

4.0 TOPICAL ISSUES AND IMPACT SUMMARIES

4.1 GROWTH-INDUCING IMPACTS

The CEQA Guidelines define growth-inducing impacts as follows:

The ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Included in this are projects which would remove obstacles to population growth (a major expansion of a wastewater treatment plant might, for example, allow for more construction in service areas). Increases in the population may tax existing community service facilities, requiring construction of new facilities that could cause significant environmental effects. Also discuss the characteristic of some projects which may encourage and facilitate other activities that could significantly affect the environment, either individually or cumulatively. It must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment (CEQA Guidelines Section 15126.2[d]).

Assessing the growth inducement potential of the proposed project thus involves determining whether the proposed project would directly or indirectly support more economic or population growth or residential construction.

Growth inducement may constitute an adverse impact if the growth is not consistent with the land use and growth management policies for the affected area. The Sonoma County General Plan, and land use and growth management plans and policies of cities within the County, guide development patterns and provide for orderly development supported by adequate public services. A project that would induce “disorderly” growth in conflict with local land use plans could indirectly cause additional adverse environmental impacts to other public services.

As discussed in the ARM Plan PEIR, aggregate is a construction material used for new residential and commercial development. While aggregate supports new development, the availability of aggregate alone is not a stimulus to new development. Historically, aggregate is not mined unless there is a demand for it. Due to the small contribution of aggregate mining to the economic base, the ARM Plan and the future mining allowed by it—including the proposed project—would not induce growth in the County. The general plans of Sonoma County and the nine incorporated cities within the County set forth the amount of growth and development that is planned and allowed in those areas. Future aggregate mining is not expected to encourage any development or growth in addition to, or in conflict with, locally adopted general plans.

The project proposes aggregate mining along the Alexander Valley reach of the Russian River, consistent with the ARM Plan. The ARM Plan PEIR evaluated the potential for growth-inducement from mining this reach and other areas of the County at a program-level of detail. The production of aggregate from this reach would support new development but would not induce growth. This EIR has undertaken a full and independent analysis of whether the proposed project would encourage any development or growth, in addition to, or in conflict with, locally adopted general plans.

The proposed project would require approximately five workers in the study area operating mining equipment and 20 truck drivers hauling material to and from the study area to the Syar aggregate processing plant in Healdsburg. No changes to the aggregate processing plant, in

terms of expansion of facilities or increase in workers, would result from this project. Due to the lack of changes at Syar's existing facilities, the small number of workers required for mining activities, and the likelihood that these workers would be from the local area, the proposed project would not be expected to directly induce population growth.

Indirectly, the project would support, but not cause growth within the County through a supply of needed materials. The aggregate produced by the proposed project would provide a commodity similar to lumber, electrical and plumbing supplies, and related construction materials, the availability of which influences total development cost but does not cause growth. The aggregate would be used to support planned development in accordance with the Sonoma County General Plan as well as with the general plans of the incorporated cities within the County. While abundance of aggregate is not considered a stimulus to development, the lack of aggregate could result in a negative impact on planned growth. As noted in the ARM Plan and EIR, the aggregate needed for planned development can be provided by sources within the County or it can be imported from elsewhere. If it is imported, the costs associated with transporting the material would increase development costs, which in turn would affect the level of and type of development. The transportation of aggregate from areas outside the County would result in additional traffic, air quality and noise impacts (see Section 4.5, Project Alternatives, for a discussion of why this alternative was considered but eliminated).

In summary, the project would not directly induce population growth, and would indirectly support planned growth in accordance with the Sonoma County General Plan while avoiding the costs and impacts of importation of aggregate. Therefore, potential impacts related to growth-inducement would be considered less than significant.

4.2 CUMULATIVE IMPACTS

Cumulative impacts are defined by CEQA Guidelines Section 15355 as "two or more individual effects, which, when considered together, are considerable or which compound or increase other environmental impacts." Specifically, "the cumulative impact from several projects is the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time."

For the purposes of this Draft EIR, cumulative effects would be considered significant if the proposed project's incremental effect, though individually limited, is cumulatively considerable when viewed in connection with the effects of past, current, and probable future projects (CEQA Guidelines Section 15064(h)(1)). "Where an agency is examining a project with an incremental effect that is not 'cumulatively considerable,' a lead agency need not consider that effect significant, but shall briefly describe its basis for concluding that the incremental effect is not cumulatively considerable (CEQA Guidelines Section 15130(a))."

CUMULATIVE SETTING

CEQA Guidelines Section 15130(b)(1) specify the need to provide either of the following as part of cumulative setting to ensure adequate discussion of significant cumulative impacts:

- A list of past, present, and probable future projects producing related or cumulative impacts, including, if necessary, those projects outside the control of the agency, or

- A summary of projections contained in an adopted general plan or related planning document, or in a prior environmental document that has been adopted or certified, that describes or evaluates regional or areawide conditions contributing to cumulative impact. Any such planning document shall be referenced and made available to the public at a location specified by the lead agency.

The 1994 ARM Plan allows instream mining as well as quarry and terrace mining in designated areas within Sonoma County, including portions of the Alexander Valley of the Russian River where the proposed instream mining operations would occur. The ARM Plan PEIR did not include a list of specific past, current and probable future projects for consideration in the cumulative impacts analysis. Instead, it considered “all mining and reclamation which has occurred in the past, the existing and previously approved aggregate operations which may continue into the future, including operations with existing permits and vested rights (Middle Reach bar skimming by Syar), and other development and land uses which may have a similar or related effect” as part of the cumulative context. In place of a list of other development projects, the ARM Plan provided population and aggregate demand projections that served to describe the regional conditions contributing to cumulative impacts. These projections were provided in Chapter 3, Aggregate Demand, of the ARM Plan PEIR.

Since the ARM Plan PEIR was certified in 1994, other related projects have been planned and/or implemented that should be considered in the cumulative setting. A brief description of these projects is provided below:

- Shamrock mining operations (Russian River upper reach);
- Syar Phase VI terrace mining (Russian River middle reach);
- Syar Middle Reach operations;
- Gallo of Sonoma winery expansion (3387 Dry Creek Road);
- Clos du Bois winery expansion (19410 Geyserville Avenue);
- Dry Creek Rancheria Economic Development Master Plan (River Rock Casino);
- Cloverdale Rancheria of Pomo Indians Fee-to-Trust and Resort Casino Project;
- Saggio Hills Project

Shamrock Mining Operations

Shamrock proposed to conduct instream mining of aggregate materials on portions of 13 parcels along an approximate 2.5 mile stretch of the Russian River (Sonoma County 2000). The parcels are approximately two miles south of the City of Cloverdale, east of State Highway 101. The materials would be processed at an existing plant located on Crocker Road, east of Cloverdale. The ARM Plan PEIR addressed the Shamrock mining operation at a program-level of detail. In 2001, the County adopted a Mitigated Negative Declaration (MND) tiered from the ARM Plan PEIR and a use permit. The project would result in significant and unavoidable visual, noise, and cumulative impacts, consistent with the ARM Plan EIR conclusions. The project would also result in significant but mitigable impacts in the following areas: air quality, biological resources, cultural resources, hazards and hazardous materials, and recreation. Relevant ARM Plan PEIR mitigation measures and Shamrock project-specific mitigation measures would reduce the above significant impacts to less-than-significant impacts.

Syar Middle Reach Operations

Syar proposed bar skimming for sand and gravel on six sites (Doyle, South Levee haul Road, Middle Reach, North Levee, Healdsburg Bendway, and Riverbend) along a 9-mile reach of the Russian River, between Wohler Bridge and east of Healdsburg (Sonoma County 1997). These sites are located in the vicinity of the existing Syar processing plant. Operation and site reclamation at these locations would be conducted in phases over a period of several years. Syar had vested rights on five of the six sites, and thus did not require a new use permit. Syar did not have vested rights for the Healdsburg Bendway site, and thus a conditional use permit was required. Five alternatives were evaluated.

A joint supplemental Environmental Impact Report and Environmental Impact Statement was prepared to evaluate the potential effects of the proposed alternatives on the environment. Besides the No Project Alternative, the Limited Bar Skimming Alternative was identified as the environmentally superior/preferred alternative. The EIR/EIS identified significant and unavoidable impacts associated with the various alternatives, including effects on the following: streambed, groundwater, fisheries, aquatic resources, riparian habitat, visual quality, recreation, air quality, noise, and socioeconomics. For all other significant impacts, potential effects would be reduced to less-than-significant levels.

Syar Phase VI – Terrace Mining

In 2005 Syar proposed to extend the time to mine the Phase VI terrace mining area adjacent to the Middle Reach of the Russian River, south of Healdsburg. Similar to other terrace mining sites identified in the ARM Plan and PEIR, the initial Phase VI use permit was approved via a mitigated negative declaration (MND) tiered from the ARM Plan PEIR. Because Syar could not complete the Phase VI terrace mining before the April 2006 deadline identified in the ARM Plan, it sought amendments to its use permit, the ARM Plan, and the County Surface Mining and Reclamation Ordinance (SMARO) to allow another five years to complete the work. The proposed time extension was evaluated in a complete Subsequent EIR that underwent substantial public review. The Subsequent EIR found that, consistent with the ARM Plan PEIR, the time extension would result in significant and unavoidable impacts related to visual resources and noise. The Subsequent EIR found that all other impacts would be mitigated to less-than-significant, and the Sonoma County Board of Supervisors approved a three-year extension of time on October 7, 2008. In November 2009, the Sonoma County Superior Court, the Honorable Robert S. Boyd presiding, struck down the approval and certification of the Subsequent EIR. The County and Syar have appealed.

Gallo of Sonoma Winery Expansion

Gallo proposed the expansion of winery facilities located on the east side of Dry Creek Road, about 1 mile north of Lytton Springs Road and about 3.5 miles northwest of Healdsburg. Gallo proposed to expand existing winery facilities to accommodate an increase in annual production capacity of wine from 40,000 tons to 65,000 tons. The project included:

- Construction of new barrel cellar building (approximately 70,000 sq. ft.);
- Construction of a 25,000 sq. ft. new operations facility building;
- Construction of a 43,000 sq. ft. new bottling facility;
- Construction of an approximate 10,000 sq. ft. maintenance building;
- Construction of a 6,500 sq. ft. new loading dock area;

- Expansion of barrel storage and fermentation tanks;
- Construction of a new 20,000 sq. ft. canopy and tree covering at the entrance to the existing cellar;
- Modification of facility lighting to conserve energy and reduce glare;
- Implementation of new water-conservation measures; and
- Revised parking plan and vineyard road location.

The Draft EIR identified potentially significant impacts in the following areas: hydrology; water quality; geology, seismicity, and soils; traffic; air quality; noise, aesthetics and visual resources; biological resources; cultural resources; and hazards and hazardous materials (Sonoma County 2002). However, with mitigation measures identified in the Draft EIR, all potential impacts would be reduced to less-than-significant levels. No significant unavoidable impacts were identified.

The Draft EIR identified no known or reasonably foreseeable future projects that would have substantial cumulative impacts with the Gallo project (2002); the cumulative impacts discussion identified the related study-area projects based on the Sonoma County General Plan and the 1989 General Plan EIR and amendments. The analysis included a discussion of the cumulative environmental effects expected to result from the contribution of the Gallo of Sonoma Project to the projects related to the General Plan buildout (by the year 2005). The Gallo EIR recognized that the General Plan was undergoing revision; however, it concluded that substantial changes to the land use designations in Dry Creek Valley were not anticipated.

The County certified an EIR and approved a use permit in May 2006 and the project has been implemented.

Clos du Bois Winery Expansion

Clos du Bois Wines, Inc. proposed to increase the annual production capacity at its existing winery from 1.75 million cases to 3.5 million cases, with a total of 165 employees (Sonoma County 2006). The project, located at 19410 Geyserville Ave. and 910/930 Lytton Station Road, Geyserville, included:

- Construction of an approximate 220,000 sq. ft. production facility;
- Expansion of wine process functions and employee facilities;
- Return offsite barrel aging and processing function to an onsite location;
- Relocation of the existing hospitality and administration offices;
- Relocation and expansion of the existing tasting room/retail sales building;
- Abandonment of the existing process wastewater treatment pond and construction of new process wastewater treatment and storage ponds;
- Abandonment and relocation of the existing sanitary sewage septic tank and leach field area;
- Abandonment of the existing fire protection pond and construction of new steel tanks and a pump house for fire protection water storage (in progress);
- Construction of a new grape processing area and wine storage tanks within existing developed area; and

- Construction of parking for additional employees and site improvements to support the facility expansion.

A MND prepared for the project identified potentially significant impacts in the following areas: aesthetics, hydrology/water quality, noise, air quality, and geology/soils (Sonoma County 2006). However, with mitigation measures identified as part of the MND, all potential impacts would be reduced to less-than-significant levels. No cumulative or long-term impacts were identified that were not fully mitigated. As described in the MND, traffic mitigation fees were required to assist with overall County roadways maintenance.

The County approved the Clos du Bois use permit in May 2006, and the project has been implemented.

Dry Creek Rancheria Economic Development Master Plan (River Rock Casino)

The Dry Creek Rancheria Band of Pomo Indians (Tribe) proposed an expansion of existing gaming-related facilities and an addition of non-gaming facilities at the site of the existing River Rock Casino, located approximately two miles southeast of Geyserville, in unincorporated Sonoma County. The project would consist of the following:

- a casino facility;
- a hotel and spa;
- food and beverage facilities;
- underground parking and storage;
- administrative facilities;
- a plaza;
- balconies and terraces throughout the site;
- retail facilities;
- conference facilities; and
- back of house facilities.

The Tribe prepared an Environmental Study for the Dry Creek Rancheria Economic Development Master Plan (June 2007). The Study purported to evaluate the potential impacts of the Master Plan in the areas of Aesthetics, Air Quality, Biological Resources, Hydrology and Water Quality, Noise, and Transportation/Traffic. Other environmental issues (i.e., Agricultural Resources, Cultural Resources, Geology/Soils, Hazardous Materials, Mineral Resources, Population/Housing, Public Services, and Recreation) were deemed to result in less-than-significant impacts on the environment and thus were not evaluated in the Study. With the exception of long-term, ambient noise associated with the near- and long-term development of the Master Plan, the study claimed all potential impacts (for the stand alone Master Plan and cumulative projects) would be reduced to less-than-significant with the implementation of mitigation measures.

Cloverdale Rancheria of Pomo Indians Fee-to-Trust and Resort Casino Project

The Cloverdale Rancheria of Pomo Indians has proposed to construct and operate a casino and resort project on land off Asti Road in the unincorporated County but within the sphere of

influence of and adjacent to the southeast portion of the City of Cloverdale. The project proposes approximately 600,000 square feet of development, including a casino with 2,000 slots, 45 tables, and approximately 52,445 square feet of food and beverage facilities; a five-story, 244-room hotel; a four- to five-story parking garage; a 984-seat convention center; a 1,300-seat entertainment center; and a possible wastewater treatment plant, treatment ponds, and sprayfields. In October 2008, the United States Bureau of Indian Affairs published a scoping report identifying the impacts and alternatives that would be analyzed in a draft environmental impact statement under the National Environmental Policy Act (NEPA).

Saggio Hills Project

The Saggio Hills Project sought destination resort lodging, meeting and spa facilities, residential homes, a community park and trails system, an affordable housing complex, a publicly-owned fire substation, and other elements on an approximately 258.5-acre site located in the City of Healdsburg. An EIR was prepared that found that the project would result in significant and unavoidable impacts related to the short-term loss of vegetation and short-term traffic conditions at the Dry Creek Road/Hwy 101 South ramps intersection. The City of Healdsburg approved the project, but in November 2009 the Sonoma County Superior Court, the Honorable Robert S. Boyd presiding, struck down the approval and EIR certification.

CUMULATIVE IMPACTS

The following discussion analyzes the cumulative impacts of the proposed project combined with the cumulative impacts of recent past, current and reasonably foreseeable future projects, as well as planned development in the county.

This analysis focuses on those effects to which the proposed project would contribute in accordance with CEQA Guidelines Section 15130(a)(1), which states that an “EIR should not discuss impacts which do not result in part from the project evaluated in the EIR.”

The following discussion summarizes the cumulative impacts analysis presented in Chapter 9 of the ARM Plan PEIR and other documents where relevant or helpful for greater disclosure and public information. The following discussion is a full and independent analysis of cumulative impacts, however, and recognizes that the ARM Plan and PEIR evaluated a different mining method and approach than that of the proposed project. In some cases, the differences in approach would not change the conclusions for cumulative effects. In other cases, the conclusions of the project’s contribution to cumulative impacts may be different from that previously identified because of the mining approach and the AMS and REP proposed as part of the project. The impacts analysis is updated with the new information where appropriate. Detailed discussions of cumulative impacts and the project’s contribution to cumulative impacts are described below.

Geology and Soils

ARM Plan PEIR and Other Cumulative Project Findings

As noted in the ARM Plan PEIR, no significant cumulative geologic impacts are expected to result from instream mining. None of the mining and reclamation activities considered in the ARM Plan PEIR would produce additional steep slopes, unstable conditions, or related geological impacts that would be cumulatively significant.

Similarly, other cumulative projects would individually result in no impacts, less-than-significant impacts, or less-than-significant impacts on geology and soils.

Syar Instream Mining Project

Please refer to Hydrology and Water Quality below for a discussion of bank erosion.

Section 3.1, "Geology and Soils", describes potential geology and soil impacts resulting from the proposed project. The project would not create unstable slopes or other significant impacts. As such, the proposed project's contribution to less than significant cumulative, geologic impacts would be less than significant.

Geomorphology, Hydrology, and Water Quality

ARM Plan PEIR and Other Cumulative Project Findings

As described in the ARM Plan PEIR, gravel-bar skimming has potential for soil loss resulting from bank erosion (Sonoma County 1994). At individual mining sites, the potential loss of soils would be considered less than significant, but if impacts of mining at various locations along the Russian River are considered, the losses could become cumulatively significant. The impact cannot be quantified with available data that distinguishes induced vs. natural erosion of banks. Continued monitoring and evaluation would be required. The ARM Plan's Stream Restoration Program¹ would be implemented to restore riparian areas that could be damaged by the proposed instream mining. Thus, the ARM Plan PEIR found cumulative erosion impacts would be reduced to less-than-significant levels.

The ARM Plan establishes standards that allow instream mining as long as gravel removal does not result in degradation of the channel (Sonoma County 1994). Compliance with these standards is expected to reduce potentially significant cumulative hydrology impacts resulting from instream mining operations, but perhaps not to less-than-significant levels. Consequently, the ARM Plan requires that instream mining operations must participate in the Stream Restoration Program to compensate for and mitigate potential damage to the riverbanks. The participation in the Stream Restoration Program by mining projects would reduce cumulative hydrological impacts to less than significant.

As discussed in the ARM Plan PEIR, channel levels dropped in the past where instream mining has been most intense and large quantities of gravel have been removed (Sonoma County 1994). Substantial drops in channel elevation occurred primarily within the middle reach of the Russian River, but some minor degradation also occurred within the portion of the Alexander Valley reach north of Jimtown where gravel bar skimming was the most continuous. Lateral erosion of streambanks has also been evident in the Alexander Valley, both within and outside of active mining areas. As noted above, the ARM Plan requires that all instream mining operations participate in the Stream Restoration Program to compensate for potential damage

¹ As described in the ARM Plan PEIR, gravel-bar skimming has potential for soil loss resulting from bank erosion (Sonoma County 1994). At individual mining sites, the potential loss of soils would be considered less than significant, but if impacts of mining at various locations along the Russian River are considered, the losses could become cumulatively significant. The impact cannot be quantified with available data that distinguishes induced vs. natural erosion of banks. Continued monitoring and evaluation would be required. The ARM Plan's Stream Restoration Program would be implemented to restore riparian areas that could be damaged by the proposed instream mining. Thus, the ARM Plan found cumulative erosion impacts would reduce to less-than-significant levels.

to riverbanks. Therefore, the ARM Plan found cumulative impacts on river channels and banks would be reduced to a less-than-significant level.

Other land uses have affected the hydrology of the Russian River. According to the ARM Plan PEIR, most of the river's floodplain is now devoted to agricultural and urban uses often accompanied by levees and channel encroachments that concentrate winter flood flows and thus increase channel degradation and bank erosion (Sonoma County 1994). Upstream dams have limited the replacement of gravel removed by instream mining, and increased the capacity of flowing water to carry away loose materials. These effects are likely to continue and thus they are likely to exacerbate the effects of instream mining on Russian River hydrology.

As described in the ARM Plan PEIR, groundwater levels in some parts of Sonoma County have been affected by increased levels of pumping needed to support new land uses (Sonoma County 1994). The lowering of the groundwater table also appears to be correlated to the lowering of the Russian River channel and water level. The ARM Plan requires future instream mining permits in the Alexander Valley to monitor water levels in nearby wells, although cumulative effects were considered less than significant.

The Shamrock Mining Operation Project MND identified that project impacts could be cumulative with other mining projects in the Russian River watershed, and thus would necessitate the same types of mitigations identified above (Sonoma County 2000). The Syar Phase VI Terrace Mining Project SEIR determined that the project would result in a less-than-significant impact individually and in the cumulative context on groundwater resources (Sonoma County 2007). The Syar Middle Reach Operations EIR/EIS identified less than significant or significant but mitigable impacts associated with hydrology and channel dynamics, surface water quality, and groundwater under the preferred alternative (Sonoma County 1997). Other cumulative projects would result in no impact, a less-than-significant impact, or a less-than-significant impact with mitigation related to hydrology and groundwater. Based on the analysis provided above, potential impacts from cumulative projects would be considered significant, although individually some of those projects would result in less-than-significant impacts.

Syar Instream Mining Project

The proposed project would implement different mining techniques and would incorporate the AMS, an approach that allows adjustments to the mining methods and extraction volumes prior to the start of mining activities based on the conditions of the study area and proposed gravel mining sites. As discussed in Section 3.2, "Geomorphology, Hydrology and Water Quality", the AMS and supplemental mitigation measures would ensure that hydrological impacts (e.g., bank erosion, alteration of the natural geomorphic characteristics of the channel, etc.) would be less than significant. Although the project's hydrological impacts would be considered less than significant individually, when considered cumulatively with other instream mining (past and future) projects, potential effects would be considered cumulatively significant, consistent with the finding of the ARM Plan PEIR. As such, the project's contribution to hydrological impacts would be cumulatively considerable. To reduce potentially significant cumulative impacts from instream mining projects to a less-than-significant level, implementation of the Stream Restoration Program² would be required. The project includes a proposal to carry out a River

² Resolution No. 95-0450 of the Sonoma County Board of Supervisors sets initial contribution rates and establishes in-kind mitigation measure for instream and terrace mining pursuant to the Russian River Gravel Mitigation Fund that was established on November 1, 1994 upon the approval of the ARM Plan. The fund consists of four parts, including the Stream Restoration Program (SRP). The SRP addresses significant impacts identified in the PEIR, and consists of three components including bank erosion repair, revegetation, and fish barrier removal.

Enhancement Program (REP) in lieu of payment into the Russian River Gravel Mitigation Fund. The proposed enhancements include habitat creation (i.e., oxbows, alcoves, placement of Large Woody Debris, re-establishing connections to tributaries), prevention of bank erosion, planting of riparian habitat, and eradication of invasive species. The impacts from these activities would be mostly beneficial.

As described in Section 3.2.1.5, groundwater would be monitored as a function of the summer low flow conditions in the river to ensure that potential impacts would be less than significant. The proposed project would not contribute to cumulative impacts.

Vegetation and Wildlife

ARM Plan PEIR and Other Cumulative Project Findings

The ARM Plan PEIR indicated that bar skimming could involve the removal of riparian vegetation of varying ages, heights, and significance (Sonoma County 1994). Past mining has resulted in significant cumulative impact by preventing the development of new riparian forests to replace aging ones. A more significant cumulative loss of wildlife habitat along the Russian River has resulted from the encroachment by agricultural and urban uses. The ARM Plan reduces habitat losses by reducing the area available for future mining, by preserving all substantial existing riparian vegetation, and by facilitating natural revegetation. However, bank erosion resulting from instream operations may continue to cause significant loss of riparian habitat. The ARM Plan identifies the Stream Restoration Program as a way to reduce the loss of riparian vegetation and promote natural regeneration. With the implementation of the Stream Restoration Program, the potential impacts of cumulative projects would be reduced to less than significant.

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- Instream mining activities contribute 50% of the estimated annual cost for bank erosion repair, or \$25,000; this cost covers repair for erosion of river banks within one-quarter mile upstream and on-quarter mile downstream of instream mining sites, where the bank erosion occurred in the 12 month period following the commencement of mining. The rate of contribution is based further on a per ton basis. Repairing bank erosion on the mining site is the responsibility of the applicant and operator. As an option to the annual contribution, the operator can elect to pay for or perform 50% of any bank erosion repair needed within one-quarter mile upstream and one-quarter mile downstream of the mining site. Site selection and repair design would have to be approved by SCWA.
 - The estimated annual cost of revegetation to mitigate impacts from instream mining operations is \$10,000. Contributions to the Fund for this purpose will be used to revegetate eroded and repaired banks along the river in the Alexander Valley. If monetary contributions are paid the County will contract out the revegetation work. Revegetation approved by the County can also be performed directly by the operator as a part of bank repair work. As an alternative to paying for or assuming part of the responsibility for bank repair and revegetation within one-quarter mile upstream and one-quarter mile downstream of the mining site, an instream permit applicant may submit a study prepared by a qualified personnel with specific information that demonstrates to the satisfaction of the County that the recommended mining methods and management practices, if adopted as conditions of project approval, will adequately protect adjacent stream banks within the assessed areas, ad taken together with other mitigation required by the ARM Plan and incorporated into the project, would reduce certain potential environmental impacts identified in the PEIR.
 - The Fund shall collect 10 percent or \$75,000 of the total estimated cost for the design and construction of a fish ladder at the Healdsburg dam. This level of contribution represents the possible effect of future upstream gravel removal on the elevational difference of the dam which causes the need for a fish ladder. The contribution will be spread over approximately five years. If the fish ladder design is not completed and approved within five years or if future hydrological analysis determines that there is no connection between the gravel removal and the need for the fish ladder, the operator's contributions and accrued interest may be refunded. Equivalent in-kind contributions of labor or materials provided in lieu of required monetary contributions may be accepted when there is a written agreement with the County or the SCWA regarding the timing and detail for contribution.

The Shamrock Mining Operation Project MND identified that impacts could be cumulative with other mining projects in the Russian River watershed, and thus would necessitate the same types of mitigations specified in the ARM Plan PEIR (Sonoma County 2000). The Syar Middle Reach Operations EIR/EIS identified less than significant impacts after mitigation associated with terrestrial biological resources (Sonoma County 1997). Other cumulative projects would result in no impact, less-than-significant impact, or less-than-significant impact with mitigation associated with biological resources. Based on the analysis provided above, potential cumulative biological resources impacts from cumulative projects would be considered significant, although individually some of those projects would result in less-than-significant impacts.

Syar Instream Mining Project

The proposed project would implement different mining techniques and would incorporate the AMS, an approach that allows adjustments to the mining methods and extraction volumes prior to the start of mining activities, based on the conditions of the study area and proposed gravel mining sites. The AMS would require avoiding or transplanting significant stands of native riparian vegetation. In addition, the project proposes to remove large stands of nonnative species, which is a beneficial effect. Although the project's biological impacts would be considered less than significant individually (see Section 3.3, "Vegetation and Wildlife"), when considered cumulatively with other instream mining (past and future) projects, potential effects would be considered cumulatively significant without mitigation, consistent with the finding of the ARM Plan PEIR. As such, the project's contribution to biological impacts would be cumulatively considerable. To reduce potentially significant cumulative impacts from instream mining projects to a cumulatively less-than-significant level, implementation of the Stream Restoration Program (see footnote 2 above) would be required. The project includes a proposal to carry out a River Enhancement Program (REP) in lieu of payment into the Russian River Gravel Mitigation Fund. The proposed enhancements include habitat creation (i.e., oxbows, alcoves, placement of Large Woody Debris, re-establishing connections to tributaries), prevention of bank erosion, planting of riparian habitat, and eradication of invasive species. The impacts from these activities would be mostly beneficial.

Fisheries

ARM Plan PEIR and Other Cumulative Project Findings

As described in the ARM Plan PEIR, fishery conditions in the Russian River have been affected by the reduction in gravel recruitment, peak winter flows caused by the numerous dams in the watershed, and changes in streamside vegetation patterns (Sonoma County 1994). Some streamside vegetation and habitat area have also been removed or encroached upon by agriculture and urban uses. Salmonid (i.e., salmon and steelhead) populations have also been affected by fishing activities and habitat conditions in the ocean.

Past instream gravel extraction, especially when mining occurred in or immediately adjacent to the active channel, has contributed to cumulative fishery impacts where high quality habitat was degraded through increased water turbidity, blocked fish passage, removed streamside vegetation, accelerated bank erosion, or removal of spawning gravels (Sonoma County 1994). However, with the ARM Plan standards and policies for future instream operations and the Stream Restoration Program, which would restore and mitigate fishery habitat conditions, the ARM Plan PEIR found cumulative fisheries impacts from instream mining operations would be less than significant.

The Shamrock Mining Operation Project MND identified that project impacts could be cumulative with other mining projects in the Russian River watershed, and thus would necessitate the same types of mitigations specified in the ARM Plan PEIR (Sonoma County 2000). The Syar Middle Reach Operations EIR/EIS identified either less than significant or significant but mitigable impacts associated with fish resources under the preferred alternative (Sonoma County 1997). The Environmental Study for the Dry Creek Rancheria Economic Development Master Plan found that with population increases and subsequent development of the region, as well as the advent of agriculture and mining activities within the Russian River basin, native anadromous salmonids populations have declined (Dry Creek Rancheria Band of Pomo Indians 2007). As stated in the Environmental Assessment, the Master Plan would endeavor to avoid biological cumulative impacts through project design considerations to minimize stormwater quality and meeting discharge requirements consistent with NCRWQCB objectives. Other cumulative projects would result in no impact, less-than-significant impact, or less-than-significant impact with mitigation associated with hydrological effects. Based on the analysis provided above, potential cumulative fisheries-related impacts from cumulative projects would be considered significant, although individually some of those projects would result in less-than-significant impacts.

Syar Instream Mining Project

The proposed project would implement different mining techniques and would incorporate the AMS. As described in Chapter 1, "Introduction and Project Description", implementation of the proposed AMS would allow annual adjustment of mining activities at the beginning of each operating season based on the river response and natural recharge of aggregates during the previous winter's high flows as well as habitat enhancement needs. Although the project's fisheries impacts would be considered less than significant individually (see Section 3.4, "Fisheries Resources"), when considered cumulatively with other instream mining (past and future) projects, potential effects would be considered cumulatively significant, consistent with the finding of the ARM Plan PEIR. The addition of the REP activities to create fisheries habitat via the creation of alcoves and oxbows in the Russian River and stabilize banks and restore riparian habitat would help to alleviate any loss of habitat during the mining season.

The project's incremental contribution to potentially significant cumulative fisheries impacts would be less than considerable with the implementation of the AMS and supplemental mitigation measures. The project includes a proposal to carry out a River Enhancement Program (REP) in lieu of payment into the Russian River Gravel Mitigation Fund. The proposed enhancements include habitat creation (i.e., oxbows, alcoves, placement of Large Woody Debris, re-establishing connections to tributaries), prevention of bank erosion, planting of riparian habitat, and eradication of invasive species. REP activities are anticipated to have an overall beneficial impact on fisheries.

Cultural Resources

ARM Plan PEIR and Other Cumulative Project Findings

As described in the ARM Plan PEIR, given the locations where the mining activities are designated and the mitigation measures to be applied, it is not expected that significant cumulative cultural resources impacts would occur (Sonoma County 1994). The ARM Plan PEIR also indicated that future growth and development in the County could result in impacts to cultural resources that could be significant unless similar mitigation measures are implemented for rural uses involving ground-disturbing activities that have the potential to disturb buried

artifacts. The PEIR concluded that cumulative impacts associated with cultural resources would be considered less than significant.

Individually, construction of the winery projects has the potential to disturb undocumented archaeological or historic resources. As such, conditions or mitigation measures have been identified as part of the above projects to address the potential discovery of these resources. The implementation of these conditions/measures would reduce potential impacts to less than significant levels. The Environmental Study for the Dry Creek Rancheria Economic Development Master Plan did not identify potential impacts to cultural resources. Other mining projects would result in less than significant impacts.

Based on the analysis provided above, cumulative impacts associated with cultural resources from the ARM Plan and other cumulative projects would be considered less than significant.

Syar Instream Mining Project

The proposed project's mining activities are similar to the instream mining activities described under the ARM Plan and the project's contribution to less than significant cumulative impacts would be less than considerable with the mitigation measure identified in this EIR. Cumulative impacts associated with cultural resources would remain less than significant.

Traffic and Circulation

ARM Plan PEIR and Other Cumulative Project Findings

As stated in the ARM Plan PEIR, mining operations allowed under the ARM Plan would be required to contribute to the Aggregate Road Mitigation Fund (Sonoma County 1994). This measure is intended to reduce cumulative traffic impacts associated with mining operations to less-than-significant levels. The ARM Plan PEIR also specified that additional gravel trucks on County roadways associated with mining activities would result in deterioration of the roads (Sonoma County 1994). However, this deterioration can be mitigated by the requirements set forth in the ARM Plan for an aggregate road mitigation fund to finance improvements to roads used as haul routes.

As described in the ARM Plan PEIR, any increase in aggregate-related truck traffic for haul road sectors or intersections with limited capacity could create a significant local impact (generally only in upland areas near quarry sites) (Sonoma County 1994). The ARM Plan PEIR stated that mining operations cannot cause the level of service of a roadway to drop below the level established as the standard in the General Plan.

The Shamrock Mining Operation Project MND identified that impacts of the project could be cumulative with other mining projects in the Russian River watershed, and thus would necessitate the same types of mitigations specified in the ARM Plan PEIR (Sonoma County 2000). The Syar Phase VI Terrace Mining Project MND specified that the project, with proposed mitigation would ensure that it would result in less-than-significant impacts individually and in the cumulative context on roadway levels of service (Sonoma County 2007).

Omni-Means, Ltd, Roseville, California, published a traffic impact report for the Dry Creek Rancheria Economic Development Master Plan (June 2007). As part of that study, cumulative traffic conditions were projected for intersections that provide access to the proposed Casino expansion. Many of these locations were also evaluated in this EIR.

Other cumulative projects would result in no impacts, less-than-significant impacts, or less-than-significant impacts with mitigation related to traffic. Based on the analysis provided above, potential impacts from cumulative projects on roadways from mining projects would be considered significant, although individually some of those projects would result in less-than-significant impacts.

Syar Instream Mining Project

As discussed in Section 3.6, "Traffic and Circulation," implementation of the proposed project would not result in a significant traffic congestion impact, even when evaluated against a very conservative cumulative projection of a 1.5% per year increase in area traffic (which equates to an approximately 30% increase over baseline over the life of the project) due to the potential River Rock Casino Resort and other cumulative development. Section 3.6 discloses that the project's contribution to traffic at the US 101 Southbound off-ramp at Healdsburg Avenue would be significant and cumulatively considerable absent mitigation. However, implementation of Mitigation Measure 3.6-1 would reduce the project's impact to less-than-significant and preserve an acceptable level-of-service at the intersection, even in the face of a likely overstated projection of cumulative development. As a result, with mitigation, the project's cumulative impact would be less than significant.

Section 3.6 also discloses that the project would not significantly impact roads or highways, and includes mitigation to reduce to less-than-significant the project's potential impacts on traffic safety, sight distances, wear and tear on roadways, railroad crossings, and alternative transportation. Implementation of Mitigation Measures 3.6-3a through 3.6-6b would reduce all but one such impact to less-than-significant, and less than cumulatively considerable.

However, Section 3.6 discloses that the project would result in a significant and unavoidable safety impact at the Lytton Station Road curve if Syar uses Haul Route 2 and is unable to acquire the necessary right-of-way to implement Mitigation Measure 3.6-3c. Traffic generated by other cumulative projects also utilizes this curve, and the project impact would thus be significant and unavoidable on a cumulative level, as well. Acquisition of right-of-way and implementation of Mitigation Measure 3.6-3c, by contrast, would improve safety at the Lytton Station Road curve and result in a less-than-significant cumulative impact.

Air Quality

ARM Plan PEIR and Other Cumulative Project Findings

The mining activities allowed under the ARM Plan would result in air quality emissions from vehicle traffic, mining and processing operations, and exposure of soils to wind erosion (Sonoma County 1994). However, the ARM Plan PEIR indicated that given the emissions generated by agriculture, construction, and other non-mining activities, and the [then] current and projected vehicle usage in the County, it is expected that the combined emissions resulting from future aggregate production would not add significant amounts of air pollutants such that significant cumulative air quality impacts would occur.

**Table 4-1
Peak Hour Level of Service at Existing Condition, Cumulative 2025 No Project and Cumulative 2025 With Project Impacts along Haul Routes 2 – 8**

#	Intersection Location	Peak Hour LOS Level (average delay in seconds) at Intersections																	
		Existing Condition		Cumulative 2025 No Project		Cumulative 2025 Haul Route 2		Cumulative 2025 Haul Route 3		Cumulative 2025 Haul Route 4		Cumulative 2025 Haul Route 5		Cumulative 2025 Haul Route 6		Cumulative 2025 Haul Route 7		Cumulative 2025 Haul Route 8	
		A.M. Peak	P.M. Peak	A.M. Peak	P.M. Peak	A.M. Peak	P.M. Peak	A.M. Peak	P.M. Peak	A.M. Peak	P.M. Peak	A.M. Peak	P.M. Peak	A.M. Peak	P.M. Peak	A.M. Peak	P.M. Peak	A.M. Peak	P.M. Peak
1	U.S. 101 southbound off-ramp at Healdsburg Avenue/Old Redwood Highway	B (11.8)	B (11.4)	C (15.9)	B (13.7)	F (79.8)	C (17.3)	F (79.8)	C (17.3)	F (79.8)	C (17.3)	F (79.8)	C (17.3)	F (79.8)	C (17.3)	F (79.8)	C (17.3)	F (79.8)	C (17.3)
2	U.S. 101 northbound off-ramp at Healdsburg Avenue/Old Redwood Highway	B (11.6)	B (11.4)	B (14.3)	B (13.8)	C (16.1)	C (15.6)	C (16.1)	C (15.6)	C (16.1)	C (15.6)	C (16.1)	C (15.6)	C (16.1)	C (15.6)	C (16.1)	C (15.6)	C (16.1)	C (15.6)
3	U.S. 101 southbound off-ramp at Lytton Springs Road	B (10.5)	B (12.7)	B (11.6)	C (15.6)	B (14)	C (20.7)	B (13.4)	C (21.9)	B (13.4)	C (21.9)	B (13.4)	C (21.9)	B (13.4)	C (21.9)	B (13.4)	C (21.9)	B (13.4)	C (21.9)
4	U.S. 101 northbound off-ramp at Lytton Springs Road	A (9.7)	B (10.3)	B (10.4)	B (11.4)	B (11.1)	B (12.3)	B (13)	B (15)	B (13)	B (15)	B (13)	B (15)	B (13)	B (15)	B (13)	B (15)	B (13)	B (15)
5	Healdsburg Avenue at Lytton Springs Road (access to Route 2)	B (10.7)	B (10.8)	B (11.7)	B (12)	B (14.6)	C (17.5)												
6	U.S. 101 southbound off-ramp at Geyserville Avenue	B (10.3)	B (10.4)	B (11.3)	B (11.4)					B (12.9)	B (13)	B (12.9)	B (13)	B (14.4)	C (18.6)	B (14.4)	C (18.6)	B (14.4)	C (18.6)
7	U.S. 101 northbound off-ramp at Geyserville Avenue (access to Route 3)	A (9.1)	A (9.2)	A (9.4)	A (9.6)					A (9.8)	B (10.1)	A (9.8)	B (10.1)	B (10.8)	B (11.5)	B (10.8)	B (11.5)	B (10.8)	B (11.5)
8	Geyserville Avenue at Banti Lane (access to Route 4)	A (10.0)	B (10.1)	B (10.3)	B (10.5)					B (11.9)	B (12.3)	B (11.1)	B (11.3)						
9	Geyserville Avenue at Hamilton Lane (access to Route 5)	A (9.8)	B (10.2)	B (10.4)	B (11)							B (12.3)	B (13.9)						
10	U.S. 101 southbound off-ramp at Canyon Road	A (9.7)	A (9.8)	B (10.2)	B (10.3)									B (11.8)	B (12)	B (11.8)	B (12)	B (11.8)	B (12)
11	U.S. 101 northbound off-ramp at Canyon Road	A (9.5)	A (9.6)	A (10)	B (10.2)									B (10.5)	B (10.7)	B (10.5)	B (10.7)	B (10.5)	B (10.7)
12	Geyserville Avenue at Canyon Road	A (7.4)	A (7.7)	A (7.7)	A (8.1)									A (8.5)	A (8.8)	A (8.5)	A (8.8)	A (8.5)	A (8.8)
13	Geyserville Avenue at access to Route 6																	A (9.5)	A (9.9)
14	Geyserville Avenue at access to Route 7																	A (9.5)	A (9.9)
15	Geyserville Avenue at access to Route 8													A (9.5)	A (9.9)				

Note: Numbers in parentheses indicate seconds of average delay overall at all-way stop controlled intersections and for the worst affected approach at side street controlled intersections
 Shaded cells indicate no change from no project condition
 N/A = The proposed intersections do not currently exist at this time. They would be connected to public roadways for the purposes of the project.

Back of Table 4-1

The ARM Plan PEIR added that while emissions standards and operational requirements have been established by the BAAQMD, NSCAPCD, and various state and federal agencies to limit air quality impacts by individual uses or facilities, it is possible that the future growth and development allowed by local plans could result in increased total emissions and cumulative non-compliance with ambient standards (Sonoma County 1994). If the two air districts continue to enforce the required controls and implement the adopted air quality maintenance programs, cumulative air quality impacts would be less than significant. However, the ARM Plan PEIR identifies potentially significant cumulative impacts associated with the combination of mining and other developments.

The Gallo of Sonoma Project resulted in construction- and operation-related air quality impacts, including emissions of PM₁₀. However, with mitigation measures identified in the Gallo of Sonoma EIR, such impacts would be reduced to less than significant levels. According to the Clos du Bois Project MND, the project would not result in any significant air-quality impacts except odor, which was mitigated. The Environmental Study for the Dry Creek Rancheria Economic Development Master Plan indicated that potential construction-related air quality impacts would be reduced to less-than-significant with the implementation of a dust abatement program (Dry Creek Rancheria Band of Pomo Indians 2007) and operational-related air quality impacts would be considered less than significant. Both the Shamrock Mining Operation Project and the Syar Phase VI Terrace Mining Project would result in significant but mitigable air-quality impacts (Sonoma County 2000; Sonoma County 2007).

Based on the analysis provided above, cumulative air-quality impacts associated with the ARM Plan and other cumulative projects, including those generated from future growth, would result in potentially significant air quality impacts.

Syar Instream Mining Project

As described in Section 3.7, "Air Quality", the proposed project would result in significant unavoidable impacts associated with PM₁₀ emissions from mining and mining-related activities, even with implementation of numerous dust control mitigation measures. The project's incremental contribution to cumulative PM₁₀ emissions also would be significant on a cumulative level even with adoption of Mitigation Measure 3.7-1. Other air quality impacts would be less than significant on a cumulative level for the reasons stated in Section 3.7. In addition, the project's contribution to cumulative global climate change impacts would not exceed any published threshold of significance, and its emissions would fall below the draft threshold promulgated by BAAQMD.

Aesthetics

ARM Plan PEIR and Other Cumulative Project Findings

According to the ARM Plan PEIR, instream mining in the Russian River would result in significant visual impacts where mining operations occur in view of river travelers and public bridges (Sonoma County 1994).

Both the winery projects resulted in potentially significant visual quality impacts that required implementation of mitigation measures. These measures reduced potential impacts to less than significant. According to the Environmental Study for the Dry Creek Rancheria Economic Development Master Plan, the project would result in light-and-glare impacts but would not result any cumulative aesthetics impacts (Dry Creek Rancheria Band of Pomo Indians 2007). The Shamrock Mining Operation Project MND identified that project impacts could be

cumulative with other mining projects in the Russian River watershed, and thus would necessitate the same types of mitigations specified in the ARM Plan PEIR (Sonoma County 2000). Visual impacts would be considered significant and unavoidable, consistent with the findings of the PEIR. The Syar Phase VI Terrace Mining Project SEIR indicated that it would contribute to cumulative visual impacts consistent with the findings of the ARM Plan PEIR (Sonoma County 2007). The Syar Middle Reach Operations EIR/EIS also identified cumulative significant and unavoidable visual impacts (Sonoma County 1997). Based on the analysis provided above, cumulative aesthetics impacts associated with the ARM Plan and other cumulative projects would be considered significant.

Syar Instream Mining Project

As described in Section 3.8, "Aesthetics," mining equipment and activities would be visible from the Geyserville Bridge (Highway 128) and from the river (i.e., by boaters). Views of the proposed mining project from public roads would be limited to the Geyserville Bridge and approach roads. Boats or canoes floating down the river would observe the mining operation for a period of not more than 15 minutes, and for the most part would not see the operation at all, given that most, if not all, mining would be behind the head and outside portion of the bar. Mitigation measures such as screening of operations could reduce impacts on scenic resources, but their placement would create a visual barrier that would obstruct the expansive view of the river and result in even greater adverse impacts to the visual landscape. Therefore, impacts on scenic landscape units and scenic corridors would be significant, although temporary. The project's incremental contribution to cumulative visual impacts would also be cumulatively considerable, per the ARM Plan PEIR. The Board of Supervisors adopted a statement of overriding considerations for cumulative aesthetic effects when it approved the ARM Plan, and would have to do so again to approve the project.

Noise

ARM Plan PEIR and Other Cumulative Project Findings

Noise would be generated by the mining activities contemplated by the ARM Plan. According to the ARM Plan PEIR, the duration and levels of noise generated by future mining operations would be less than that generated by past mining activities (Sonoma County 1994). Because operations that generate noise are generally localized and would be required to conform to the County General Plan Noise Element performance standards and policies and the ARM Plan standards, it is expected that recent past, current and future mining activities would not result in significant cumulative noise impacts.

The ARM Plan PEIR also identified potentially significant cumulative noise impacts from trucks hauling aggregate material even after mitigation measures are applied (Sonoma County 1994).

Individually, other cumulative projects would result in construction- and/or operation-related noise impacts that would mostly be reduced with implementation of mitigation measures. The casino expansion project, however, would result in permanent (significant and unavoidable) increases in the ambient noise environment associated with increased traffic (Dry Creek Rancheria Band of Pomo Indians 2007). The Shamrock Mining Operation Project MND identified that the project's cumulative impacts would necessitate the same types of mitigations specified in the ARM Plan PEIR (Sonoma County 2000). Noise impacts were considered significant and unavoidable. The Syar Phase VI Terrace Mining Project Subsequent EIR indicated that the re-introduction of truck hauling of materials would contribute to cumulative noise along public haul routes where sensitive receptors may be located, and as such would

result in a significant and unavoidable cumulative impact (Sonoma County 2007). Similarly, the Syar Middle Reach Operations EIR/EIS identified significant and unavoidable impacts associated with operations at two sites under the preferred alternative (Sonoma County 1997).

Based on the analysis provided above, cumulative traffic-related noise impacts associated with the ARM Plan and other cumulative projects would be significant.

Syar Instream Mining Project

Section 3.9, "Noise," explains that the project would expose sensitive receptors to noise levels in excess of significance thresholds as a result of mining equipment and heavy-duty truck traffic on both public and private roads. This EIR includes several mitigation measures to reduce potential impacts, but concludes that significant impacts would still occur at several receptors from mining equipment, and one receptor from truck traffic on Geyserville Avenue. The EIR also includes measures that would reduce noise impacts on private roadways to less than significant, but discloses that impacts to two receptors could be significant and unavoidable if the owner(s) and occupant(s) of those receptors object to the proposed measures.

The relevant receptors are also impacted by noise generated by past, present, and probable future activities in the project area. As a result, the project's contribution to those impacts would be significant and unavoidable on a cumulative level, as well. The Board of Supervisors adopted a statement of overriding considerations for cumulative noise impacts when it adopted the ARM Plan, and would need to do so again before approving this project.

Public Services and Utilities

ARM Plan PEIR and Other Cumulative Project Findings

As stated in the ARM Plan PEIR, future gravel mining would not result in significant cumulative public service or utilities impacts (Sonoma County 1994). The ARM Plan acknowledged that the overall growth and development anticipated by the Sonoma County General Plan would generate many impacts on public services throughout the County over time, although the PEIR did not specifically identify a significant cumulative impact.

Other cumulative projects would individually result in no impact, less-than-significant impact, or less-than-significant impact with mitigation on public services and utilities.

Based on the analysis provided above, cumulative impacts related to public services and utilities associated with the ARM Plan and other cumulative projects would be less than significant.

Syar Instream Mining Project

As described in Section 3.10, "Public Services", the project would not result in any impacts on police and fire protection, school, and park services. The project would result in less than significant impacts associated with an increase in demand for water and wastewater production. The project's contribution to less-than-significant cumulative impacts related to public services and utilities would be less than considerable. Cumulative impacts would therefore remain less than significant.

Hazards and Hazardous Materials

ARM Plan PEIR and Other Cumulative Project Findings

The ARM Plan required that all operations using hazardous materials or generating hazardous waste comply with federal, state regional and local regulations (Sonoma County 1994). If mining operators comply with these requirements, no significant cumulative public health and safety impacts would be generated by aggregate mining activities. The ARM Plan PEIR stated that because adequate standards are applied to other similar or related uses and to most types of planned future development in the County, cumulative impacts are not anticipated.

Other cumulative projects would individually result in no impact, less-than-significant impact, or less-than-significant impact with mitigation related to hazards and hazardous materials.

Based on the analysis provided above, cumulative impacts related to hazards and hazardous materials associated with the ARM Plan and other cumulative projects would be considered less than significant.

Syar Instream Mining Project

As described in Section 3.11, “Hazards and Hazardous Materials”, Syar would implement a Spill Prevention Fueling and Lubrication Plan (SPFL) in the event of an accidental discharge of hazardous materials to ensure that potential impacts would be reduced to less-than-significant levels. As such, the proposed project’s contribution to less than significant cumulative impacts would be less than considerable. Cumulative impacts related to this area would remain less than significant.

Energy and Natural Resources

ARM Plan PEIR and Other Cumulative Project Findings

The ARM Plan PEIR states that mining operations allowed under the ARM Plan would have a significant cumulative impact on energy and fuels although the energy requirements are minimal compared with other non-mining activities occurring within the County (e.g. agriculture, commercial, transportation) (Sonoma County 1994). It further states that all future development in the County would have a cumulatively significant impact on energy and fuels because additional resources would be required to serve the needs of the growth anticipated by adopted general plans. In addition, cumulative impact of this development is the consumption and permanent loss of fossil fuels.

None of the other cumulative projects discuss impacts associated with the consumption of energy.

Based on the analysis provided in the ARM Plan PEIR, cumulative impacts related to energy consumption would be considered potentially significant associated with future development.

Syar Instream Mining Project

As described in Section 3.12, “Energy”, the project would require the use of diesel associated with the operation of mechanical equipment and haul trucks, which would result in a less-than-significant impact. The project’s impacts would be less than significant and less than considerable on a cumulative level.

Land Use and Recreation

ARM Plan PEIR and Other Cumulative Project Findings

According to the ARM Plan PEIR, instream mining operations are permitted in agricultural areas, but the actual mining would occur on gravel bars not suited for crop production (Sonoma County 1994). No structural development would occur on gravel bars. Fishing, off-road vehicle use, and other temporary recreational activities are the only other common uses on the gravel bars in the river. Significant cumulative impacts on agriculture are not expected from instream mining.

The ARM Plan designated approximately 16 miles of the Russian River in the Alexander Valley reach for instream operations (Sonoma County 1994). The ARM Plan PEIR stated that mining operations could have a significant cumulative impact on recreation, especially canoeing and sport fishing. The ARM Plan calls for implementation of a Recreation Enhancement Program for the Russian River to reduce cumulative recreational impacts to less-than-significant levels. The Recreation Enhancement Program (see footnote 2 above) would provide for improved access and facilities for existing canoe and sport fishing uses.

The Syar Middle Reach Operations EIR/EIS identified significant and unavoidable impacts associated with alteration and recreational value of the Russian River in the rural areas around the project area as well as affect the recreation activities of Healdsburg residents and visitors under the preferred alternative (Sonoma County 1997), consistent with the conclusion of the ARM Plan EIR. Other cumulative projects would result in no impact, less than significant impact, or less-than-significant impact with mitigation on recreational uses.

Based on the analysis provided above, cumulative impacts would be less than significant if mining operators participate in the Recreation Enhancement Program.

Syar Instream Mining Project

As discussed in Section 3.13, "Land Use", the proposed project would not convert farmlands to non-agricultural uses and would not result in impacts to agricultural uses, similar to the conclusion of the ARM Plan PEIR.

Impact 4-1. The project's contribution to cumulative recreation impacts would be considerable if the project does not participate in the Recreation Enhancement Program, as required by the ARM Plan and mining ordinance.

As described in Section 3.14, "Recreation", the proposed project would result in less-than-significant impacts on recreational uses due to the timing of mining activities and adherence to operating standards that allow continued recreation. Although the project's individual impacts are less than significant, its contribution to cumulative impacts would be considerable if the project does not participate in the Recreation Enhancement Program, as required by the ARM Plan and mining ordinance. The ARM Plan found that recreation impacts would not be significant on a project-by-project basis, but that collectively mining operations along the river corridor, and particularly in the Alexander Valley, could result in a significant cumulative reduction in the quality of the river recreation experience by increasing noise, dust and traffic and by impairing views of equipment, excavated areas, stockpiles, and vegetation clearing within the river corridor. The ARM Plan and mining ordinance required payment of mitigation fees towards the Recreation Enhancement Program to mitigate this potentially significant cumulative impact.

Mitigation Measure

- 4-1 Syar shall contribute a fair share towards the County's Russian River Gravel Mitigation Fund Recreation Enhancement Program or offer to dedicate to the County an access easement of equal value in-lieu of the fair share.

Impact Significance After Mitigation

Mitigation Measure 4-1 would substantially reduce the cumulative impacts of mining and enhancement activities on recreation to a less than significant level.

4.3 IRREVERSIBLE ENVIRONMENTAL CHANGES OF THE PROJECT AS PROPOSED

According to Section 15126.2(c) of the CEQA Guidelines, impacts associated with a proposed project may be considered significant and irreversible if:

- The project would involve a large commitment of non-renewable resources (such as fossil fuels or lumber).
- The primary and secondary impacts of a project would generally commit future generations to similar uses (such as a highway improvement that provides access to a previously inaccessible area).
- The project involves uses in which irreversible damage could result from potential environmental accidents associated with the project.

As noted in the ARM Plan PEIR, the removal of gravel from the Russian River would not deplete a non-renewable resource. The project's primary purpose is to produce a sustainable yield of aggregate while simultaneously implementing the objectives of the ARM Plan. One of the project objectives is to achieve this goal. This objective would be accomplished through implementation of the AMS, which would allow annual adjustment of extraction activities at the beginning of each operating season based on the natural recharge of aggregates during the previous winter's high flows. Because the AMS approach would allow the gravel bars to replenish before further gravel extraction would occur at mined locations, the proposed project would not adversely affect instream gravel resources.

The proposed project would result in irretrievable and irreversible commitment of natural resources through direct consumption of fossil fuels for the operation of mining equipment and worker vehicles. Since the project would provide a local source of PCC aggregates and eliminate the need to haul aggregate from longer distances, the overall use of fossil fuels would be reduced. In addition, because the project would have a limited lifespan (15 years) and would not commit future generations to increases in fuel consumption, this impact would be less than significant.

As discussed in Section 3.11, "Hazards and Hazardous Materials", the project could result in accidental spills of hazardous materials in the Russian River during instream mining activities. As noted in Section 3.11, however, the SPFL Plan shall be updated and implemented to reduce potential impacts associated with accidental spills to less-than-significant levels. As such, the project would not result in irreversible damage to the environment from accidental discharges of hazardous materials.

4.4 SUMMARY OF EFFECTS FOUND NOT TO BE SIGNIFICANT

The environmental effects of the proposed project are identified and discussed in detail in Chapter 3, Environmental Setting, Impacts, and Mitigation measures, and are summarized in Chapter 2, Summary. Except for significant unavoidable effects identified above, all other identified significant environmental effects of the proposed project would be less than significant with mitigation.

4.5 PROJECT ALTERNATIVES

Pursuant to CEQA Guidelines Section 15126.6, “An EIR shall describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives.”

CEQA Guidelines require that an EIR briefly describe the rationale for selecting the alternatives to be discussed (Section 15126.6(a)), and identify any alternatives that were considered by the lead agency but were rejected as infeasible (Section 15126.6(c)). The following factors were used to identify feasible alternatives to the proposed project:

- The extent to which the alternative would avoid or lessen any of the identified significant adverse environmental effects of the project;
- The feasibility of the alternative, taking into account site suitability, economic viability, availability of infrastructure, consistency with regulatory limitations, and whether the project sponsor can reasonably implement the alternatives;
- The appropriateness of the alternative in contributing to a “reasonable range” of alternatives necessary to permit a reasoned choice; and
- The requirement of *CEQA Guidelines* to consider a “No Project” alternative as well as an “environmentally superior” alternative (*CEQA Guidelines*, Section 15126.6).

Alternatives must feasibly attain most of the basic objectives of the project. As described in Chapter 1, the objectives of the proposed project include:

- Produce aggregate from an ARM-Plan designated site to implement the State and County policies of meeting local aggregate demand with local resources;
- Extend the life of permitted, locally-produced sources of high-quality aggregate that meets specifications for use in local infrastructure projects;
- Manage the skimming approach on an ongoing basis to provide a sustainable yield of aggregate while enhancing the biological and hydrological functions of the Russian River;
- Conserve valuable agricultural lands and help protect public infrastructure by maintaining flood channel capacity and reducing bank erosion through the removal of excess aggregate from gravel bars;
- Conserve quality riparian habitat, enhance fisheries, and remove invasive plant species by utilizing unique skimming techniques in selected locations; and
- Avoid traffic, air quality, and other environmental impacts associated with importing aggregate from locations outside of Sonoma County.

ALTERNATIVES CONSIDERED BUT REJECTED

Other alternatives were considered for inclusion in this EIR, but were rejected because they would not meet most of the project sponsor's basic objectives, would not avoid or substantially lessen the potential impacts of the proposed project, and/or were considered infeasible, as described below.

Gravel Mining Elsewhere on the Russian River

This alternative would be similar to the proposed project, with the exception of the location of the gravel bars mined annually. Syar would mine aggregate resources along a different reach of the Russian River in accordance with the methods, standards, and AMS identified under the proposed project, and would maintain the cap of 350,000 tons of aggregate per year. The ARM Plan permits multi-year instream mining on certain designated stream sectors, as follows: Alexander Valley Reach – Cloverdale Area; Alexander Valley Reach – Asti Area; Alexander Valley Reach – Geyserville Area (location of proposed project); Alexander Valley Reach – Jimtown Area (location of proposed project); portions of Big Sulphur Creek; and portions of Austin Creek, Sonoma Creek; and Gualala River. Syar is currently mining its vested rights on the Middle Reach of the Russian River, but does not own or have vested rights to any other designated sector. Instead most of the other sectors are owned by Syar's direct competitors. Permits for instream aggregate extraction in non-designated stream areas are only issued as one-year permits and only allow extraction once in three calendar years in any location. Due to the lack of vested rights/ownership and ARM Plan restrictions, this alternative is not feasible and would not meet project objectives.

ASSESSMENT OF PROJECT ALTERNATIVES

The alternatives selected for analysis differ in the gravel mining operating standards (e.g., techniques and duration) as well as extraction volume. Generally, the impacts under different alternatives would vary primarily in intensity and severity, and the level of significance of environmental impacts would remain the same. However, Alternative 1 - No Project, and Alternative 4 – Gravel Mining at a Lower Volume, would avoid some of the significant unavoidable impacts resulting from the proposed project.

Alternative 1 – No Project

The “no project” alternative is defined as “what would reasonably be expected to occur in the foreseeable future if the project were not approved.” (CEQA Guidelines 15126(e)(2).) CEQA Guidelines 15126.6(e)(1) states that “[t]he purpose of describing and analyzing a no project alternative is to allow decisionmakers to compare the impacts of approving the proposed project with the impacts of not approving the proposed project.” This EIR identifies a No Project Alternative, under which Syar would not implement the project as proposed.

The existing conditions for this alternative would be the same as that described for the proposed project in Chapter 3 of this Draft EIR, where no current mining activities occur. Under this alternative, Syar would not conduct any mining activities within the proposed reach of the Russian River between Gill Creek and Jimtown Bridge. As such, none of the environmental effects identified for the proposed project described in Chapter 3 would occur. The conditions within the Russian River would continue to be defined by the forces of nature (storm events during the winter) as well as any land use changes adjacent to and upstream of the study area.

The demand for high quality aggregate would continue to exist within the County and alternative sources of gravel would be required. The importation of aggregate from outside the County would result in indirect environmental effects including an increase in traffic congestion, air emissions and fuel use to transport aggregate material. Alternative 1 – No Project would not meet the objectives of the project, including the avoidance of traffic, air quality, and other environmental impacts associated with importing aggregate from locations outside of Sonoma County, nor the production of aggregate from an ARM Plan designated site to implement the State and County policies of meeting local aggregate demand with local resources.

Geology and Soils

Because mining of sand and gravel would not occur, project generated impacts to soils and geologic resources would not occur. The study area would continue to be governed by forces of nature, including winter storm events. However, topographic alteration and potential loss of soils would be redirected to other mining sites at undetermined locations. The proposed volume of aggregate would be substantial, and thus it may be assumed impacts on geology and soils at other sites could be significant.

Geomorphology, Hydrology, and Water Quality

Under this alternative, the study area would not be actively managed for gravel and sand extraction. As such, the changes in the geomorphology and hydrology of the Russian River in the study area would continue to be shaped by the forces of nature (e.g., winter storm events) and land use changes in the watershed. As the river actively establishes its equilibrium based on external forces, the main channel would likely continue to meander in the floodplain and gravel bars would likely migrate from one bank to another over time. Erosion of some banks would likely continue to occur, possibly resulting in encroachment on adjacent farmland and potential impacts to nearby structures (e.g., bridges). The river may continue to aggrade through increased deposition of sand and gravel, which has the potential to result in flood hazards upstream as flood capacity decreases.

Groundwater levels would continue to be affected by water level of the river as well as the rate of withdrawal from existing agricultural and domestic uses.

Vegetation and Wildlife

Because mining activities (vegetation removal, skimming, bridge installation, etc.) would not occur along the Russian River or their tributaries (north of Alexander Valley Road), sensitive vegetation communities/habitats or their special status plant, wildlife, and aquatic species would not be removed, disturbed or degraded through such operations. In addition, County-protected trees would not be removed. However, the potential benefits associated with the project would also not occur. These benefits include the removal of nonnative plant species, such as the giant reed, and potential creation of wetlands habitat (from implementing alcove and oxbow restoration techniques).

Fisheries

As discussed above, the conditions under Alternative 1 would be largely defined by the forces of nature and land use changes in the watershed. Under this alternative, the reach of the Russian River within the study area would continue to provide certain habitat values for fisheries resources. Habitat value and fish populations would be determined by the prevailing conditions

and influences. However, this alternative would not provide any of the benefits that would be created with alcoves, oxbows and other project elements.

Cultural Resources

Under this alternative, no mining activities (including removal of vegetation and sand and gravel extraction) would occur. As such, the potential for encountering any unrecorded cultural resources, including human remains, would not occur.

Traffic and Circulation

As this alternative would not involve the transportation of aggregate between the study area and the Syar's aggregate processing plant in Healdsburg, the local traffic conditions from the study area access roads to Healdsburg would not change. However, the import of aggregate from outside Sonoma County would require transportation via haul trucks. Depending on the source location of the imported aggregate, traffic could change and congestion may increase. The level of change cannot be determined with precision as a source for the importation of high-quality aggregate has not yet been identified.

Air Quality

Without the use of any mechanical equipment or haul trucks, this alternative would not generate criteria air pollutant and toxic air contaminants at the proposed gravel bars or along haul routes. Sensitive receptors within the study area would not be affected by additional air pollutant emissions and this alternative would not generate emissions in excess of NSCAPCD standards. However, a replacement source of aggregate could result in substantial increases in vehicular emissions, particularly diesel PM related to longer truck hauls from out of County areas. Although an increase in diesel PM emissions related to hauling would be expected to increase, PM₁₀ emissions, including fugitive dust, soot, and smoke from mobile and stationary sources, mining operations, and natural windblown dust, could be shifted to the off-site mining location. In addition to diesel PM emissions, including acrolein, CO₂ emissions may also increase under this alternative associated with the import of aggregate material via haul trucks from other areas. An increase in CO₂ emissions would result in contributions to global climate change beyond that identified for the proposed project from increased hauling.

Aesthetics

This alternative would not result in temporary visual changes from public viewpoints associated with mining activities under the proposed project. The existing views of the Russian River would be maintained as current conditions.

Noise

This alternative would not result in noise or vibration to sensitive receptors near the gravel bars and along proposed haul routes.

Public Services and Utilities

This alternative would not use groundwater for dust control or reclamation activities. In addition, as no mechanical equipment would be used, the potential for igniting fire and consequent hazard to people or structures from fire would not occur.

Hazards and Hazardous Materials

Because this alternative uses no mechanical equipment, the potential for accidental release of hazardous materials would not exist. As such, no impacts associated with hazards and hazardous materials would occur.

Energy

Although diesel fuel consumption associated with the use of mechanical equipment and haul trucks for gravel mining at the study area and hauling activities would not occur under this alternative, such consumption would be expected for the import of aggregate from other source areas. However, similar to the proposed project, the increase in such fuel consumption is not expected to result in significant effects.

Land Use

This alternative would not fulfill the intentions of the ARM Plan, which allows and explicitly contemplates instream mining along the proposed reach of the Alexander Valley.

Recreation

Recreation activities (boating, fishing, wildlife viewing) along the river would continue as current conditions.

Growth Inducement

The No Project Alternative would not induce growth.

Cumulative Effects

Because this alternative does not propose any physical changes to the environment, it would not occur simultaneously with other projects in the vicinity to result in cumulative effects.

Alternative 2 – Gravel Mining In Compliance with the ARM Plan

Alternative 2 proposes compliance with all of the operating standards identified in the ARM Plan, including the mining techniques, overall duration of mining, and hours of operation. The ARM Plan objectives would be consistent with those identified for the proposed project, with the exception that Alternative 2 would not include opportunities to enhance the biological and hydrological functions of the Russian River through implementation of specific REP techniques such as the oxbow and alcove. The objectives of this alternative relevant to instream mining, consistent with the ARM Plan, include:

- Objective 4: Manage instream resources on a sustained yield basis for high quality uses in a manner which reduces bank erosion, maintains flood flow capacities, protects adjacent uses, and minimizes impacts on fisheries, vegetation, and wildlife;
- Objective 5: Continue and expand monitoring programs so that more information is available for future decisions about terrace and instream impacts and alternative management policies and approaches;
- Objective 6: Reevaluate gravel extraction methods and production periodically to assess options which would further reduce environmental impacts and land use conflicts or better meet the County's aggregate needs;

- Objective 9: Encourage the retention of locally produced aggregate for uses within Sonoma County.

In addition, the operating standards for instream mining as stated in ARM Plan were based on the following specific objectives:

- Protection of instream biologic resources and the riparian corridor;
- No net long-term downgrading of the channel;
- No reduction in the flood capacity of the channel; and
- Minimum interference with the location and shape of the channel.

Under this alternative, Syar would mine aggregate resources along the proposed reach of the Russian River in accordance with the countywide and instream mining operational standards and timeline defined by the ARM Plan. These operating standards are identified in Chapter 7 of the ARM Plan and summarized in Chapter 1, Introduction and Project Description, of this Draft EIR. Specifically, mining would utilize the process of gravel bar skimming in accordance with the ARM Plan requirements for, among other things, the maintenance of the upstream portion of each gravel bar and prohibition on gravel removal within an outer bank setback defined as the greater of either 30 feet or 2.5 times the height of the outer bank.

Gravel mining under the ARM Plan results in mining activities with the same seasonal schedule (June 1 through November 1), but with an overall shorter duration of time – 10 years. Mining operations would be permitted six days a week from 6 a.m. to 10 p.m. The ARM Plan allows the County to limit the amount of materials that can be removed from any permitted instream mining on the basis of monitoring data. The maximum extraction volume would be based on the net accumulation of aggregate, and does not include a specific volume.

Compared to the proposed project, potential effects would be shorter in the overall duration (10 years instead of 15), but would be longer during the operating season, to 10 p.m. (instead of 9:30 p.m. according to the proposed project) throughout the work week and may occur on Saturdays (instead of weekdays only according to the proposed project). This alternative has the potential to increase land use disturbances (from increased noise, dust, traffic) to surrounding land uses during the operating season and permit term. Mining activities under Alternative 2 would strive to minimize potential adverse effects. However, this alternative does not include the REP activities to enhance the biological and hydrological environment within the river. After mining has been completed, reclamation would occur. Vegetation may be transplanted to the buffer zones along the low-flow channel, upper bar buffer or bank.

Geology and Soils

The ARM Plan PEIR evaluated potential impacts on geology and soils, but identified no adverse impacts related to instream mining.

Geomorphology, Hydrology, and Water Quality

The ARM Plan PEIR identifies potentially significant impacts associated with the following:

- Lowering of the channel thalweg elevation and incision of the channel due to readjustment of the river channel to land use changes in the watershed, construction of

dams, past mining activities and future instream gravel mining operations. Downcutting of the channel could result in downcutting of tributaries and increased bank erosion;

- Further downcutting of the Russian River channel from incision and increased bank erosion in tributaries as they degrade to meet a lower base level;
- Increase bank erosion and resulting loss of agricultural soils, increased sedimentation, loss of riparian vegetation, and loss of fishery habitat; and
- Creation of a wide, shallow low-flow channel that can elevate water temperatures.

To reduce potentially adverse impacts to less-than-significant for some of the impacts identified above, the ARM Plan PEIR identifies mitigation measures that limit instream extraction to more closely match the sustained yield, require contribution to the Stream Restoration Program, establish setbacks, protect riparian habitat vegetation, and require installation of erosion control techniques. The ARM Plan would reduce all potential site-specific and cumulative impacts above to a less-than-significant level. However, mining per the ARM Plan would not include the benefits of the proposed project which is designed to enhance geomorphic processes that scour pools and increase riffle quality. The oxbows and alcoves proposed as part of the mining process will also create additional complexity in the river channel and provide habitat for fish. The proposed project includes bank stabilization and other enhancements that would help prevent bank erosion while maintaining or enhancing valuable riparian vegetation.

Vegetation and Wildlife

The ARM Plan PEIR identifies the potential for temporary and/or permanent losses of habitat. Mitigation measures are proposed to increase setbacks and reduce areas of instream operations. It is possible that on-site mitigation would not fully mitigate adverse impacts, and off-site mitigation would be necessary in nearby riparian areas to fully compensate for habitat loss. As such, participation in the Stream Restoration Program would be required. With the mitigation measures identified in the ARM Plan PEIR, impacts would be reduced to less-than-significant levels. The mitigation measures would be applicable to Alternative 2.

Although all vegetation and wildlife impacts would be mitigated to less than significant levels in Alternative 2, this Alternative would not include Syar's proposal to create additional wildlife habitat in the lower Alexander Valley reach through the creation of oxbows and alcoves, among other activities. The lack of a REP or similar restoration activities in Alternative 2 means that the benefits to vegetation and wildlife resources found in the proposed project would not occur.

Fisheries

The ARM Plan PEIR identifies potentially significant impacts on fisheries resources from increases in bank erosion, water temperature, sedimentation, loss of cover and spawning habitat, reduction in food supply, increases in potential stranding of juvenile fish, and interference with migratory patterns. Mitigation measures include restrictions on mining activities, setbacks, maintenance of existing riparian vegetation, limitation on the seasonal timing of mining, establishment of stream crossing standards, site inspections, and monitoring. With implementation of the mitigation measures identified in the ARM Plan PEIR, potential effects on fisheries resources would be reduced to less-than-significant levels. The mitigation measures would be applicable to Alternative 2.

Although fisheries impacts would be mitigated to less-than-significant levels in Alternative 2, this Alternative would not include Syar's proposal to create additional fisheries habitat in the lower Alexander Valley reach through the creation of oxbows and alcoves and streambank revegetation, among other beneficial activities. The lack of a REP or similar restoration activities in Alternative 2 means that the benefits to vegetation and wildlife resources found in the proposed project would not occur.

Cultural Resources

The ARM Plan PEIR identifies the potential for adverse impacts to cultural resources as a result of ground clearing, aggregate removal or associated processing, transportation activities and reclamation activities. A mitigation measure to address the procedures to follow in the event of a find of cultural resources would reduce potential effects to less than significant is provided. The conclusion and mitigation measure would be applicable to Alternative 2.

Traffic and Circulation

The ARM Plan PEIR specifies that increases in gravel truck traffic and projected increases in other traffic would produce significant operational and safety impacts on selected County and State roadways by the year 2010. To reduce potential effects to less-than-significant levels, the mitigation measure requires participation in the Aggregate Road Mitigation Fund to provide funding for maintenance of and overall improvements to those roadways that would be adversely affected. The conclusion and mitigation measure would be applicable to Alternative 2.

Although the Syar could perform mining operations on six days of the week instead of the proposed five days a week, daily increase in traffic is not expected to be considerable due to that additional day. The conclusion and mitigation measure would be applicable to Alternative 2.

The main difference between the proposed project and Alternative 2 is related to the maximum extraction amounts allowed under each alternative. Because there is no maximum extraction volume identified in the ARM Plan, it is possible that mining under Alternative 2 may be more or less than the 300,000 tons average per year (with a maximum of 350,000 tons per year) proposed for the project. This would result in a proportional increase or decrease in the number of daily haul truck trips than that identified for the proposed project. Under Alternative 2, it is likely that in some days and in some years, traffic impacts would be worse than the proposed project.

Air Quality

The ARM Plan PEIR identifies increases in localized emissions of CO at nearby intersections associated with increases in the volume of vehicles (primarily haul trucks traveling to and from the mining sites). The mitigation measure identified in the ARM Plan PEIR consists of conducting project-level traffic/air quality analyses to determine the impact. Where impacts would remain significant, actions must be taken to reduce this impact. The impact would remain significant unless the operator could verify that exceedances of federal and State standards would not occur after mitigation. Implementation of this mitigation measure would reduce impacts to less-than-significant levels.

The ARM Plan PEIR did not specifically evaluate emissions of criteria pollutants from instream mining activities. The air quality effects under Alternative 2, including the increase in other air pollutants emissions (e.g., dust) would likely be similar to the proposed project's emissions, as mining operations would utilize the same types of equipment and result in hauling activities. The

main difference between the proposed project and Alternative 2 is related to the maximum extraction amounts allowed under each alternative. Because there is no maximum extraction volume identified in the ARM Plan, it is possible that mining under Alternative 2 may be more or less than the 350,000 maximum tons per year proposed for the project. This would result in a proportional increase or decrease in air pollutant emissions, including PM₁₀ and CO₂. If Alternative 2 produces the same or higher volumes of sand and gravel per year, it would result in PM₁₀ emissions above the recommended standards of NSCAPCD, a significant and unavoidable impact. Additionally, diesel and CO₂ emissions related to haul truck trips could be greater than for the proposed project. Under Alternative 2, it is likely that in some days and in some years, air quality impacts would be worse than the proposed project.

Aesthetics

The ARM Plan PEIR identifies potential visual impacts for instream operations in scenic areas. The mitigation measure identified in the ARM Plan PEIR indicates that additional mitigation is possible at some sites with vegetation and berms although some gravel mining sites would continue to be visible to the public. Similar to the proposed project, Alternative 2 will result in significant visual impacts for specific bars. This is a limited duration impact but no suitable mitigation measures were identified. Therefore, both Alternative 2 and the proposed project would result in significant unavoidable visual impacts.

Noise

The ARM Plan PEIR identifies increases in ambient noise levels along haul routes associated with the increase in the volume of trucks traveling to and from the mining sites. Although mitigation measures were identified to provide restrictions on mining related activities and roadway and adjacent developments would include methods to reduce noise, significant unavoidable impacts may still occur. The mitigation measures identified in the ARM Plan PEIR include limiting the hours of construction, the number of trucks per hour per day, and the routes used, as well as encouraging the use of air brakes. The ARM Plan PEIR also noted that ambient noise levels may decrease on roadways associated with instream operations as production from this source decreases. Similar to the proposed project, noise from project operations and haul trucks under Alternative 2 would be significant and unavoidable. Compared to the project, noise levels in Alternative 2 may be longer due to the longer daily hours of operation (mining operations would be permitted six days a week from 6 a.m. to 10 p.m. instead of the proposed five days a week from 6 a.m. to 9:30 p.m.) and the greater number of truck trips along the haul routes.

Public Services and Utilities

No adverse impacts associated with public services and utilities were identified in the ARM Plan PEIR for instream mining activities.

Similar to the proposed project, Alternative 2 would not result in increased water consumption and wastewater production that would exceed the available supply or necessitate improvements. As such, potential impacts would be considered less than significant.

Hazards and Hazardous Materials

The ARM Plan PEIR identifies the potential for public safety effects associated with the storage and use of diesel fuel and other hazardous materials at the mining sites. A mitigation measure requiring the implementation of a SPCC Plan would reduce potential adverse effect to a less-

than-significant level. The conclusion and mitigation measure would be applicable to Alternative 2.

Energy

Impacts associated with energy consumption would likely be similar to that of the proposed project, as diesel-powered mechanical equipment would be used for mining activities. Potential effects would be considered less than significant.

Land Use

This alternative would be consistent with the MR zoning, in that it would allow mining to occur within an area contemplated for such activities. Mining operations in Alternative 2 would be fully consistent with the ARM Plan policies and guidelines, such that no land use impacts would result.

Recreation

The ARM Plan PEIR identifies potential recreation impacts such as reduction of stream access, creation of unaesthetic conditions, noise, and dust, disruption of wildlife habitat, and conflicts with recreationists on public roads used as gravel haul routes. Alternative 2 would result in similar recreation impacts as the proposed project.

Growth Inducement

As discussed in the ARM Plan PEIR, due to the small contribution of aggregate mining to the economic base, the ARM Plan and the future mining allowed by it would not induce growth in the County. In addition, future aggregate mining is not expected to encourage any development or growth in addition to, or in conflict with, locally adopted general plans. As such, Alternative 2 would not result in any growth inducement effects.

Cumulative Effects

Cumulative impacts would be the same as the proposed project.

Alternative 3 – Proposed Project with a 10-Year Time Period

Alternative 3 would reduce the duration of most of the significant impacts identified under the proposed project (from 15 years to 10 years), and comply with the ARM Plan limitation on permit duration, while meeting all of the project objectives.

This alternative is the same as the proposed project with the exception of the duration of mining. Syar would mine aggregate resources along the 6.5-mile Alexander Valley reach of the Russian River in accordance with the methods, standards, and AMS identified under the proposed alternative in Chapter 1, Introduction and Project Description. Similar to the proposed project the annual volume of extraction is capped at 350,000 tons of aggregate per year. However, the permit would impose the ARM Plan's 10 year limit on mining. In general, impacts associated with increased dust, noise, and traffic, would be the same in kind and intensity as the proposed project, because the annual extraction volume would remain the same under this alternative. However, mining under this alternative would reduce the overall volume of extraction over the full period of the project and would disrupt adjacent sensitive receptors for a shorter overall period of time. Similarly, significant unavoidable impacts (PM10 emissions, project operation

and truck hauling noise, etc.) would occur under Alternative 3 but would last five years less than under the proposed project. For most of the remaining environmental issue areas (e.g., cultural resources, energy, and recreation), the timeframe of the mining permit would not change the level of impact. The amount of restoration to be completed by the REP included in the proposed project is based on the extraction volume. Since the extraction volume is reduced under Alternative 3, the amount of restoration would be reduced to approximately two-thirds of that in the proposed project. This would result in reduced beneficial impacts from habitat restoration, bank stabilization, and infrastructure protection.

Geology and Soils

Alternative 3 would result in impacts similar to that of the proposed project described in Section 3.1, "Geology and Soils", of this Draft EIR.

Geomorphology, Hydrology and Water Quality

Alternative 3 would result in impacts similar to those of the proposed project described in Section 3.2, "Geomorphology, Hydrology and Water Quality", of this Draft EIR. Upon completion of the project after year 10, natural forces of flooding events would define the dynamics of the river system.

Vegetation and Wildlife

Alternative 3 would result in impacts similar to those of the proposed project described in Section 3.3, "Vegetation and Wildlife", of this Draft EIR, with the exception that the potential removal and loss of biological resources would occur for a shorter period of time compared to the proposed project. The shorter timeframe is likely to result in; either fewer gravel bars mined overall or some bars being mined only once as gravel bars may not have sufficient time to replenish for further mining (assuming a replenishment/recovery cycle of six years). As such, the potential for the removal and loss of sensitive habitats, special-status plant and wildlife species and other biological resources would be reduced compared to the proposed project. As with the proposed project, the AMS would be implemented to avoid the removal of considerable stands of native riparian vegetation, thus reducing potential effects associated with this loss. REP efforts under Alternative 3 would occur and reduce or fully compensate for habitat loss. But because the REP activities would be lessened (due to being based on overall extraction amounts), fewer restoration projects are likely to occur. If the number of bars mined under Alternative 3 were similar to the proposed project, the overall ratio of restoration efforts to impacts would be decreased. Thus, over the long term, vegetation and wildlife resources would be impacted more under Alternative 3 than the proposed project.

Fisheries

Alternative 3 would result in impacts similar to those of the proposed project described in Section 3.4, "Fisheries", of this Draft EIR. Upon completion of the project, the changing river system would determine the availability of habitat for fisheries resources. The shorter timeframe is likely to result in; either fewer gravel bars mined overall or some bars being mined only once, as gravel bars may not have sufficient time to replenish for further mining (assuming a replenishment/recovery cycle of six years). As such, the potential for a changing river system (impacts on riffle and pool habitat) is reduced. REP efforts under Alternative 3 would occur and reduce and compensate for habitat loss. But because the REP activities would be lessened (due to being based on overall extraction amounts), fewer restoration projects are likely to occur. If the number of bars mined under Alternative 3 were similar to the proposed project, the

overall ratio of restoration efforts to impacts would be decreased. Thus, over the long term, fisheries resources could be impacted more under Alternative 3 than the proposed project.

Cultural Resources

Alternative 3 would result in impacts similar to that of the proposed project described in Section 3.5, "Cultural Resources", of this Draft EIR.

Traffic and Circulation

Alternative 3 would result in impacts similar to those of the proposed project described in Section 3.6, "Traffic and Circulation", of this Draft EIR, however, for a reduced number of years. Alternative 3 would reduce the need for reduction in haul trucks traveling through the Healdsburg Avenue/Old Redwood Highway intersection in the AM peak hour, per Table 3.6-8.

Air Quality

Alternative 3 would result in impacts similar to those of the proposed project described in Section 3.7, "Air Quality", of this Draft EIR. This alternative would reduce all of the criteria pollutant emissions over the long-term compared to the proposed project. Because the significance determination of PM₁₀ emissions is measured on an annual basis rather than for the duration of the entire project (10 vs. 15 years), potential impacts would remain significant and unavoidable. CO₂ emissions associated with haul truck trips would decrease with a shortened timeframe and, as such, this alternative's contribution to global climate change would be proportionately less than the proposed project.

Aesthetics

Alternative 3 would result in impacts similar to those of the proposed project described in Section 3.8, "Aesthetics", of this Draft EIR, but for 10 years instead of 15.

Noise

Alternative 3 would result in impacts similar to those of the proposed project described in Section 3.9, "Noise", of this Draft EIR. Potential impacts associated with operational and traffic noise would remain significant and unavoidable because significance is measured in daily, hourly, and similar increments rather than for the duration of the entire project.

Public Services and Utilities

Alternative 3 would result in impacts similar to that of the proposed project described in Section 3.10, "Public Services and Utilities", of this Draft EIR.

Hazards and Hazardous Materials

Alternative 3 would result in impacts similar to that of the proposed project described in Section 3.11, "Hazards and Hazardous Materials", of this Draft EIR but for 10 years instead of 15.

Energy

Alternative 3 would result in impacts similar to that of the proposed project described in Section 3.12, Energy, of this Draft EIR.

Land Use

Alternative 3 would result in impacts similar to those of the proposed project identified in Section 3.13, "Land Use", of this Draft EIR.

Recreation

Alternative 3 would result in impacts similar to that of the proposed project described in Section 3.14, "Recreation", of this Draft EIR, but for 10 years rather than 15.

Growth Inducement

Similar to the proposed project, Alternative 3 would not result in growth-inducement (see Section 4.1 of this Chapter).

Cumulative Effects

Alternative 3 would contribute the same increment of effects to cumulative impacts as described in Section 4.2 of this Chapter.

Alternative 4 – Proposed Project with a Lower Extraction Volume

Alternative 4 would reduce PM₁₀ emissions below the NSCAPCD thresholds. This alternative would be similar to the proposed project, with the exception of the annual amount of aggregate produced each year. Syar would mine aggregate resources along the 6.5-mile Alexander Valley reach of the Russian River in accordance with the methods, standards, and AMS identified under the proposed alternative, including the daily and seasonal timing of mining activities and duration of mining activities (15 years). However, Syar would reduce its production from a cap of 350,000 tons with 300,000 tons per year average to a cap of 132,000 tons of aggregate per year. This reduction would likely result in smaller mined areas in the gravel bars, as well as fewer bars mined. Other proposed mining methods, including minimum buffers at head and side of bars, and a minimum elevation of one-foot elevation above the low flow water level, would be the same as the proposed project. The proposed project based the amount of restoration to be completed within the REP based on the extraction volume. Since the extraction volume is reduced under Alternative 4, the amount of restoration would be reduced to less than half of that in the proposed project.

Geology and Soils

Alternative 4 would result in impacts similar to that of the proposed project described in Section 3.1, "Geology and Soils", of this Draft EIR.

Geomorphology, Hydrology, and Water Quality

Although this alternative would continue to be guided by the AMS in determining the annual extraction amount, if the extraction volume was capped at a level much lower than the sustainable yield, material would aggrade within deposition areas until a large storm event removes the material naturally. Aggradation of material has the potential to constrict the river channel and reduce flood capacity in depositional areas, and may result in an increased risk of upstream flooding and lateral bank erosion above that of the proposed plan. With the AMS and the supplemental mitigation measures identified in Section 3.2, "Geomorphology, Hydrology and Water Quality", the potential for bank erosion with the proposed project would be addressed and

reduced to less-than-significant levels. Although this alternative would not reduce flooding as much as the proposed alternative, it would still reduce flooding potential over the existing conditions. Because the head and outside bar buffers will remain in both this and the preferred alternative, a difference in erosion is not expected, although with the implementation of the AMS and active monitoring of bank erosion, that potential would be reduced in comparison to the existing conditions.

Vegetation and Wildlife

Alternative 4 would result in impacts similar to those of the proposed project described in Section 3.3, "Vegetation and Wildlife", of this Draft EIR. Because less material would be taken from the gravel bars, more vegetation may be retained at the head and sides of the bars. In addition, the yearly duration of mining activities may be shorter than that identified for the proposed project, thus increasing the time reclamation could occur. Because the amount of REP activities would be reduced to less than half of that compared the proposed project the ratio of habitat removed or disrupted to that being created by REP activities would be reduced. Thus overall vegetation and wildlife resources would incur a greater impact over the long term.

Fisheries

Under Alternative 4, less material would be extracted, resulting in smaller mined areas. The opportunities for habitat enhancement for fisheries would also be proportionally less because REP activities would be reduced compared to the proposed plan due to the decrease in extraction volume. However, because this alternative would be guided by the AMS similar to the proposed project, the same protection of fisheries habitat including retention of riffle and pools would apply. The application of the AMS and supplemental mitigation measures identified in Section 3.4, "Fisheries Resources", would ensure that potential impacts to fisheries resources would be less than significant/beneficial for this alternative.

Cultural Resources

Alternative 4 would result in impacts similar to that of the proposed project described in Section 3.5, "Cultural Resources".

Traffic and Circulation

Under this alternative, the overall extraction amount would be reduced per year. As such, the total number of haul truck trips would also decrease annually compared to the proposed project. On an annual basis, hauling 132,000 tons would require 10,560 one-way truck trips per year when hauling 25 tons per truck. Because traffic circulation is based on hourly estimates, the impacts associated with haul truck traffic would likely remain the same because it is assumed that the mining operation would still achieve the hourly hauling maximums of 20 trucks per hour and mine for fewer days of the season. Mitigation would apply per the proposed project at Healdsburg Avenue/Old Redwood Highway during the AM peak from 7:00–9:00 AM in accordance with Table 3.6-8, or the alternate steps specified in Mitigation Measure 3.6-1a, thus reducing that impact to a less than significant level.

Air Quality

This alternative was defined to reduce the total extraction volume per year to meet the NSCAPCD recommended standard of 15 TPY for PM₁₀. This alternative assumes that all dust control measures would be implemented, including those proposed as part of the project and

those included as mitigation identified in Section 3.7, "Air Quality". With implementation of all dust control measures, emission of dust would not exceed the NSCAPCD standards, and impacts would be reduced to a less-than-significant level.

Aesthetics

Alternative 4 would result in impacts similar to those of the proposed project described in Section 3.8, "Aesthetics", of this Draft EIR. Because less material would be taken from the gravel bars, the yearly duration of mining activities may be shorter than that identified for the proposed project, resulting in a shorter duration of visual effect during the mining season.

Noise

As discussed above, if the total number of truck trips decreases over an operating season, the number of truck hauling activities would also decrease overall during an operating season. However, because traffic noise impacts is based on maximum day haul truck trips, potential effects associated with traffic noise would be similar to that of the proposed project, and be significant and unavoidable if retrofitting of sensitive receptors were not possible. If the owners of the building agreed to retrofits, then traffic noise would be less than significant. However, because the total number of days of hauling per operating season and through the permit life would reduce, noise impacts to nearby sensitive receptors would decrease. Operational noise would remain significant and unavoidable, even after mitigation, if Bars S-9 and S-10 were to be mined.

Public Services and Utilities

Alternative 4 would result in impacts similar to that of the proposed project described in Section 3.10, Public Services and Utilities.

Hazards and Hazardous Materials

Alternative 4 would result in impacts similar to that of the proposed project described in Section 3.11, "Hazards and Hazardous Materials".

Energy

Alternative 4 would result in impacts similar to that of the proposed project described in Section 3.12, "Energy". Because less material would be taken from the gravel bars, the yearly duration of mining activities may be shorter than that identified for the proposed project, resulting in less consumption of energy resources.

Land Use

Alternative 4 would result in impacts similar to those of the proposed project identified in Section 3.13, "Land Use".

Recreation

Alternative 4 would result in impacts similar to that of the proposed project described in Section 3.14, "Recreation".

Growth Inducement

Similar to the proposed project, Alternative 4 would not result in growth-inducement (see Section 4.1 of this Chapter).

Cumulative Effects

Alternative 4 would contribute the same increment of effects to cumulative impacts as described in Section 4.2 of this Chapter.

Alternative 5 – Proposed Project Without the Mining of Bars S-9 and S-10 and Use of Haul Route 5

Alternative 5 would eliminate the project's significant unavoidable noise impacts on several receptors near Bars S-9 and S-10, and one receptor on Geyserville Avenue located adjacent to Haul Route 5. As discussed in Section 3.9, "Noise", mining Bars S-9 and S-10 would result in significant unavoidable impacts at several nearby receptors, and haul truck traffic on Haul Route 5 would result in a significant unavoidable impact at one receptor on Geyserville Avenue. Under this alternative, the operator would mine aggregate resources in accordance with the methods, standards, and AMS identified under the proposed alternative, but would not mine Bars S-9 and S-10 and would not use Haul Route 5. Access to Bars S-7 and S-8 would be routed to more distant haul routes, and Haul Route 5 would not be available as an alternate for several other bars.

This alternative would appear to contradict the applicant's objective and the County's public policy in protecting public infrastructure, because it would preclude mining of the two bars immediately upstream of the Geyserville Bridge, which was closed for more than seven months in 2006 after it was damaged by floodwaters. In addition, in the winter of 2009, further bank erosion occurred upstream of the bridge on the west bank, and Caltrans spent \$1.5 million to place additional large rock slope protection to prevent further erosion and protect the bridge. As noted in Chapter 1, Project Description, the operator has proposed to mine Bar S-9 in the first year of mining, and to excavate and enhance the adjacent floodplain terrace to provide high-flow refugia for threatened and endangered fish.

Geology and Soils

This alternative would result in impacts similar to that of the proposed project described in Section 3.1, "Geology and Soils", of this Draft EIR.

Geomorphology, Hydrology, and Water Quality

This alternative would generally result in impacts similar to that of the proposed project described in Section 3.2, "Geomorphology, Hydrology and Water Quality", of this Draft EIR. This alternative would not reduce flooding as much as the proposed alternative, however, and may not avoid flooding impacts on the Geyserville Bridge, which is located immediately downstream of Bars S-9 and S-10. As noted above, the bridge was closed between January and August 2006 after floodwaters undermined one of the bridge's piers and caused noticeable sag. The bridge was immediately closed, and Caltrans fastracked the bridge replacement work, which required a \$10 million contract to demolish the old bridge, and an \$11.8 million contract to construct the new bridge. In addition, as noted above, further bank erosion occurred in the winter of 2009, and Caltrans spent additional funds to place large rock slope protection to prevent further erosion and protect the bridge.

Vegetation and Wildlife

Alternative 5 would result in impacts similar to those of the proposed project described in Section 3.3, "Vegetation and Wildlife", of this Draft EIR. Because no material would be taken from Bars S-9 and S-10, all existing vegetation would be retained at those bars.

Fisheries

Alternative 5 would result in impacts similar to those of the proposed project described in Section 3.4, "Fisheries Resources", of this Draft EIR.

Cultural Resources

This alternative would result in impacts similar to that of the proposed project described in Section 3.5, "Cultural Resources".

Traffic and Circulation

This alternative would result in impacts similar to that of the proposed project described in Section 3.6, "Traffic and Circulation".

Air Quality

This alternative would result in impacts similar to that of the proposed project described in Section 3.7, "Air Quality". However, Haul Route 5 is the closest route to Bars S-7 and S-8, and is designated as the primary haul route for those bars. Haul Route 5 is also designated as a haul route or alternative access for nine other bars, partly because of its prime location in the middle of the relevant river stretch. The elimination of Haul Route 5 would divert access to other haul routes with greater distances, increasing emissions of PM₁₀ and other criteria pollutants.

Aesthetics

Alternative 5 would result in impacts similar to those of the proposed project described in Section 3.8, "Aesthetics", of this Draft EIR. The elimination of Bar S-9 would eliminate views of mining equipment and operations from the Geyserville Bridge.

Noise

As discussed above, this alternative was defined to eliminate the project's significant adverse impacts from mining operations on several receptors near Bars S-9 and S-10, and from haul truck traffic on one receptor on Geyserville Avenue on Haul Route 5.

Public Services and Utilities

Alternative 5 would result in impacts similar to that of the proposed project described in Section 3.10, "Public Services and Utilities".

Hazards and Hazardous Materials

This alternative would result in impacts similar to that of the proposed project described in Section 3.11, "Hazards and Hazardous Materials".

Energy

Alternative 5 would result in impacts similar to that of the proposed project described in Section 3.12, “Energy”.

Land Use

Alternative 5 would result in impacts similar to those of the proposed project identified in Section 3.13, “Land Use”. However, by eliminating mining of Bars S-9 and S-10, this alternative could conflict with ARM Plan policies for the protection of public infrastructure.

Recreation

Alternative 5 would result in impacts similar to that of the proposed project described in Section 3.14, “Recreation”.

Growth Inducement

Similar to the proposed project, Alternative 5 would not result in growth-inducement (see Section 4.1 of this Chapter).

Cumulative Effects

This alternative would contribute the same increment of effects to cumulative impacts as described in Section 4.2 of this Chapter.

COMPARISON OF ALTERNATIVES

Alternative 2, Compliance with the ARM Plan, would result in the highest number of significant and unavoidable impacts. Alternative 3, Mining within a 10-year Time Period, would result in the same number of significant and unavoidable impacts as the proposed project.

ENVIRONMENTALLY SUPERIOR ALTERNATIVE

Comparing the alternatives listed with the proposed project, the alternative with the least direct environmental impact is Alternative 1 – No Project as it would not require any mining activities that would result in any disturbance to adjacent uses and would result in the least number of significant and unavoidable impacts. However, it would also not meet the project objectives described in Chapter 1.

Section 15126.6(e)(2) of the *CEQA Guidelines* states that if the environmentally superior alternative is the No Project alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives. Among the other alternatives, Alternative 4. “Proposed Project with a Lower Extraction Volume” is determined to be the environmentally superior alternative. As discussed above, this alternative would reduce significant unavoidable air quality impacts associated with PM₁₀ emissions to less-than-significant levels. This alternative would also meet most of the objectives of the proposed project, but would not achieve Syar’s target of aggregate production. This alternative also would reduce the return on Syar’s investment and may make the project economically infeasible.