Appendix D

28 February 2022

Carmen Borg
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Subject: **Cottonwood Sand Mine Project, San Diego County, CA**
Acoustical Comments on Draft Environmental Impact Report
Salter Project 22-0056

Dear Carmen:

D-O8-90

As requested, we reviewed Subchapter 2.4 Noise of the Draft Environmental Impact Report (DEIR) for the proposed mine project in San Diego County, CA. We also reviewed information in Appendix F (Acoustical Site Assessment Report). In summary, it is our opinion that the DEIR does not sufficiently assess or mitigation potential noise impacts.

County Noise Ordinance Limits for Residential Properties are Ignored

D-O8-91

The DEIR only addresses and applies one County Noise Ordinance limit to the project - the 75 dBA limit at the property line of an extractive use. This is based on Item E of Section 36.404 of the County Code Chapter 4, as listed below:

> (e) ... The one-hour average sound level limit applicable to extractive industries, however, including but not limited to borrow pits and mines, shall be 75 decibels at the property line regardless of the zone in which the extractive industry is located.

However, we also expect that it is required to limit the operational noise that would be transmitted to nearby residences that do not share a property boundary with the proposed mine. This would be required per Item A of Section 36.404 of the County Code Chapter 4.

> (a) it shall be unlawful for any person to cause or allow the creation of any noise, which exceeds the one-hour average sound level limits in Table 36.404, when the one-hour average sound level is measured at the property line of the property on which the noise is produced ***or at any location on a property that is receiving the noise***. (emphasis added)

D-O8-90 The County acknowledges these introductory comments. Please see Topical Responses 3 and 7 and Responses to Comments D-O8-91 through D-O8-97, below, for further detailed responses to these general introductory comments.

D-O8-91 Please see Topical Response 7 and Responses to Comments D-O8-30 through D-O8-33 regarding noise thresholds used in the analysis.

D-O8-91 cont.

Per the above County Code reference, The Noise Ordinance limit for residential zones is 50 dBA during daytime hours. Even with the proposed mitigation, the DEIR predicts operational mining noise levels at all identified sensitive receiver areas to range between 54 dBA at 68 dBA (DEIR, Appendix F, Tables 11 and 12, page 22). All predicted noise levels at sensitive receivers are expected to exceed the County Noise Ordinance limit for residential receivers that do not share a property boundary with the proposed mine. This is summarized in Table 1 below. Project noise would exceed the County residential zone noise limit by up to 18 dB. By ignoring the County noise limit standards for such residential properties, the DEIR fails to identify and mitigate this significant impact of the project. It is very likely that additional minimum setback requirements would be needed to meet this County noise limit at residences.

Table 1: Summary of DEIR Predicted Noise Compared to County Residential Zone Noise Limit

Description	Noise Level
County Noise Ordinance limit for residential Zones that do not share a property line with the proposed mine.	50 dBA limit
DEIR predicted noise levels at all sensitive receiver areas	54 dBA to 68 dBA
Exceedance	**Up to +18 dB**

The application of the 50 dBA noise limit is further supported by the San Diego County "Guidelines for Determining Significant and Report Format and Content Requirements – Mineral Resources" (Mineral Resource Guidelines, Revised 30 July 2008). This County document states the following:

> Noise Setbacks – Noise from quarry and mining activities is typically the largest environmental impact to nearby noise sensitive land uses (such as residential developments, industrial developments, commercial developments, and major public facilities). In order to meet the noise standards outlined in the County Noise Ordinance, an adequate setback between noise-related activities associated with extractive uses is necessary to protect sensitive land uses from noise that exceeds the allowable limits of the County Noise Ordinance. Although setback distances may vary from project to project, **a general noise setback area of approximately 1,300 feet is usually an adequate distance for most typical potential extractive operations to achieve allowable noise levels (in compliance with the County Noise Ordinance). For example, 1,300 feet would usually attenuate typical heavy equipment noise levels of 75 to 90 dBA to the County Noise Ordinance standard of 50 dBA for daytime residential land use**. It is important to note that the setback is relative to the property line of a noise sensitive land use. (San Diego County Mineral Resource Guidelines, page 15, emphasis added)

Clearly, it is policy of San Diego County to apply to Noise Ordinance 50 dBA limit to mining operations that would impact nearby residences. As currently written, the DEIR is deficient and would allow mining operational noise to exceed this County noise limit by up to 18 dB. This exceedance is significant and would be perceived as nearly four times as loud as the limiting noise level. The DEIR should be revised.

Significant Change to Quiet Existing Environments is not Addressed

Within the relevant study area, there are sensitive receptors located adjacent to a roadway noise source (i.e., DEIR ambient measurement locations M1, M3, M5, and M6). However, there are also many residences in and around the valley that are not located near such noise sources. These may be represented by DEIR ambient measurement locations M2, M4, M7, and M8. The little data provided in the DEIR for these locations indicate that such sites in this area enjoy low background noise levels between 52 dBA and 55 dBA (L_{eq} – DEIR Subchapter 2.4, page 2.4-2, paragraph 1). Even with the proposed mitigation, the DEIR predicts noise levels at all identified sensitive receiver areas to range between 54 dBA at 68 dBA (DEIR, Appendix F, Tables 11 and 12, page 22). At many such sensitive receivers with low ambient noise, predicted mining operations are expected to substantially increase noise levels by up to 15 dB. This is summarized in Table 2 below. For reference, a 5 dB noise increase is noticeable and commonly considered significant, and a 10 dB increase in noise is generally perceived as a doubling of loudness. By ignoring the expected increase in ambient noise for such residential properties, the DEIR fails to identify and mitigate this significant impact of the project.

D-O8-92

Table 2: Summary of DEIR Predicted Noise Compared to Areas with Quieter Ambient Noise

Description	Noise Level
Measured ambient noise levels at Locations M2, M4, M7, and M8 – representing homes located away from roadways	52 dBA to 55 dBA
DEIR predicted noise levels at all sensitive receiver areas	54 dBA to 68 dBA
Noise Increase	**Up to +15 dB**

Ambient Noise was Not Adequately Evaluated

As part of the acoustical site assessment, ambient noise measurements were conducted in the area surrounding the project site. On one afternoon (approximately 2pm to 5:30 pm on 3 January 2019), they measured noise levels for 10 to 15 minutes at each of eight locations (DEIR Appendix F, Page 10). In our opinion, this approach is inadequate to establish baseline existing conditions. The very small sampling of acoustical data collected for the DEIR does not sufficiently characterize existing conditions. It fails to capture how noise levels vary during the entire day, particularly morning and late afternoon or evening hours when mining operations would occur. The sampling is also not statistically valid, as it only covered a very short period during one day and therefore does not demonstrate that the results are actually representative for these areas. For a project of this scale and potential impact located directly adjacent residences, it is necessary to perform an adequate survey of existing conditions.

D-O8-93

D-O8-92 Please see Topical Response 3 and Response to Comment D-O8-37 regarding applicability of the County Guideline threshold related to a 10 dB CNEL increase over pre-existing conditions.

D-O8-93 Please see Topical Response 3 and Response to Comment D-O8-37 regarding the 24-hour noise measurement data collected following public circulation of the DEIR.

D-O8-94

It is also necessary to document existing noise levels using the CNEL metric because the County expresses Noise Compatibility Guidelines using the Community Noise Equivalent Level (CNEL) metric. Measuring CNEL requires a minimum of 24 hours of continuous monitoring at each location. Ideally, multiple days would be assessed to provide a statistically valid sample of daily noise levels. To determine noise impact, the expected noise levels of the project should be compared to these baseline levels.

The DEIR appears to acknowledge this as a necessary step in the analysis, as "CNEL Existing" values are presented in the cumulative noise summary tables (DEIR, several tables, pages 2.4-17 to 22). However, neither the DEIR Noise Subchapter nor the technical report in Appendix F explain where these values came from. According to the report, 24-hour levels were not measured. No other source, reference, assumption, or derivation is provided. Without this explanation, the public reader cannot sufficiently review the impact analysis. In our opinion, for a project of this scale, the cost and effort of representative 24-hour ambient noise measurements are certainly warranted. For this and other reasons stated above, the DEIR is incomplete with minimal amount of ambient noise data currently included.

D-O8-95

DEIR Does Not Demonstrate Efficacy of Noise Barrier Mitigation

Mitigation offered in the DEIR for operational mining activities includes 8 or 12-foot tall noise barriers along the edge of the site. Such solid objects are intended to break the "line-of-sight" between the noise source and receiver to disrupt the noise transmitted along that direct path. However, the DEIR provides no line-of-sight studies to demonstrate that the proposed mitigation will adequately reduce noise. In fact, we expect that many of the residences elevated on surrounding hills are not going to receive the benefit of this mitigation. As described above, we also expect such residences to be exposed to excessive noise, requiring further mitigation.

The DEIR also relies on the depth of excavated areas within the site to reduce noise with similar "acoustical shielding." Line-of-sight studies are also not provided for this mitigation to demonstrate that the terrain during excavation would provide adequate reduction of noise. Furthermore, we expect much of the excavation to occur near the current grade elevation on-site before substantial elevation change is achieved.

D-O8-96

DEIR Fails to Evaluate Maximum "Single-Event" Noise

The DEIR solely evaluates project noise using hourly average (L_{eq}) or daily average (CNEL) noise levels. However, we would expect such a facility to generate notable "single-event" noise from several sources, including heavy truck passbys on roadways directly adjacent to residences, rock and gravel being dropped into the metal bins of hauling vehicles, and similar momentary but commonly repeated activities. We have found such activities to generate significant noise levels. Since such noise is commonly a source of complaints, it is our opinion that the DEIR should evaluate such noise and identify appropriate mitigation to protect the community from excessive noise.

D-O8-94 Please see Topical Response 3 and Response to Comment D-O8-37 regarding applicability of the County Guideline threshold related to a 10 dB CNEL increase over pre-existing conditions.

D-O8-95 Please see Topical Response 7 and Response to Comment D-O8-38 regarding the proposed noise mitigation and the applicability of the 1,300-foot setback.

D-O8-96 Please see Response to Comment D-O8-36 regarding consideration of single-noise events.

D-O8-97

Noise Impact on Wildlife in Not Evaluated

We also reviewed the comments on noise impact on wildlife in the DEIR Subchapter 2.2 Biological Resources. The DEIR indicates that "a significant impact to wildlife movement or nursery sites would occur if the Proposed Project would:... increase noise and/or nighttime lighting in a wildlife corridor or linkage to levels proven to affect the behavior of the animals identified in a site-specific analysis of wildlife movement." (DEIR Subchapter 2.2, page 2.2-50, Section 2.2.2.4). However, the DEIR provide no substantive analysis regarding noise in neighboring wildlife areas that will be subject to noise from the project operations. It appears that:

1. Existing ambient noise levels were not measured or evaluated in the neighboring wildlife areas. And based on the little ambient noise data presented in Subchapter 2.4, we expect that such areas that are located away from current sources of noise (e.g., roadways) would have rather low noise levels.
2. Project operational noise levels were not predicted for neighboring wildlife areas. Without such analysis, the potential noise increase has not been evaluated adequately.
3. Noise impact on neighboring wildlife areas is largely dismissed with the assumption that these areas are already subject to noise from the Cottonwood Gold Course. However, this assumption is unsubstantiated. There is no information provided in the DEIR to support the assertion that mining operations will not significantly increase noise in sensitive wildlife habitat.

* * *

Should you have any questions, please call.

Best,

SALTER

Jeremy L. Decker, PE
Vice President

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D-O8-97 Please see Topical Response 7 and Response to Comment D-O8-39 regarding potential noise impacts on wildlife species.

RESUME

Jeremy Decker, PE
Vice President

Mr. Decker has been an acoustical consultant with Salter since 2005. His areas of expertise include environmental noise studies, municipal master planning and noise control policies, architectural noise control, room acoustics, mechanical system noise and vibration reduction, and vibration analyses. He has consulting experience in the development and peer review of environmental noise impact analyses for public, industrial, and other commercial projects.

Project Experience

- Decker Island Mine, Solano County, CA
- Warner Ranch DEIR Peer Review, San Diego County, CA
- Kern County Oil & Gas DEIR/FEIR/SEIR Peer Review, Kern County, CA
- Southern California International Gateway FEIR Peer Review, Long Beach, CA
- Bay Delta Conservation Plan/California WaterFix FEIR Peer Review, CA
- Redondo Beach Power Plant Noise Impact Peer Review, Redondo Beach, CA
- Idaho-Maryland Gold Mine DEIR Peer Review, CA
- Caldecott Tunnel 4th Bore Noise Impact Study, East Bay Area, CA
- Kaneohe/Kailua Sewer Tunnel Construction Noise Study, Kailua, HI
- Gateway Valley Construction Noise Impact Study, Orinda, CA
- San Francisco Fire Dept. Water Supply Facility, San Francisco, CA
- FedEx Distribution Center Noise Impact Studies, Various Cities, CA, AZ, TN
- NRG Cogeneration Facility Noise Impact Study, San Francisco, CA
- Fivepoint Amphitheater Noise Impact Study, Irvine, CA
- Kaiser Permanente Construction Noise Study, Oakland, CA
- Saltworks Site EIR, Redwood City, CA
- Egbert Data Center EIR, San Francisco, CA
- Saranap Village EIR, Walnut Creek, CA
- Fresno General Plan Update and EIR, Fresno, CA
- Daly City General Plan Update and EIR, Daly City, CA

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Acoustics
Audiovisual
Telecommunications
Security

Appendix E

San Diego Region Aggregate Supply Study

January 2011

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CHAPTER 7
CASE STUDIES AND SCENARIOS—USING THE TOOLS

One of the objectives of this study is to develop a geographic information system (GIS) mapping and analysis tool that could be used by other regions and local governments facing aggregate supply shortages. A standard GIS overlay tool offers a starting point to help local governments focus their efforts on potential aggregate supply areas. It is important to note that while GIS mapping and analysis provides an important baseline tool; it is understood that additional groundwork will be required for site-specific suitability and aggregate quality analysis. This chapter presents various ways of using the GIS tool. In all cases presented in this chapter, the user must go to the next level and examine local zoning and set back requirements, slope of available land, the presence of natural habitats and species, the economic viability of the site, and other local factors.

CONSIDERATIONS FOR USING FUTURE *TransNet* MITIGATION LANDS AS POTENTIAL SUPPLY OF AGGREGATE

The *TransNet* Extension Ordinance and Expenditure Plan, approved by the voters of the San Diego region in November 2004, includes the Environmental Mitigation Program (EMP), which provides funding to mitigate habitat impacts from regional transportation projects by directing transportation project mitigation land purchases to areas that are designated as open space preserves in the region's habitat conservation plans. The EMP includes a funding allocation for habitat acquisition to offset the direct impact on upland and wetland habitat from regional and local transportation projects. The early acquisition of land for multiple projects allows large blocks of land to be acquired in advance of the traditional, project-by-project mitigation. The funding allocation also includes management and monitoring activities to help implement the regional habitat conservation plans. The allocation is tied to mitigation requirements and the environmental clearance approval process for projects outlined in the Regional Transportation Plan (RTP).

All areas of the San Diego region have been included into one of four habitat conservation plans. The Multiple Species Conservation Program (MSCP) South was adopted in 1997, covering the southern portion of the region. The Multiple Habitat Conservation Program (MHCP), completed in 2003, covers the seven jurisdictions in the north coastal San Diego region. Two plans are being prepared in the unincorporated areas of the region: the MSCP North, covering the inland areas of northern San Diego County, and the MSCP East, which extends east to the San Diego/Imperial counties border. These habitat plans provide the policy framework that allows the jurisdictions to identify how their local land use authority will be used for the continued preservation of open space and natural resources in the San Diego region.

Under the *TransNet* EMP guidelines, SANDAG and California Department of Transportation (Caltrans) staff will pursue mitigation opportunities consistent with the strategies agreed to by SANDAG, Caltrans, U.S. Fish and Wildlife Service, and California Department of Fish and Game. Existing criteria for *TransNet* EMP mitigation are as follows:

- **RTP Mitigation**: The property will satisfy one or more RTP projects as identified in *TransNet* EMP memorandum of agreement (MOA). Mitigation opportunities to meet other RTP project and local street and road projects will be considered under the term of the MOA. Certain assurances by the environmental regulatory agencies will be met.
- **Jurisdictional Land Use Plans:** Use of the site as habitat mitigation/open space is consistent with the long-range land use and transportation policies of the local jurisdiction or the jurisdiction does not object to the site being purchased for mitigation.
- **Willing Seller:** Owner of the property is a willing seller with clear title to the property, and any hazardous material identified in a Phase I environmental site assessment has been evaluated and addressed.
- **Appraisal:** The property must be appraised by a qualified, licensed appraiser in accordance with established acquisition and appraisal standards, and the first written offer will reflect the fair market value of the property.
- **Promotes Natural Community Conservation Plan (NCCP):** The proposed mitigation will contribute to the success of the San Diego regional NCCP by acquiring and restoring unique habitat areas, key populations of endangered species, and lands adjacent to existing conserved habitat lands by promoting wildlife linkages with the goals of establishing mitigation ratios in subsequent agreements pursuant to the adopted habitat conservation plans.
- **Owner/Manager:** Perpetual ownership of the land has been identified, as well as a qualified land manager. The identified owner is willing to provide a conservation easement or deed restriction to SANDAG or Caltrans upon transfer of title that contains a reversionary clause back to SANDAG or Caltrans if the land is not being managed and monitored pursuant to a resource management plan acceptable to the wildlife agencies. SANDAG, Caltrans, and the land manager have agreed upon the annual cost to manage the land and the method for funding the annual management costs.

This study explored the use of future *TransNet* mitigation lands as potential supply of aggregate. A list of factors was developed to consider the possibility of aggregate supply as a secondary result when mitigation lands are purchased. Although the EMP program is specific to SANDAG and the San Diego region, the considerations are broad and could be used by other agencies engaged in purchasing mitigation lands.

SANDAG staff consulted with the expert review panel to understand the parameters that should be considered when evaluating secondary benefits of aggregate supply. The expert review panel included environmental resource agencies, such as the U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, and U.S. Fish and Wildlife Service. Two scenarios were discussed during the expert review panel focus group meetings that included the above-mentioned agencies, as well as representatives from Caltrans, San Diego Endangered Habitats League, California Air Resources Board, and California Geological Survey. In addition, the scenarios were reviewed in separate focus groups of local suppliers of aggregate, importers/transporters of aggregate, and users of aggregate. Insight and feedback were used to develop a list of factors that could be used for considering opportunities to increase aggregate supply when purchasing mitigation lands through the SANDAG EMP.

When considering the purchase of a property for mitigation, SANDAG may wish to consider the following factors identified by the expert review panel to determine if there are opportunities for increasing the regional supply of aggregate as a secondary consideration when purchasing or restoring mitigation lands.

Under what conditions could this occur?

- **On a Case-by-Case Basis:** As SANDAG seeks opportunities to secure lands for conservation, it could consider if there is a potential for increasing the region's supply of aggregate. Decisions would be case-sensitive.
- **Pristine or Disturbed Habitat Land:** Is the desired mitigation land considered to be "disturbed?" Disturbed in this sense means altered from its original or a naturally functioning condition. If so, the land may require restoration to return the land to a previously functioning state and in so doing, there may be possibilities for increasing aggregate supply in the restoration process. Questions to ask include:
  - Is the land in a natural state?
  - Does the land suffer from natural or human disturbance that limits environmental processes?
  - Would grading and/or removal of aggregate sand and gravel restore the area to previously functioning natural state?
  - Would grading and/or removal of aggregate sand and gravel on lands cause a negative environmental impact?
- **Project Purpose:** All elements of the project must be specified in the project purpose. Questions to ask include:
  - Does the project purpose specify restoration?
  - Is the aggregate extraction needed for the project?
- **Other Considerations:** Topography, geology, and other site-specific factors also must be considered, particularly the biological resources of the area. Related questions include:
  - What types of natural vegetation communities are present?
  - What plant species does the area support? Are they natural or exotic? Are they special status species (i.e., listed as threatened, endangered, candidate or of special concern by the federal government or State of California)?
  - What animal species does the area support? Are they native or nonnative? Are they special-status species?
  - Is the area a biological resource core area? Is it part of a regional linkage or corridor?
  - Are there jurisdictional wetland or nonwetland waters (i.e., within the jurisdiction of the U.S. Army Corps of Engineers)?
  - Are there vernal pools present?

Not all actions require mitigation. If the action has no adverse environmental impacts, no mitigation is necessary. Lands meeting the above-mentioned factors could be consistent with the *TransNet* EMP strategy, and the use of *TransNet* mitigation dollars for purchasing and/or restoring the land may be appropriate.

This topic was discussed in the expert review panel focus group meetings with local suppliers, users of aggregate, and importers and transporters of aggregate. An evaluation of the economic feasibility of the situation would need to be considered to determine if this could be a viable opportunity from the local mining operators' perspective. The focus group participants indicated that the following factors should be considered:

- **Quality of Materials:** Material to be extracted is either usable in the existing or a nearby project or suitable for sale. Materials used in state transportation projects must meet Caltrans' aggregate specifications.
- **Storage and Processing of Materials:** Materials could be processed and stockpiled at the site as transporting back to the mine could be cost prohibitive. The extraction of materials, if used in a state or local government project, could be subject to SMARA regulations and require the operation to be on the Assembly Bill 3098 list and meet the necessary provisions. This would be an important factor to consider as it could mean the operation may need a mining permit and an approved reclamation plan, which could be a time-consuming process.[1]
- **Long-Term Perspective:** The demand for aggregate is market driven, so a long-term perspective of at least ten years is needed.
- **Economical:** The situation would have to make sense economically for the mining operator. Proximity to local roadways and quality and marketability of materials should be taken into account.

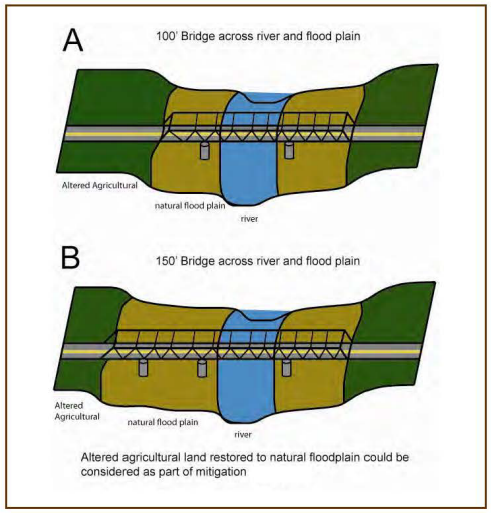
Two hypothetical situations were discussed during the expert review panel focus groups to illustrate policy implications: a Riverbed Opportunistic Scenario and an Upland Opportunistic Scenario. It is important to note that the following discussion focuses on environmental considerations. An evaluation of the economic viability of the situation would need to be considered before any conclusions could be drawn.

Riverbed Opportunistic Scenario

The project purpose is to expand the bridge and restore the flood plain. The bridge spans a river and flood plain. Land surrounding the bridge has been altered by agricultural uses. In order to expand the bridge, the project requires some of the altered land to be removed. In addition, sediment is removed to restore the flood plain to a previous natural state. Aggregate materials could be used in the project and the surplus used to supplement regional supply.

[1] Assembly Bill (AB) 3098 list includes all mining operations that are authorized to sell sand, gravel, aggregates or other mined materials to state or local agencies. Mining operations included on the list must have an approved reclamation plan and financial assurances (or an appeal pending with respect to the reclamation plan and financial assurances). The Department of Conservation, Office of Mine Reclamation publishes this list.

Figure 7-1
Riverbed Opportunistic Scenario



Factors to consider when determining if there are opportunities for increasing the regional supply of aggregate as a secondary consideration when purchasing or restoring mitigation lands include:

- Pristine or Disturbed Habitat Land

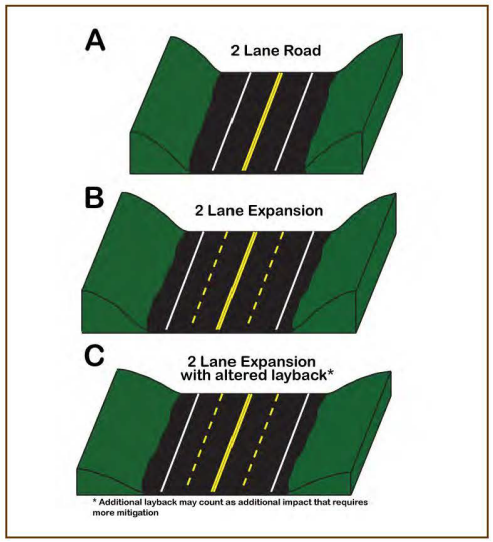
1.	Is the land in a natural state?	☐ Yes	☒ No
2.	Does the land suffer from natural or human disturbance that limits environmental processes?	☒ Yes	☐ No
3.	Would grading and/or removal of aggregate sand and gravel help restore the area to previously functioning natural state?	☒ Yes	☐ No
4.	Would grading and/or removal of aggregate sand and gravel on the land cause an adverse environmental impact?	☐ Yes	☒ No

- Project Purpose
  1. Does the project purpose specify restoration? ☒ Yes ☐ No
  2. Is the aggregate extraction needed for the project? ☒ Yes ☐ No
- Biological Resources
  1. Are sensitive species present? ☐ Yes ☒ No
  2. Are the vegetation communities and/or geology known to support sensitive species? ☐ Yes ☒ No
  3. Are vernal pools present? ☐ Yes ☒ No

Upland Opportunistic Scenario

The project purpose is to expand the freeway. The project is a two-lane expansion of a freeway (A) to freeway (B). One may want to lay back the slope even flatter (C) and use the aggregate in the project.

Figure 7-2
Upland Opportunistic Scenario



Factors to consider when determining if there are opportunities for increasing the regional supply of aggregate as a secondary consideration when purchasing or restoring mitigation lands include:

- Pristine or Disturbed Habitat Land
  1. Is the land in a natural state? ☒ Yes ☐ No
  2. Does the land suffer from natural or human disturbance that limits environmental processes? ☐ Yes ☒ No
  3. Would grading and/or removal of aggregate sand and gravel help restore the area to previously functioning natural state? ☐ Yes ☒ No
  4. Would grading and/or removal of aggregate sand and gravel on lands cause a negative environmental impact? ☒ Yes ☐ No
- Project Purpose
  1. Does the project purpose specify restoration? ☐ Yes ☒ No
  2. Is the aggregate extraction needed for the project? ☐ Yes ☒ No
- Biological Resources
  1. Are sensitive species present? ☐ Yes ☒ No
  2. Are the vegetation communities and/or geology known to support sensitive species? ☐ Yes ☒ No
  3. Are vernal pools present? ☐ Yes ☒ No
  4. Are there jurisdictional wetland or non-wetland waters? ☐ Yes ☒ No

Discussion of Scenarios

In the Riverbed Opportunistic Scenario, the project requires the removal of some agricultural land. The aggregate materials extracted would be used in the bridge expansion project, and grading/dredging for the project would result in helping to restore the area to its previously functioning state as a flood plain. The Clean Water Act, National Environmental Policy Act, and California Environmental Quality Act (CEQA) require that potential adverse environmental impacts be avoided, minimized, or mitigated (in that order). In this case, the impact would be positive so the expansion of the bridge would not require additional mitigation.

In the Upland Opportunistic Scenario, the project purpose does not specify additional grading for layback in a pristine area. The additional layback to the slope to obtain more aggregate would be considered an additional impact requiring mitigation.

Expert review panel representatives suggested that if the project purpose specified freeway expansion and provided aggregate to supplement the regional supply and if the extra layback would be the least environmentally damaging alternative for obtaining aggregate (compared to transporting aggregate from another location, for example), and would be in the public's best interest, then the project could potentially proceed. These decisions would need to be determined on a case-by-case basis.

The above-mentioned factors could be considered when evaluating aggregate supply possibilities when purchasing mitigation lands; however, the economic viability from the operator standpoint should be taken into consideration as well.

CASE STUDY: USING GIS TOOLS TO IDENTIFY FUTURE *TransNet* MITIGATION LANDS AS POTENTIAL SUPPLY OF AGGREGATE

According to the Department of Conservation, the highest-priced aggregate in California is in the San Diego area where portland cement concrete (PCC)-grade sand is in very short supply.[2] So there is a need to identify sources of aggregate sand. This study explores an opportunity for linking an existing effort, such as buying and restoring of mitigation lands as in the *TransNet* EMP, with efforts to identify potential areas for aggregate sand. Although the *TransNet* EMP is specific to the San Diego region, the approach used in the case study can be repeated in other California regions to test similar scenarios.

Figure 7-3 illustrates the flowchart outlining the case-study approach. The case study builds on the GIS standard overlay analysis. It uses the GIS overlay model to identify areas that may be suitable for mitigation lands and that also may be suitable for sand extraction if needed as part of a restoration process. The GIS layers and filters used in the case study area:

- Include California Geologic Survey mineral resource zone (MRZ) areas MRZ-2 and MRZ-3, plus correlated MRZ areas for zones 2 and 3 developed in this study (explanation below;
- Include all lands inside the designated preserve area;
- Include all lands outside the designated preserve area;
- Exclude developed lands; and
- Exclude military and tribal lands as purchase of these lands is not permitted under the EMP.

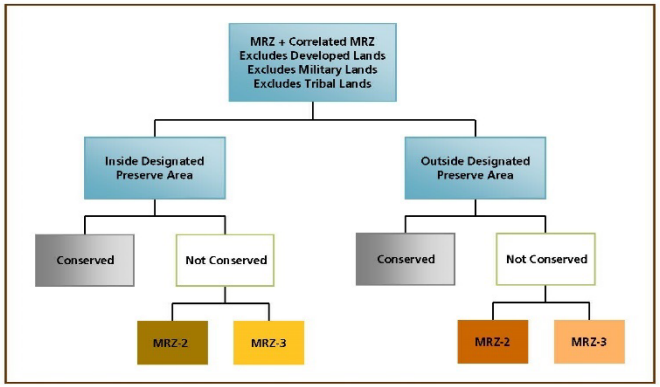
Designated preserve areas are areas that have been identified for open space conservation by local jurisdictions and wildlife agencies in habitat conservation plans. The lands are not yet conserved. Conserved lands are areas that already have been conserved for open space conservation by local jurisdictions and wildlife agencies in habitat conservation plans.

MRZ-2 and MRZ-3 lands are classified by the California Department of Conservation. MRZ-2 areas are those where geologic information indicates that significant mineral deposits are present or where it is judged that there is high likelihood for their presence. These areas typically have data from an old or existing mine or from drill holes to determine if the area is of regional or statewide significance in terms of supplying the market. MRZ-3 areas contain mineral deposits, but the significance to the region or the state cannot be evaluated due to the lack of data.

[2] California Department of Conservation, California Geological Survey. (2006). Map Sheet 52: Aggregate Availability in California, p. 14.

Another filter used in this case study is referred to as correlated MRZ-2 and correlated MRZ-3. Correlated areas have similar rock type as included in the Department of Conservation's MRZ-2 and MRZ-3. They were developed through this study with the assistance of geologists at the Scripps Institution of Oceanography. The areas are based on similar geology types as identified in available United States Geological Survey 7.5-minute quadrangle geologic maps for the San Diego region and correlated to similar rock types identified as MRZ-2 and MRZ-3 by the Department of Conservation. See Appendix C for a detailed explanation and associated maps.

Figure 7-3
Case Study Flowchart



Conserved lands have certain restrictions due to the title of ownership and, therefore, were not considered in the final steps of the case study.

Figure 7-4 illustrates the result of these GIS layers and filters. The map includes MRZ-2 and MRZ-3 lands that are either inside or outside the designated preserve areas. (Conserved areas are not included.) Three areas, outlined in red, show a concentration of MRZ-2 lands. These areas may represent opportunities for combining the purchase and restoration of mitigation lands and secondary benefits of aggregate sand extraction.

It is important to understand the results presented in Figure 7-4 are based solely on a GIS overlay analysis. Evaluating the opportunities and constraints of restoring the mitigation lands and possibly extracting aggregate requires additional research and local knowledge of the geography, habitat, and political considerations of the areas.

For instance, the southern-most circled area on the map in Figure 7-4 has a concentration of MRZ-2 lands. Several active mines are located in the circled area along State Route 67 including, Channel Road, Lakeside Sand Pit, Slaughterhouse Canyon, TTT Quarry, Vigilante Quarry, and Ennis. This case study is focused on restoration and sand extraction. Several of the mines listed above are rock quarries and do not supply natural fine aggregates from alluvial riverbeds. Channel Road does produce PCC-grade sand; however, industry reports show it is scheduled to close around 2014. Reports by the Department of Conservation also have listed Ennis and Lakeside Sand to be located on land with geology suitable for producing PCC-grade sand. Also located within the circled area is El Monte Valley, which is the location of a proposed mining, reclamation, and groundwater recharge project by the Helix Water District. The district is pursuing a new, permanent water supply source by augmenting water in the El Monte Valley underground basin with highly purified, recycled water. The district is studying various options, including a sand mining component to offset costs of the project and restore critical habitat and enhance recreational activity.

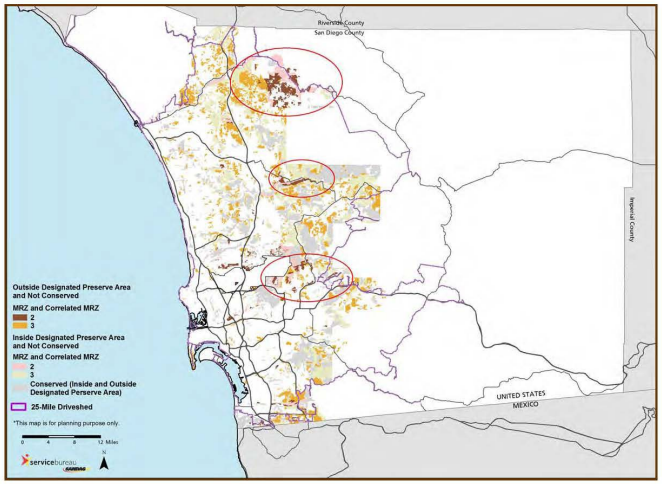
It is important to note that although this particular case study is focused on restoration and secondary benefits of sand mining, there are several mines located in the area, and since environmental agencies have indicated that potential environmental impacts may be less for expansion of an existing mine versus establishing a new mine, it may prove to be worth the effort to explore opportunities for increasing sources of aggregate by expanding the size of existing quarries in areas that already are known for mining activities. The existing mines are on lands designated as MRZ-2 areas, so these potential mineral resources lands should be recognized and considered in San Diego County's land use planning process.

The smallest circle on the map, east of Interstate 15, is San Pasqual Valley. Some of the land is inside the preserve and some outside the preserve, and both contain lands classified as MRZ-2. This area runs along the San Dieguito River and, potentially, it could be used as wetlands mitigation if it were to be restored. Restoration of this area may require the removal of sand and, therefore, may present opportunities for realizing a secondary benefit of a sand-supply aggregate. This site would be worth additional research to determine its full potential. One active mine is located within the circled area (Inland Valley Materials), but it is a rock quarry and not a source for natural sand.

The circled area farthest north on the map is the San Luis Rey River. Some of the land is inside the preserve and some outside the preserve, and both contain lands classified as MRZ-2. Some land surrounding the area is owned by tribal governments. This area used to have several active sand mines, but virtually all were close during the early 1990s. One active mine opened recently in the general area (Rosemary's Mountain), but it is a rock quarry and not a source for natural sand.

The idea in this case study is to explore opportunities for linking existing efforts such as buying and restoring mitigation lands as in the *TransNet* Program, with efforts to identify potential areas for aggregate sand. The GIS overlay analysis in the case study helps focus the user to identify areas that may be suitable for mitigation and also have a potential for aggregate sources. But the GIS model approach cannot answer all questions. Further research beyond the scope of this study is needed to determine the full potential of these areas. Research should include field studies, local knowledge of the area, soil sampling to determine grain size and quality of sand, environmental species and habitat constraints, and other project constraints, to name a few. In addition, the quality and marketability of the aggregate must be factored into the evaluation to ensure a successful match.

Figure 7-4
Potential Areas for Mitigation and Aggregate Supply



SCENARIOS FOR USING THE TOOLS FOR POLICY-MAKING CONSIDERATIONS

Opening a new aggregate operation is a complicated process that can cost millions of dollars and take many years. Aggregate producers invest a great deal of time and money locating potential aggregate resources and determining the quantity and quality of the aggregate, the feasibility of production, identifying potential environmental impacts, obtaining necessary permits, and conforming to relevant laws. Preliminary GIS investigations might identify potential areas at a high level, but field reconnaissance studies, sampling, and other exploration are often employed to help define the opportunities and the limitations of the potential sources of aggregate.

These considerations are important in making land use decisions as well. The GIS overlay analysis tool can be used as a starting point to evaluate different options for local land use planning scenarios. A couple of scenarios are presented in this chapter to illustrate how the tool could be used. The following maps explore various assumptions about the size of available lands for a mining operation, mitigation of adverse impacts such as noise, and proximity to infrastructure.

Variation in Acreage of Available Land

In identifying potential available lands for aggregate, this study relied on the assumption that a minimum of 20 acres is needed to accommodate a mine. This assumption was used throughout the study in order to keep the largest number of options open to policy makers. According to several experts in the field, while 20-acre mines do exist, a more ideal size for a mining operation is more likely to be in the 40- to 60-acre range or 100-acre or greater range. These experts commented that often a large acreage is needed to accommodate required set-asides for mitigation purposes and to be sure the site will be economically viable. (The San Diego region has mining sites at various acre sizes, from about 20 acres to more than 500 acres. The average acreage for active mining sites in the San Diego region is 150 acres, including undisturbed lands and setbacks.)

For the purpose of illustrating how the GIS tool could be used, several maps showing variation in acreage are illustrated. Figure 7-5 shows the potential aggregate supply sites for areas 20 acres or greater. Figure 7-6 illustrates the potential lands for areas 60 acres or greater. Figure 7-7 is based on the idea of a super operation, where a limited number of large sites serve as the suppliers for the entire region. The minimum number of acres for this super operation is 100. Several scenarios were run for these three sizes (20 acres, 60 acres, and 100 acres).

These potential aggregate supply sites, referred to as available lands on the figures, are areas that are not developed and have not been conserved for environmental reasons nor identified for conservation at a 90-percent level.

Figure 7-5
Available Land (20 acres or greater)

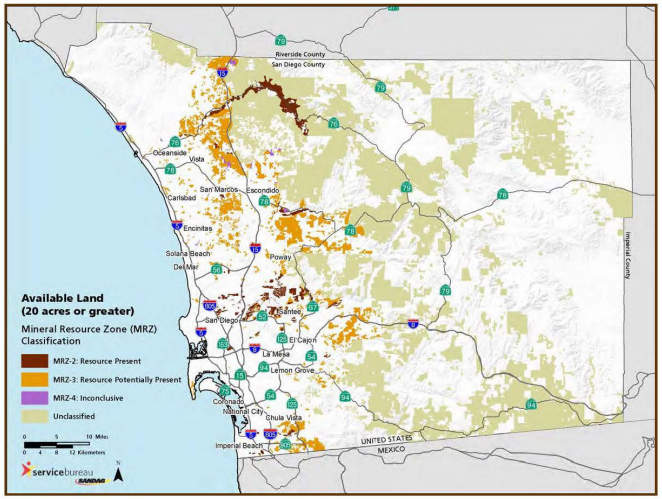


Figure 7-6
Available Land (60 acres or greater)

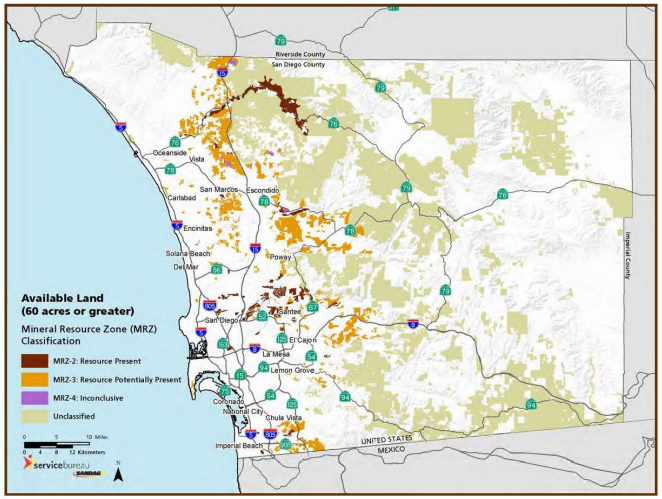
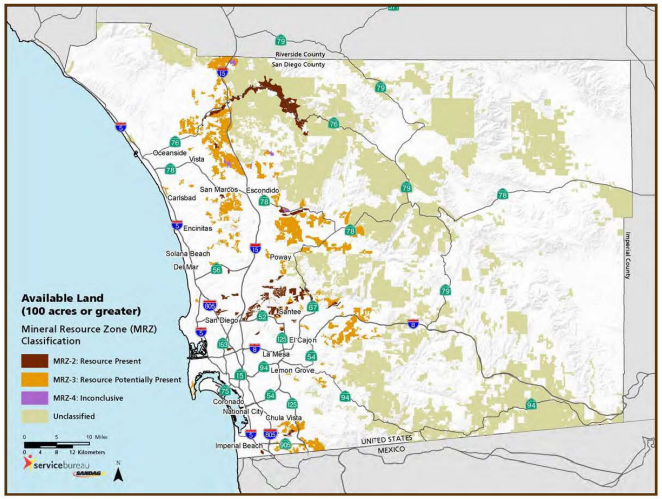


Figure 7-7
Available Land (100 acres or greater)



Proximity to Existing Residential Land Uses

In addition to other factors for locating a mining operation, proximity to certain land uses also plays a role. Zoning statutes or CEQA requirements could cite setbacks from residential areas to mitigate undesirable byproducts of the aggregate extraction process. Setback requirements will likely vary across jurisdictions. A 1,300-foot setback from residential areas is considered in the County of San Diego's mineral resource evaluation methodology guidelines to mitigate noise.[3] To illustrate different scenarios, the blanket 1,300-foot setback was applied from all residential land uses, including low-density, (less than 1 dwelling unit per 10 acres) rural, single-family areas. While these rural single-family areas are included in the potential aggregate sites inventory, when introducing the setback idea, it was determined that it should be applied from these areas as any effort to site a mine would have to address noise concerns of residents. It should be noted that the 1,300-foot setback is not an absolute requirement, and proper mitigation would be decided on a site-by-site basis. Other mitigation factors, such as topography, noise-reduction technology, or landscape design, could be used in place of setbacks, depending on the site. The 1,300-foot setback in this assumption is used to highlight areas where mitigation of impacts to local residents would be less of a concern and, therefore, potentially easier to locate a mining operation.

The following scenarios illustrate the remaining number of potential aggregate sites after a 1,300-foot setback from existing residential land uses is applied. Figure 7-8 illustrates those areas with 20 or more remaining (effective) acres after the 1,300-foot setback is applied. For this analysis, the map continued to show the entire potential aggregate site unless the encroachment from the 1,300-foot setback resulted in a potential aggregate site being reduced to less than 20 acres. The idea was that with 20 acres or greater, there may be options for locating the mining operation where impacts to local residents would be less of a concern. This same technique was used in preparing the related maps for 60 or more acres and 100 or more acres. Potential aggregate sites with 60 or more effective acres are shown in Figure 7-9, and potential sites with 100 or more effective acres are shown in Figure 7-10.

These potential aggregate supply sites, referred to as available lands on the figures, are areas that are not developed and have not been conserved for environmental reasons or identified for conservation at a 90-percent level.

[3] County of San Diego, Department of Planning and Land Use, Department of Public Works. (2007). County of San Diego Guidelines for Determining Significance and Report Format and Content Requirements: Mineral Resources.

Figure 7-8
Available Land (20 acres or greater after 1300' setback from existing residential land)

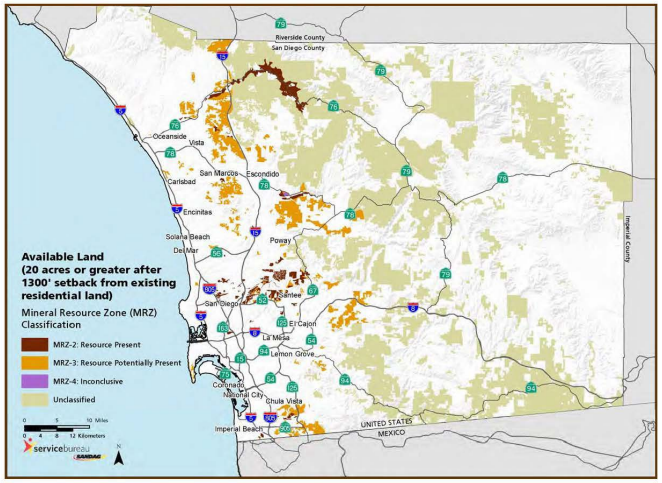


Figure 7-9
Available Land (60 acres or greater after 1300' setback from existing residential land)

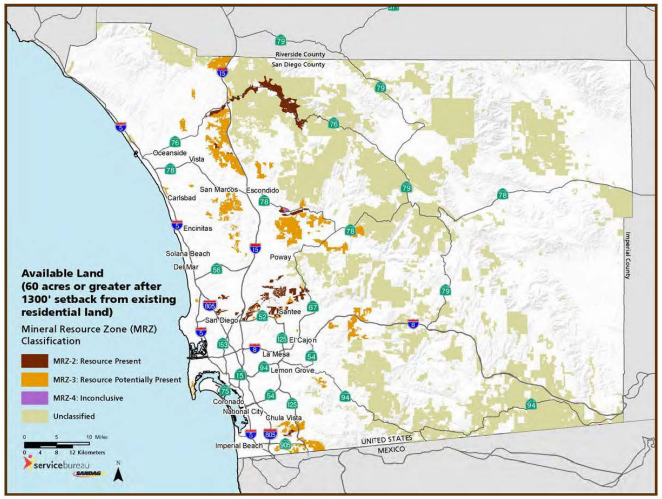
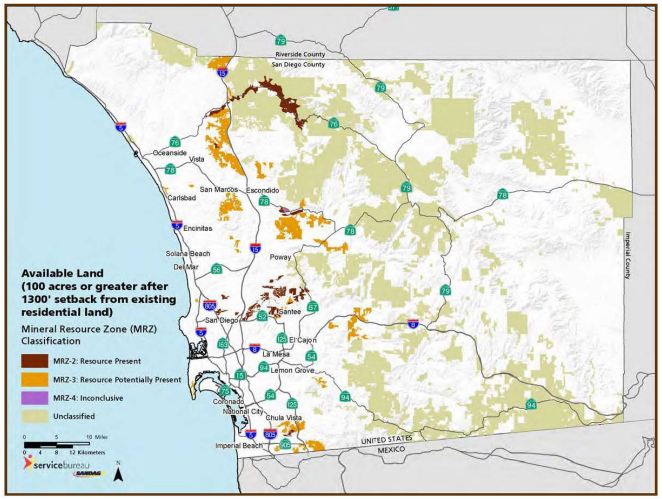


Figure 7-10
Available Land (100 acres or greater after 1300' setback from existing residential land)



Proximity to 2050 Planned Residential Land Uses

The process was then repeated based on planned 2050 residential land uses. For this assumption a blanket 1,300-foot setback was applied from all planned residential land uses in 2050. Figure 7-11 illustrates those areas with 20 or more remaining (effective) acres after the 1,300-foot setback is applied. Potential sites with 60 or more effective acres are shown in Figure 7-12, and potential aggregate sites with 100 or more effective acres are shown in Figure 7-13.

Although detailed information about existing residential land use on tribal reservations is included in the SANDAG land use database and has been validated through aerial imagery, the same level of detail is not available for planned residential land use on the tribal reservations. Planned land use is coded as "tribal reservations" and does not include the detailed information about location of residential units. Therefore, the maps likely show more land as potential aggregate sites than actually exists.

These potential aggregate supply sites, referred to as available lands on the figures, are areas that are not developed and have not been conserved for environmental reasons or identified for conservation at a 90-percent level.

Figure 7-11
Available Land (20 acres or greater after 1300' setback from 2050 planned residential land)

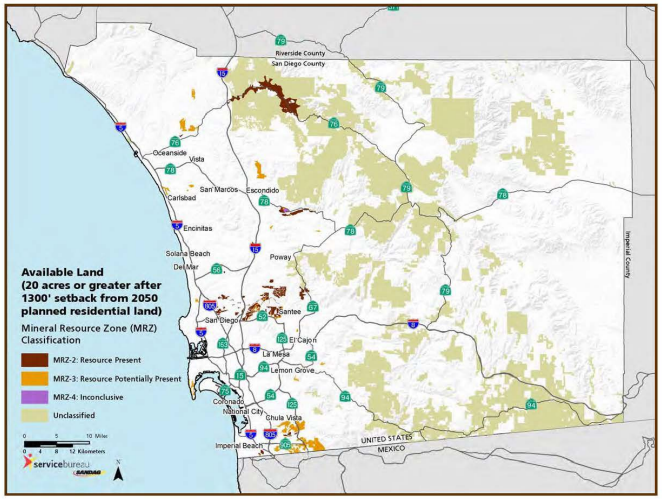


Figure 7-12
Available Land (60 acres or greater after 1300' setback from 2050 planned residential land)

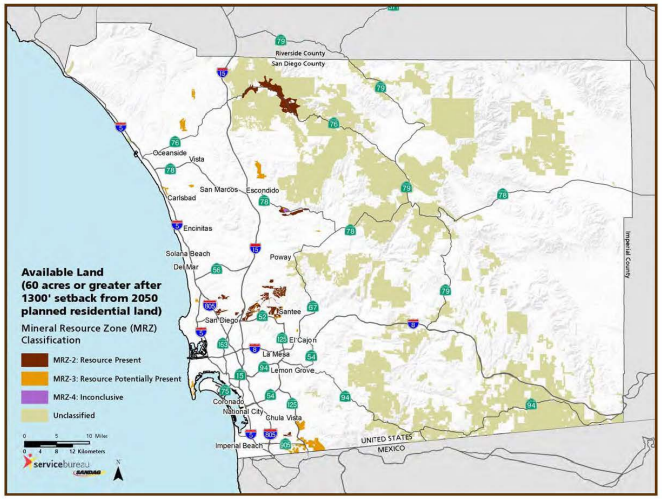
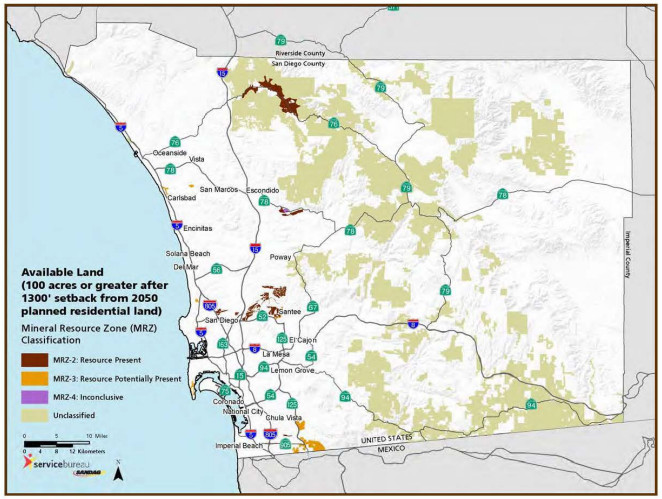


Figure 7-13
Available Land (100 acres or greater after 1300' setback from 2050 planned residential land)



Summary Residential Land Use Scenarios

Table 7-1 summarizes the number of available lands before and after the 1,300-foot setback based on existing and planned residential land use. This GIS exercise uses a blanket setback of 1,300 feet. Actual setback requirements vary by jurisdiction and by the specific circumstances surrounding the mine. Nonetheless, the results are revealing. The total number of available lands is reduced from 1,159 potential aggregate sites to 234 sites with the 2050 planned residential land use setback. It is important to remember that potential sites are defined as areas that are not developed and that have not been conserved for environmental reasons or identified for conservation at a 90-percent level. Mineral resource classification has not been identified for many of these lands. The potential suitability of the sites for construction aggregate will need to be evaluated on a case-by-case basis.

This exercise demonstrates how the GIS overlay tool could be used to explore scenarios. From a long-term planning perspective, it is important to consider the 2050 land use plans and the location of mineral resources, which supply the aggregate needed to build the infrastructure. Planning decisions that do not take this into account could result in costly alternatives of importing aggregate from outside or pushing aggregate mines farther east, resulting in higher transportation and environmental costs and translating into higher construction costs.

Future housing and investment in essential infrastructure, such as new and improved roads, rail links, hospitals, schools, airport facilities, and water and sewage facilities, all require aggregate. Opportunities for effective planning today will help address the availability of construction aggregate required to meet the region's needs in the future.

Table 7-1
Number of Available Lands by Size Before and After Setback

Size (Acreage)	No Setback	Existing Land Use 1300' Setback	2050 Land Use 1300' Setback
20 to 59	606	223	92
60 to 99	163	76	44
100 to 499	279	154	63
500 to 999	50	30	15
1,000 to 9,999	47	26	18
10,000 to 15,000	14	3	2
Total	**1,159**	**512**	**234**

GIS LAYERS WITH JURISDICTIONAL BOUNDARIES

Other standard GIS layers could be added to visualize different scenarios. The following maps repeat maps showing potential aggregate supply sites at the 20-, 60-, and 100-acre sizes, but in these maps, the overlay of municipal and tribal boundaries is included. As shown in Figures 7-14, 7-15, and 7-16, the majority of available aggregate sites fall within the unincorporated areas of the region.[4]

[4] At the September 21, 2010 Board meeting, the Southern California Tribal Chairmen's Association approved including boundaries of Federally Recognized Indian Reservations on maps.

Figure 7-14
Available Land With Jurisdictional Boundaries (20 acres or greater)

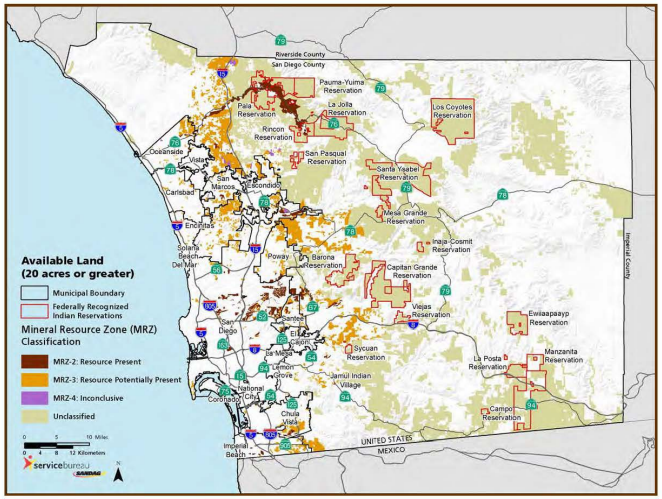


Figure 7-15
Available Land With Jurisdictional Boundaries (60 acres or greater)

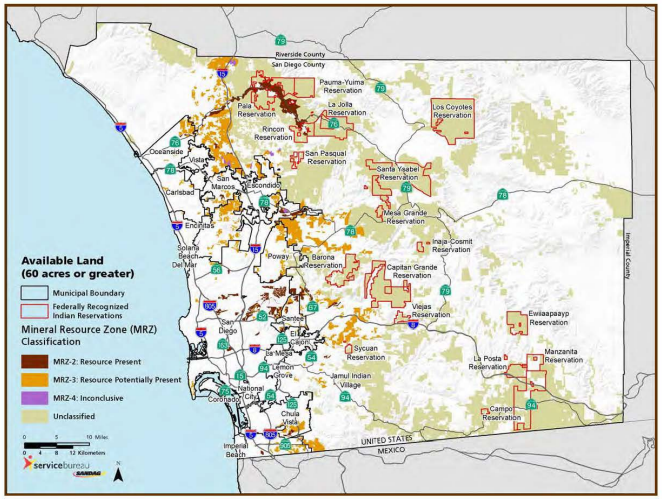
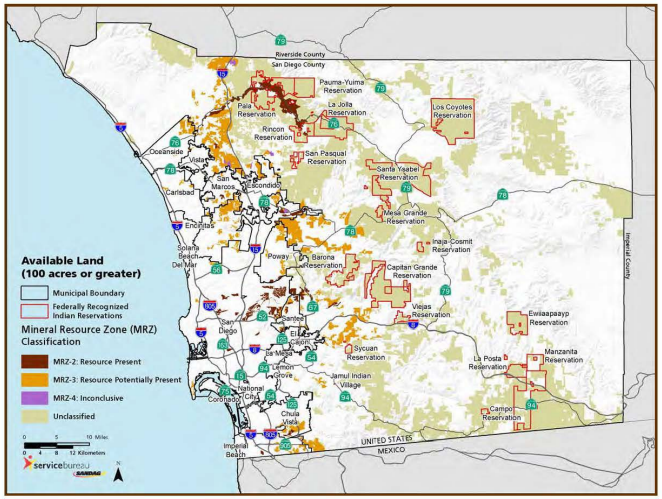


Figure 7-16
Available Land With Jurisdictional Boundaries (100 acres or greater)



RAIL DISTRIBUTION CENTER

An important element to consider when exploring aggregate supply is the viability of importing aggregate materials into the region. When using the GIS tools to look at aggregate supply options, one topic to consider is the potential location of a rail distribution center. During the expert review panel meetings, it was noted that adequate rail mainline access is available in the region, but that a rail distribution facility is needed to make this a viable option for aggregate importation. An investment in infrastructure, such as double-tracking and establishing a distribution center, would be needed.

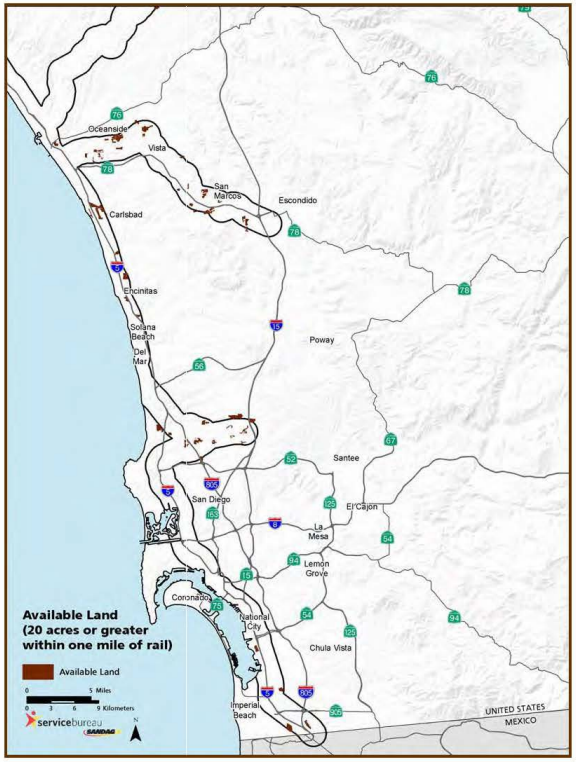
Several participants suggested that establishing a rail distribution center and making other improvements was worth investigating as it could bring in aggregates to help reduce the supply gap and benefit other goods-movement efforts. It was indicated that the ideal size for a rail distribution center is 100 acres, but an efficient center could be designed on a 40- to 60-acre site along a main line. (The expert review panel mentioned that a 20-acre site could be a possibility; however, it would require the materials to be moved by truck almost immediately, while a 40- to 60-acre site could accommodate the stockpile of materials.)

As shown in Figure 7-17, the GIS overlay analysis identified several available lands[5] that are 20 acres or more and located within one mile of an existing railway. Some of these sites are located near residential areas, some near marshes or lagoons, while others are coded as agricultural lands (considered available in this study). The sites would need to be evaluated on a case-by-case basis involving experts in land use, engineering, and environmental fields. Other sites that could be considered for this purpose are industrial lands located near an existing railway, such as selected sites near State Route 78. Also, there are several existing concrete batch plants located in industrial areas near railways.

The feasibility of making the infrastructure improvements and establishing a distribution center to deliver aggregate via a rail line to one or more sites may be a worthwhile endeavor. According to the expert review panel, a train of 60 hopper cars holding 100 tons of aggregate per railcar could deliver approximately one million tons of aggregate annually (one shipment three times a week) to the San Diego region and help reduce the supply gap. If the demand for aggregate cannot be met by local sources, importation by rail may become a viable option. The expert review panel noted that while generally speaking for carload service, a distance of 400 to 500 miles is the typical break-even point because aggregates are a heavy-bulk commodity that would most likely be handled in a unit train service (where the railcars are shipped from the same origin to the same destination), rail could potentially compete on a smaller distance of even 50 miles with the proper loading and unloading facilities.

[5] The definition of "available lands" is provided in Chapter 5. Essentially it excludes lands coded as developed in SANDAG land use codes and excludes environmental lands coded as conserved or identified for conservation at the 90 percent level.

Figure 7-17
Available Land Within One Mile from Existing Railway (20 acres or greater)



WATER INFRASTRUCTURE

The processing of construction aggregate typically requires a great deal of water. This requires the availability of water infrastructure, or well water extraction (which could be cost-prohibitive). The availability of water infrastructure can be defined in terms of the service areas of the member agencies of the County Water Authority. Figure 7-18 illustrates the overall County Water Authority boundary overlaid with available aggregate sites 20 acres or greater to show which sites have access to water infrastructure.

SUMMARY

This chapter illustrates several ways that the GIS tools could be used to begin exploring different options for increasing the supply of aggregate. Again, it is important to note that the GIS tools represent a starting point. In all cases presented in this chapter, the user must go to the next level and examine local zoning and setback requirements, slope of available land, sensitive habitat lands, and other local factors. The economic viability of the site for mining must be included in this evaluation.

Figure 7-18
Available Land With County Water Authority Overlay (20 Acres or Greater)