# Chapter 3
# ENVIRONMENTAL SETTING AND IMPACT ANALYSIS

## 3.0 Introduction

### 3.0.1 Introduction to the Environmental Setting and Impact Analysis

Chapter 3, *Environmental Setting and Impact Analysis* of this DSEIR contains thirteen sections that describe the environmental resources and potential environmental impacts of the Proposed Project. Each one (Sections 3.1 through 3.13) contains the following information about its resource topic:

- a description of the environmental setting as well as background information about the resource topic, to help the reader understand the resources that could be affected by the Proposed Project;
- any regulations that may govern activities affecting the resource;
- a discussion of the criteria and thresholds used in determining the significance of the Proposed Project's environmental impacts;
- a discussion of the impacts of the Proposed Project on the resource, including the significance of each impact; and
- mitigation measures, including best management practices that would allow SCVWD to avoid, minimize, or compensate for any significant impacts.

This EIR has been prepared as a Subsequent EIR. Since the certification of the SMP Final EIR in 2002, substantial changes have been proposed to the SMP, and new information of substantial importance has developed. The project changes, changed circumstances, and new information have the potential to involve new or worsened significant environmental effects not evaluated in the 2002 SMP EIR. Under these circumstances, CEQA (Public Resources Code Sec. 21666) and the CEQA Guidelines (Sec. 15162) require that a Subsequent EIR be prepared.

Normally, when a Subsequent EIR is prepared, the environmental setting and baseline include the environmental impacts disclosed in the original EIR, and the Subsequent EIR discloses any additional impacts caused by project changes, changes in circumstances, or new information. Due to the extensive nature of the proposed changes to the existing SMP, it would have been technically very difficult to segregate the environmental effects of the proposed changes from the effects of the existing SMP, and to use a baseline of post-project environmental conditions through 2020 as disclosed in the 2002 SMP EIR.

Therefore, the project description for the SMP Update is comprehensive, and includes activities under both the existing SMP and the proposed changes to the SMP. This SEIR uses existing conditions at the time of the Notice of Preparation as the environmental setting and baseline, and analyzes the ~~2012-2020~~ impacts of the comprehensive SMP Update against this baseline. This conservative approach to the Subsequent EIR baseline and impact analysis scope represents an exception to established District CEQA practice due to the unique nature of the proposed SMP changes. It will not necessarily be employed in future District Subsequent EIRs for other projects in the absence of similar unique circumstances.

## 3.0.2 Sections Eliminated from Further Analysis

Four CEQA checklist resource areas have been eliminated from further analysis. Based on the nature and scope of Proposed Project activities, either no potential exists for significant impacts to these resources or they have been dismissed because the impacts associated with the topic have been addressed in other sections. A brief summary of the excluded resources is presented next. Also of note, two resource topics from the checklist are combined; public services and utilities, and service systems are discussed in Section 3.10, *Public Services and Utilities*.

### *Agricultural Resources*

The Project Area covers a large portion of Santa Clara County (Figure 2-1), which contains a significant amount of land in agricultural uses. However, no activities under the Proposed Project would have an effect on these lands. Farmland and agricultural uses may be located near SMP Update maintenance sites; however, all Proposed Project activities would take place within flood protection channels and canals maintained by the SCVWD. These facilities do not contain lands designated or used for agriculture. In addition, these activities would be limited to maintenance and repair, and would not result in more intensive land development. No Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, or lands under a Williamson Act contract would be converted under Proposed Project activities.

### *Geology and Soils*

The Proposed Project would involve limited construction of permanent structures (e.g., culvert replacement), which could be subject to earthquake-related hazards, unstable soils, expansive soils, or other geotechnical hazards. However, these facilities would be designed to meet appropriate professional standards to avoid such hazards and, as a result, no significant impacts are anticipated to result. The Proposed Project does include some activities that have a potential to lead to topsoil erosion; erosion and siltation are addressed in Section 3.13, *Water Quality*. Furthermore, the Proposed Project would not involve the construction of any housing units requiring the use of septic tanks or other wastewater disposal systems.

### *Mineral Resources*

Proposed Project activities would have no impact on the availability or use of a known, valuable mineral resource in Santa Clara County.

The Project Area includes a variety of streams, channels, and canals, used for flood protection. No aggregate mining facilities are currently operating within SCVWD-maintained facilities. Although mines or mineral resource areas may be located near Proposed Project work sites, none of these activities could directly affect those mineral production sites.

Sediment excavated under the SMP may be reused, with potential to offset demand for mineral resources such as aggregate. However, the total volume of dredged material created under the Proposed Project in any given year would be small (averaging approximately 46,500 cubic yards), and the amount available for reuse would be a fraction of this amount. This would not represent an appreciable fraction of the total aggregate resources used annually in the County.

### *Population and Housing*

The Proposed Project does not involve the construction of permanent structures such as housing and employment centers, nor would it involve the creation of any new infrastructure. It only involves maintaining existing infrastructure. Thus, the Proposed Project would not induce growth either directly or indirectly. The Proposed Project would not displace any existing housing units or persons, as no habitable structures exist within the stream reaches where maintenance would occur.

# Chapter 3.1

## AESTHETICS

# 3.1 Aesthetics

## 3.1.1 Introduction

This section presents the regulatory setting, environmental setting, and potential impacts of the Proposed Project as related to aesthetics.

### *Visual Character and Viewshed*

Both natural and artificial landscape features make up the character of a view. The area of the landscape that is visible from a particular location (e.g., an overlook) or series of points (e.g., a road or trail) is defined as a viewshed. Visual character is influenced by geologic, hydrologic, botanical, wildlife, recreational, and urban features. Urban features include aspects of landscape settlement and development, such as roads, utilities, structures, earthworks, and the results of other human activities. The perception of visual character can vary significantly among viewers, depending on their level of sensitivity and interest. Among sensitive viewers, perception can vary seasonally and even hourly as weather, light, shadow, and the elements that compose the viewshed change. Form, line, color, and texture are the basic components used to describe visual character and quality for most visual assessments (USFS 1974, FHWA 1983). Under this system, the appearance of the viewshed is described in terms of the dominance of each of these components.

### *Visual Quality*

Visual quality is evaluated in this section using the well-established approach to visual analysis adopted by the Federal Highway Administration (Jones, et al. 1975, FHWA 1983), employing the concepts of vividness, intactness, and unity, as defined below:

- Vividness is the visual power or memorability of landscape components as they combine in striking or distinctive visual patterns.

- Intactness is the visual integrity of the natural and human-built landscape and its freedom from encroaching elements; this factor can be present in well-kept urban and rural landscapes, as well as in natural settings.

- Unity is the visual coherence and compositional harmony of the landscape considered as a whole; it frequently attests to the careful design of individual components in the artificial landscape.

Visual quality is evaluated based on the relative degree of vividness, intactness, and unity, as modified by its visual sensitivity, discussed next. High-quality views are highly vivid, relatively intact, and exhibit a high degree of visual unity. Low-quality views lack vividness, are not visually intact, and possess a low degree of visual unity.

### *Visual Sensitivity and Viewer Response*

The measure of the quality of a view must be tempered by the overall sensitivity of the viewer. Viewer sensitivity is based on the visibility of resources in the viewshed, the

proximity of viewers to the visual resource, the elevation of viewers relative to the visual resource, the frequency and duration of viewing, the number of viewers, and the type and expectations of individuals and viewer groups.

The criteria for identifying the importance of views are related in part to the position of the viewer relative to the resource. To identify the importance of views of a resource, a viewshed may be divided into distance zones of foreground, middleground, and background. Generally, the closer a resource is to the viewer, the more dominant it is and the greater is its importance to the viewer. Although distance zones in viewsheds may vary between different geographic regions or types of terrain, a commonly used set of criteria identifies the foreground zone as 0.25–0.5 mile from the viewer, the middleground zone as extending from the foreground zone to approximately 3–5 miles from the viewer, and the background zone as extending from the middleground zone to infinity (USFS 1974).

Judgments of visual quality and viewer response must be made based in a regional frame of reference (USSCS 1978). The same type of visual resource in different geographic areas could have a different degree of visual quality and sensitivity in each setting. For example, a small hill may be a significant visual element in a flat landscape but have very little significance in mountainous terrain.

Generally, visual sensitivity is higher for views seen by people who are driving for pleasure; people engaging in recreational activities such as hiking, biking, or camping; and homeowners. Sensitivity tends to be lower for views seen by people driving to and from work or as part of their work (USFS 1974, USSCS 1978, FHWA 1983). Commuters and nonrecreational travelers have generally fleeting views and tend to focus on commute traffic, not on surrounding scenery; therefore, they are generally considered to have low visual sensitivity. Residential viewers typically have extended viewing periods and are concerned about changes in the views from their homes; therefore, they generally are considered to have moderate to high visual sensitivity. Viewers using recreation trails and areas, scenic highways, and scenic overlooks are usually assessed as having high visual sensitivity.

## 3.1.2 Regulatory Setting

### *Federal Plans, Policies, Regulations, and Laws*

No federal plans, policies, regulations, or laws related to aesthetics are applicable to the Proposed Project.

### *State Plans, Policies, Regulations, and Laws*

*California Department of Transportation State Scenic Highway System*

Maintenance of channels and canals under the Proposed Project that are near designated State Scenic Highways could affect views from these highways. The State Scenic Highways relevant to the Proposed Project are described in Section 3.1.3, *Environmental Setting*. The California Scenic Highway Program was established in 1963, under Sections 260 through 263 of the Streets and Highways Code. The Scenic Highway Program includes a list of highways that are either designated or eligible for designation as scenic highways (Caltrans 2010). For a State Scenic Highway-eligible roadway to be officially designated, the local jurisdiction in which it resides must adopt a scenic corridor protection program and apply to the California Department of Transportation (Caltrans) for scenic highway approval, identifying and defining the scenic corridor of the highway. Once approved by Caltrans, the local jurisdiction receives notification that the highway has been designated a State Scenic Highway. The local jurisdiction must then adopt ordinances to preserve the scenic quality of the corridor or document the regulations that already exist in various portions of local codes, creating the scenic corridor protection program. A scenic corridor is defined as land that is visible from the highway right of way and comprised primarily of scenic and natural features. Scenic corridor boundaries are determined by topography, vegetation, viewing distance, and/or jurisdictional lines. Officially designated State Scenic Highways are marked with a California poppy, the logo for the California Scenic Highway Program.

### *Regional and Local Plans, Policies, Regulations, and Ordinances*

Applicable regional and local plans, policies, regulations, or ordinances related to aesthetics are presented in Appendix D.

## 3.1.3 Environmental Setting

### *Regional Character*

Santa Clara County's major topographic features include the Baylands, the Santa Clara Valley, the Diablo Range to the east, and the Santa Cruz Mountains to the west. The Baylands are in the northwestern part of the county, adjacent to the waters of the southern San Francisco Bay, and consist mostly of salt evaporation ponds and areas of salt marsh and wetlands. The Santa Clara Valley is oriented in a northwest-southeast direction and is surrounded by rolling hills. The entire eastern half of the county is encompassed by the Diablo Range, which is covered by grasslands, brush and oak savannah. The lands of the Diablo Range typically have much less natural vegetative cover and far fewer stands of trees than the Santa Cruz Mountains (County of Santa Clara 2005). On the western side of the valley, the lower elevations of the Santa Cruz Mountains are characterized by rolling grasslands and oak-studded foothills. In the higher elevations of the Santa Cruz Mountains, the landscape transitions to mixed hardwoods and dense evergreen forests. (County of Santa Clara 1994)

Urbanization in the county has primarily occurred in the northern part of Santa Clara Valley. The majority of the county's residents (approximately 90 percent) and the county's cities (13 out of 15) are located in the North Valley. The remaining two cities, Gilroy and Morgan Hill, are located in the South Valley. Unlike the North Valley, the South Valley is predominantly rural, with the exception of Gilroy, Morgan Hill, and the small unincorporated community of San Martin. Low-density residential developments predominate in both valley areas and the surrounding foothills. (County of Santa Clara 1994)

### *Viewsheds*

Views from the Santa Clara Valley floor are primarily of the foothills, ridges, and/or summits of the Santa Cruz Mountains and the Diablo Range. The topography and ridgelines within the county are highly variable. Along the eastern Diablo Range, prominent ridges run generally parallel to the Santa Clara Valley floor, from northwest to southeast. However, the Santa Cruz Mountains have a dominant ridge (the Summit Road area) that divides Santa Clara County from San Mateo and Santa Cruz Counties and intervening lower ridge areas. The lower ridge areas have other ridges or hillsides as their backdrop and can be oriented in many directions. This topography results in the Diablo Range being more visible from the valley than the Santa Cruz Mountains to the east. (County of Santa Clara 2005, 2006)

Public open spaces in the Project Area with scenic vistas include Almaden Quicksilver, Calero, Coyote Lake–Harvey Bear Ranch, Ed Levin, Mt. Madonna, Santa Teresa and Upper Stevens Creek county parks, and numerous smaller regional and local parks (County of Santa Clara 2010).

### *Scenic Highways and Corridors*

One stretch of highway in the Project Area, a portion of the 10.9-mile stretch of State Route (SR) 9 from the Santa Cruz county line to the Los Gatos city limits, has been officially designated by Caltrans as a State Scenic Highway (Caltrans 2010). In the Project Area, this State Scenic Highway follows upper Saratoga Creek and crosses Wildcat Creek within the West Valley Watershed (Figure 2-3).

Six stretches of highway, either completely or partially within Santa Clara County, have been identified as eligible for designation as State Scenic Highways: SR 9 from SR 35 to SR 17 near Los Gatos; SR 17 from SR 1 near Santa Cruz to SR 9 near Los Gatos; SR 35 from SR 17 to SR 92, Interstate 280, and SR 1 in San Francisco; SR 152 from SR 156 near San Felipe to Interstate 5; SR 156 from SR 1 near Castroville to SR 152 northeast of Hollister; and Interstate 280 from SR 17 to Interstate 80 near First Street in San Francisco.

Santa Clara County also has designated an extensive network of roadways as Scenic Highways. This network includes unincorporated areas of the county, offering a diversity of viewsheds to travelers. State Highways 9, 17, 35, 101, 152, 156, 280, 680, and numerous local roads are identified as existing or proposed Scenic Highways (County of Santa Clara 1994, 2008).

In addition, some of the incorporated cities within Santa Clara County have identified scenic corridors and aesthetic resources. Overall, these are located around waterways and roadways that are identified by the County with views of the hillsides surrounding each city. Consistency of the Proposed Project with local policies to protect scenic corridors and aesthetic resources is discussed in Appendix D.

Where scenic highways and corridors intersect with SCVWD-maintained facilities, views from these highways and corridors could be affected by Proposed Project maintenance activities. In the Project Area, maintenance activities at tributary drainages to the Lexington Reservoir may be visible from SR 17 within the Guadalupe Watershed (Figure 2-4). Additionally, maintenance activities in upper Pacheco Creek from San Felipe to Pacheco Lake may be visible from SR 156 within the Pajaro Watershed (Figure 2-6).

### *Recreational Trails*

The access roads that parallel most SMP-maintained channels and canals also provide creekside recreational (formal and informal) access. Some of these access roads are formalized as recreational trails, with signage and other amenities, such as benches. These trails provide an important recreational resource, particularly in the urban environment of San Jose. Creek-side trails typically are composed of consolidated earth or gravel, or are fully paved. Most of the Project Area channels and canals have some type of maintenance access road that also can serve as an informal creek-side trail or pathway. Although many of the access roads in the Project Area are not publicly accessible, many miles of roadways/trails are. Where accessible, these trails are used for a variety of recreational activities including walking, jogging, biking, dog-walking, and bird watching, and they provide aesthetic value for recreational users. See Section 3.11, *Recreation* for further discussion of recreational activities on creekside trails in the Project Area.

### *Aesthetic Quality at SMP Facilities*

The creeks in Santa Clara County drain runoff from the Santa Cruz Mountains and the Diablo Range to the valley floor and, eventually, to either Monterey Bay or San Francisco Bay. Many of these water bodies flow through or near the county's urban areas, offering potential opportunities for views of creeks, stream channels, and canals, depending on the surrounding bank vegetation, access to or along the channels or canals, and other view-restricting factors. As described in Chapter 2, *Project Description*, the majority of the stream channels in the Project Area are "earthen," including both modified and unmodified channels. Other stream channels and canals in the Project Area consist of mixed or concrete channels.

The aesthetic quality of SCVWD-maintained facilities varies from reaches nearly devoid of vegetation to reaches supporting a full riparian canopy (see photos in Figure 3.1-1). Many of the creek reaches that would be maintained under the Proposed Project are located along public roadways or trails.

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SMP channels support riparian habitat and recreational paths (Los Gatos Creek)

Steep banks and instream vegetation (San Francisquito Creek)


Concrete-lined channel (Guadalupe River)

Modified channel nearly devoid of riparian vegetation (Sierra Creek)

Algae growth in stagnant summer low flow conditions (Pacheco Creek)

Tidal areas near San Francisco Bay (lower Coyote Creek)

View to riparian vegetation along Coyote Creek (left) from recreational path on top of a levee

SCVWD channels include engineered structures and crossings

Horizon WATER and ENVIRONMENT

**Figure 3.1-1**
**Representative Photos of SMP Channels**

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In urbanized areas, such as within the City of San Jose, efforts would continue to be made to use creeks as the center focus of development, thus elevating the scenic value provided by creeks and their riparian vegetation. The City of San Jose, as described above, has strived to protect the aesthetic value of Guadalupe River and other local creeks by maintaining public multi-use trails along their banks. The public value of creeks in the Project Area is evidenced by the policies included in the local general plans, as listed in Appendix D.

Depending on their location, creeks and canals maintained under the SMP Update would be viewed by recreationalists, such as bicyclists, joggers, and horseback riders, as well as residents, people working in proximity to the creeks, other pedestrians, and motorists. Public access adjacent to the channels and canals maintained by the SMP Update may be provided by trails that would be located along the top of banks and at creek crossings.

SCVWD has been conducting maintenance activities similar to those proposed for the SMP Update for a number of years. Although the Proposed Project includes some new maintenance activities and the extension of some activities to portions of some streams not historically subject to those activities, overall, the baseline for analysis of impacts is a stream system that has already been altered by maintenance activities on an ongoing basis.

## *Viewer Groups and Viewer Responses*

Viewer groups in the vicinity of the Project Area and their sensitivity to visual changes in the area are characterized below. Viewer groups who have visual access to SCVWD-maintained facilities were divided into the categories of recreational users, residents, workers, and motorists.

### *Recreational Users*

Recreational use in the Project Area includes a variety of activities, such as walking, jogging, biking, dog-walking, and bird watching. Many hiking trails within county parks, such as Almaden Quicksilver, Sanborn-Skyline, Rancho San Antonio, Joseph D. Grant, Calero, Mt. Madonna, Coyote Lake–Harvey Bear Ranch, Ed Levin, and Anderson Lake, provide views of the Santa Clara Valley, the Bay, and/or the surrounding mountain ranges (County of Santa Clara 1995, 2010). Viewer sensitivity is moderately high among recreational users because they highly value the natural environment, appreciate the visual experience, and are sensitive to changes in views.

### *Residents*

Residents are individuals whose homes are in proximity to SCVWD-maintained facilities in the Project Area. Similar to recreational users, viewer sensitivity is moderately high among residents because they highly value their local visual resources, appreciate the visual experience, and are fairly sensitive to changes in views.

*Workers*

Workers are those whose place of employment is near SCVWD-maintained facilities in the Project Area, or who may come into contact with such facilities as part of their work activities (e.g., delivery persons). Viewer sensitivity is moderate among workers because they generally are not highly focused on the visual resources surrounding their workplace and are less sensitive to changes in views.

*Motorists*

Motorists use roadways at varying speeds; normal highway and roadway speeds differ based on the design speed of the roadway, traffic volumes, traveler's familiarity with the route, and roadway conditions (e.g., presence/absence of rain). Single views typically are of short duration, except on straighter stretches where views last slightly longer. Motorists who frequently travel the same routes generally possess low to moderate visual sensitivity to their surroundings. The passing landscape becomes familiar to them, and their attention typically is not focused on passing views but on the roadway, roadway signs, and surrounding traffic. Motorists who travel local routes for sight-seeing purposes generally possess a higher visual sensitivity to their surroundings because they are likely to respond to the natural environment with higher regard and as a holistic visual experience.

Viewer sensitivity is expected to be moderately low for most roadway travelers anticipated in the Project Area. The passing viewshed would become familiar to frequent viewers; furthermore, at standard roadway speeds, views would be of short duration and roadway users would be only fleetingly aware of surrounding traffic, road signs, their immediate surroundings within the automobile, and other visual features.

## 3.1.4 Impact Analysis

### *Methodology*

This section describes the methods used to determine the Proposed Project's impacts and lists the thresholds used to conclude whether an impact would be significant.

The methodology used to assess possible visual resource impacts that could be caused by the Proposed Project includes the following:

1. Objectively identify visual features (visual resources) in the Project Area.

2. Assess the character and quality of those resources relative to the overall regional visual character.

3. Identify the importance to people or their sensitivity regarding views of visual resources in the viewshed.

4. Characterize the nature of changes to visual resources resulting from implementing the Proposed Project.

5. Assess the significance of these changes in light of items 1–4.

By establishing the baseline (existing) conditions, changes resulting from activities under the Proposed Project or other changes to the viewshed can be objectively evaluated for their degree of impact. The degree of impact depends both on the magnitude of change in the visual resource (i.e., visual character and quality) and on viewers' responses to and concern for those changes. This general process is similar for all established federal procedures of visual assessment (Smardon et al. 1986) and represents a suitable methodology of visual assessment for the Proposed Project.

Implementation of the Proposed Project was evaluated based on the potential to impact the following viewer groups, which are most likely to be affected by Proposed Project activities: recreational users (pedestrians and cyclists), residents, workers, and motorists (drivers and passengers in cars or motorcycles).

## *Criteria for Determining Significance*

For the purposes of this analysis, the Proposed Project would result in a significant impact on aesthetics if it would:

A. have a substantial adverse effect on a scenic vista or designated scenic highway;

B. substantially damage publicly visible scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings;

C. substantially degrade the existing visual character or quality of the site and its surroundings; or

D. create a new source of substantial light or glare that would adversely affect day or nighttime views in the area.

## *Environmental Impacts*

### *Impact AES-1: Alteration to a Scenic Vista (Significance Criteria A, B; Less than Significant)*

Scenic viewpoints within the Project Area are generally located at relatively high elevations along ridgelines within public open space areas and are typically viewed by recreational hikers and bicyclists, and motorists. The Proposed Project maintenance activities would occur within creek corridors or in canals at lower elevations, mostly on the valley floor. No maintenance activities would be conducted above the 1,000-foot elevation contour, where the majority of scenic vista points in the county are located.

The distance from publicly accessible ridgeline trails and scenic vistas to creeks and canals in the valley is generally 2 to 5 miles. Because of the extent of the viewing distance and considering that many of the maintenance sites would be obscured from view by vegetation, it is unlikely that Proposed Project maintenance activities would be highly noticeable from scenic vistas. Maintenance vehicles and maintenance workers would be indistinguishable from other vehicles at this distance.

### *Sediment Removal*

Removal of sediment from SCVWD channels and facilities would result in temporary presence of vehicles, machinery, and personnel at sites during the maintenance period. Once work is completed, the channel itself would be visibly cleared of sediment. However, such changes would not be noticeable from scenic vista points for the reasons described above.

### *Vegetation Maintenance*

Proposed vegetation maintenance activities, such as tree removal and limbing, could potentially alter the character of riparian corridors within the Project Area. In general, this alteration would not be highly noticeable when viewed from a scenic viewpoint.

### *Management of Animal Conflicts/Minor Maintenance/Bank Stabilization*

As described in the SMP Manual (Appendix A), management of animal conflicts would involve small-scale activities (e.g., use of traps, filling of burrows), which would not be visible from a scenic vista. Similarly, minor maintenance activities (e.g., graffiti removal, small-scale sediment removal) would have limited potential to impact scenic vistas. Bank stabilization projects would result in sections of visibly altered banks with new materials used to conduct repairs. Given the few number of bank stabilization projects that are likely to occur per year (averaging approximately 1 mile in total), adverse effects on scenic vistas would be minimal.

### *Canal Maintenance*

Because routine canal maintenance activities would include all general work activities, effects would be the same as described above for other routine maintenance work.

### *Applicable Best Management Practices*

The following BMPs implemented as part of the SMP Update would help prevent maintenance activities from substantially degrading a scenic vista. Descriptions of each BMP are provided in Chapter 2, *Project Description*.

BMP GEN-19: Work Site Housekeeping
BMP REVEG-1: Seeding
BMP REVEG-2: Planting Material

### *Conclusion*

Given the relatively minor effect that Proposed Project activities would have on views from scenic vistas, this impact would be less than significant and would not require mitigation.

***Mitigation Measures: No mitigation is required.***

### *Impact AES-2: Alteration to Scenic Resources Viewed from a State or County-designated Scenic Highway (Significance Criterion A; Less than Significant)*

As described above in Section 3.1.3, *Environmental Setting*, one stretch of highway within the Project Area is officially designated by Caltrans as a State Scenic Highway, and Santa Clara County has designated a number of roads within the Project Area as scenic highways. These scenic highways generally are located along waterways and provide views of the hills surrounding the county.

Maintenance activities in areas where creeks or canals are close to scenic highways could temporarily (but in some cases, repeatedly) disrupt views. However, scenic highways in the Project Area are utilized by motorists traveling at highway speeds. Motorists traveling on designated scenic highways generally would have only fleeting views of maintenance activities and post-maintenance alterations to stream channels or canals.

#### *Vegetation Maintenance*

The pruning and removal (physically or using herbicide treatment) of vegetation could disrupt views along scenic highways or corridors. Although vegetation management would occur in multiple locations at any given time, the majority of vegetation maintenance activities would be done infrequently at any particular location, allowing for vegetation to grow back after vegetation maintenance activities had been conducted. Thus for the majority of vegetation maintenance activities, impacts would be less than significant.

In some areas, herbicide treatment would be done repeatedly to maintain the location in a permanently denuded state. Though limited, this type of treatment would alter scenic resources of the area over the long term, and may be located within the viewpoint of a scenic highway or corridor. However, maintaining areas in this state could have a beneficial effect by promoting consistency (as opposed to alternating views of cleared areas and regrowth stages) and minimizing views of overgrowth. Overall, impacts from repeated herbicide treatment would be expected to have a slightly greater potential for impacts.

#### *Other Maintenance Activities*

The remainder of maintenance activities (sediment removal, bank stabilization, management of animal conflicts, canal maintenance, and minor maintenance) would occur in multiple locations, but would generally be done infrequently at any one location and would have only temporary impacts. Even in the case of repeat activities (e.g., rodent control), the appearance of these maintenance activities and post-maintenance alterations would not leave a lasting impression on the overall view from the window of a car traveling at highway speeds.

### *Applicable Best Management Practices*

The following BMPs would be implemented as part of the SMP Update to prevent maintenance activities from substantially degrading scenic resources along a waterway or altering views of surrounding hillsides. Descriptions of each BMP are provided in Chapter 2, *Project Description*.

BMP GEN-19: Work Site Housekeeping
BMP REVEG-1: Seeding
BMP REVEG-2: Planting Material

### *Conclusion*

The impact on State or County-designated scenic highways resulting from the Proposed Project would be less than significant and would not require mitigation.

***Mitigation Measures: No mitigation is required.***

## *Impact AES-3: Temporary Alteration of Visual Character or Quality from Maintenance Activities (Significance Criteria B, C; Significant and Unavoidable)*

Many miles of creekside recreational trails currently exist or are planned within the Project Area. These creekside trails are utilized by recreational users and commuters, and are located in residential, commercial, and open space areas.

Short-term maintenance activities including vegetation management, sediment removal, and bank protection could result in a temporary degradation of visual quality. These impacts are described below.

### *Vegetation Management*

During vegetation management activities, a temporary visual impact would occur from the presence of maintenance crews and equipment near channels. Vegetation management could degrade the visual character of creeks and canals if it were to remove major stands of large vegetation. Invasive plant removal activities may alter a densely vegetated area to a partially vegetated or bare area until newly planted vegetation grow in. Herbicide activities also could alter the visual character of a site as targeted vegetation was destroyed. In addition, impacts from tree removal in areas where existing trees were sparse and where replanting was infeasible could be substantial.

### *Sediment Removal and Bank Stabilization*

For sediment removal and bank stabilization activities, a temporary visual impact also would occur from maintenance crews and equipment near and in channels. Both sediment removal and bank stabilization projects could result in areas that would be temporarily de-vegetated, which on some creeks in the system would be different from areas surrounding the site, although bank stabilization sites would include a revegetation component, where feasible (see Appendix C, which describes the revegetation approach for bank stabilization activities).

Viewer response to altered canal, channel, and riparian corridors after maintenance activities may vary. Commuters on creekside trails who passed by the site on a daily basis could react to the changed conditions. However, such changed conditions would be temporary (because vegetation would grow back over time) and would occur at isolated locations. Likewise, sediment removal projects that would remove silt, vegetation and other blockages may allow the creek to function more naturally, resulting in an aesthetic benefit.

### *Management of Animal Conflicts*

Other than the temporary presence of maintenance personnel and vehicles, activities proposed for animal conflict management would not involve actions which could result in the temporary alteration of visual character or quality. Bait traps, if left on-site, would be hidden or otherwise made inconspicuous to prevent vandalism and theft.

### *Minor Maintenance*

Minor maintenance activities generally would be small scale (e.g., small amounts of sediment removal, removal of debris), and would have limited potential to impact visual quality. However, the installation/maintenance of landscape sites would result in a visual improvement at the time of installation.

### *Canal Maintenance*

Because routine canal maintenance activities would include all general work activities, effects would be the same as described above for other routine maintenance work.

### *Applicable Best Management Practices*

The following BMPs would be implemented as part of Proposed Project activities to address any temporary impacts on aesthetics during maintenance:

BMP GEN-19: Work Site Housekeeping
BMP REVEG-1: Seeding
BMP REVEG-2: Planting Material

### *Conclusion*

As discussed above, the majority of activities would have less-than-significant impacts on temporary alterations of visual character or quality and would not require mitigation. Implementation of Mitigation Measures BIO-1, BIO-2, and BIO-7 would further aid in reducing these impacts, where implementation of such mitigation would result in revegetation activities or tree planting being conducted on site.

Depending on viewer sensitivity, tree removal in areas where revegetation was infeasible could result in a significant impact. No other feasible mitigation measures have been identified. Therefore, for the purposes of this DSEIR, temporary alterations on visual character or quality from tree removal without on-site tree replacement or replanting would be considered a significant and unavoidable impact.

***Mitigation Measure BIO-1: Implement Compensatory Mitigation for Wetlands and Other Waters***

See Impact BIO-1 in Section 3.3, *Biology Resources*.

***Mitigation Measure BIO-2: Implement Compensatory Mitigation for Woody Riparian Vegetation***

See Impact BIO-1 in Section 3.3, *Biology Resources*.

***Mitigation Measure BIO-7: Tree Replacement***

See Impact BIO-7 in Section 3.3, *Biology Resources*.

### *Impact AES-4: Permanent Alteration of Visual Character or Quality from Maintenance Activities (Significance Criterion C; Significant and Unavoidable)*

This impact discussion focuses on the long-term aesthetic effects of the Proposed Project. Overall, the long-term effect from maintenance activities would improve the visual character and quality of the Project Area.

#### *Sediment Removal and Bank Stabilization*

Removal of sediment from SCVWD channels and facilities would remove sediment, vegetation, and other blockages that would allow waterways to function more naturally, and thus resulting in an aesthetic benefit. Similarly, stabilization and repair of eroding banks would reduce sediment loss and in-channel build-up. Although the use of certain materials (i.e., rock, riprap) to repair banks could appear visually different, on-site revegetation (as described in Appendix C) would minimize long-term visual impacts and make them less than significant.

#### *Vegetation Management*

Overall, the removal of invasive plant species and revegetation with native species would improve the long-term aesthetic value of the riparian corridors. However, as discussed in Impact AES-3, proposed vegetation maintenance activities, such as tree removal, could potentially alter the character of riparian corridors in the Project Area. As discussed in Impact AES-3, this alteration would generally be less than significant, especially where replanting or revegetation would occur. As described in Section 3.3, *Biological Resources*, mitigation for larger-sized tree removals would be required, which would minimize permanent visual alterations. However, the impact on visual quality or character could be significant when tree removal was conducted in areas where existing trees were sparse and where replanting were infeasible.

#### *Management of Animal Conflicts*

Long-term effects from the management of animal conflicts could benefit the visual character or quality of treated areas. By discouraging damage caused by animal activity (i.e., burrowing), the integrity of SCVWD facilities would be preserved and visual damage would be minimized. Therefore, the permanent impacts from management of animal conflicts under the Proposed Project would be beneficial.

### *Minor Maintenance*

Minor maintenance activities, including installation/maintenance of landscape sites, debris removal, fence maintenance, and graffiti removal, would improve the visual quality and character of channels. Therefore, permanent effects on visual quality and character from these activities would be beneficial.

### *Canal Maintenance*

Because routine canal maintenance activities would include all general work activities, effects would be the same as described above for other routine maintenance work.

### *Applicable Best Management Practices*

SCVWD would implement the following BMPs as part of maintenance activities:

BMP GEN-19: Work Site Housekeeping
BMP SED-3: Restore Channel Features
BMP REVEG-1: Seeding
BMP REVEG-2: Planting Material

The good housekeeping practices would be followed at all maintenance sites and the other BMPs would provide for revegetation activities to be implemented shortly after completing vegetation management, sediment removal, or bank stabilization activities that would remove vegetation. Furthermore, these BMPs would prevent maintenance activities from degrading scenic resources, and instead would improve the aesthetic character of the sites affected by maintenance activities.

### *Conclusion*

As discussed above, most activities of Proposed Project would have a less-than-significant or beneficial impact on long-term aesthetic quality and would not require mitigation. Implementation of Mitigation Measures BIO-1, BIO-2 and BIO-7 would further aid in reducing these impacts, where implementation of such mitigation would result in revegetation activities or tree planting being conducted on site.

However, in some instances permanent impacts on visual quality or character resulting from tree removal could be significant where replanting was not possible. No other feasible mitigation measures have been identified. Therefore, for the purposes of this DSEIR, permanent alterations on visual character or quality from tree removal in areas where replanting was infeasible would be considered a significant and unavoidable impact.

#### ***Mitigation Measure BIO-1 Implement Compensatory Mitigation for Wetlands and Other Waters***

See Impact BIO-1 in Section 3.3, *Biology Resources*.

#### ***Mitigation Measure BIO-2 Implement Compensatory Mitigation for Woody Riparian Vegetation***

See Impact BIO-1 in Section 3.3, *Biology Resources*.

***Mitigation Measure BIO-7 Tree Replacement***

See Impact BIO-7 in Section 3.3, *Biology Resources*.

### *Impact AES-5: Substantial Alteration to Day or Nighttime Views resulting from Additional Light or Glare (Significance Criterion D; No Impact)*

Proposed Project maintenance activities would be conducted during daylight hours only. No nighttime lighting would be utilized for maintenance activities. The Proposed Project would not involve construction of new facilities or modifications to existing facilities that would result in new reflective surfaces or installation of lighting. No impact would occur.

***Mitigation Measures: No mitigation is required.***

### *Impact AES-6: Impacts on Aesthetics Associated with Sediment Disposal/Reuse (Significance Criterion C; Less than Significant)*

Sediment removed from SCVWD-maintained channels and canals would be disposed or reused in various ways, depending on the quality of the excavated material, which may include but would not be limited to temporary stockpiling before reuse, off-site restoration or enhancement of ecologic function, or disposal at a landfill.

#### *Temporary Stockpiling*

When necessary, temporary stockpiling of the sediment would occur within staging areas associated with the work site or at other SCVWD-owned properties. The stockpiles could be located near residential and recreational viewers who may be sensitive to changes in the visual character of the site. However, impacts from stockpiling would be temporary and therefore less than significant.

#### *Off-Site Reuse by SCVWD*

Off-site reuse to support ecologic functions, such as tidal wetland habitat, would be likely to have similar impacts as described under Impact AES-3. Such activities would utilize sediment in a manner that would enhance the natural aesthetics of tidal wetland areas, and thus would be considered beneficial.

#### *Disposal at a Landfill*

If off-site reuse locations were unavailable or if the sediment was considered hazardous, it would be taken to a general waste or hazardous waste landfill. The amount of sediment generated from maintenance activities and disposed at a landfill would not exceed any landfill's permitted capacities. Often, sediment materials are used at landfills as a 'cover' to cap accumulated garbage. This use of disposed sediment would therefore improve the aesthetic quality of the landfill. Impacts from disposal at a landfill would be considered beneficial.

### *Applicable Best Management Practices*

SCVWD would implement the following BMP as part of maintenance activities to screen any stockpiled sediment from public view, to the extent practical, for the duration that the sediment was stored:

BMP GEN-21: Staging and Stockpiling of Materials

### *Conclusion*

The aesthetic impacts of sediment reuse/disposal would be less-than-significant and would not require mitigation.

***Mitigation Measures: No mitigation is required.***

# Chapter 3.2

## AIR QUALITY

# 3.2 Air Quality

## 3.2.1 Introduction

This section presents the regulatory setting, environmental setting, and potential impacts of the Proposed Project related to air quality.

Data sources used in the preparation of this section include state and federal regulations and reference materials from the Bay Area Air Quality Management District (BAAQMD).

Specific to this section is the term "sensitive receptors," meaning those who are particularly susceptible to the adverse effects of air pollution. These include children, the elderly, and people with illnesses. Examples include schools, nursing homes, hospitals, and residential areas. Air pollution can cause adverse health effects in humans, including aggravating asthma conditions and other respiratory problems (BAAQMD 2010). Sensitive receptors adjacent to stream reaches in the Project Area are numerous, and include people in residential areas, schools, elder care facilities, and hospitals.

## 3.2.2 Regulatory Setting

### *Federal Plans, Policies, Regulations, and Laws*

*Clean Air Act*

The U.S. Environmental Protection Agency (USEPA) carries out the provisions of the Clean Air Act (CAA), originally passed in 1963 and amended six times, most recently in 1990. USEPA implements programs under the CAA that focus on reducing ambient air pollutant concentrations, reducing emissions of toxic pollutants, and phasing out production and use of chemicals that destroy stratospheric ozone. USEPA sets ambient air limits, the National Ambient Air Quality Standards (NAAQS) for six criteria pollutants: particulate matter, carbon monoxide, nitrogen oxides, sulfur oxides, ground-level ozone, and lead. The NAAQS are presented in Table 3.2-1. Primary standards are set for protection of human health and secondary standards are set for environmental protection. Areas which meet the primary standards are considered in "attainment" while areas with air quality not meeting the primary standards are in "non-attainment."

Of the six criteria pollutants, particulate matter and ground-level ozone pose the most widespread threat to human health. Particle pollution poses the greatest threat to sensitive receptors including children, the elderly, and asthmatics, as it impairs lung function. Particle pollution includes very fine soot and dust. Sources of particulate matter include: ground-disturbing activities (such as construction grading and excavation); motor vehicles; power generation activities; industrial operations; burning of fuels (such as wood, oil, and coal); dust from unpaved roads; and crushing and grinding operations. Particle pollution can be carried by the wind and impair air quality far from its source. To reduce particle levels, USEPA regulates emissions from motor vehicles and point sources.

**Table 3.2-1.** State and Federal Ambient Air Quality Standards

| Contaminant | Averaging Time | State Standards[1,3] | Primary Federal Standards[2,3,5] | Secondary Federal Standards[2,3,6] |
|---|---|---|---|---|
| Ozone | 1-hour | 0.09 ppm (180 µg/m$^3$) | - | - |
| | 8-hour | 0.070 ppm (137 µg/m$^3$, see note 4) | 0.075 ppm (147 µg/m$^3$) | Same as primary standard |
| Respirable Particulate Matter ($PM_{10}$) | 24-hour | 50 µg/m$^3$ | 150 µg/m$^3$ | Same as primary standard |
| | Annual arithmetic mean | 20 µg/m$^3$ | - | - |
| Fine Particulate Matter ($PM_{2.5}$) | 24-hour | - | 35 µg/m$^3$ | Same as primary standard |
| | Annual arithmetic mean | 12 µg/m$^3$ | 15 µg/m$^3$ | Same as primary standard |
| Carbon Monoxide | 8-hour | 9.0 ppm | 9 ppm (10 mg/m$^3$) | None |
| | 1-hour | 20 ppm | 35 ppm (40 mg/m$^3$) | None |
| Nitrogen dioxide | Annual arithmetic mean | 0.030 ppm (57 µg/m$^3$) | 0.053 ppm (100 µg/m$^3$) [8] | Same as primary standard |
| | 1-hour | 0.18 ppm (339 µg/m$^3$) | 0.100 ppm (188 µg/m$^3$) [8] | |
| Sulfur dioxide | 24-hour | 0.04 ppm (105 µg/m$^3$) | 0.14 ppm (365 µg/m$^3$) | - |
| | 3-hour | - | - | 0.5 ppm (1,300 µg/m$^3$) [9] |
| | 1-hour | 0.25 ppm (655 µg/m$^3$) | 75 ppb (196 µg/m$^3$) [9] | - |
| Lead[10] | 30-day average | 1.5 µg/m$^3$ | - | - |
| | Calendar quarter | - | 1.5 µg/m$^3$ | Same as primary standard |
| | Rolling 3-month average[11] | - | 0.15 µg/m$^3$ | Same as primary standard |
| Visibility reducing particles | 8-hour | See note 7 | - | - |
| Sulfates | 24-hour | 25 µg/m$^3$ | - | - |
| Hydrogen Sulfide | 1-hour | 0.03 ppm (42 µg/m$^3$) | - | - |
| Vinyl Chloride[10] | 24-hour | 0.01 ppm (26 µg/m$^3$) | - | - |

ppm – parts per million by volume
µg/m$^3$ – micrograms per cubic meter
$PM_{10}$ – particulate matter less than 10 microns in diameter
$PM_{2.5}$ – particulate matter less than 2.5 microns in diameter

## **Table 3.2-1.** State and Federal Ambient Air Quality Standards

Notes:

1. California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, suspended particulate matter—PM10, PM2.5, and visibility reducing particles, are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.
2. National standards (other than ozone, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest eight hour concentration in a year, averaged over three years, is equal to or less than the standard. For PM10, the 24 hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 $\mu g/m^3$ is equal to or less than one. For PM2.5, the 24 hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact U.S. EPA for further clarification and current federal policies.
3. Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.
4. Any equivalent procedure which can be shown to the satisfaction of the California Air Resources Board (CARB) to give equivalent results at or near the level of the air quality standard may be used.
5. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.
6. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
7. Extinction coefficient of 0.23 per kilometer—visibility of ten miles or more (0.07—30 miles or more for Lake Tahoe) due to particles when relative humidity is less than 70 percent. Method: Beta Attenuation and Transmittance through Filter Tape.
8. To attain this standard, the 3-year average of the 98th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 0.100 ppm (effective January 22, 2010). Note that the USEPA standards are in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national standards to the California standards the units can be converted from ppb to ppm. In this case, the national standards of 53 ppb and 100 ppb are identical to 0.053 ppm and 0.100 ppm, respectively.
9. On June 2, 2010, USEPA established a new 1-hour SO2 standard, effective August 23, 2010, which is based on the 3-year average of the annual 99th percentile of 1-hour daily maximum concentrations. USEPA also proposed a new automated Federal Reference Method (FRM) using ultraviolet technology, but will retain the older pararosaniline methods until the new FRM have adequately permeated state monitoring networks. USEPA also revoked both the existing 24-hour SO2 standard of 0.14 ppm and the annual primary SO2 standard of 0.030 ppm, effective August 23, 2010. The secondary SO2 standard was not revised at that time; however, the secondary standard is undergoing a separate review by USEPA. Note that the new standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the new primary national standard to the California standard, the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.
10. CARB has identified lead and vinyl chloride as "toxic air contaminants" with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.
11. National lead standard, rolling 3-month average: final rule signed October 15, 2008.

Source: CARB 2010

Ground-level ozone is the primary component of smog. Ozone is formed from the interaction of reactive organic gases (ROG) and nitrogen oxides (NOx). ROG is emitted by motor vehicles, industrial activities, and consumer products (such as paints, inks, and adhesives). NOx is formed during the burning of fossil fuels such as gasoline, diesel fuel, coal, and oil. Weather and topography influence the formation and location of ground-level ozone. Hot temperatures spur the reaction between volatile organic compounds and nitrogen oxides to form ozone. Ground-level ozone settles into valleys when winds are calm and temperatures are warm. Sensitive receptors to ozone are the same as those listed for particulate matter, with the addition of forests and agricultural crops.

## *State Plans, Policies, Regulations, and Laws*

### *California Air Resources Board*

The California Air Resources Board (CARB) was established in 1967. CARB has set California Ambient Air Quality Standards (CAAQSs), presented in Table 3.2-1, that are more stringent than the NAAQS for most contaminants. These include standards for additional contaminants not covered in the NAAQS, including visibility reducing particles, sulfates, hydrogen sulfide, and vinyl chloride. The California Clean Air Act was passed in 1988 and requires non-attainment areas to achieve and maintain the CAAQSs by the earliest time practicable, and local air districts to develop attainment plans for state standards.

CARB regulates motor vehicle emissions in the state, while local air quality management district's permit stationary sources.

## *Regional and Local Plans, Policies, Regulations, and Ordinances*

CARB has designated 15 air basins in the state. Thirty-five local air quality management districts are responsible for attainment and permitting in each basin and subbasin area. Santa Clara County is located in the San Francisco Bay Area Air Basin. The BAAQMD oversees planning and permitting in the nine-county Bay Area, including Santa Clara County.

### *BAAQMD 2010 Clean Air Plan/BAAQMD CEQA Guidelines*

The BAAQMD adopted a new clean air plan (the Bay Area 2010 Clean Air Plan) in September 2010. The purposes of the Bay Area 2010 Clean Air Plan are to: update the Bay Area 2005 Ozone Strategy in accordance with the requirements of the California Clean Air Act to implement "all feasible measures" to reduce ozone; provide a control strategy to reduce ozone, particulate matter (PM), and air toxics in a single, integrated plan; review progress in improving air quality in recent years; and establish emission control measures to be adopted or implemented in the 2010–2012 timeframe (BAAQMD 2010).

The BAAQMD published its latest version of the State CEQA Guidelines in May 2011, to aid assessment of air quality impacts. The guidelines address evaluation of air quality impacts and their significance, and development of mitigation measures for significant impacts. The guidelines focus on criteria air pollutant, toxic air contaminant, and odor emissions generated from projects.

## 3.2.3 Environmental Setting

### *Climate and Topography*

Climate and topography dictate the potential for air pollution to build up or concentrate in geographic areas. Wind speed, inversions, atmospheric stability, solar radiation, and terrain all influence air pollution potential. The actual air quality is a function of the air pollution potential and the existing emissions at any given time.

Wind speed affects air quality because faster winds carry pollutants away from the source. Low wind speeds allow more pollutants to be emitted into the air mass per unit of time, leading to a buildup of pollutant concentration. Similarly, inversions influence the mass of air available for dilution by vertically limiting the distance pollutants can travel. An inversion occurs when the typical atmospheric condition of "temperature decreases with elevation increases" is reversed, or "inversed." Inversions may result in a layer of warmer air resting over a layer of cooler air. The denser cooler air is trapped below the less dense warm air. In this inversion situation, pollutants emitted are trapped beneath the warmer air aloft within the cooler air lower to the ground. This situation, in combination with reduced circulation, reduces opportunities for mixing and dispersion, potentially leading to higher pollutant concentrations and poorer air quality. Inversions in the Bay Area may limit the pollutant mixing depth of the lower air mass to as little as 50 to 100 meters above the ground surface. In the Bay Area, inversions can occur in the winter under conditions of cold, clear nights, with damp ground and little wind. Inversions also happen under warmer weather conditions when the fog systems keep ground temperatures cooler than the air above them. (BAAQMD 2011)

Atmospheric stability also influences the ability of pollutants to move vertically. Stability is defined as the atmosphere's resistance to vertical motions (BAAQMD 2011). The more stable the air, the slower the mixing of pollutants into the air mass. Stability is dependent on the temperature gradient with elevation. A stronger standard temperature gradient (with temperatures decreasing with elevation increases) increases atmospheric instability and mixing. Atmospheric stability can cause reduced pollutant mixing and, therefore, increased air pollution potential.

Solar radiation is necessary for formation of ozone in the atmosphere. Ultraviolet sunlight and warm temperatures catalyze the chemical reaction between reactive organic gases and nitrogen oxides that form ozone. The frequent hot, sunny days in the Bay Area in the summer months promote ozone air pollution, particularly in the inland valleys where temperatures are warmest. Insufficient ultraviolet light and warmth in the winter reduce the likelihood of forming ozone. (BAAQMD 2011)

Topography influences air pollution principally through wind and circulation patterns. The lee side of mountains may be sheltered from the predominant winds, reducing turbulence and downward transport. Elevated terrains can create temperature and density driven circulations, with up-valley wind flows during daytime heating and down-valley flows during nighttime cooling (BAAQMD 2011). In the Bay Area, typical on-shore regional wind patterns from the west and northwest can be reversed by seasonal off-shore flows,

generating northeasterly and easterly winds. Winter cyclonic storms may bring southerly winds.

### *San Francisco Bay Air Subbasins*

The BAAQMD divides the San Francisco Bay Area Air Basin into subbasins with distinct climate and topography. Two air subbasins occupy Santa Clara County—the Peninsula and the Santa Clara Valley subbasins. The peninsula region of the Bay Area extends from the area northwest of San Jose to the Golden Gate, with the Santa Cruz Mountains extending up the center of the peninsula and terminating in South San Francisco. Small coastal towns on the west side of the mountains experience a high incidence of cool, foggy weather in the summer resulting from coastal ocean upwelling and northwest winds. Larger cities in the southeastern area of the peninsula, on the east side of the mountain range, experience warmer temperatures and few foggy days because the marine layer is blocked by the mountains to the west. Annual average wind speeds range from 5 to 10 miles per hour throughout the peninsula. On the east side of the mountains, the winds are generally in a westerly pattern, although the wind patterns are influenced by local topographic features. The blocking effect of the Santa Cruz Mountains results in higher temperatures in the eastern areas, with summertime maximum temperatures at Redwood City, representing the eastern peninsula, in the low 80s. The average minimum temperature in Redwood City is 40˚F in the winter and 52–54˚F in the summer. Air pollution potential is highest along the southeastern portion of the peninsula because this area is most protected from the high winds and fog of the marine layer, the emission density is relatively high, and pollutant transport from upwind sites is possible. (BAAQMD 2009b)

The Santa Clara Valley subregion is bounded by the Santa Cruz Mountains to the west, the Diablo Range to the east, the San Francisco Bay to the north, and the convergence of the Gabilan Range and the Diablo Range to the south. The terrain of the Santa Clara Valley greatly influences the wind patterns and results in a prevailing flow roughly parallel to the Valley's northwest-southeast axis, with a north-northwesterly sea breeze extending up the valley during the afternoon and early evening and a light south-southeasterly drainage flow occurring during the late evening and early morning. Speeds are greatest in the spring and summer. The strongest winds generally occur during summer afternoon and evenings, although strong winds typically only occur during winter storms. In the summer, temperatures are warm during the day, with mostly cool nights. Near the San Jose airport, mean maximum temperatures range from the high 70s to the low 80s in the summer, and from the high 50s to the low 60s during the winter. Mean minimum temperatures are in the low 40s during the winter and in the high 50s during the summer. Further inland areas to the south may have greater temperature extremes because the moderating effect of the Bay is not as strong. Santa Clara Valley has a high air pollution potential because of the valley’s large population; the transport of photochemical precursors from surrounding counties to the valley area; and the concentration of pollutants that occurs in the valley from the bordering mountains, winter inversions, and low-inversion summer days. (BAAQMD 2009b)

### *Air Quality Attainment Status*

Air quality is a function of the climate, topography, and emissions in any area or upwind of that area. Table 3.2-2 presents the attainment status of the state and federal standards in the Bay Area. The San Francisco Bay Area Air Basin (SFBAAB), including Santa Clara County, is in attainment for carbon monoxide, nitrogen dioxide, sulfur dioxide, and lead pollutant standards. However, the SFBAAB is in non-attainment for the ozone and particulate matter national and state standards. In 2005, the BAAQMD completed an ozone strategy to implement all feasible measures to reduce ozone. This strategy was updated by the requirements of the 2010 Clean Air Plan to provide a control strategy to reduce particulate matter. (BAAQMD 2010)

**Table 3.2-2.** Bay Area Attainment Status of the State and Federal Ambient Air Quality Standards

| Contaminant | Averaging Time | State Standards Attainment Status[1] | Federal Standards Attainment Status[2] |
|---|---|---|---|
| Ozone | 1-hour | N | See note 4 |
| | 8-hour | N[7] | N[3] |
| Respirable Particulate Matter ($PM_{10}$) | 24-hour | N | U |
| | Annual arithmetic mean | N[6] | |
| Fine Particulate Matter ($PM_{2.5}$) | 24-hour | | N |
| | Annual arithmetic mean | N[6] | A |
| Carbon Monoxide | 8-hour | A | A[5] |
| | 1-hour | A | A |
| Nitrogen Dioxide | Annual arithmetic mean | | A |
| | 1-hour | A | U |
| Sulfur Dioxide | 24-hour | A | A |
| | 1-hour | A | |
| Lead | 30-day average | A | |
| | Calendar quarter | | A |
| Visibility Reducing Particles | 8-hour | U | |
| Sulfates | 24-hour | A | |
| Hydrogen Sulfide | 1-hour | U | |
| Vinyl Chloride | 24-hour | Not available | |

A – attainment
N – non-attainment
U – unclassified
Notes:

1. California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1-hour and 24-hour), nitrogen dioxide, suspended particulate matter—PM10, and visibility reducing particles are values that are not to be exceeded. The standards for sulfates, Lake Tahoe carbon monoxide, lead, hydrogen sulfide, and vinyl chloride are not to be equaled or exceeded. If the standard is for a 1-hour, 8-hour, or 24-hour average (i.e., all standards except for lead and the PM10 annual standard), then some measurements may be excluded. In particular, measurements are excluded that CARB determines would occur less than once per year on the average. The Lake Tahoe CO standard is 6.0 ppm, a level one-half the national standard and two-thirds the state standard.
2. National standards shown are the "primary standards" designed to protect public health. National standards other than for ozone, particulates and those based on annual averages are not to be exceeded more than once a year. The 1-hour ozone standard is attained if, during the most recent 3-year period, the average number of days per year with maximum hourly concentrations above the standard is equal to or less than one. The 8-hour ozone standard is attained when the 3-year average of the 4th highest daily concentrations is 0.075 ppm (75 ppb) or less. The 24-hour PM10 standard is attained when the 3-year average of the 99th percentile of monitored concentrations is less than 150 $\mu g/m^3$. The 24-hour $PM_{2.5}$ standard is attained when the 3-year average of 98th percentiles is less than 35 $\mu g/m^3$. Except for the national particulate standards, annual standards are met if the annual average falls below the standard at every site. The national annual particulate standard for $PM_{10}$ is met if the 3-year average falls below the standard at every site. The annual $PM_{2.5}$ standard is met if the 3-year average of annual averages spatially-averaged across officially designed clusters of sites falls below the standard.
3. In June 2004, the Bay Area was designated as a marginal non-attainment area of the national 8-hour ozone standard. USEPA lowered the national 8-hour ozone standard from 0.80 to 0.75 PPM (i.e., 75 ppb) effective May 27, 2008. USEPA will issue final designations based upon the new 0.75 ppm ozone standard by July 31, 2011.
4. The national 1-hour ozone standard was revoked by USEPA on June 15, 2005.
5. In April 1998, the Bay Area was redesignated to attainment for the national 8-hour carbon monoxide standard.
6. In June 2002, CARB established new annual standards for $PM_{2.5}$ and $PM_{10}$.
7. The 8-hour California ozone standard was approved by CARB on April 28, 2005, and became effective May 17, 2006.

Source: BAAQMD 2009a

## 3.2.4 Impact Analysis

### *Methodology*

Although existing SMP and proposed maintenance activities are and would be widespread, transitory, and short-term in nature, similar to construction activities, they serve and would continue to serve the purpose of maintaining existing features rather than constructing new features. Based on discussions with the BAAQMD, the BAAQMD's operational CEQA thresholds for projects are most appropriate for the Proposed Project (Michael, pers. comm., 2010).

Air emissions from proposed maintenance activities were estimated for three sources: off-road vehicles, on-road vehicles, and pesticide use. Off-road vehicle emissions were estimated using equipment data and CARB's OFFROAD 2007 model. On-road vehicle emissions were estimated using vehicle miles traveled (see Section 3.12, *Traffic and Transportation*) and CARB's Emissions Factors 2007 model. Pesticide use was based on a 4-year average (2007–2010) of SCVWD's pesticide use and the percentage of ROG in each pesticide, as identified in the California Department of Pesticide Regulation's Pesticide Volatile Organic Compound Emission Inventory. For a list of the type and quantity of pesticides used under the existing SMP, refer to Tables 3.6-1 and 3.6-2 in Section 3.6, *Hazards and Hazardous Materials*.

### *Criteria for Determining Significance*

For the purposes of this analysis, the Proposed Project would result in a significant impact on air quality if it would:

A. conflict with or obstruct implementation of applicable air quality plans;

B. exceed any air quality standard by failing to adhere to assumptions used in the preparation of any Air Quality Plans;

C. result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors);

D. expose sensitive receptors to substantial pollutant concentrations; or

E. create objectionable odors affecting a substantial number of people.

Table 3.2-3 provides the BAAQMD's recommended significance criteria for analysis of air quality impacts. Based on discussions with the BAAQMD, the BAAQMD's operational CEQA thresholds for projects are most appropriate for the Proposed Project (Michael, pers. comm., 2010).

Emissions associated with the Proposed Project were estimated for the various SMP activities as a whole; for this reason, the impact discussion in this section relative to Significance Criteria A through D is not broken down by the individual categories of maintenance activities.

**Table 3.2-3.** BAAQMD CEQA Thresholds of Significance for Criteria Air Pollutants

| Criteria Air Pollutants and Precursors (Regional) | Operational Thresholds | |
|---|---|---|
| | Average Daily Emissions (lb/day) | Maximum Annual Emissions (tpy) |
| Reactive Organic Gases (ROG) | 54 | 10 |
| Nitrogen oxides (NOx) | 54 | 10 |
| Particulate Matter ($PM_{10}$) | 82 | 15 |
| Particulate Matter ($PM_{2.5}$) | 54 | 10 |
| $PM_{10}$/$PM_{2.5}$ (fugitive dust) | None | |
| Local Carbon Monoxide (CO) | 9.0 ppm (8-hour average), 20.0 ppm (1-hour average) | |
| Risk and Hazards for new sources and receptors (Individual Project) Note: *Threshold for new receptors is effective May 1, 2011*. | Compliance with Qualified Community Risk Reduction Plan OR<br>• Increased cancer risk of >10.0 in a million<br>• Increased non-cancer risk of > 1.0 Hazard Index (Chronic or Acute)<br>• Ambient $PM_{2.5}$ increase: > 0.3 µg/$m^3$ annual average<br>Zone of Influence: 1,000-foot radius from property line of source or receptor | |
| Risk and Hazards for new sources and receptors (Cumulative Threshold). Note: *Threshold for new receptors is effective May 1, 2011.* | Compliance with Qualified Community Risk Reduction Plan OR<br>• Cancer risk: >100 million (from all local sources)<br>• Non-cancer risk: > 10.0 Hazard Index (from all local sources, Chronic)<br>• Ambient $PM_{2.5}$: > 0.8 µg/$m^3$ annual average (from all local sources)<br>Zone of Influence: 1,000-foot radius from property line of source or receptor | |
| Accidental Release of Acutely Hazardous Air Pollutants | Storage or use of acutely hazardous materials located near receptors or new receptors located near stored or used acutely hazardous materials considered significant | |
| Odors | Five confirmed complaints per year averaged over 3 years | |

tpy – tons per year; lb/day – pounds per day; ppm – parts per million
Source: BAAQMD 2011

## *Environmental Impacts*

### *Impact AIR-1: Temporary Increase in ROG, NOx, $PM_{10}$, and $PM_{2.5}$ Emissions during Maintenance Activities (Significance Criteria A, B, C, D; Less than Significant with Mitigation or Significant and Unavoidable)*

Conducting the Proposed Project maintenance activities would generate emissions of criteria air pollutants. In particular, soil disturbance would cause temporary emissions of particulate matter. Fuel combustion involved with operating heavy equipment and on-road vehicles used to dispose debris also would release particulate matter and other contaminants associated with motor vehicle operation, including carbon monoxide and ozone precursors (ROG and NOx). Finally, use of pesticides would result in emissions of ROG.

This analysis considers emissions from both existing SMP activities (conducted pursuant to the 2002 SMP EIR) and additional emissions resulting from implementation of the Proposed Project (SMP update from 2012 to 2022). The existing SMP allows the majority of maintenance activities to be conducted between June 15 and October 15, although some activities occur year-round. The Proposed Project would extend the potential period when maintenance activities could be conducted (for those not occurring year-round), from October 15 to December 31. The overall work that would be conducted within the work window of the existing SMP is not anticipated to increase; rather, all additional work would occur during the extended work window.

Table 3.2-4 summarizes average daily operational emissions for 2012 and 2020 and Table 3.2-5 summarizes annual emissions estimates for 2012 and 2020. For additional information on how emissions were estimated refer to Appendix E. Although daily vehicle activity would not change substantially between 2012 and 2020, daily emissions are expected to decrease because turnover of fleet vehicles would replace higher-emitting vehicles with lower-emitting ones. Consequently, average daily vehicle emissions will be much lower in 2020 compared to 2012. Annual emissions from the Proposed Project compared to the existing SMP would increase corresponding to the increase in the number of work days per year, or twenty-five percent. This increase is offset by the decrease in emissions associated with fleet vehicle turnover.

**Table 3.2-4.** Estimated Proposed Project Average Daily Emissions of Criteria Air Pollutants, pounds per day

| Emissions Source | ROG | | NOx | | $PM_{10}$ | | $PM_{2.5}$ | |
|---|---|---|---|---|---|---|---|---|
| | 2012 | 2020 | 2012 | 2020 | 2012 | 2020 | 2012 | 2020 |
| Off-Road | 44.2 | 25.7 | 388.3 | 138.1 | 16.3 | 5.4 | 16.3 | 5.4 |
| On-Road | 6.1 | 3.5 | 45.7 | 20.0 | 16.4 | 16.6 | 4.0 | 3.6 |
| Pesticide Use | 0.6 | 0.6 | - | - | - | | - | |
| *Total* | *50.9* | *29.7* | *434.0* | *158.1* | *32.8* | *22.0* | *20.4* | *9.0* |
| BAAQMD Threshold | 54 | | 54 | | 82 | | 54 | |

Note: Daily vehicle trips and vehicle miles traveled would remain the same in the SMP Update as in the existing SMP.
Source: Data compiled by Horizon Water and Environment in 2011

**Table 3.2-5.** Estimated Proposed Project Annual Emissions of Criteria Air Pollutants, tons per year

| Emissions Source | ROG | | NOx | | $PM_{10}$ | | $PM_{2.5}$ | |
|---|---|---|---|---|---|---|---|---|
| | 2012 | 2020 | 2012 | 2020 | 2012 | 2020 | 2012 | 2020 |
| **Existing SMP** | | | | | | | | |
| Off-Road | 1.9 | 1.1 | 16.5 | 5.9 | 0.7 | 0.2 | 0.7 | 0.2 |
| On-Road | 0.8 | 0.5 | 5.9 | 2.6 | 2.1 | 2.2 | 0.5 | 0.5 |
| Pesticide Use | 0.0 | 0.0 | - | - | - | | - | |
| *Total* | *2.7* | *1.6* | *22.4* | *8.5* | *2.8* | *2.4* | *1.2* | *0.7* |
| **Additional Emissions under the SMP Update (2012-2022)** | | | | | | | | |
| Off-Road | 0.5 | 0.3 | 4.1 | 1.5 | 0.2 | 0.1 | 0.2 | 0.1 |
| On-Road | 0.1 | 0.0 | 1.2 | 0.2 | 0.1 | 0.0 | 0.1 | 0.0 |
| Pesticide Use | 0.0 | 0.0 | - | - | - | | - | |
| *Total* | *0.6* | *0.3* | *5.4* | *1.7* | *0.3* | *0.1* | *0.2* | *0.1* |
| **Total SMP** | | | | | | | | |
| Off-Road | 2.3 | 1.4 | 20.6 | 7.3 | 0.9 | 0.3 | 0.9 | 0.3 |
| On-Road | 0.9 | 0.5 | 7.2 | 2.8 | 2.3 | 2.2 | 0.6 | 0.5 |
| Pesticide Use | 0.0 | 0.0 | - | - | - | | - | |
| *Total* | *3.3* | *1.9* | *27.8* | *10.2* | *3.1* | *2.5* | *1.4* | *0.8* |
| BAAQMD Threshold[1] | 10 | | 10 | | 15 | | 10 | |

Note:
1. See Table 3.2-3 for BAAQMD CEQA Thresholds of Significance for criteria air pollutants.
Source: Data compiled by Horizon Water and Environment in 2011

Table 3.2-4 shows that average daily emissions of criteria air pollutants from the SMP would be below BAAQMD construction significance thresholds, except for NOx. Table 3.2-5 shows that annual emissions of criteria air pollutants from the Proposed Project would be less than BAAQMD operational significance thresholds, except for NOx.

### *Applicable Best Management Practices*

The following BMPs would be implemented as part of the SMP Update to control dust during maintenance activities. Descriptions of each BMP are provided in Chapter 2, *Project Description*.

BMP GEN-4: Minimize the Area of Disturbance
BMP GEN-29: Dust Management

### *Conclusion*

Although emissions of criteria air pollutants other than NOx from the SMP would occur at levels below BAAQMD significance thresholds, implementation of BMPs would minimize $PM_{10}$ and $PM_{2.5}$ emissions. Average daily and annual emissions of NOx from the SMP would be substantially greater than BAAQMD significance thresholds throughout the SMP. NOx emissions in exceedance of BAAQMD significance thresholds are considered a potentially significant impact.

The District would implement Mitigation Measure AIR-1A, reducing NOx emissions by 20 percent, which would lower NOx emissions below the significance threshold in 2020, but not in 2012. As a result, this impact would remain significant after this mitigation.

Therefore, the District would implement either Mitigation Measure AIR-1B or AIR-1C to offset remaining annual NOx emissions in exceedance of BAAQMD significance thresholds. Implementation of either Mitigation Measure AIR-1B or AIR-1C would reduce this impact to a less than significant level. However, it is possible that these mitigation measures may not be feasible because of the considerations discussed below. If the District found these mitigation measures to be infeasible, then this impact would be considered significant and unavoidable.

***Mitigation Measure AIR-1A Reduction in Fleet Emissions***

The District will develop a plan to demonstrate that the off-road equipment (more than 50 horsepower) to be used in the SMP Update (i.e., owned, leased, and subcontractor vehicles) would achieve a project–wide, fleet-average 20 percent NOx reduction compared to the most recent ARB fleet average. Acceptable options for reducing emissions include the use of late-model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, add-on devices (such as particulate filters), and/or other options as they become available.

***Mitigation Measure AIR-1B Off-site NOx Emissions Mitigation Program***

SCVWD may establish a program to implement off-site NOx emissions reduction projects within the SFBAAB to reduce those NOx emissions from the SMP Update in exceedance of BAAQMD operational significance thresholds. The total reduction will be 9 tons (the average annual exceedance anticipated over the lifetime of the SMP Update, based on the average between estimated 2012 and 2020 emissions), as adjusted based on the emissions reductions to be achieved by Mitigation Measure AIR-1A. The NOx emission reductions projects will be from sources of emissions that are not required by any existing law to reduce their NOx emissions. Offsetting annual emissions inherently includes offsetting daily emissions. Therefore, no additional reductions will be required for daily NOx emissions. Documentation of off-site NOx reductions will be provided to the BAAQMD.

However, it is possible that this mitigation measure may not be feasible, based on costs, logistics, or other factors. In respect to logistics, whether the District could develop a new off-site mitigation program that effectively reduces emissions to less-than-significant levels in a timely manner is uncertain.

***Mitigation Measure AIR-1C NOx Emissions Offsets***

As an alternative to Mitigation Measure AIR-1B, SCVWD will purchase NOx emission reduction credits to reduce or offset those NOx emissions in exceedance of BAAQMD operational significance thresholds. The total reduction (or credits) will be 9 tons, as adjusted based on the emissions reductions achieved by Mitigation Measure AIR-1A.

Offsetting annual emissions inherently includes offsetting daily emissions. Therefore, no additional offsets will be required for daily NOx emissions.

SCVWD will engage a private broker to facilitate the purchase of credits through the BAAQMD emissions bank. Purchase of these credits from the BAAQMD emissions bank will ensure that NOx offsets occur in the SFBAAB. Once NOx emission reduction credits are purchased for a given quantity, that amount of NOx will be offset in perpetuity. Therefore, a one-time purchase of 9 tons of credits will mitigate for the duration of the SMP Update (2012-2022) as well as for future SMP-related emissions beyond 2022, assuming emissions will not have increased.

Documentation of purchased NOx offsets will be provided to the BAAQMD.

However, it is possible that this mitigation may not be feasible, based on costs or other factors.

### *Impact AIR-2: Diesel PM Health Risk during Maintenance Activities (Significance Criteria A, B, C, D; Less than Significant)*

Exhaust emissions from on- and off-road vehicles and equipment used for maintenance under the Proposed Project would generate diesel PM, a toxic air contaminant. Individual maintenance activities would last from one day to several weeks. These maintenance activities would be countywide, transitory, and short term, and when they have ceased, so would associated diesel PM emissions.

#### *Applicable Best Management Practices*

The following BMP would be implemented as part of the SMP Update, and would help to minimize Diesel PM emissions. A description of the BMP is provided in Chapter 2, *Project Description*.

BMP GEN-35: Pump/Generator Operations and Maintenance

#### *Conclusion*

Health risk assessments for diesel PM are typically based on 9-, 40-, and 70-year exposure periods. Because of the short-term and highly variable nature of diesel PM emissions associated with the Proposed Project, exposure to diesel exhaust, including for sensitive receptors, would be well below the exposure period of concern. Therefore, exposure of persons to diesel PM generated by the Proposed Project would be less than significant and no mitigation would be required.

***Mitigation Measures: No mitigation is required.***

### *Impact AIR-3: Creation of Objectionable Odors (Significance Criterion E; Less than Significant)*

Sediment removal is the only activity in the Proposed Project which has the potential to generate substantial objectionable odors.

### *Sediment Removal*

Excavated sediment from stream channels may contain high levels of organic material. Natural decomposition of organic material depletes oxygen in the subsurface environment, leading to anaerobic conditions and the generation of hydrogen sulfide. Hydrogen sulfide gas then may be released when sediment is excavated. The potential concentrations of hydrogen sulfide gas released from sediment removal activities would not be substantial enough to adversely affect human health; however, they could cause annoyance by creating an objectionable odor in the vicinity of a specific maintenance/stockpile work site or reuse/disposal location. The intensity of odor from excavated sediment would depend on the amount and quality of sediment.

### *Conclusion*

The BAAQMD indicates that odor impacts could result from siting a new odor source near existing sensitive receptors. However, SCVWD is not aware of instances under the existing SMP when excavated or stockpiled sediment has generated odors that have created an annoyance. Conditions are anticipated to be substantively similar under the SMP Update. Any odors, should they occur, would be localized, short-term, and would not be anticipated to affect a substantial number of people. Therefore, the impact from creation of objectionable odors would be less than significant and no mitigation would be required.

***Mitigation Measures: No mitigation is required.***