

2.0 EXECUTIVE SUMMARY

2.1 PROJECT UNDER REVIEW

The Roddy Ranch Project (the “project”) involves the development of residential, resort, and recreational uses. Pursuant to Measure K, the project includes up to 700 housing units, of which all or substantially all shall be Estate Residential with any remainder units being Multi-Family Attached Residential.

In conformance with the City’s anticipated build-out as described in the General Plan, the project would develop up to 574 single-family detached residential units and up to 100 multi-family townhomes/villas within the Roddy Ranch Focus Area. The project also includes a 250-room hotel, recreational facilities, resort facilities, parks and open space, trails, roadways and site access, drainage features, utilities and service systems, and landscaping. **Figure 3.4** depicts the proposed layout of the project.

The project is located in the southern portion of the City of Antioch in eastern Contra Costa County, California. The project occupies lands within Horse Valley, stretching from the Mount Diablo hills in the west to Deer Valley Road in the east. The project also is bordered by Empire Mine Road to the north and the City limit line and Urban Limit Line (ULL) to the south. The public Roddy Ranch golf course is located at the center of the site and the project would be developed around this recreational feature.

Development of the project would occur in three phases: the East Phase, followed by the West Phase, and then the Hotel/Villas Phase (including construction of a new 20,000 square foot golf course club house). Site improvements would begin in 2010, with residential construction (East and West phases) beginning in 2011. All phases would be implemented within three to six years. The timing for development of the adjacent 40-acre Smith property (with potential commercial and residential uses as called out in Measure K) is uncertain; the cumulative analysis in this EIR assumes commercial development of this parcel because that ensures the analysis evaluates the most intensive use of the parcel.

2.2 POTENTIAL AREAS OF CONTROVERSY

Potential areas of controversy are listed below and are evaluated in **Chapter 4.0, Setting, Impacts, and Mitigation Measures**, of this EIR.

| <u>Environmental Topic</u> | <u>Areas of Controversy</u> |
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| <i>Aesthetics</i> | Light and glare impacts, as well as effects of grading on the elevation of the existing hillsides, especially adjacent to Deer Valley Road. |
| <i>Agricultural Resources</i> | Conversion of agricultural resources to non-agricultural uses. |
| <i>Air Quality</i> | Air quality impacts as a result of increased traffic. |
| <i>Biological Resources</i> | Potential loss of threatened and endangered plants and special-status species, reduction in migratory and permanent habitat. |
| <i>Cultural Resources</i> | Impacts to cultural resources on the site. |
| <i>Geology, Soils, and Mineral Resources</i> | Geologic and soil related hazards; including soil erosion. |
| <i>Hazards and Hazardous Materials</i> | Wildland fire and mining hazards. |
| <i>Hydrology and Water Quality</i> | Increases in site runoff/flooding, degradation of water quality, and hydrological impacts to biological resources. |
| <i>Land Use and Planning</i> | Growth inducement, including the potential characterization of the project as leapfrog development. |
| <i>Noise and Vibration</i> | Increases in noise levels due to construction activities and new land uses. |
| <i>Population and Housing</i> | Population growth impacts. |
| <i>Public Services</i> | Impacts to parks, open space, and recreation areas including the Black Diamond Mines Regional Park. Need for additional trails, parkland, and recreation facilities in the City. Increases in population and its impact to emergency services, particularly fire response times. |
| <i>Public Utilities</i> | Increases in population and its impact on the demand for utilities. |
| <i>Traffic and Circulation</i> | Potential increases in traffic, potential impacts to surrounding infrastructure and levels of service. |

2.3 SIGNIFICANT IMPACTS

Under CEQA, a significant impact on the environment is defined as, “a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by a project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance.”

Development of the project area would result in changes in the physical conditions of the area, affecting land, air, water, soils, flora, fauna, ambient noise levels, and objects of historic or aesthetic significance. All project-specific impacts can be reduced to a less than significant level by the mitigation measures identified in this EIR:

Project-specific potential impacts are discussed in **Section 4.1** through **4.14** of this EIR, and potential cumulative impacts are discussed in **Chapter 6.0, CEQA Required Conclusions**.

2.4 SIGNIFICANT CUMULATIVE UNAVOIDABLE IMPACTS

The project would contribute to buildout of the City of Antioch as envisioned by the General Plan. As discussed in the 2003 General Plan EIR (the “General Plan EIR”), buildout could result in significant and unavoidable impacts related to air quality and transportation and circulation. The General Plan EIR also identified potential cumulative impacts related to build out of the City in conjunction with the implementation of other general plans throughout Contra Costa County. These cumulative impacts include the loss of open space through conversion to urban uses, and loss of habitat for biological resources.

While mitigation would be implemented as part of the Roddy Ranch Project, the project would still contribute to the significant and unavoidable impacts identified in the City’s General Plan EIR.

In adopting the City of Antioch General Plan, the City Council made findings of overriding considerations that address the unavoidable significant air quality and transportation and circulation impacts. The findings indicate that the benefits associated with improvement of the jobs/housing imbalance, diversification and expansion of the City’s housing stock, implementation of “Smart Growth” principles to reduce demand on transportation systems, improvements to roadways, protection of significant environmental features, and maintenance of public services and facilities performance standards would override the unavoidable significant impacts associated with build out.

The project would primarily implement the goals of diversification and expansion of the City’s housing stock.

2.5 ALTERNATIVES TO THE PROJECT

Alternative 1: No Project – No Build

With the No Project-No Build Alternative, no project would be allowed and no further development of any type would occur within the project area. This prohibition would compel any subsequent development to occur in the unincorporated areas of the County or in the adjacent cities, resulting in any incremental growth in population, housing, or employment opportunities to occur in those areas. The No-Build Alternative represents a baseline against which the impacts of the proposed project area can be measured. This alternative is discussed further in Chapter 5.0, Alternatives.

Alternative 2: Biological Resources Alternative

Under the Biological Resources Alternative, the West Phase of the project site would be modified to avoid impacts to a significant stand of Tarplant. Specifically, lots 472 through 477 would be removed and left as open space, “Z” Court would end in a cul-de-sac at lot

478, and the water tower planned for the southwest corner of the West Phase would be moved to lot 478, in the northwest corner of the West Phase.

Because this alternative would reduce the number of lots, and would also reduce the amount of grading in the upper reaches of the west phase, the alternative would have incrementally smaller impacts in other topic areas, such as traffic, geology, hydrology, air quality, population and housing, public services, and schools.

2.6 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Table 2-1: Summary of Significant and Potentially Significant Impacts and Proposed Mitigation Measures

| Impact Statement | Mitigation Measures | Level of Significance with Mitigation |
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| 4.1 Aesthetics | | |
| <p>Impact 4.1-1: Residential development and project lighting, including safety lighting and street lighting, would introduce new day glare and nighttime light sources on the previously undeveloped project area and to adjacent roadways, including Deer Valley Road.</p> | <p>Mitigation 4.1-1: Exterior lighting shall be low mounted, downward casting and shielded, and shall utilize flat lenses and motion detection systems where applicable and not spill out onto adjacent properties. Lights also shall be shielded at lot lines so that they are not directly visible from adjacent roadways and recreational facilities. In general, the light footprint of individual units shall not extend beyond the periphery of each property. The applicant shall prepare a lighting plan, which shall identify the number and type of light fixtures and overhead pole heights, as well as demonstrate how the lighting system will comply with City lighting standards. Implementation of exterior lighting fixtures on all buildings shall comply with the standard California Building Code to reduce the lateral spreading of light to surrounding uses.</p> | LTS |
| 4.2 Agricultural Resources | | |
| <p>The project would not result in any significant impacts to agricultural resources.</p> | | |
| 4.3 Air Quality | | |
| <p>Impact 4.3-1: The project could result in a cumulatively considerable net increase of any criteria pollutant for which the region is non-attainment under an applicable federal or State ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)</p> | <p>Mitigation Measure 4.3-1: The applicant shall incorporate the following measures, which would reduce traffic trips and direct project air pollutant emissions.</p> <ol style="list-style-type: none"> 1. The project shall install appropriate bicycle amenities including bike lane connections throughout the project site. Offsite bicycle lane improvements also shall be included for roadways modified by the project that would serve the project site; 2. Provide pedestrian signage; include convenient pedestrian crossings at strategic areas that would enhance pedestrian use; 3. Consult with the City of Antioch and Tri-Delta Transit to identify any transit amenities that should be included for possible future transit service at the project site; 4. Review landscape plans along public or common areas and future non-residential uses to ensure that new trees are provided that would shade buildings and walkways and reduce cooling loads on buildings in summer; | LTS |

| Impact Statement | Mitigation Measures | Level of Significance with Mitigation |
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| | <ol style="list-style-type: none"> 5. Require that new buildings constructed as part of the project exceed State building code energy efficiency standards by at least 15% over 2005 requirements; 6. Install only <i>EnergyStar</i> or better rated space heating and cooling equipment, and appliances. This would include high efficiency air conditioning (heating and cooling) systems and water heaters. 7. Install only low-emittance coated windows; 8. Include outdoor electrical outlets to encourage use of electric-powered landscape equipment; 9. Install plumbing to accommodate solar water heating systems; 10. Install low-flow water fixtures for all toilets, shower heads, and faucets; and 11. Installed landscaping shall be drought tolerant and include efficient irrigation systems with automatic timers. | |
| <p>Impact 4.3-2: Sensitive receptors could be exposed to substantial pollutant concentrations during project construction</p> | <p>Mitigation Measure 4.3-2a: The applicant shall implement the following measures recommended by BAAQMD to reduce the air quality impacts of particulate matter (PM2.5) associated with grading and new construction.</p> <ol style="list-style-type: none"> 1. Water all active construction areas at least twice daily and more often during windy periods; active areas adjacent to residences should be kept damp at all times. 2. Cover all hauling trucks or maintain at least 2 feet of freeboard. 3. Pave, apply water at least twice daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas, and staging areas. 4. Sweep daily (with water sweepers) all paved access roads, parking areas, and staging areas and sweep streets daily (with water sweepers) if visible soil material is deposited onto the adjacent roads. 5. Hydro seed or apply (non-toxic) soil stabilizers to inactive construction areas (i.e., previously-graded areas that are inactive for 10 days or more). 6. Enclose, cover, water twice daily, or apply (non-toxic) soil binders to exposed stockpiles. 7. Limit traffic speeds on any unpaved roads to 15 m.p.h. 8. Replant vegetation in disturbed areas as quickly as possible. 9. Suspend construction activities that cause visible dust plumes to extend beyond the | <p>LTS</p> |

| Impact Statement | Mitigation Measures | Level of Significance with Mitigation |
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| | <p>construction site.</p> <p>Mitigation Measure 4.3-2b: The applicant shall implement the following measures recommended by BAAQMD to control diesel exhaust emissions associated with grading and new construction.</p> <ol style="list-style-type: none"> 1. Diesel equipment standing idle for more than five minutes shall be turned off; this includes trucks waiting to deliver or receive soil, aggregate, or other bulk materials; rotating drum concrete trucks can keep their engines running continuously as long as they are on site. 2. Properly tune and maintain equipment for low emissions. 3. Avoid staging equipment within 200 feet of residences. | |
| 4.4 Biological Resources | | |
| <p>Impact 4.4-1: The project could result in loss of San Joaquin kit fox and its habitat.</p> | <p>Mitigation Measure 4.4-1a: A conservation easement shall be placed over approximately 670 acres of Deer Valley that consists primarily of grasslands on the valley floor and adjacent hillsides.</p> <p>Mitigation Measure 4.4-1b: The measures and monitoring requirements contained in the Roddy Ranch Biotic Resources Mitigation Program (Appendix D-4) shall be implemented, which include:</p> <ul style="list-style-type: none"> • The grassland conservation easement shall be enhanced with a variety of native grasses and forbs to promote native biological diversity and habitat heterogeneity; • The Deer Valley floor shall contain shallow wetlands that will provide valuable watering areas for the kit fox, will add to habitat variability, but will not be a barrier to kit fox movement; and • Management activities shall be implemented to increase availability of ground squirrels as a prey base for kit fox and thereby increasing burrows within grassland for San Joaquin kit fox. <p>Mitigation Measure 4.4-1c: Monitoring of the conservation easement area shall include quarterly reviews of Deer Valley to ensure that there are no new barriers to kit fox movement. Specifically, the monitoring described below shall occur for a duration of 10 years (from the end of habitat mitigation construction):</p> <ul style="list-style-type: none"> • Yearly monitoring of the protected and enhanced habitats to ensure increases in native grassland vegetation; • Yearly monitoring to document the changes in ground squirrel use and numbers and | <p>LTS</p> |

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| | <p>colonization by ground squirrels in the created habitats; and</p> <ul style="list-style-type: none"> Yearly monitoring reports shall review the progress of the habitats in relation to habitat management and make any necessary recommendations to improve habitat for kit fox, their prey base, and kit fox movement in the valley. The reports shall be submitted to the City. <p>Mitigation Measure 4.4-1d: No less than 14 days and no more than 30 days prior to the beginning of ground disturbance activities in the grassland portions of the Development Area and off-site utility corridor, a preconstruction survey for San Joaquin kit fox shall be conducted by a qualified biologist. The survey shall include searching for kit fox signs, identifying any potential kit fox habitat features and evaluating their use by kit fox. The status of all potential den sites shall be determined. If a kit fox or sign of the species is observed during the survey, then the USFWS shall be immediately contacted. Under no circumstances shall a kit fox be relocated or an active den destroyed without authorization from the USFWS. Construction shall only proceed once it has been determined by a qualified biologist that kit fox is not present, or in the event that kit fox or sign is observed during the preconstruction survey, until take authorization has been issued by the USFWS.</p> <p>Mitigation Measure 4.4-1e: Prior to commencement of any site-disturbing and/or construction activities, all personnel associated with the project shall attend a worker education training program, conducted by a qualified biologist, to avoid or reduce impacts on sensitive biological resources (e.g., San Joaquin kit fox). At a minimum, as the program relates to the kit fox, the training shall include the kit fox's life history, all mitigation measures specified by this EIR, and instructions to immediately cease construction activities and contact the USFWS if a kit fox is observed. A kit fox fact sheet shall also be developed and distributed to all contractors, employers, and other personnel involved with the construction of the project. Additionally, all construction personnel shall be instructed on obeying speed limits of 25 m.p.h. on the project site (or lower) for all construction traffic to minimize the probability of road mortality of the San Joaquin kit fox.</p> <p>Mitigation Measure 4.4-1f: No construction activities shall occur prior to the completion of the Section 7 Consultation with the USFWS and USACE for potential impacts to San Joaquin kit fox.; the applicant would be required to comply with all conditions of the Section 7 Consultation.</p> | |
| <p>Impact 4.4-2: The project could result in loss of California tiger salamander and its habitat.</p> | <p>Mitigation Measure 4.4-2a: During the winter (when pools have had sufficient time to fill), a field survey of the off-site utility corridor shall be conducted to ensure that all potential aquatic CTS and RLF habitat has been identified and mapped. To the degree feasible, the off-site utility corridor shall be designed to avoid potential CTS and RLF breeding</p> | <p>LTS</p> |

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| | <p>habitat. Should avoidance of potential CTS/RLF breeding habitat within the off-site utility corridor area not be possible, then protocol surveys may be conducted to determine if CTS and/or RLF utilize the habitat. Alternatively, CTS and RLF presence may be assumed.</p> <p>Mitigation Measure 4.4-2b: A conservation easement shall be placed over 670 acres of Deer Valley that consist primarily of grasslands on the valley floor and adjacent hillsides.</p> <p>Mitigation Measure 4.4-2c: The loss of CTS and RLF breeding habitat within the Development Area (3.02 acres) and the off-site utility corridor (which has not yet been quantified) shall be compensated for as follows:</p> <p>Aquatic habitat of equal or higher biological value for CTS and RLF shall be created within the Deer Valley conservation area. At a minimum, this shall include the creation of an equal acreage (of the habitat to be lost within Horse Valley and off-site utility corridor area) in Deer Valley and the enhancement of existing habitat within Deer Valley. The creation of habitat may include enhancing and/or altering the management of existing aquatic features currently not suitable for CTS and RLF, such that they provide suitable habitat for the species. Additionally, any existing CTS and RLF populations within the Deer Valley conservation area would be protected by the conservation easement and managed to benefit the species.</p> <p>As described in the Biotic Resources Management Program (Appendix D-4), the seasonal wetlands/aquatic habitats will be designed to include connectivity between them so that populations will mix and not remain isolated. The surrounding grassland habitats will be enhanced by increasing native plant species, reducing non-native plant species, and increasing structural diversity by maintaining a mosaic of grassland types mixed among the created wetlands and stock ponds.</p> <p>The development of these new populations of CTS and RLF in Deer Valley shall be approached first as an experimental effort with successful establishment pre-dating actual population losses within the Development Area and off-site utility corridor. "Successful" in this case will mean occupied habitat over two years, i.e., assuming a site is constructed and then inoculated with eggs and/or larval forms (assuming USFWS approval) in winter of year one; years two and three would show evidence (through presence/absence surveys) that CTS and RLF are present, taking into account local population fluctuations (based on data from local reference sites).</p> <p>This process would develop as follows:</p> <ol style="list-style-type: none"> 1) Suitable sites are identified in Deer Valley and ponds constructed and/or enhanced; | |

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| | <p>2) Eggs and/or larvae are collected and transplanted to the new ponds; and</p> <p>3) Subsequent monitoring occurs in accordance with USFWS survey protocols during the appropriate season of the experimental sites and local reference sites; additionally, water chemistry and other analyses shall be completed on the experimental sites and local reference sites to assist in defining the reasons behind population fluctuation; yearly monitoring reports will be prepared and submitted to the City.</p> <p>Mitigation Measure 4.4-2d: As described in the Biotic Resources Mitigation Program Appendix D-4), the mitigation goal for CTS and RLF would be creating (either through creating new ponds or making currently unsuitable ponds suitable) the equivalent acreage of successful CTS and RLF breeding habitat that would be lost. If this goal is not achieved in five years, then contingency measures shall be implemented. This will include evaluating the reasons for not meeting the goal and implementing corrective measures, which may include introducing additional larvae and/or eggs; removing/controlling predators; and/or altering the hydrologic or grazing regime. In the event that the goal is not achieved in seven years (or at an earlier date at the applicant's discretion), then alternative measures will be implemented such that there has been no project-related net loss of occupied aquatic habitat for CTS and RLF, which may include purchasing credits at a USFWS-approved mitigation bank or the creation of additional ponds within Deer Valley or other nearby location. The mitigation goal of creating the equivalent acreage of successful CTS and RLF breeding habitat that would be lost, or purchasing the equivalent credits at a USFWS-approved mitigation bank, must be accomplished prior to actual population losses within the Development Area and off-site utility corridor.</p> <p>Mitigation Measure 4.4-2e: No construction activities shall occur within the Development Area or off-site utility corridor prior to the completion of the Section 7 Consultation with the USFWS and USACE for potential impacts to CTS and RLF; the applicant would be required to comply with all conditions of the Section 7 Consultation.</p> | |
| <p>Impact 4.4-3: The project could result in loss of California red-legged frog and its habitat</p> | <p>Mitigation Measure 4.4-3: See Mitigation Measures 4.4-2a through 4.4-2e, above. These measures address and mitigate potential impacts to both CTS and RLF.</p> | <p>LTS</p> |
| <p>Impact 4.4-4: The project may result in loss of Alameda whipsnake and its habitat</p> | <p>Mitigation Measure 4.4-4a: A qualified biologist (trained in Alameda whipsnake identification) shall serve as a monitor during initial ground-clearing and/or grading activities occurring in the western portion of the Development Area which is identified by the ECCCHCP as providing "movement habitat." This area is shown in the ECCCHCP, Appendix D-08c. Each morning until initial ground clearing and/or grading is completed, the construction area shall be visually surveyed by the monitor to ensure that no Alameda whipsnakes are present. This survey is not intended to be a protocol-level survey. All laydown and deposition areas, as well as other areas that might conceal or shelter</p> | <p>LTS</p> |

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| | <p>snakes or other animals, shall be inspected by the designated monitor to ensure that Alameda whipsnakes are not present. Following the morning survey, the monitor shall remain on-call during construction hours in the event that a snake is found on site. The designated monitor shall have the authority to halt construction activities in the event that a whipsnake is found within the construction footprint until such time as threatening activities can be eliminated in the vicinity of the snake and it can be removed from the site by a biologist permitted to handle Alameda whipsnakes. The USFWS shall be notified within 24 hours of any such event.</p> <p>Mitigation Measure 4.4-4b: Grading activities shall be conducted to allow mobile animals, such as Alameda whipsnake, the ability to escape the disturbance area into adjacent undisturbed habitat and to prevent creating fragmented islands of habitat that would eventually be cleared/graded. This shall be accomplished through phased grading, in a uniform direction towards habitats that would not be disturbed by the proposed project.</p> <p>Mitigation Measure 4.4-4c: Alameda whipsnake awareness training for each worker shall be conducted by the designated monitor prior to commencement of on-site activities within the area of potential concern. All on-site workers at applicable construction sites shall attend an Alameda whipsnake information session conducted by the designated monitor prior to beginning work. This session shall cover identification of the species and procedures to be followed if an individual is found on-site, as well as basic site rules meant to protect biological resources, such as speed limits.</p> <p>Mitigation Measure 4.4-4d: No construction activities shall occur prior to the completion of the Section 7 Consultation with the USFWS and USACE. Should the Section 7 Consultation results in measures to protect Alameda whipsnake, the applicant would be required to comply with and implement these measures.</p> | |
| <p>Impact 4.4-5: The project may impact vernal pool fairy shrimp, longhorn fairy shrimp, and tadpole shrimp</p> | <p>Mitigation Measure 4.4-5a: During the winter (when pools have had sufficient time to fill), a field survey of the off-site utility corridor shall be conducted to ensure that all potential fairy shrimp habitat has been identified and mapped. To the degree feasible, the off-site utility corridor shall be designed to avoid potential fairy and tadpole shrimp habitat. Should avoidance of potential habitat not be possible, protocol surveys may then be conducted to determine if federally-listed shrimp species are present; if species are found not to be present, additional mitigation would not be required. Alternatively, the presence of federally-listed shrimp species may be assumed.</p> <p>Any loss of seasonal aquatic habitat from the off-site utility corridor used by, or assumed to be used by federally-listed shrimp species, shall be compensated for by purchasing credits at a USFWS approved mitigation bank, or creating occupied habitat of equal or</p> | <p>LTS</p> |

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| | <p>higher biological value.</p> <p>Mitigation Measure 4.4-5b: No construction activities shall occur within the off-site utility corridor prior to the completion of the Section 7 Consultation with the USFWS and USACE for potential impacts to federally-listed shrimp species. The applicant would be required to comply with all conditions of the Section 7 Consultation.</p> | |
| <p>Impact 4.4-6: The project could result in loss of Swainson's hawk nests and foraging habitat</p> | <p>Mitigation Measure 4.4-6a: A conservation easement shall be placed over 670 acres of Deer Valley that consist primarily of grasslands on the valley floor and adjacent hillsides, which provide suitable foraging habitat for Swainson's hawk.</p> <p>Mitigation Measure 4.4-6b: If construction would commence anytime during the nesting/breeding season of native bird species potentially nesting on the site (typically February through August in the project region), a pre-construction survey of the project vicinity for nesting birds shall be conducted.</p> <p>This survey shall be conducted by a qualified biologist (experienced with the nesting behavior of bird species of the region) within 14 days of the commencement of construction activities that would occur during the nesting/breeding season. The intent of the survey shall be to determine if active nests of special status bird species or other species protected by the Migratory Bird Treaty Act and/or the California Fish and Game Code are present within the construction zone or within 500 feet of the construction zone. The survey area shall include all trees and shrubs, as well as grassland habitats (which could be utilized by burrowing owls) in the construction zone and a surrounding 500 feet area. The surveys shall be timed such that the last survey is concluded no more than two weeks prior to initiation of construction or tree removal. If ground disturbance activities are delayed following a survey, then an additional pre-construction survey shall be conducted such that no more than two weeks will have elapsed between the last survey and the commencement of ground disturbance activities.</p> <p>If active nests are found in areas that could be directly affected or are within 500 feet of construction and would be subject to prolonged construction-related noise, a no-disturbance buffer zone shall be created around active nests during the breeding season or until a qualified biologist determines that all young have fledged. The size of the buffer zones and types of construction activities restricted within them will be determined through consultation with the CDFG, taking into account factors such as the following:</p> <ul style="list-style-type: none"> • Noise and human disturbance levels at the construction site at the time of the survey and the noise and disturbance expected during the construction activity; • Distance and amount of vegetation or other screening between the construction site and the nest; and | <p>LTS</p> |

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| | <ul style="list-style-type: none"> Sensitivity of individual nesting species and behaviors of the nesting birds. <p>Limits of construction to avoid an active nest shall be established in the field with flagging, fencing, or another appropriate barrier, and construction personnel shall be instructed on the sensitivity of nest areas. The biologist shall serve as a construction monitor during those periods when construction activities would occur near active nest areas of special status bird species to ensure that no impacts on these nests occur.</p> | |
| <p>Impact 4.4-7: The project may result in loss of active nests of other special-status bird species</p> | <p>Mitigation Measure 4.4-7a: See Mitigation Measures 4.4-6a and 4.4-6b, above. These measures require preconstruction nesting bird surveys to be conducted during the nesting season and the avoidance of an active bird nest.</p> <p>Mitigation Measure 4.4-7b: A conservation easement shall be placed over 670 acres of Deer Valley that consist primarily of grasslands on the valley floor and adjacent hillsides. This area provides suitable habitat for burrowing owls and would provide adequate compensation should a nesting or resident burrowing owl be detected during the required preconstruction nesting bird surveys. The CDFG generally recommends the preservation of 6 acres per pair or resident owl.</p> | <p>LTS</p> |
| <p>Impact 4.4-8: The project may result in loss of foraging and wintering habitat for special-status bird species</p> | <p>Mitigation Measure 4.4-8: Prior to the commencement of construction activities within grassland habitats occurring during the non-nesting season of burrowing owl (typically September through January), a qualified biologist shall conduct a clearance survey for wintering burrowing owls. The survey shall be conducted no more than 14 days prior to commencement of construction activities. If non-breeding burrowing owls are observed within the disturbance footprint, they would be excluded from all occupied burrows through the use of exclusion devices placed in occupied burrows in accordance with CDFG protocols. Specifically, exclusion devices, utilizing one-way doors, shall be installed in the entrance of all active burrows. The devices shall be left in the burrows for at least 48 hours to ensure that all owls have been excluded from the burrows. Each of the burrows would then be excavated by hand and refilled to prevent reoccupation. Exclusion shall continue until the owls have been successfully excluded from the site, as determined by a qualified biologist.</p> | <p>LTS</p> |
| <p>Impact 4.4-9: The project may result in loss of silvery legless lizards</p> | <p>Mitigation Measure 4.4-9: Prior to the commencement of construction activities within the portion of the Development Area shown in Appendix D-07c of the ECCCHCP, a survey of the area shall be conducted for silvery legless lizard. The survey shall be conducted by a qualified biologist in possession of a valid California Scientific Collecting Permit. The survey shall be appropriately timed to maximize capture of individual lizards, and at a minimum, shall include a spring survey (following the conclusion of the rainy season, when capture of silvery legless lizard is most probable). Depending on the timing of the project, an additional preconstruction clearance survey shall be conducted such</p> | <p>LTS</p> |

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| | that no more than 14 days have elapsed between the conclusion of the survey and the commencement of construction activities. Survey methodologies shall include visual surveys and raking. Any silvery legless lizards observed within the grading/construction zone shall be relocated by the biologist to a suitable area outside of the construction zone. | |
| Impact 4.4-10: The project may result in loss of western pond turtles | Mitigation Measure 4.4-10: A pre-construction/grading survey of all areas proposed for grading/construction activities containing suitable habitat (including egg laying habitat) for western pond turtle shall be conducted by a qualified biologist. Any western pond turtles or eggs observed within the grading/construction zone shall be relocated by the biologist in possession of a valid California Scientific Collecting Permit to a suitable area outside of the construction zone. | LTS |
| Impact 4.4-11: The project may result in loss of San Joaquin coachwhip | <p>Mitigation Measure 4.4-11a: A qualified biologist shall serve as a monitor during initial ground-clearing and/or grading activities occurring in the grassland portions of the Development Area and off-site utility corridor. Each morning until initial ground clearing and/or grading is completed, the construction area shall be visually surveyed by the monitor to ensure that no San Joaquin coachwhip are present. This survey is not intended to be a protocol-level survey. All laydown and deposition areas, as well as other areas that might conceal or shelter snakes or other animals, shall be inspected by the designated monitor to ensure that the species is not present. Following the morning survey, the monitor shall remain on-call during construction hours in the event that a snake is found on site. The designated monitor shall have the authority to halt construction activities in the event that a coachwhip is found within the construction footprint until such time as threatening activities can be eliminated in the vicinity of the snake and it can be removed from the site by the biologist (in possession of a valid Scientific Collecting Permit).</p> <p>Mitigation Measure 4.4-11b: See Mitigation Measure 4.4-4b. This measure requires that grading activities be conducted to allow mobile animals, such as San Joaquin coachwhip, the ability to escape the disturbance area into adjacent undisturbed habitat and to prevent creating fragmented islands of habitat that would eventually be cleared/graded.</p> | LTS |
| Impact 4.4-12: The project may result in loss of California horned lizard | Mitigation Measure 4.4-12a: Prior to the commencement of construction within the portions of the Development Area and utility corridor containing sandy soils, a survey of the area shall be conducted for coast horned lizard. The survey shall be conducted by a qualified biologist in possession of a valid California Scientific Collecting Permit. The survey shall be appropriately timed to maximize capture of individual lizards. Depending on the timing of the project, an additional preconstruction clearance survey shall be conducted such that no more than 14 days have elapsed between the conclusion of the survey and the commencement of construction activities. Survey methodologies shall | LTS |

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| | <p>include visual surveys and the use of shade boards. Any coast horned lizard observed within the grading/construction zone shall be relocated by the biologist to a suitable area outside of the construction zone.</p> <p>Mitigation Measure 4.4-12b: To prevent the introduction or spread of Argentine ants, all landscaping plants shall be inspected for Argentine ants and certified free of this non-native ant species prior to being planted on site. Landscaping plants shall be rejected if Argentine ants are found. This measure shall not be required if no California horned lizards are identified during the survey required by Mitigation Measure 4.4-12b.</p> | |
| <p>Impact 4.4-13: The project may result in loss of San Joaquin pocket mice</p> | <p>Mitigation Measure 4.4-13a: Areas within the Development Area and off-site utility corridor containing suitable habitat for this species, including friable soils shall be identified. Small mammal trapping shall then be conducted by a qualified biologist (in possession of a valid California Scientific Collecting Permit) within representative areas of suitable habitat at a level adequate to determine if San Joaquin pocket mouse is present or is likely not present. Trapping shall occur for a minimum period of seven days and all trapped San Joaquin pocket mice shall be relocated to a suitable location within the Deer Valley conservation area.</p> <p>Mitigation Measure 4.4-13b: See Mitigation Measure 4.4-4b. This measure requires that grading activities be conducted to allow mobile animals the ability to escape the disturbance area into adjacent undisturbed habitat and to prevent creating fragmented islands of habitat that would eventually be cleared/graded. Additionally, the Deer Valley conservation area (which would be protected by a conservation easement) contains suitable habitat for San Joaquin pocket mouse.</p> | <p>LTS</p> |
| <p>Impact 4.4-14: The project may result in loss of American badgers</p> | <p>Mitigation Measure 4.4-14a: A preconstruction survey of all areas proposed for grading/construction activities shall be conducted for American badger. The survey shall be conducted by a qualified biologist (in possession of a valid California Scientific Collecting Permit) within 21 days prior to the commencement of construction activities. The survey shall include a visual inspection of all suitable den habitats and the use of exclusionary devices if occupied dens are identified. Each of the dens would then be excavated by hand and refilled to prevent reoccupation. Exclusion would continue until the badger has been successfully excluded from the site, as determined by a qualified biologist.</p> <p>Mitigation Measure 4.4-14b: See Mitigation Measure 4.4-4b. This measure requires that grading activities be conducted to allow mobile animals, such as American badger, the ability to escape the disturbance area into adjacent undisturbed habitat and to prevent creating fragmented islands of habitat that would eventually be cleared/graded.</p> | <p>LTS</p> |

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| <p>Impact 4.4-15: The project may result in loss of special-status bats</p> | <p>Mitigation Measure 4.4-15a: Prior to the commencement of construction activities during the breeding season of native bat species in California (generally occurs from April 1 through August 31), a focused survey shall be conducted by a qualified bat biologist to determine if active maternity roosts of special-status bats are present within any of the trees proposed for removal. Should an active maternity roost of a special-status bat species be identified, the roost shall not be disturbed until the roost is vacated and juveniles have fledged, as determined by the biologist. Once all young have fledged, then the tree may be removed. Species-appropriate replacement roosting habitat (e.g., bat boxes) shall be provided should the project require the removal of a tree actively used as a maternity roost.</p> <p>Mitigation Measure 4.4-15a: See Mitigation Measure 4.4-2c, and Mitigation Measure 4.4-21b. These measures require the replacement of stock ponds and wetlands, which provide bat foraging habitat, within Deer Valley.</p> | <p>LTS</p> |
| <p>Impact 4.4-16: The project may result in loss of midvalley fairy shrimp</p> | <p>Mitigation Measure 4.4-16: See Mitigation Measure 4.4-5a. This measure requires that potential habitat for fairy shrimp within the utility corridor be avoided if feasible. Where loss of potential habitat would occur, the presence of the species may be assumed or protocol surveys may be conducted to determine presence/absence. If occupied habitat, or habitat assumed to be occupied, is to be developed, credits would be purchased at an USFWS-approved mitigation bank, or occupied habitat of equal or higher value shall be created.</p> | <p>LTS</p> |
| <p>Impact 4.4-17: The project may result in the loss of curved-foot hygrotylus diving beetle and its habitat</p> | <p>Mitigation Measure 4.4-17: To the degree feasible, seasonal alkali aquatic habitats within the project's disturbance boundary shall be filled when standing water is not present and adult beetles are not expected to be present.</p> <p>Mitigation Measure 4.4-21b, below, would also be implemented. This measure requires that at a minimum, the equivalent acreage of jurisdictional resources to be filled within the Development Area and off-site utility corridor shall be created within the Deer Valley conservation area. As described in the Roddy Ranch Biotic Resources Mitigation Program, this would include the creation of seasonal alkali aquatic habitats.</p> | <p>LTS</p> |
| <p>Impact 4.4-18: The project may result in indirect adverse effects on nearby sensitive biological resources</p> | <p>Mitigation Measure 4.4-18a: The applicant shall develop a lighting plan in coordination with a qualified biologist. The lighting plan shall require that all lighting be directed and shielded as to minimize light spillage into adjacent woodlands, natural drainages, and seasonal wetlands. Mercury vapor and halide lighting shall not be used on the perimeter of the developed areas and adjacent to designated undeveloped open space. The lighting plan shall be subject to approval by the City of Antioch.</p> | <p>LTS</p> |

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| | <p>Mitigation Measure 4.4-18b: Prior to the issuance of a grading permit, the applicant shall prepare a landscaping plan. This plan will be subject to review and approval by the City of Antioch and will include a plant palette composed of non-invasive species. The landscaping plan will also include a list of invasive plant species prohibited from being planted on the project site. This list of prohibited plants will be compiled in cooperation with a qualified restoration specialist and will be distributed to future occupants of the project site.</p> <p>Mitigation Measure 4.4-18c: The Home Owners Association shall supply educational information to future residents regarding not allowing cats outdoors or other pets outdoors while unattended. The material shall discuss the presence of native animals (e.g., coyote, bobcat, mountain lion) that could prey on pets and indicate that no actions shall be taken by the Home Owners Association against native animals should they prey on pets allowed outdoors, and indicate that pets must be leashed while using the designated trail system and/or in any areas within or adjacent to open space.</p> <p>Mitigation Measure 4.4-18d: Should the proposed project include trails and/or access to Deer Valley, a trails plan shall be developed in coordination with a qualified biologist. The plan would locate trails away from sensitive biological resources that could be disturbed by humans or dogs, such as aquatic habitats supporting CTS or RLF. All dogs shall be required to be leashed while on trails. The Resource Management Plan (which is required by the City of Antioch) is required to include monitoring for habitats being degraded, and as needed, implementing methods to remedy the problem such as posting signs identifying ecologically sensitive areas, the use of temporary fencing around sensitive areas that appear to be receiving a high level of disturbance, and promoting public education and awareness of such areas.</p> | |
| <p>Impact 4.4-19: The project would result in loss of big tarplants</p> | <p>Mitigation Measure 4.4-19a: A conservation easement shall be placed over 670 acres of Deer Valley that consist primarily of grasslands on the valley floor and adjacent hillsides.</p> <p>Mitigation Measure 4.4-19b: To the degree possible, the off-site utility corridor shall be designed to avoid the big tarplant population within the potential alignment area (Figure 4.4-11).</p> <p>Mitigation Measure 4.4-19c: Appropriately timed surveys for big tarplant shall be conducted within Deer Valley to document and map all occurrences of the species. If additional populations of big tarplant are discovered in Deer Valley and these populations appear equal those that would be lost in the Development Area and off-site utility corridor (within 10 percent), then these populations would be protected through dedication of a conservation easement (see Mitigation Measure 4.4-19a). The implementation of Mitigation Measures 4.4-19e and 4.4-19f would also be required. If equal populations of</p> | <p>LTS</p> |

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| | <p>big tarplant are not found in Deer Valley, then Mitigation 4.4-19d through 4.4-19f would be implemented.</p> <p>Mitigation Measure 4.4-19d: Development of new populations of big tarplant in Deer Valley shall occur. [Note: Deer Valley contains a series of low hills dominated by Altamont series clays as the northern frontage of the ridges and these types of hills often contain big tarplant. However, not all such hills in Deer Valley contain big tarplant and some hills certainly have larger populations than others.] Mitigation through development of new populations shall be approached as an experimental effort with successful population establishment pre-dating actual population losses within the Development Area and off-site utility corridor. "Successful" in this case will mean a reproducing population over three years, i.e., assuming a site is inoculated in early winter of year one; years two and three would evidence populations that are similarly sized (within 30 percent) after taking into account local population fluctuations (based on data from local reference sites).</p> <p>This process shall be implemented as follows:</p> <ul style="list-style-type: none"> • Suitable sites are identified in Deer Valley and subject to varying treatments of mulch removal (burn, grazing of varying intensity, and no removal); • Seeds are collected from big tarplant populations in the Development Area and a portion of this seed is grown into plug containers; • Seeding and plug planting occurs in early winter in the selected sites, these areas are mostly fenced from grazing (a portion are left unfenced); and • Subsequent monitoring occurs during the next fall blooming season of the experimental sites and local reference sites; additionally, soil chemistry, grazing and other analyses shall be completed on the local reference sites to assist in defining the reasons behind population fluctuations. <p>Mitigation Measure 4.4-19e: Yearly botanical surveys, timed during the blooming period for big tarplant, shall be conducted in Deer Valley to document both the existing preserved populations and the mitigation populations. Surveys to document existing populations shall occur annually for a minimum of two years and surveys of mitigation populations shall occur annually for 10 years. Monitoring reports will be submitted to the City that will document the estimated total number of tarplant individuals of each population in all locations. The total extent of acreage also will be calculated in the first and last year's of monitoring and estimated for the remaining years. Physical and chemical parameters also will be assessed and these factors correlated to population change.</p> <p>Mitigation Measure 4.4-19f: As described in the Biotic Resources Mitigation Program</p> | |

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| | <p>(Appendix D-4), the mitigation goal for big tarplant is for similar populations to be protected or restored/created in Deer Valley by year 3. If this goal is not achieved in three years, then contingency measures shall be implemented. This will include evaluating the reasons for not meeting the goal and implementing corrective measures, which may include additional seeding and planting of plugs, altering the grazing regime, or introducing or altering other management activities. In the event that the goal is not achieved in five years (or at an earlier date at the applicant's discretion), then alternative measures will be implemented, which may include contributing funds towards the protection of other big tarplant populations or to the ECCCHCP to use in protecting land that provides suitable habitat for the species; these measures would be subject to the approval of the City of Antioch and must be found to be sufficient prior to actual population losses within the Development Area and off-site utility corridor.</p> | |
| <p>Impact 4.4-20: The project may result in loss of silverscale, crownscale, small-flowered morning glory, cupped downingia, sharp-toothed peppergrass, pillwort, and adobe navarettia</p> | <p>Mitigation Measure 4.4-20a: Appropriately timed surveys for silverscale, small-flowered morning glory, cupped downingia, sharp-toothed peppergrass, pillwort, and navarettia shall be conducted within the off-site utility corridor. Any identified populations of these species shall be avoided to the extent feasible in the final utility corridor alignment. [Note: extensive surveys for these species have been conducted within the Development Area, but have not been conducted in the off-site utility corridor.]</p> <p>Mitigation Measure 4.4-20b: Based on existing survey information the population sizes of these species within the Development Area and Deer Valley conservation area will be generally quantified. If the existing survey data is not sufficient for generally quantifying population sizes, then additional surveys will be conducted as required. This will provide the basis for evaluating if mitigation goals are met (see Mitigation Measure 4.4-19c).</p> <p>Mitigation Measure 4.4-20c: Seed will be collected from existing populations of silverscale, crownscale, small-flowered morning glory, cupped downingia, sharp-toothed peppergrass, pillwort, and navarettia (if this species is still present within the Development Area) and seed and plugs shall be grown from that seed and planted in appropriate locations in Deer Valley. Mitigation will be successful provided the number of individuals in Deer Valley is equal to or greater than the existing populations lost in Horse Valley and off-site utility corridor after three years of monitoring taking into account fluctuations in local reference populations. If this goal is not achieved in three years, then contingency measures shall be implemented. This will include evaluating the reasons for not meeting the goal and implementing corrective measures, which may include additional seeding and planting of plugs, altering the grazing regime, or introducing or altering other management activities. Efforts shall continue until the mitigation goals are achieved, or alternatively (if the mitigation goals can not be achieved), the applicant shall contribute funds (in an amount to be determined by the City of Antioch) towards the preservation of special-status plant species (such as the ECCCHCP, CNPS, or other organization).</p> | <p>LTS</p> |

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| <p>Impact 4.4-21: The project would result in loss of jurisdictional wetlands and other waters</p> | <p>Mitigation Measure 4.4-21a: Prior to the commencement of construction activities, a jurisdictional delineation shall be conducted within the off-site utility corridor. To the degree feasible, the off-site utility corridor shall be designed to minimize the loss or disturbance of jurisdictional resources, including wetlands and drainages.</p> <p>Mitigation Measure 4.4-21b: At a minimum, the equivalent acreage of jurisdictional resources to be filled within the Development Area and off-site utility corridor shall be created within the Deer Valley conservation area. These resources shall be created and monitored as described in the Roddy Ranch Biotic Resources Mitigation Program, which is included in Appendix D-4. As described in the Biotic Resources Mitigation Program, sufficient wetland creation and enhancement opportunities are available within the Deer Valley conservation area to off-set the anticipated project-related loss of jurisdictional resources.</p> <p>Mitigation Measure 4.4-21c: The applicant would also be required to obtain a Section 404 permit from the USACE prior to the disturbance of any jurisdictional resources, and to comply with all conditions of that permit. A Streambed Alteration Agreement from the CDFG, and compliance with all conditions of that agreement, would also be required for the fill or alteration of any drainage channels.</p> | <p>LTS</p> |
| <p>Impact 4.4-22: The project may result in restriction of wildlife movement corridors</p> | <p>Mitigation Measure 4.4-22a: The final road widening and utility corridor plan shall provide for wildlife movement by including tunnels under the road. The size, number, and placement of the tunnels shall be based on the recommendations of a qualified biologist, taking into consideration factors such as the wildlife species of interest expected to cross Deer Valley Road and their susceptibility to vehicle strikes; the location of suitable habitat (e.g., stock ponds, seasonal wetlands) on the east and west side of Deer Valley Road that species of interest are likely to move between; and providing access to Deer Valley (a regional wildlife movement that would be protected). The final design and placement of these wildlife movement features shall be subject to the approval of the USFWS.</p> <p>Mitigation Measure 4.4-22b: See Mitigation Measures 4.4-1a through 4.4-1c. These measures require that a conservation easement be placed over 670 acres of Deer Valley that consists primarily of grasslands on the valley floor and adjacent hillside. This conservation easement, together with the other existing conservation easements within Deer Valley, would preserve a functional wildlife movement corridor.</p> <p>These measures also require management activities which would enhance the grasslands with a variety of native grasses and forbs to promote native biological diversity and habitat heterogeneity. The measures would create shallow wetlands on the valley floor that will provide valuable watering areas for the kit fox and other wildlife; will add to habitat variability, but will not be a barrier to kit fox movement; and will increase the</p> | <p>LTS</p> |

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| | <p>availability of ground squirrels as a prey base for kit fox and thereby increase burrows within grassland for San Joaquin kit fox. Additionally, yearly monitoring reports (for a total of 10 years from the completion of mitigation construction) would be prepared and submitted to the City that would make any necessary recommendations to improve the habitat for San Joaquin kit fox.</p> <p>Also, as previously required by Mitigation Measure 4.4-1f, no construction activities shall occur prior to the completion of the Section 7 Consultation with the USFWS and USACE for potential impacts to San Joaquin kit fox (including movement corridors potentially used by kit fox); the applicant would be required to comply with all conditions of the Section 7 Consultation.</p> <p>Mitigation Measure 4.4-22c: To facilitate the movement of kit fox and other wildlife through the project area, the applicant shall remove the retaining wall currently proposed between the east and west phases, at the elbow of Empire Mine Road. The final improvement plans shall reflect a redesign of this area such that no retaining wall is necessary at this location.</p> | |
| <p>Impact 4.4-23: The project may result in loss of oak woodland/conflict with local policies/ordinances</p> | <p>Mitigation Measure 4.4-23a: A tree survey shall be conducted by a certified arborist prior to the issuance of a grading permit. The survey shall include all trees to be removed, as well as those within 50 feet of the disturbance boundary. At a minimum, the survey shall identify the species, size (i.e., diameter at breast height), and condition/health of the trees to be removed.</p> <p>Mitigation Measure 4.4-23b: In compliance with the City of Antioch Tree Ordinance (Article 12: Tree Preservation and Regulation), tree replacement shall occur at a 2:1 ratio and be in kind (i.e., blue oaks removed shall be replaced by blue oaks, valley oaks removed shall be replaced by valley oaks) at the sizes required by the City Ordinance. Replacement trees shall also be monitored for at least three years. Additionally, protective fencing shall be placed around the drip-line of all oak trees occurring outside, but within 100 feet, of the grading/disturbance area. Grading within the drip-line of an oak tree to be maintained shall only be permitted if the applicant posts a bond for the tree (as required by Article 12: Tree Preservation and Regulation).</p> <p>To facilitate the successful replacement of trees, a tree replacement plan shall be prepared and shall meet the following standards:</p> <ul style="list-style-type: none"> • Where possible, the plan shall identify suitable areas for tree replacement to occur such that existing native woodlands or savanna are enhanced and/or expanded. Candidate sites may include the 115-acre blue oak woodland conservation easement area that is located near the Development Area. | <p>LTS</p> |

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| | <ul style="list-style-type: none"> • The plan shall provide for replacing trees at a minimum 2:1 ratio; • The plan shall specify, at a minimum, the following: <ul style="list-style-type: none"> • The location of planting sites; • Site preparation and planting procedures; • A schedule and action plan to maintain and monitor the tree replacement sites; • A list of criteria and performance standards by which to measure success of the tree replacement; and • Contingency measures in the event that tree replacement efforts are not successful <p>Mitigation Measure 4.4-23c: Prior to the commencement of construction, the applicant shall develop a Grazing and Vegetation Management Plan that will provide for the enhancement and management of the oak woodlands preserved in Horse and Deer Valley to increase native plant and wildlife populations and diversity. The Plan may be part of the Resource Management Plan to be prepared and shall be subject to the approval of the City of Antioch.</p> | |
| 4.5 Cultural Resources | | |
| <p>Impact 4.5-1: Ground-disturbing activities could impact cultural resources on site CA-CCO-497H</p> | <p>Mitigation Measure 4.5-1a: Prior to issuance of grading permits, an Archaeological Research Design and Testing Plan (ARDTP) shall be developed and approved by the City for site CA-CCO-497H. A report on the testing shall be submitted to the project applicant, the City of Antioch, and the Northwest Information Center (NWIC), detailing the methods and results, and the site will be evaluated using CRHR eligibility criteria.</p> <p>If the site is recommended as ineligible for the CRHR, project construction within site CA-CCO-497H may begin. If the site is found to be potentially eligible for the CRHR, an Archaeological Data Recovery Plan (ADRP) shall be developed and executed prior to issuance of grading permits to mitigate project effects. Data recovery shall include curation of the artifacts in a curatorial facility that meets the Secretary of the Interior's Standards for Archaeological Documentation, at the expense of the applicant. Once the ADRP is approved by the City and the work completed, project construction activities within the site area can begin.</p> <p>An Archaeological Data Recovery Report (ADRR), detailing methods and results of the ADRP, shall be prepared and submitted to the project applicant and the City for review and comment. Final copies of the ADRR shall be submitted to the project applicant, and</p> | <p>LTS</p> |

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| | <p>the City of Antioch, and the NWIC.</p> <p>Mitigation Measure 4.5-1b: Prior to issuance of grading permits, all construction crews that work on the project shall undergo a training session to inform them of the presence and nature of CRHR-eligible cultural resources and the potential for previously undiscovered archaeological resources and human remains within the project area, of the laws protecting these resources and associated penalties, and of the procedures to follow should they discover cultural resources during project-related work.</p> | |
| <p>Impact 4.5-2: Ground-disturbing activities could impact previously undiscovered archeological resources</p> | <p>Mitigation Measure 4.5-2a: If deposits of prehistoric or historic archeological materials are encountered during project activities, all work within 25 feet of the discovery shall be stopped and a qualified archeologist meeting federal criteria under 36 CFR 61 shall be contacted to assess the deposit(s) and make recommendations.</p> <p>While deposits of prehistoric or historic archeological materials should be avoided by project activities, if the deposits cannot be avoided, they shall be evaluated for their potential historic significance. If the deposits are recommended to be non-significant, avoidance is not necessary. If the deposits are determined to be potentially significant, they shall be avoided. If avoidance is not feasible, project impacts shall be mitigated in accordance with the recommendations of the evaluating archaeologist and CEQA Guidelines §15126.4 (b)(3)(C), which requires implementation of a data recovery plan. Upon completion of the archaeologist's assessment, the archaeologist shall prepare a report documenting the methods and results, and provide recommendations for the treatment of the discovered archaeological materials. The report shall be submitted to the project applicant, the City of Antioch, and the NWIC. Once the report is reviewed and approved by the City, and any appropriate resource recovery completed, project construction activity within the area of the find may resume.</p> <p>Mitigation Measure 4.5-2b: Prior to issuance of grading permits, all construction crews that work on the project shall undergo a training session to inform them of the presence and nature of CRHR-eligible cultural resources and the potential for previously undiscovered archaeological resources and human remains within the project area, of the laws protecting these resources and associated penalties, and of the procedures to follow should they discover cultural resources during project-related work.</p> | <p>LTS</p> |
| <p>Impact 4.5-3: Ground-disturbing activities could impact previously undiscovered human remains</p> | <p>Mitigation Measure 4.5-3a: If human remains are encountered, work within 25 feet of the discovery shall be stopped and the Contra Costa County Coroner notified immediately. At the same time, a qualified archaeologist meeting federal criteria under 36 CFR 61 shall be contacted to assess the situation and consult with the appropriate agencies. If the human remains are of Native American origin, the Coroner must notify the Native American Heritage Commission within 24 hours of this identification. The Native</p> | <p>LTS</p> |

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| | <p>American Heritage Commission will identify a Most Likely Descendant (MLD) to inspect the site and provide recommendations for the proper treatment of the remains and associated grave goods.</p> <p>Upon completion of the assessment, the archaeologist shall prepare a report documenting the background to the finds, and provide recommendations for the treatment of the human remains and any associated cultural materials, as appropriate and in coordination with the recommendations of the MLD. The report shall be submitted to the project applicant, the City of Antioch, and the Northwest Information Center. Once the report is reviewed and approved by the City, and any appropriate treatment completed, project construction activity within the area of the find may resume.</p> <p>Mitigation Measure 4.5-3b: Prior to issuance of grading permits, all construction crews that work on the project shall undergo a training session to inform them of the presence and nature of CRHR-eligible cultural resources and the potential for previously undiscovered archaeological resources and human remains within the project area, of the laws protecting these resources and associated penalties, and of the procedures to follow should they discover cultural resources during project-related work.</p> | |
| <p>Impact 4.5-4: In constructing the water line extension along Empire Mine Road, ground-disturbing activities outside of Empire Mine Road right-of-way could have adverse effects on sites CA-CCO-685H, -686H, and -688H</p> | <p>Mitigation Measure 4.5-4: For the construction of the water line extension along Empire Mine Road, the grading plans shall not include any ground-disturbing activities outside the Empire Mine Road right-of-way. If any ground-disturbing activities associated with the water line extension are contemplated outside of the Empire Mine Road right-of-way—such as the placement of staging areas or parking areas—grading permits shall not be issued until protective measures are developed and implemented to ensure that there are no significant impacts to these sites.</p> | LTS |
| <p>4.6 Geology and Soils</p> | | |
| <p>Impact 4.6-1: Mine ventilation shafts could jeopardize safety of workers/people on the project site</p> | <p>Mitigation Measure 4.6-1: The applicant shall incorporate all findings and recommendations of a final site-specific design-level geotechnical investigation, prepared by a licensed professional, into all development plans submitted for the project, including identification of coal veins and/or abandoned mines beneath the project site and providing recommendations for preventing potential surface subsidence from abandoned mines, as necessary, and effectively identifying and sealing potential mine ventilation shafts encountered during project grading activities to protect public health and safety.</p> | LTS |
| <p>Impact 4.6-2: Leaking of abandoned oil/gas wells could adversely affect structures and people on the project site</p> | <p>Refer to Mitigation Measure 4.7-2a.</p> | LTS |

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| 4.7 Hazards and Hazardous Materials | | |
| <p>Impact 4.7-1: Exposure of people to wildland fires could be increased</p> | <p>Mitigation Measure 4.7-1a: All proposed home designs shall include the use of fire retardant building materials to minimize the potential for loss of life, physical injury, property damage, and social disruption resulting from wildland fires. Prior to the issuance of building permits, the City shall confirm that the building plans comply with the requirements of the Contra Costa County Fire Protection District related to the use of fire retardant building materials.</p> <p>Mitigation Measure 4.7-1b: Appropriate weed abatement and fuelbreak measures, per Contra Costa County Fire Protection District guidelines, shall be included in the Resource Management Plan. Ongoing maintenance shall be funded through the homeowners association fees.</p> | LTS |
| <p>Impact 4.7-2: Project construction could expose people to hazards and hazardous materials</p> | <p>Mitigation Measure 4.7-2a: Prior to issuance of grading permits, the applicant shall confirm that all wells, boreholes and mine ventilation shafts have been properly abandoned and closed and shall provide the City with the appropriate documentation showing the aforementioned:</p> <ol style="list-style-type: none"> 1. Production Wells: The four production wells shall be properly abandoned/destroyed in accordance with applicable regulations. 2. Water Supply Well: The water supply well located near the existing clubhouse shall be properly abandoned/destroyed in accordance with applicable regulations if continued use is no longer intended. 3. Monitoring Wells: The two monitoring wells (independent of the water supply well) located north of the golf course shall be properly abandoned/destroyed in accordance with applicable regulations. 4. Septic Systems/Leach Fields: The septic systems and leach fields shall be excavated and removed in accordance with applicable regulations when continued use is no longer intended. 5. Oil/Gas Exploration Wells/Boreholes: The California Department of Conservation, Division of Oil, Gas, and Geothermal Resources (DOGGR) shall be notified of the three abandoned gas exploration boreholes and any related facilities and they shall determine if further testing and/or re-abandonment is necessary; in the event contaminated soils are identified, a Soil Management Plan (SMP) shall be developed by the applicant and submitted for review and approval to Contra Costa Hazardous Materials. The SMP shall be implemented for safe removal and handling of the soil; the applicant shall incorporate all recommendations of a final well investigation report | LTS |

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| | <p>into all development plans submitted to the City of Antioch Building Division for the project.</p> <p>6. Historical Mining/Mine Ventilation Shafts: Refer to Section 4.6, Geology and Soils for mitigation related to historical mining.</p> <p>Mitigation Measure 4.7-2b: Prior to the issuance of grading permits, the applicant shall submit a Soil Management Plan (SMP) for review and approval by the city. The SMP shall establish management practices for handling fuels during construction to reduce the potential for spills and to direct the safe handling of these materials if encountered.</p> | |
| <p>Impact 4.7-3: The project would disturb soils along the proposed utility corridors, which may be impacted with hazardous materials based on historical land use</p> | <p>Mitigation Measure 4.7-3: Prior to the issuance of grading permits, the applicant shall conduct pre-construction soil sampling and laboratory testing along the proposed utility corridors to determine if near-surface soils have been impacted with hazardous materials. In the event significant concentrations of hazardous materials are identified, a Soil Management Plan (SMP) shall be developed by the applicant and submitted for review and approval to Contra Costa Hazardous Materials. The SMP shall be implemented for construction activities prior to the issuance of grading permits to ensure that any potentially hazardous materials have been safely remediated and removed from the project area.</p> | LTS |
| 4.8 Hydrology and Water Quality | | |
| <p>Impact 4.8-1: Increases in Storm Drainage could exceed the capacity of planned drainage and detention facilities</p> | <p>Mitigation Measure 4.8-1: Prior to the issuance of grading permits, the applicant shall prepare a detailed drainage study to refine the design assumptions contained in the preliminary plan. The drainage study shall include the following design criteria:</p> <ol style="list-style-type: none"> a. Demonstrate that individual lot grading will direct all drainage from building pads to the street. No overland drainage from the pads or street shall be discharged into created fill slopes or natural slopes. b. Calculate pre-development runoff contribution from tributary areas to be developed using a hydrology method acceptable to both the City of Antioch and the Contra Costa County Flood Control and Water Conservation District. c. Calculate post-development runoff contribution from modified tributary areas, accounting for all changes in runoff characteristics using a hydrology method acceptable to both the City of Antioch and the Contra Costa County Flood Control and Water Conservation District. d. Calculate the difference in pre- vs. post-development flows at various points of concentration in the project including the point(s) where drainage is planned to discharge from the project. | LTS |

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| | <p>e. Confirm that the discharge, velocity and duration of flows in the natural drainage ways downstream of the project do not exceed erosion thresholds as specified by Contra Costa County Provision C.3 hydromodification standards.</p> | |
| <p>Impact 4.8-2: The project runoff could exceed downstream detention capacity causing offsite flooding.</p> | <p>Mitigation Measure 4.8-2: Prior to final map approval, the applicant shall submit a drainage study to the satisfaction of the City of Antioch and the Contra Costa County Flood Control that the proposed detention facilities on-site will not impact the operation of downstream regional detention facilities or other in-place flood control improvements in the Marsh Creek Watershed. If the proposed project's contribution to the existing peak flow or duration exceeds capacity of the downstream drainage systems, the drainage plan shall identify drainage enhancements, including:</p> <p>a. On- or off-site detention facilities (or a combination thereof) that will reduce downstream peak flows and durations to pre-project levels;</p> <p>b. Improvement of any downstream drainage system or installation that may be impacted as a result of the proposed project.</p> | <p>LTS</p> |
| <p>4.9 Land Use and Planning</p> | | |
| <p>The project would not result in any significant land use impacts.</p> | | |
| <p>4.10 Noise and Vibration</p> | | |
| <p>Impact 4.10-1: Existing noise levels at the setback of proposed residences would exceed City's noise threshold</p> | <p>Mitigation Measure 4.10-1a: Prior to issuance of grading permits, the applicant shall locate noise-sensitive outdoor use areas at least 250 feet from the center of Deer Valley Road, or shield outdoor use areas with noise barriers. Five to 6-foot noise barriers would be required to reduce exterior noise levels to 60 dBA CNEL or less. Openings or gaps between barrier materials or the ground would substantially decrease the effectiveness of a noise barrier; therefore, to be effective, the proposed barrier must be a solid wall. Suitable materials for barrier construction should have a minimum surface weight of 3 pounds per square foot (such as 1-inch thick wood, masonry block, concrete, or metal). The final detailed noise control plan, including the heights, location, and extent of proposed noise barriers, shall be shown on the final building plans.</p> <p>Mitigation Measure 4.10-1b: Prior to the issuance of building permits, project-specific acoustical analyses shall be performed to confirm that interior noise levels are below 45 dBA CNEL or lower. Building sound insulation requirements (under Title 24) would need to include the provision of forced-air mechanical ventilation for units proposed within 250 feet of the center of Deer Valley Road, so that windows could be kept closed at the occupant's discretion to control noise. The specific determination of what treatments are</p> | <p>LTS</p> |

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| | <p>necessary shall be conducted on a unit-by-unit basis. Results of the analysis, including the description of the necessary noise control treatments, will be submitted to the City along with the building plans and approved prior to issuance of a building permit.</p> | |
| <p>Impact 4.10-2: Construction noise would exceed acceptable levels, as established in the General Plan and Zoning Ordinance</p> | <p>Mitigation 4.10-2: The following Ordinances and General Plan policies shall be printed as notes on all grading and building plans, and shall be implemented in order to reduce project construction noise to less than significant levels. Where mitigation measures are based on the noise policies of the City of Antioch's 2003 General Plan, the applicable General Plan policy number is indicated following the mitigation measure.</p> <ul style="list-style-type: none"> • Noise-generating construction activities, including truck traffic coming to and from the site for any purpose, shall be limited to weekdays between 7:00 a.m. and 6:00 p.m., or as approved by the City Engineer; • All equipment driven by internal combustion engines shall be equipped with mufflers, which are in good condition and appropriate for the equipment; • The construction contractor shall utilize "quiet" models of air compressors and other stationary noise sources where technology exists; • At all times during project grading and construction, stationary noise-generating equipment shall be located as far as practicable from sensitive receptors and placed so that emitted noise is directed away from residences; • Unnecessary idling of internal combustion engines shall be prohibited; • Construction staging areas shall be established at locations that will create the greatest distance between the construction-related noise sources and noise-sensitive receptors nearest the project site during all project construction (GP Noise Policy 11.6.2m); • The required construction-related noise mitigation plan also shall specify that haul truck deliveries be subject to the same hours specified for construction equipment (GP Noise Policy 11.6.2n); • Neighbors located adjacent to the construction site shall be notified of the construction schedule in writing; and • The construction contractor shall designate a "noise disturbance coordinator" who will be responsible for responding to any local complaints about construction noise; the noise disturbance coordinator would determine the cause of the noise complaint (e.g., starting too early, bad muffler, etc.) and institute reasonable measures as warranted to correct the problem; a telephone number for the noise disturbance | <p>LTS</p> |

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| | coordinator shall be conspicuously posted at the construction site. | |
| 4.11 Population and Housing | | |
| The project would not result in any significant impacts to population and housing. | | |
| 4.12 Public Services | | |
| The project would not result in any significant impacts to public services. | | |
| 4.13 Public Utilities | | |
| Impact 4.13-1: Increased population could affect City's ability to meet requirements for solid waste disposal | Mitigation Measure 4.13-1: In addition to the implementation of the General Plan policies relating to solid waste, the project shall include adequate, accessible areas for collecting and loading recyclable materials in accordance with the California Solid Waste Reuse and Recycling Access Act of 1991 (Public Resources Code Sections 42900 through 42911). Final building plans shall include provisions for both interior and exterior storage areas for recyclables, subject to City review. Project plans that clearly delineate these areas shall be submitted to the Planning Department for review and approval prior to issuance of a building permit. | LTS |
| 4.14 Traffic and Circulation | | |
| Impact 4.14-1: Development of the project would cause an increase in traffic in relation to the existing traffic load and street system. The Existing Plus Project traffic conditions would exceed the City's LOS standard for designated roads and highways, including Routes of Regional significance in the near term. | Mitigation 4.14-1: Prior to issuance of occupancy permits, the following improvements shall be completed and operational: <u>Intersection 3: Hillcrest Avenue/State Route 4 Eastbound Ramps</u> – Operating conditions at this signalized intersection can be improved with the addition of a 100 foot exclusive right-turn lane to the northbound approach. (This mitigation measure represents part of the improvements which are already planned at the intersection.) <u>Intersection 4: Hillcrest Avenue/State Route 4 Westbound Ramps</u> – Acceptable operating conditions can be achieved at this signalized intersection by restriping Hillcrest Avenue to provide two through receiving lanes north of the intersection which would increase the capacity of the westbound right-turn lane. It should be noted that the CCTA methodology doesn't provide any capacity benefits with implementation of right-turn treatments. In addition to the above mentioned increase in capacity on the westbound right-turn lane an additional through lane could be added to the northbound approach of Hillcrest Avenue to improve operating conditions. It should be noted that if this intersection were restriped to allow for two through receiving lanes north of the intersection it may be possible to just | LTS |

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| | <p>restripe the northbound approach to provide the recommended additional through lane instead of widening the roadway. (These mitigation measures represent some of the improvements which are already planned at the intersection.)</p> <p><u>Intersection 13: Deer Valley Road/Balfour Road</u> –The project shall install a traffic signal which would replace the existing stop controlled intersection. The project should provide the lanes discussed under the “Road Capacity on Deer Valley Road” section. As an option, a single lane roundabout would provide the required capacity with less queuing and vehicle conflicts. A roundabout at this location would act as a transitional gateway between the more rural Deer Valley Road to the south and access to Brentwood to the east.</p> <p><u>Intersection 22: Deer Valley Road/Project Access (North)</u> – The applicant shall install a traffic signal with the lane improvements discussed under the “Road Capacity on Deer Valley Road” section.</p> | |
| <p>Impact 4.14-2: The cumulative effects of the project, in addition to other planned and programmed development, would exceed the LOS standard established by the county congestion management agency for designated roads or highways.</p> | <p>Mitigation Measure 4.14-2: Prior to issuance of occupancy permits, the applicant shall pay fair share fees to ensure that the nine intersections identified below operate better than mid-range LOS D.</p> <p><u>Intersection 3: Hillcrest Avenue/State Route 4 Eastbound Ramps</u> – In addition to the planned transportation improvements, acceptable operating conditions can be achieved at this signalized intersection with the addition of a 100 foot exclusive right-turn lane to the northbound approach on Hillcrest Avenue as mentioned under Existing plus Project conditions. These improvements are recommended to be installed in fifteen to twenty years. The project should contribute its fair share towards the cost of these improvements.</p> <p><i>Proportional fair share:</i> The project is expected to contribute 177 a.m. and 231 p.m. peak hour trips to this intersection. Compared to the total increase of 931 a.m. and 986 p.m. peak hour trips, the project’s average proportional share of traffic and the cost of associated improvements is 21.2 percent. The project shall contribute 21.2 percent of the cost of the intersection improvements.</p> <p><u>Intersection 10. Lone Tree Way/James Donlon Boulevard</u> – Even with the conversion of the existing southbound shared through/right turn lane to an exclusive through lane and the addition of an exclusive southbound right-turn lane approach, this intersections will still operate at LOS E (v/c = 0.97). These conditions may be due to the fact that the future traffic projections may be higher than the City’s General Plan traffic projections. Beyond these recommendations there are no other mitigations with reasonable benefit-cost ratios that would produce acceptable operating conditions. (The only mitigations which would achieve a V/C of 0.85 or lower include a northbound triple left-turn lane and</p> | <p>SI</p> <p>Although impacts at some of the intersections can be mitigated to a less than significant level, at the intersection of Lone Tree Way/James Donlon Boulevard (Intersection 10) acceptable operating conditions cannot be achieved. Therefore, cumulative traffic impacts would remain significant and unavoidable.</p> |

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| | <p>a fourth southbound through lane.) Since the HCM Operations analysis determined that the intersection would operate at a LOS C at this intersection with current lanes and traffic signal operations, no additional recommendations are suggested. Because intersection conditions must meet the CCTA V/C standard, the impacts at this intersection under Future conditions should be considered significant and unavoidable.</p> <p><i>Proportional fair share:</i> The project is expected to contribute 136 a.m. and 175 p.m. peak hour trips to this intersection. Compared to the total increase of 882 a.m. and 1,333 p.m. peak hour trips, the project's average proportional share of traffic is 14.3 percent.</p> <p><u>Intersection 13: Deer Valley Road/Balfour Road</u> – The project shall install a traffic signal which would replace the existing stop controlled intersection. The project should provide the lanes discussed under the “Road Capacity on Deer Valley Road” section. As an option, a single lane roundabout would provide the required capacity with less queuing and vehicle conflicts. A roundabout at this location would act as a transitional gateway between the more rural Deer Valley Road to the south and access to Brentwood to the east. These improvements are recommended to be installed within two years of the project's first occupancy. The project should contribute its fair share towards the cost of these improvements.</p> <p><i>Proportional fair share:</i> The project's 285 a.m. and 356 p.m. peak hour trips comprise of an average of 43.2 percent of the 613 a.m. and 891 p.m. additional peak hour trips that this intersection is expected to serve in the future, and its proportional share of the cost of future improvements. The project shall contribute 43.2 percent of the cost of the intersection improvements.</p> <p><u>Intersection 14: Deer Valley Road/Marsh Creek Road</u> –Acceptable operating conditions can be achieved at this stop controlled intersection with the introduction of a signal or a single-lane roundabout. Under conditions with a traffic signal, the southbound approach should be widened to a left and right-turn lane and the eastbound approach should consist of a left and through lane. These improvements are recommended to be installed in five to ten years. The project should contribute its fair share towards the cost of these improvements.</p> <p><i>Proportional fair share:</i> The project is expected to contribute 48 a.m. and 61 p.m. peak hour trips to this intersection. Compared to the total increase of 450 a.m. and 541 p.m. peak hour trips, the project's average proportional share of traffic and the cost of associated improvements is 11.0 percent. The project shall contribute 11.0 percent of the cost of the intersection improvements.</p> <p><u>Intersection 17: Balfour Road/State Route 4 Extension</u> – Acceptable operating conditions can be achieved at this signalized intersection by converting the existing northbound</p> | |

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| | <p>shared through/right turn lane to an exclusive through lane and adding an exclusive right-turn lane on the northbound approach. These improvements are recommended to be installed in fifteen to twenty years. The project should contribute its fair share towards the cost of these improvements.</p> <p><i>Proportional fair share:</i> The project is expected to contribute 126 a.m. and 162 p.m. peak hour trips to this intersection. Compared to the total increase of 1,225 a.m. and 816 p.m. peak hour trips, the project's average proportional share of traffic and the cost of associated improvements is 15.1 percent. The project shall contribute 15.1 percent of the cost of the intersection improvements.</p> | |
| <p>Impact 4.14-3: Project development would conflict with adopted policies and plan supporting alternative transportation.</p> | <p>Mitigation Measure 4.14-3a: To address the need for bicycle and pedestrian access from outlying areas surrounding the site, the project shall contribute its fair share toward the development of sidewalks and Class II bike lanes on Deer Valley Road and Balfour Road, both of which are identified as County-wide Bikeways in the CCTA Countywide Bicycle and Pedestrian Master Plan, which has been adopted by the City of Antioch. Additionally, Class II bike lanes and pedestrian access shall be provided on "A" Street (as shown on Figure 3.5 and Figure 3.6), which would connect the East Phase and the West Phase.</p> <p>Mitigation Measure 4.14-3b: In compliance with the ADA, sidewalks within the project site shall incorporate ADA curb ramps and appropriate crossing treatments at internal intersections. It should be noted that the project would be responsible for the construction of such on-site facilities.</p> <p>Mitigation Measure 4.14-3c: To address potential demand for future transit use, the project shall coordinate with Tri Delta Transit, to provide a transit stop along Deer Valley Road near Balfour Road.</p> | <p>LTS</p> |
| <p>Impact 4.14-4: The cumulative effects of the project, in addition to other planned and programmed development, would exceed the available storage length of turn lanes at study intersections.</p> | <p>Mitigation Measure 4.14-4: The project shall be responsible for providing acceptable storage lengths on the northbound left-turn lane at Deer Valley Road/Lone Tree Way and the southbound left-turn lane at Hillcrest Avenue/State Route 4 Eastbound Ramps. The project should also pay its fair share for its contribution to extended vehicle queuing at other intersections shown in Tables 4.14-10 and 4.14-11.</p> | <p>LTS</p> |
| <p>Impact 4.14-5: The project's internal street network would have the potential to exceed City standards for traffic volumes and level of service operations.</p> | <p>Mitigation Measure 4.14-5a: To comply with City standards regarding internal neighborhood street circulation, the project shall provide emergency access to the East and West phases of the project site via Empire Mine Road or provide access through the Roddy Ranch golf course property.</p> <p>Mitigation Measure 4.14-5b: To maintain adequate LOS and serve the traffic volume demands generated by the project, the project access road on Deer Valley Road shall be</p> | <p>LTS</p> |

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| | <p>designed to provide two inbound and two outbound traffic lanes. A traffic signal shall also be constructed at the intersection of the project's access road and Deer Valley Road. All internal neighborhood streets shall meet City design standards and neighborhood intersections within the East and West phases shall be controlled by stop signs. In preparation of the future development of the commercial/residential property just south of the East Phase at the west extension of Balfour Road, the interior project circulation shall provide for a direct connection to the future commercial/residential property to serve vehicles, bicycles, and pedestrians. The connection would allow residents of the project site to access the future commercial/residential property without placing additional traffic on Deer Valley Road.</p> | |

Source: CirclePoint, 2009.

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