govern surface mining and reclamation and by implementing policies to assist in the proper placement of mining and quarry activities. In addition, many of the lands designated MRZ-2 by the State Geologist are not under the land use jurisdiction of the County. Therefore, impacts in this regard would be less than significant.

Mitigation Measures

No mitigation beyond the 2007 General Plan policies is necessary.

Significance Conclusion

The loss of availability of known mineral resources of value to the region or residents of the state from implementation of the 2007 General Plan would be less than significant, and no mitigation is required.

Buildout

Impact of Development with Policies

Buildout to 2092 under the 2007 General Plan would potentially result in adverse impacts to known mineral resources of value in the County. However, the 2007 General Plan and Area Plan policies set forth comprehensive measures to avoid and minimize adverse impacts related to the loss of mineral resources.

Implementation of the 2007 General Plan to the 2092 planning horizon would result in new urban development in some undeveloped areas of the County. The 2007 General Plan emphasizes compact city-centered growth in and near existing urbanized areas. This land use concept is designed to preserve significant undeveloped areas and minimize encroachment into mineral resource extraction areas. In addition, policies identified in the 2007 General Plan require the identification and conservation of areas with significant mineral resources, as well as the development of new mining activities where environmental impacts and land use conflicts would be avoided.

2007 General Plan Policies

Implementation of the 2007 General Plan policies listed above under the 2030 Planning Horizon would expressly avoid the loss of availability of known mineral resource areas in the County through the 2092 planning horizon.

Significance Determination

Implementation of the 2007 General Plan policies through the 2092 planning horizon would not result in the loss of availability of a known mineral resource of value to the region or the residents of the state. Implementation of the 2007 General Plan policies addresses the need to preserve and conserve access to mineral resources in the county. This would be achieved through compliance with applicable laws that govern surface mining and reclamation and by implementing policies to assist in the proper placement of mining and quarry activities. In addition, many of the lands designated MRZ-2 by the State Geologist are not under the land use jurisdiction of the County. Therefore, impacts in this regard would be less than significant.

Mitigation Measures

No mitigation beyond the 2007 General Plan policies is necessary.

Significance Conclusion

The loss of availability of known mineral resources of value to the region or residents of the state from implementation of the 2007 General Plan through the 2092 planning horizon would be less than significant, and no mitigation is required.

4.5.4.3 Level of Significance after Mitigation

All impacts to mineral resources would be less than significant with implementation the 2007 General Plan, and no additional mitigation would be required.