Aggregate Sustainability

California Geological Survey

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28 minerals are produced commercially from about 660 actively working mines.

Ranked 5th in Nation in total value.

Led Nation in production of S&G, boron, rare earths, and diatomite.

California produces a greater variety of minerals than any other state.
WHO USES CONSTRUCTION AGGREGATE

Private Aggregate Use 57%
Private Roads 3%
Residential Housing 34%
Commercial Buildings 17%
Utilities 4%
Other Public Buildings 3%
Hospitals and Schools 2%
Water and Sewer 5%
Other Public Facilities 3%
Public Highways, Streets, and Transit 26%
Railroads 1%
Other Private Facilities 2%

NOT ALL ROCK IS CREATED EQUAL
2018
AGGREGATE SUSTAINABILITY MAP

California’s New Gold
FRESNO
BAKERSFIELD
GREATER SACRAMENTO AREA

1.5 bt reserves
1.4 bt demand
## MS 52 UPDATE COMPARISON

<table>
<thead>
<tr>
<th></th>
<th>2002</th>
<th>2006</th>
<th>2012</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Permitted Reserves (billion tons)</td>
<td>6.8</td>
<td>4.3</td>
<td>4.1</td>
<td>7.6</td>
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<tr>
<td>50-Year Demand (billion tons)</td>
<td>12</td>
<td>13.5</td>
<td>12</td>
<td>11</td>
</tr>
<tr>
<td>Areas with Adequate Reserves</td>
<td>6</td>
<td>1</td>
<td>1</td>
<td>5</td>
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<tr>
<td>Resources (billion tons)</td>
<td></td>
<td></td>
<td></td>
<td>74</td>
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SPECIAL REPORT 240: MINERAL LAND CLASSIFICATION WESTERN SAN DIEGO COUNTY P-C REGION
The primary goal of Mineral Land Classification is to ensure that the mineral resource potential of lands in California is recognized and considered in the land-use planning process.
AGGREGATE CLASSIFICATION METHODOLOGY

- Study boundary
- Mineral Resource Zones (MRZs)
- Resource Sectors
- Quantify resources and reserves
- Forecast 50-year aggregate needs
- Project lifespan of current reserves
CLASSIFICATION CATEGORIES - SIMPLIFIED

MRZ- 1  No Resource
MRZ- 2  Resource
MRZ- 3  Suspected Resource
MRZ- 4  Unknown
MINERAL RESOURCE ZONES
RESOURCE SECTORS B AND C
Basis for Projection

• Historic Construction aggregate production (consumption)

• Historic population

• Production ÷ Population = Average Annual Per-Capita consumption

• Population Projection x Per-Capita rate = Demand Projection
DEMAND PROJECTION INPUT: HISTORIC PRODUCTION

Years 1970 – 1990 Compilation Sources
US Bureau of Mines
Mine Operators
Source Report Files

Years 1990 – 2016 Compilation Sources:
California Division of Mine Reclamation
DEMAND PROJECTION INPUT: PER-CAPITA CONSUMPTION

Average Annual Per-Capita Consumption

= Production ÷ Population
<table>
<thead>
<tr>
<th>Resource Description</th>
<th>Quantity</th>
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</thead>
<tbody>
<tr>
<td>Aggregate Resources (PCC-grade)</td>
<td>5,982 Million Tons</td>
</tr>
<tr>
<td>Aggregate Reserves (PCC-grade)</td>
<td>271 Million Tons</td>
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<tr>
<td>Projected 50-Year Aggregate Demand</td>
<td>760 Million Tons</td>
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<tr>
<td>Estimated Depletion Date of Reserves</td>
<td>2035</td>
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