2.5 Mineral Resources

This section discusses the existing mineral resources in Imperial County. The regulatory environment and existing conditions have been assessed and analyzed to determine associated constraints and opportunities for updating the COSE for the County.

2.5.1 Terminology

The following is a summary of mineral resources terminology discussed in this section.

- **Locatable Minerals** – The General Mining Law of 1872, as amended, opened the public lands of the United States to mineral acquisition by the location and maintenance of mining claims. Mineral deposits subject to acquisition in this manner are generally referred to as "locatable minerals." Locatable minerals include metallic minerals (gold, silver, lead, copper, zinc, nickel, etc.), nonmetallic minerals (fluorspar, mica, limestone and gypsum, tantalum, heavy minerals in placer form, and gemstones), and certain uncommon variety minerals. A complete list of locatable minerals is difficult to prepare because the history of the law has resulted in a definition of minerals that includes economics.
- **Leasable Minerals** – The BLM leases certain solid minerals, like coal, oil shale, phosphate, sodium, and potassium, on public and other federal lands. These lands include areas managed by the BLM and the USFS. The BLM can also lease these minerals on certain private lands, provided that the mineral rights are owned by the federal government.
- **Saleable Minerals** – The BLM sells mineral materials to the public at fair market value and uses both competitive and noncompetitive sales. These include mineral materials such as sand, gravel, dirt, and rock used in everyday building and for other construction uses. Mineral materials are used to support and maintain both national infrastructure and local community needs for energy, mineral, and other developments (e.g., roads, bridges, dams, buildings, and foundations).
- **Area of Regional Significance** – An area that is designated by the California State Mining and Geology Board and is known to contain deposits of minerals, the extraction of which is judged to be of prime importance in meeting future needs for minerals in a particular region of the state within which the minerals are located and which if prematurely developed for alternate incompatible uses, could result in the permanent loss of minerals that are of more than local or regional significance.
- **Area of Statewide Significance** – An area designated by the California State Mining and Geology Board which is known to contain a deposit of minerals, the extraction of which is judged to be of prime importance in meeting future needs for minerals in the state and which, if prematurely developed for alternate incompatible land uses, could result in the permanent loss of minerals that are of more than local or regional significance.
- **Borrow Pits** – Excavations created by the surface mining of rock, unconsolidated geologic deposits, or soil to provide material (borrow) for fill elsewhere.
- **Compatible Land Uses** – Land uses inherently compatible with mining and/or that require a minimum of public or private investment in structures and land improvements which may allow for mining due to the relative economic value of the land and its improvements.
- **Haul Road** – A transportation road for transporting mined material.

- **Idle** – Surface mining operations curtailed for a period of one year or more, by more than 90 percent of the operation's previous maximum annual mineral production, with the intent to resume those surface mining operations at a future date.
- **Incompatible Land Uses** – Land uses inherently incompatible with mining and/or that require public or private investment in structures, land improvements, and landscaping and that may prevent mining because of the greater economic value of the land and its improvements. Examples of such uses may include, but are not limited to, high-density residential, low-density residential with high unit value, public facilities, and impact intensive industrial and commercial uses.
- **Mined Lands** – The surface, subsurface, and groundwater of an area in which surface mining operations will be, are being, or have been conducted, including private ways and roads appurtenant to any such area; land excavations, workings, and mining waste; and areas in which structure, facilities, equipment, machines, tools, or other materials or property which result from or are used in surface mining operations are located.

2.5.2 Regulatory Environment

The following is a list of laws, policies, and plans relevant to mineral resources.

Federal

- 1976 Federal Land Management and Policy Act
- General Mining Law of 1872 (30 USC 21 et seq.)
- Stock Raising Homestead Act of 1916 (43 USC 291–299)
- Mineral Leasing Act of 1920 (30 USC 181 et seq.)
- Materials Sales Act of 1947 (30 USC 601–604)
- Mineral Leasing Act for Acquired Lands of 1947 (30 USC 351 et seq.)
- Mining and Mineral Policy Act of 1970 (30 USC 21[a]), as amended
- Surface Mining Control and Reclamation Act of 1977 (30 USC 1201 et seq.)
- Bureau of Land Management—California Desert Conservation Area Plan
- Bureau of Land Management Manual 3031 (1985)—Energy and Mineral Resource Assessment
- Bureau of Land Management Minerals Guidance (43 Code of Federal Regulations [CFR] Subpart 3809)
- Memorandum of Understanding between the Department of the Interior (Bureau of Land Management), the Department of Agriculture (US Forest Service), and the California Department of Conservation and State Mining and Geology Board
- BLM California Desert Conservation Area Plan and subsequent amendments

State

- Surface Mining and Reclamation Act of 1975
- California PRC, Division 6, Part 2, Chapter 3 (Oil and Gas and Mineral Leases)

Local

- Imperial County General Plan, *Conservation and Open Space Element*

- Imperial County General Plan, *Land Use Element*, Goal 7

2.5.3 Existing Conditions

A number of mineral resources in Imperial County are currently being extracted for economic gain. These mineral resources include gold, gypsum, sand, gravel, lime, clay, stone, kyanite, limestone, sericite, mica, tuff, salt, potash, and manganese. Several issues influence the extraction of mineral deposits in Imperial County, including the location of geologic deposition, the potential for impacts to the environment, and land use conflicts. As a result, the extraction of mineral resources is limited to a relatively small number of sites throughout the County. Figure 2.5-1 depicts the distribution and location of mineral resources and mining sites in Imperial County (all figures are located at the end of this subsection). As shown, extraction activities for metallic minerals are concentrated in the eastern third of the County. Mining activities for nonmetallic minerals (including sand and gravel) are more evenly distributed across the County, with dense concentrations found near the center of Imperial County along the East Highline Canal and along the western County boundary.

Mineral deposits are an important natural resource that contribute to the economic development of the state and the County and provide essential raw materials for construction projects throughout the region. However, mineral extraction can result in numerous environmental impacts, including air pollution and degradation of air quality, noise pollution, accentuation of geologic hazards, surface and groundwater pollution, risks to public safety, destruction of cultural resources, and impacts to wildlife and plant species. Given these potential environmental impacts and potential conflicts with adjacent land uses (including urban development), mineral resource extraction activities continue to draw scrutiny from both the public and private sectors.

Table 2.5-1 provides the number of producing sites, prospecting sites, processing plants, and documented occurrences for metallic and nonmetallic mineral resources located in the County.

Table 2.5-1. Mineral Resources in Imperial County

Mineral Resource	Number of Past Producing Sites	Number of Current Producing Sites	Number of Prospecting Sites	Number of Processing Plants	Number of Documented Occurrences
Metallic	53	17	46	7	141
Metallic and Nonmetallic	14	None	None	1	10
Nonmetallic	57	66	10	None	82

Source: USGS 2013

2.5.4 Constraints and Opportunities

This section discusses the potential constraints due to mineral resources regulatory requirements and existing conditions and potential opportunities for the COSE.

2.5.4.1 Constraints Due to Regulatory Requirements

Areas outside of the County's jurisdiction, including federal and state lands, would not be available for protection under the COSE. Therefore, some areas that support mineral resource extraction (which is generally compatible with open space designation) regulated by federal and state resource agencies would be outside the scope of the COSE and would rely on protection, as needed, by the appropriate land manager (e.g., BLM, California State Lands Commission).

2.5.4.2 Constraints Due to Existing Conditions

As described above, the County contains numerous known deposits of valuable metallic and nonmetallic mineral resources. In general, mineral resource deposits represent an opportunity rather than a constraint for the protection and conservation of open space. The protection of known deposits of mineral resources includes restrictions on development of incompatible land uses, such as urban development. These restrictions on incompatible land uses are generally favorable for the protection and preservation of open space. However, active mining and mineral extraction activities may conflict with access to open space and other adjacent open space uses, including recreation activities (such as off-road vehicle use and wildlife viewing), protection of biological resources (including sensitive species), and the preservation of scenic vistas. While the protection of mineral resource deposits represents an opportunity for conservation of open space, the extraction of those resources may conflict with the likely uses of that open space. Therefore, active mineral resource extraction can be seen as a constraint on the available uses and benefits provided by open space conservation.

2.5.4.3 Opportunities

As shown in the Mineral Resources Data System provided by the USGS and in mineral resource reports from the California Geological Survey, mineral resource extraction is an important economic activity in the County. Along with other mineral resources, economically valuable deposits of clay, sand, gravel, stone/rock, and decomposed granite are currently being mined throughout the area. The largest gold producer in the state, the New Gold Inc., Mesquite gold mine, is located in the eastern portion of the County, along State Route 78 (CGS 2014a). Given the prevalence of mineral resources in the County and the economic importance of mining activities, the County may choose to protect its mineral resources and mining operations through the promotion of extraction policies. Ultimately, this could encourage the preservation of these areas (until mined) and prohibit incompatible land uses, including urban development.

Opportunities are lands in the County's jurisdiction that would provide new protection to mineral resource deposits or expand existing conservation areas to further benefit the protection and preservation of mineral resources. Areas of opportunity for the COSE include areas of dense mineral resource deposits, particularly inholdings under County jurisdiction that fall within areas of federal or state land with known mineral deposits or active mining sites, such as County inholdings on BLM land in the southwestern and southeastern portions of the County.

Several federal and state regulations and policies encourage the protection of mineral resource deposits and consequently the conservation of open space and restrictions on incompatible land use development, including residential and urban development. While the COSE would not apply to federal and state lands, these regulations (including the 1976 Federal Land Management and Policy Act and California's 1975 Surface Mining and Reclamation Act) encourage protection of mineral resources and preservation of open space on County lands.

In 1976, the FLPMA was passed to evaluate management strategies for the approximately 300 million acres of public lands that existed at the time. Under FLPMA Section 601, Congress determined that the CDCA was of unique importance, stating "[t]he Congress finds that the California Desert contains historical, scenic, archeological, environmental, biological, cultural, scientific, educational, recreational, and economic resources that are uniquely located adjacent to an area of large population" (BLM 2006 as quoted in Chambers Group 2014). As such, Congress instructed the BLM to prepare and implement a long-range plan for the management, use, development, and protection of public lands contained within the CDCA.

Of the 2,942,080 acres of land that constitute Imperial County, more than a third (approximately 1.3 million acres) is public land administered by the BLM. According to information distributed by the BLM, all of the public lands in the County are included in the approximately 25 million total acres of the CDCA (Chambers Group 2014). Consequently, the CDCA Plan has far-reaching implications with regard to the regulation of mineral resources throughout the County. Under the plan, the BLM has drafted multiple-use class provisions to serve as guidelines for mineral exploration and development. While the CDCA Plan outlines goals for energy production and utility corridors, its overarching policies regulating mineral resources have the potential to inhibit or prevent the development of incompatible land uses, including residential development.

In 1975, the California Legislature passed the Surface Mining and Reclamation Act (SMARA) both to address the need for continued mineral supplies and to mitigate or prevent negative impacts to public health, property, and the environment that could result from mining activities. SMARA regulations are jointly administered by the Department of Conservation's Office of Mine Reclamation (OMR) and the State Mining and Geology Board (SMGB). The OMR provides technical assistance for lead agencies and operators, maintains a database of mine locations and operational information statewide, and is responsible for matters related to compliance.

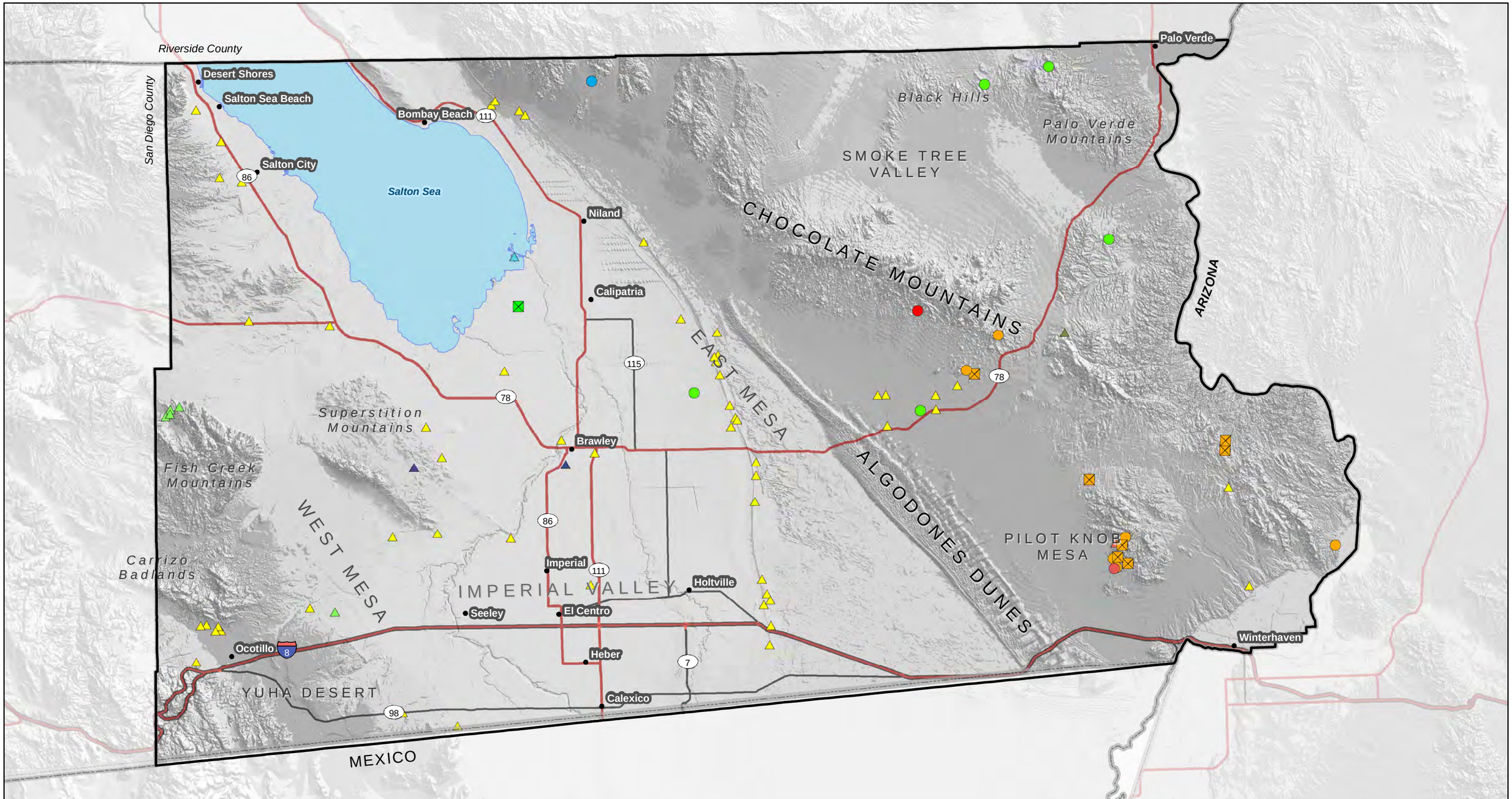
To better enforce provisions in the Act, SMARA directs the State Geologist to classify (identify and map) the nonfuel mineral resources of the state to show where economically significant mineral deposits occur and where they are likely to occur based on the best available scientific data. Mineral land classification is the principal responsibility of the Mineral Resources and Mineral Hazards Mapping Program. Although no SMARA maps are currently available for Imperial County, study of the region by the State Geologist could result in findings that classify potentially significant mineral deposits and identification of restrictions aimed at curbing development of those areas.

The current *1993 Conservation and Open Space Element* (ICPDS 1993) of the Imperial County General Plan (ICPDS 2009) includes goals and objectives to preserve mineral resources and open space. These goals and objectives may be revised as part of the current COSE update effort. However, it is anticipated that any revisions to the COSE goals and objectives will generally reflect the existing goals and objectives in the 1993 COSE. Existing goals and objectives applicable to mineral resources include:

- Goal 5: The County will identify and protect mineral resources for extraction and minimize the effect of mining on surrounding land uses and other environmental resources.
  - Objective 5.1: Encourage the sound extraction of mineral and quarry/aggregate resources while protecting the natural desert environment.
  - Objective 5.3: Require that mineral extraction and reclamation operations be performed in a way that is compatible with surrounding land uses and minimize adverse effects on the environment.
  - Objective 5.4: Safeguard the use and full development of all mineral deposits.
  - Objective 5.5: Regulate the development adjacent to or near all mineral deposits and geothermal operations due to the potential for land subsidence.

The existing 1993 COSE goals and objectives for the preservation of mineral resources, as well as the anticipated goals and objectives of the COSE update, represent an opportunity for the conservation of open space. As discussed above, the preservation and protection of mineral resource deposits are generally compatible with the conservation of open space. Both the protection of mineral resource deposits and the conservation of open space seek to limit development of incompatible land uses, including residential and urban development. While active mining operations may be incompatible with

other open space uses (including recreation and habitat preservation), the protection of mineral resources in general is aligned with the goals and objectives of open space conservation.



Source: U.S. Geologic Survey
MRDS and MAS/MILS, 2013

0 7.5 15 Miles

- Imperial County Boundary
- Major Highways
- Highways
- Major Roads

Active Mines and Processing Plants

Plants
- Potassium and Salt
- Gold

Mines, Metallic Commodities
- Aluminum
- Copper, Silver and Gold
- Gold
- Gold and Silver
- Manganese
- Uranium

Mines, Non-Metallic Commodities
- Clay
- Gypsum-Anhydrite
- Mica
- Pumice
- Sand and Gravel, Construction
- Stone Crushed/Broken

Figure 2.5-1

Imperial County
Existing Mineral Resources