5.0 SOCIOECONOMIC EFFECTS AND ENVIRONMENTAL JUSTICE

5.1 SOCIOECONOMIC EFFECTS

Under the California Environmental Quality Act (CEQA), economic and social effects are not considered environmental effects unless they result in a physical change in the environment. The proposed San Francisco Bay and Delta Sand Mining Project (Project) is essentially the continuation of an ongoing activity using existing methods and facilities. The economic and social effects of the proposed Project are expected to be minimal and are not expected to produce physical changes in the environment. However, the California State Lands Commission (CSLC) desires that the environmental impact report (EIR) provide an analysis of economic or social effects of the proposed Project on specific industry sectors, small businesses, and communities.

5.1.1 Analysis And Conditions

Regional Socioeconomic Conditions

The estimated 2007 population of the nine Bay Area counties was 7.19 million (California Department of Finance 2009), of whom approximately 3.45 million were employed (California Employment Development Department 2009). For those counties proximal to sand mining extraction or offloading operations (i.e., all but San Mateo and Santa Clara Counties), the estimated 2007 population was 4.67 million, of whom approximately 2.28 million were employed. The annual unemployment level in the region in 2007 was approximately 4.5 percent.

Analysis

A socioeconomic effect could occur if the proposed Project led to a substantial increase or reduction in sand mining operations in San Francisco Bay, such that a change in the number of operating sand mining tugs and barges would occur. An increased number of operating tugs and barges would require the employment of additional operators, deck hands, and shoreside personnel. Conversely, a decrease in number would lead to a reduction in these jobs. The number of jobs involved is not large; approximately 20 full-time equivalent (FTE) employee positions are directly involved as crew members on sand extraction tugs and barges. This is a minuscule fraction of the number of employed persons in the San Francisco Bay Area. Given that no change in the number of tugs and barges has been included in the proposed Project, a significant socioeconomic effect is not expected.

A second, separate socioeconomic effect may result from the increased volume of extracted sand in the proposed Project compared to the baseline volume (i.e., the average annual volume mined at each parcel from 2002 to 2007). Such an increase would increase the availability of local sand to some construction projects, potentially replacing sand procured from other sources at a higher price. This would cause a marginal decrease in the cost of new construction where that sand is used. However, sand is one of the lowest-cost construction commodities, so the change in cost would likely be a very minor component of the overall cost of a construction project and unlikely to have substantial ripple effects as a consequence (such as increased demand).

A socioeconomic effect could also occur if the proposed Project caused the level of activity at any of the offloading sites to change substantially, requiring the addition or reduction of mobile equipment, operators, and management. The proposed Project would increase the volume of sand mining in the Central Bay by 35 percent, increase the amount of sand mining in Suisun Bay/Delta (i.e., lease parcel PRC 7781) from the current level by approximately 250 percent, and would not substantially change[1] the volume of sand mining at the privately-owned parcel at Middle Ground Shoal. Together, these changes suggest that a substantial change in activity level at some offloading sites may occur. However, the use of any particular offloading site may be influenced by a number of factors, including proximity to the mining sites, regional demand for mined sand, and site ownership or use agreements between the sand miners and the site operators. Typically, extracted sand is brought to the offloading site that has a market for the material.

Summary

No adverse socioeconomic effect is anticipated from the proposed Project, for the following reasons:

- The direct employment for sand mining operations is very small relative to the local population; and
- Changes in activity levels at extraction sites are not closely correlated to activities at offloading sites.

[1] The proposed volume represents a 3 percent increase over the 2007 baseline.

5.1.2 Relationship to Alternatives

No Project Alternative

With this alternative there would be a loss of direct employment of those workers who operate and maintain the tug and barge fleet. As noted above, this number of workers is very small relative to the work force in the San Francisco Bay Area.

The alternatives analysis states that under the No Project Alternative, the local need for sand would be met using existing quarries and facilities. This could result in some displacement of employment at the offloading sites, as they become less active and more sand is mined, processed, and transported from sources on land. To the extent that the need for sand is met by imported sand transported to the Bay Area by ship, the offloading facilities would continue to be active.

Long-term Management Strategy Conformance Alternative

This alternative would limit the time frame ("work window") for sand mining in the Central Bay lease areas to a five- to six-month period each year, and a three-month period in the Suisun Bay and western Delta lease areas. As noted in the description of this alternative in Section 3.0, Alternatives and Cumulative Projects (Section 3.3.2), two possible consequences are: (1) the Applicants may add tug and barge combinations to their fleets to extract the permitted volume within the work windows, and (2) the Applicants may stockpile materials at offloading sites, to maintain a supply when no sand mining is occurring.

With this alternative there would be a direct loss of employment for Central Bay and Suisun Bay/Delta sand mining during that portion of the year when sand mining cannot occur, but this would be offset, to an extent, by the extra effort required to extract permitted quantities during the work-window period. That extra effort may be limited by the availability of mining equipment, or of stockpiling space at offloading sites or other intermediate storage sites. Therefore, overall, the socioeconomic effect of this alternative would be the potential loss of employment related to the constrained work windows and likelihood that increased efforts during the work windows would not offset losses at times when sand mining cannot occur.

Clamshell Dredge Mining Alternative

This alternative would be the same as the proposed Project in terms of the locations and timing of sand extraction, but a different method of extracting sand would be used. The clamshell dredging work crew would likely be similar in size to a suction dredge

crew, but the productivity of the clamshell operation is typically lower than that of the suction dredge (typically, suction dredging is in the range of five times more efficient than clamshell dredging). Consequently, this alternative could result in an increase in local employment if there is a market for all of the sand that the proposed leases allow to be extracted. However, that is not a certainty. If the cost of clamshell dredging is higher than suction dredging, the market for dredged sand may be limited by the higher price of the product, resulting in extracted volumes below the limits set by the leases. A reduction in extraction crew worker hours would be one consequence of this.

Therefore, for this alternative, the socioeconomic effects are not predictable. In the context of all employment within the San Francisco Bay Area, however, the effects would be extremely small in any case.

Reduced Project Alternative

This alternative would decrease allowable annual mining volumes in all lease areas to a level equivalent to current baseline volumes (i.e., the average mined per year at each Project parcel from 2002 to 2007). Labor required to mine, process, and transport this material would be expected to remain generally the same as baseline levels, but would be somewhat lower than levels associated with the proposed Project.

5.1.3 Cumulative Projects Analysis

As noted above, the proposed Project would not have a significant socioeconomic effect on the region, because it is essentially a continuation of existing sand mining operations, with some modification of the quantities that are permitted to be extracted. Hence, no cumulative socioeconomic effect would occur when considering this Project in combination with other cumulative projects described in Section 3.0, Alternatives and Cumulative Projects.

5.2 ENVIRONMENTAL JUSTICE

This Section discusses the distributional patterns of high-minority and low-income populations on a regional basis and characterizes the distribution of such populations adjacent to the sand mining lease areas and the barge offloading facilities. This discussion addresses whether the proposed Project has the potential to disproportionately impact areas with low-income or high-minority populations, thus creating an inconsistency with the intent of the CSLC environmental justice policy (described below).

Regional and local environmental justice assessments have been performed by agencies within the study area, such as the Bay Area Metropolitan Transportation Commission's (MTC) *2001 Regional Transportation Plan Equity Analysis and Environmental Justice Report* (MTC 2001). Methods applied in this analysis are consistent with those used in the MTC report, and with currently accepted definitions of low income and high minority.

Background

On February 11, 1994, President Clinton issued an "Executive Order on Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations" designed to focus attention on environmental and human health conditions in areas of high minority populations and low-income communities, and promote non-discrimination in programs and projects substantially affecting human health and the environment (White House 1994). The order requires the U.S. Environmental Protection Agency (U.S. EPA) and all other Federal agencies (as well as state agencies receiving Federal funds) to develop strategies to address this issue. The agencies are required to identify and address any disproportionately high and adverse human health or environmental effects of the programs, policies, and activities on minority and/or low-income populations.

California State Lands Commission Policy

The CSLC has an Environmental Justice Policy to ensure equity and fairness in its own processes and procedures (CSLC 2002). The CSLC adopted an amended Environmental Justice Policy on October 1, 2002, to ensure that "Environmental Justice is an essential consideration in the CSLC's processes, decisions and programs and that all people who live in California have a meaningful way to participate in these activities." The policy stresses equitable treatment of all members of the public and commits to consider environmental justice in its processes, decision-making, and regulatory affairs which is implemented, in part, through identification of, and communication with, relevant populations that could be adversely and disproportionately affected by CSLC projects or programs. This discussion is provided in this document consistent with and in furtherance of the CSLC's Environmental Justice Policy. The staff of the CSLC is required to report back to the Commission on how environmental justice is integrated into its programs, processes, and activities (CSLC 2002).

5.2.1 Setting

Study Area

To evaluate the environmental justice aspects of the proposed Project, a Study Area was chosen based on the geographic areas where impacts occur. This Study Area comprises seven of the nine Bay Area counties: San Francisco, Marin, Sonoma, Napa, Solano, Contra Costa, and Alameda Counties. This study area takes into account the lands surrounding all of the sand mining lease areas and offloading facilities.

Demographics

As noted in the Background discussion above, the concept of environmental justice is concerned with preventing a disproportionate impact from a project on high-minority and low-income populations affected by the project.

The most common source of demographic data is the decennial U.S. Census. However, the most recent Census data were collected in the year 2000, and many Bay Area communities underwent a variety of demographic changes between 2000 and 2008. Population growth, the gentrification of neighborhoods, replacement of industry by retail and live/work space, infill housing in the cores of larger cities, and the development of transit villages are some of the changes that took place during that period. Therefore, to best represent current conditions, this environmental justice analysis uses a dataset obtained from the Environmental Systems Research Institute (ESRI) Demographics Unit (ESRI 2008) and used by other public agencies, including city and county economic development, health, and public service departments. Sources of data in this dataset include U.S. Postal Service mail delivery routes (housing), the U.S. Census Bureau's American Community Survey (ethnicity, family size), and private market-analysis firms (household income). The resolution of the data is at the census block group level (typically a census tract is made up of several census blocks), which minimizes the chance of masking small disadvantaged populations with adjacent populations that have higher income or fewer members of ethnic or racial minorities.

Members of minority populations are those who are Hispanic (regardless of race), Black, Asian American, Alaska Native, Native Hawaiian, or Pacific Islander (U.S. Department of Transportation 1997). Block groups with potentially significant minority populations are those having a percentage minority population more than 1.2 times that of the Community of Comparison. "Low-income populations" are defined in terms of household income. For 2009, the Federal poverty guideline was defined as a household income less than $10,830 for a one-person household, and $18,310 for a

family of three (U.S. Department of Health and Human Services 2009). Block groups with potentially significant low-income populations are those having a percentage of households with low income (below the Federal poverty guideline) that is more than 1.2 times that of the Community of Comparison.

Using the definitions provided above, and the 2008 Demographic Update data, each census block group was evaluated for its percentage of minority populations. Separately, the average household income and household size for each census block group was used to evaluate the block group's relationship to the Federal poverty guideline. Figure 5-1 illustrates the percentage of minority populations in each block group. Figure 5-2 illustrates the ratio of household income level to poverty guideline, by block group. These maps also show the lease area boundaries and offloading sites. Several, but not all, of the offloading sites are in or very near areas that have high minority populations, low incomes, or both.

Communities of Comparison

The concept of a Community of Comparison provides a basis for determining how disadvantaged a region might be, in relation to the community that surrounds it. Typically, the Community of Comparison is the smallest political entity that encompasses an impacted area. Generally it is a city, but other Communities of Comparison can occur. For example, the offloading site on the Petaluma River is on unincorporated land but is within the Sphere of Influence of the city of Petaluma. If it became necessary to examine environmental justice issues for an impacted region adjacent to that offloading site, the city of Petaluma's Sphere of Influence would be the most appropriate Community of Comparison.

5.2.2 Policy Analysis and Conditions

Ordinarily the CSLC's Environmental Justice Policy, cited above, takes effect only when an impact occurs. The proposed Project would continue an existing activity (sand mining), with some modification of the intensity of that activity on certain portions of the sand mining leases. In general, these leases are so far removed from residential areas that the activities on the leases have no material effect on any residential area. Thus, extraction activities on the leases do not present typical environmental justice concerns. However, two concerns require consideration: (1) the possibility that the proposed Project may affect the health of low-income or minority populations who rely on fishing in the Bay to supplement their diet; and (2) impacts on low-income or minority populations near offloading areas.

From Figures 5-1 and 5-2, it is apparent that several low-income and high-minority demographic areas are within walking distance of the Bay shoreline. At San Francisco Bay fishing piers, persons may fish without a fishing license; thus, the piers are attractive places for low-income individuals to fish for food, for themselves and their families. Attempts to document the extent of such fishing have been few, and these efforts have been made difficult by language barriers and individuals' reluctance to communicate with interviewers. Nevertheless, it is known that a number of the people fishing from Bay Area fishing piers or the shoreline are members of low-income and/or minority populations (San Francisco Estuary Institute 2000).

Certain species of fish in San Francisco Bay contain concentrations of mercury, and possibly other pollutants, that can harm human health if consumed in excessive amounts; the California Office of Environmental Health Hazard Assessment (OEHHA) has issued announcements warning that consumption of these fish should be limited or avoided (OEHHA 1999). If the Project increased the transport and dispersal of pollutants, it could contribute to an increased incidence of fish containing concentrations of harmful pollutants or contribute to increased concentrations of harmful pollutants in certain fish; either such occurrence could adversely impact those who rely on Bay fish for sustenance.

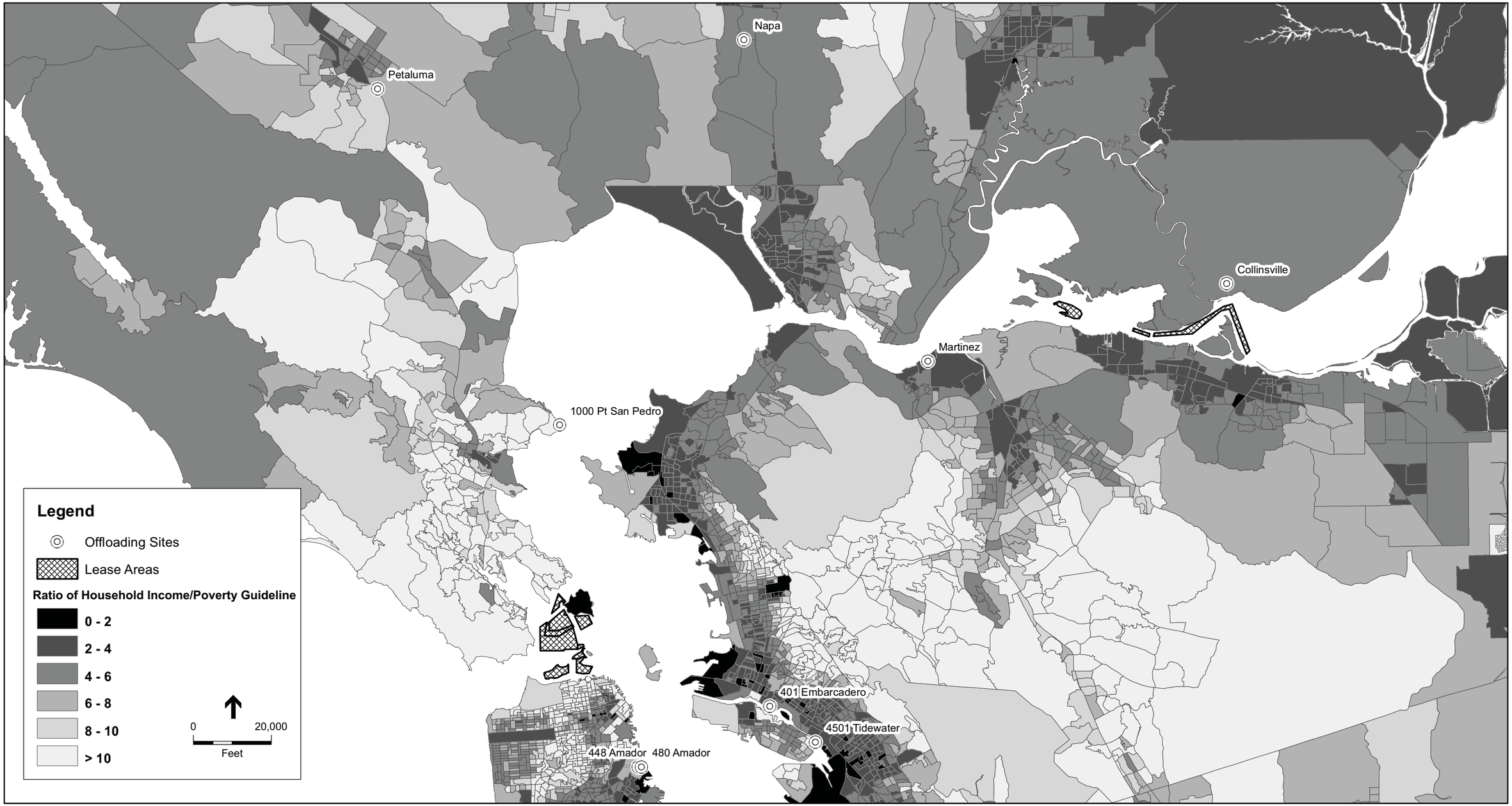
There are two reasons why the proposed Project would be unlikely to increase health risks for those who fish in the Bay for subsistence. The first is that the proposed Project is a continuation of an existing activity, with no new extraction or offloading locations. The second is that the materials that are entrained and disturbed by sand mining are relatively coarse sediments, with sand mining occurring where waters of the Bay are relatively deep and currents relatively strong. As discussed in Section 4.3, Hydrology and Water Quality, these physical factors mitigate against the accumulation of fine silts that are more likely to aid in the transport or dispersal of pollutants of concern. Thus, the likelihood of the proposed Project causing an increased risk of disease in minority or low-income populations, or any person catching Bay fish for food, is negligible.

Regarding impacts on low-income or minority populations near offloading areas, the only impact identified in Section 4.0, Environmental Analysis, that has the potential to affect residential areas is toxic air emissions (Impact AIR-3). As noted in Section 4.5, Air Quality, during offloading, toxic air emissions from diesel-powered equipment occur close to residential areas at (and only at) the Oakland Tidewater offloading site. For that location, the air emissions modeling described in Section 4.5, Air Quality, predicted the dispersion plume of diesel particulate matter shown in Figure C-4 in Appendix C.

SOURCE: ESRI 2008; California State Lands Commission 2008, 2011; Hanson Marine Operations 2008; Hanson and Jerico 2007

Figure 5-1
Percentage of Minority Population by Block Group

This Page Intentionally Left Blank



SOURCE: ESRI 2008

San Francisco Bay and Delta Sand Mining EIR . 207475

Figure 5-2

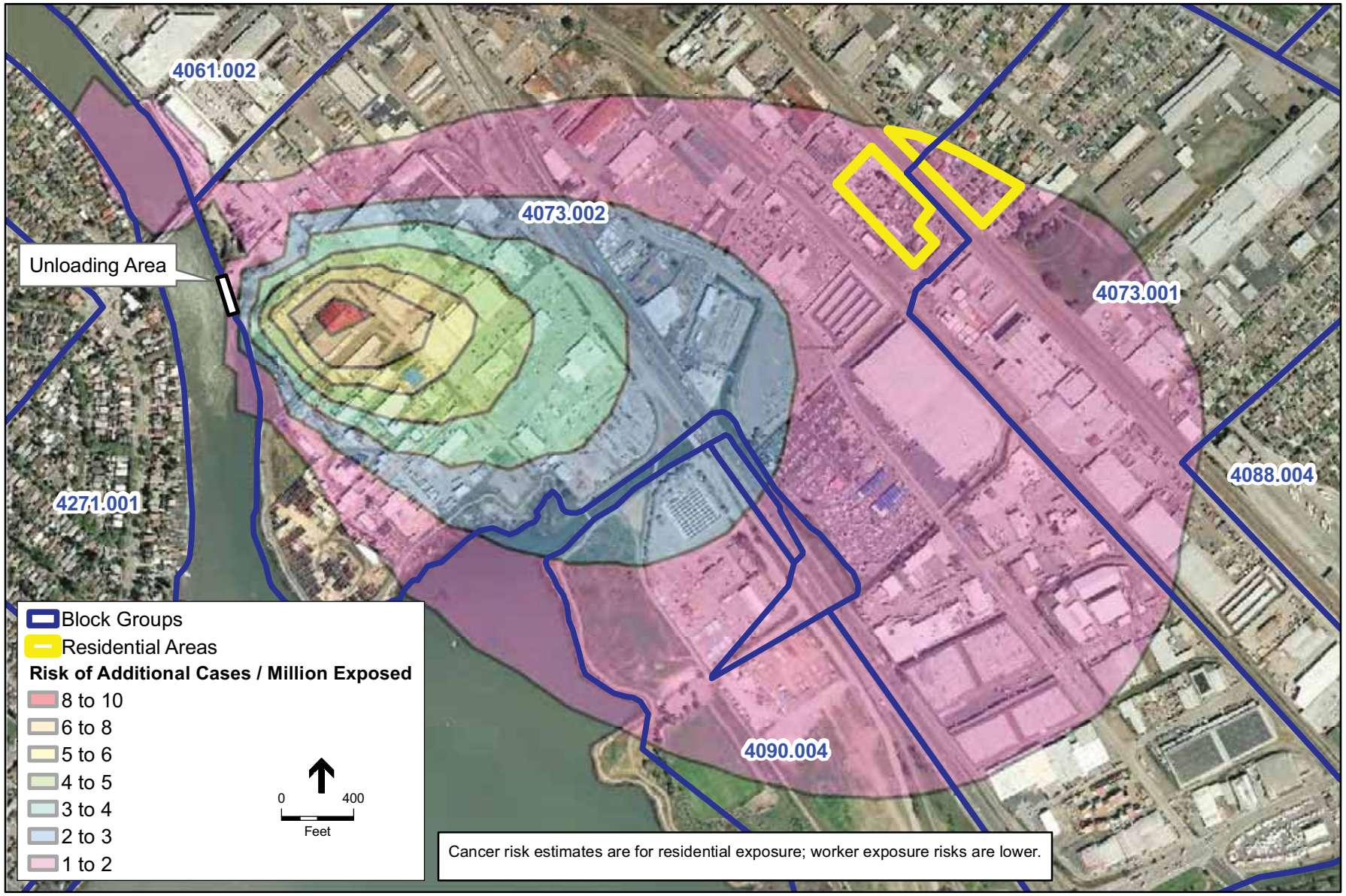
Ratio of Mean Household Income to Federal Poverty Guideline by Block Group

This Page Intentionally Left Blank

In Figure C-4, the innermost area, representing increased risk of additional cancer cases at a rate of 10 additional cancer deaths per million, covers industrial land uses only. However, the outermost area, representing an increased risk at a rate of one to two cancer deaths per million, covers some residences. Other areas between the innermost and outermost areas do not cover any residences. Figure 5-3 shows these areas, superimposed on an aerial photograph of the vicinity.

The impact represented by the outermost area is well below the CEQA threshold of significance for toxic air emissions established by the Bay Area Air Quality Management District (BAAQMD) which was in effect when the Project Notice of Preparation was issued and which is used in this EIR as the threshold for toxic air contaminants. This EIR uses the BAAQMD's 1999 CEQA Air Quality Guidelines (BAAQMD 1999). BAAQMD adopted new CEQA Guidelines which reduce the significance threshold for health risk to one additional cancer death per million in areas that are most heavily impacted by toxic air emissions (BAAQMD 2010). Such areas include the Oakland Tidewater offloading site and its surroundings. Consistent with the CSLC's Environmental Justice Policy, which includes a commitment to work with Federal, State, regional, and local agencies to ensure consideration of disproportionate impacts on relevant populations, by instant or cumulative environmental pollution or degradation, this EIR examined the vicinity of the Oakland Tidewater offloading site to determine if the population is either low-income or high-minority relative to its Community of Comparison, which is the city of Oakland. That vicinity, referred to here as the Oakland Offloading Vicinity, covers portions of two Census block groups. Table 5-1 compares these two Census block groups to the city of Oakland as a whole, in terms of minority population. Table 5-2 makes the same type of comparison, in terms of household income as it relates to the 2008 Federal poverty guideline. The Federal poverty guideline amount varies with the number of persons per household, so the amount can vary from block group to block group. Therefore, for this comparison, in each block group, the average number of persons per household was used to determine a poverty-guideline income level applicable to that block group.

In summary, if the new BAAQMD CEQA criteria are considered, the minority population levels in the Oakland Tidewater Offloading Vicinity do not present an environmental justice issue, because the proportion of minority residents in each of the two block groups is not significantly more than in Oakland as a whole. However, with regard to income level, block group 4073.001 has a significantly higher percentage of households below the Federal Poverty Guideline (as it applies to that block group) than does the city of Oakland. Therefore, the CSLC Environmental Justice Policy would apply to this block



SOURCE: GlobeXplorer 2007; ESRI 2008; California State Lands Commission 2008; Hanson Marine Operations 2008; Hanson and Jerico 2007

Figure 5-3
Incremental Cancer Risk from Continued Operations at Oakland Tidewater Offloading Site

Table 5-1. Minority Populations in Oakland Offloading Vicinity

	Population			Number of Residential Buildings in Vicinity[1]	Contains Significant Minority Populations in Vicinity?[2]
	Total	Minority	Percent Minority		
City of Oakland	**406,417**	**289,792**	**71.3%**	---	---
Census Block Group 4073.001	1,331	1,020	76.6%	15	No
Census Block Group 4073.002	1,182	736	62.3%	40	No

[1] Counts are based on aerial photos taken in early 2007.
[2] Block groups with potentially significant minority populations are those having a percentage minority population more than 1.2 times that of the Community of Comparison, and residential buildings within the Area of Concern.

Source: ESRI 2008

Table 5-2. Low-Income Households in Oakland Offloading Vicinity

	Households			Number of Residential Buildings in Vicinity[1]	Contains Significant Low-Income Households in Vicinity?[2]
	Total	Number Below Federal Poverty Guideline	Percent Below Federal Poverty Guideline		
City of Oakland	**152,364**	**28,628**	**18.8%**	---	---
Census Block Group 4073.001	335	99	29.6%	15	Yes
Census Block Group 4073.002	360	77	21.4%	40	No

[1] Counts are based on aerial photos taken in early 2007.
[2] Block groups with potentially significant low-income populations are those having a percentage of low-income households more than 1.2 times that of the Community of Comparison, and residential buildings within the Area of Concern.

Source: ESRI 2008

group, if the new BAAQMD significance threshold for toxic air contaminant health risk were applicable to this Project.

Analyses described in Section 4.5, Air Quality, found that, in addition to offloading at the Oakland Tidewater offloading site, the extraction process itself could, under certain circumstances, subject one portion of the city of San Francisco to levels of diesel emissions that may approach one additional cancer death per million individuals. These levels would occur in certain portions of the Presidio of San Francisco, as shown in Figure C-2 in Appendix C; some residences exist in the impacted area. From an environmental justice standpoint, this could be an issue if the census block group within the Presidio where these levels occur is a low income or high minority region.

The ESRI Demographic Update data were used to investigate this question. Table 5-3 summarizes the outcome, for both the minority and income criteria. The Presidio (which is a single census block group, in its entirety) is not a low income or high minority region.

Table 5-3. Minority and Low-Income Households in the Presidio of San Francisco

	Population			Households		
	Total	**Minority**	**Percent Minority**	**Total**	**Number Below Federal Poverty Guideline**	**Percent Below Federal Poverty Guideline**
City of San Francisco	**788,197**	**443,596**	**56.3%**	**336,613**	**39,559**	**11.8%**
Census Block Group 601.001	2,310	681	29.5%	844	44	5.2%

[1] Block groups with potentially significant minority populations are those having a percentage minority population more than 1.2 times that of the Community of Comparison, and residential buildings within the Area of Concern.

[2] Block groups with potentially significant low-income populations are those having a percentage of low-income households more than 1.2 times that of the Community of Comparison, and residential buildings within the Area of Concern.

Source: ESRI 2008

5.2.3 Relationship to Alternatives

None of the alternatives under consideration would involve the extraction and offloading of more sand than in the proposed Project. They do not involve extraction from locations or use of offloading sites other than those designated in the proposed Project. The Clamshell Dredge Mining Alternative would involve a method of mining that is less efficient than that proposed, which could result in more time spent in mining operations, and therefore increased diesel emissions. This could increase the concentration of toxic air contaminants in locations downwind of the emissions plumes. As discussed in Section 4-5, Air Quality, the only community expected to be impacted by diesel emissions from mining operations (as opposed to offloading operations) is the Presidio of San Francisco, which is not an environmental justice community. None of the other alternatives present more environmental justice issues than the proposed Project. Because the Reduced Project Alternative would not change the level of diesel emissions compared to baseline conditions, the exposure of people to air toxics during off-loading and mining would be the same as baseline conditions.

5.2.4 Cumulative Projects Policy Analysis

As noted above, the proposed Project is essentially a continuation of existing sand mining operations, with some modification of the quantities that are permitted to be extracted. Hence, no cumulative effect on high-minority or low-income populations would occur when considering this Project in combination with other cumulative projects described in Section 3.0, Alternatives and Cumulative Projects.

This Page Intentionally Left Blank