

Draft
Environmental Impact Report

The New Zoo at Elk Grove

SCH No. 2022110393

Prepared for:



January 2024



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Prepared for:



City of Elk Grove
8401 Laguna Palms Way
Elk Grove, California 95758

Contact:

Christopher Jordan
Director Strategic Planning and Innovation
916.478.2222

Prepared by:



Ascent
455 Capitol Mall, Suite 300
Sacramento, CA 95814

Contact:

Kari Zajac
Environmental Planner
916.732.3329

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EXECUTIVE SUMMARY

INTRODUCTION

This summary is provided in accordance with the California Environmental Quality Act Guidelines (State CEQA Guidelines) Section 15123. As stated in Section 15123(a), “an EIR [environmental impact report] shall contain a brief summary of the proposed action and its consequences. The language of the summary should be as clear and simple as reasonably practical.” As required by the guidelines, this chapter includes (1) a summary description of the New Zoo at Elk Grove Project (Project), (2) a synopsis of environmental impacts and recommended mitigation measures (Table ES-1, presented at the end of this chapter), (3) identification of the alternatives evaluated and of the environmentally superior alternative, (4) a discussion of the areas of controversy associated with the Project, and (5) a discussion of issues to be resolved.

SUMMARY DESCRIPTION OF THE PROJECT

The proposed Project would result in the construction and operation of a zoological park and associated support and operational, retail, and guest services facilities in the City of Elk Grove. The approximately 100-acre Project site is located on a vacant site. The Project would include a new Special Planning Area (SPA) referred to as the Zoological Park SPA, development of the zoo, parking facilities, off-site public infrastructure improvements, and an animal browse program. The New Zoo would be constructed in phases as Project funding allows.

Project Background and History

The Sacramento Zoo is located in William Land Park in the City of Sacramento. The Sacramento Zoo site is owned by the City of Sacramento and is operated, pursuant to a Partnership Agreement, by the Sacramento Zoological Society, the nonprofit organization that has complete managerial and financial control of the Zoo. The existing Zoo is a 94-year-old zoo in need of renovations to habitat and facilities to meet current animal care standards and guest experiences. The 14.7-acre facility is landlocked and unable to provide the necessary space for many of the species housed at the Sacramento Zoo. Space is also limited for visitor parking at the Sacramento Zoo and restricts the number of attendees and access to the Zoo.

Project Objectives

The primary objectives of the New Zoo at Elk Grove Project are to:

- ▶ construct a new larger, sustainable, zoo with expanded habitats and facilities to support a broader range of animal species;
- ▶ meet current animal care Association of Zoos and Aquariums standards for animals housed in the zoo;
- ▶ increase access to the zoo with adequate parking facilities, easy accessibility, and access to transit and trails;
- ▶ increase and expand on the zoo mission and mission impact to inspire appreciation, respect and a connection with wildlife and nature through education, recreation, and conservation;
- ▶ provide enhanced visitor experience through education, overnight stay, event spaces, and animal encounters.

Project Location

The Project site (Assessor’s Parcel Numbers [APNs] 132-0320-010, -001 and -002; and 132-2390-006) is located at the northwest intersection of Kammerer Road and Lotz Parkway in the City of Elk Grove. The Project site is a fallow field surrounded by single-family residences to the east, agriculture to the south and west, and active construction of a new residential subdivision to the north. The core of the Project site (APNs 132-0320-010, -001 and -002) is within the

Livable Employment Area Community Plan with a land use designation of Parks and Open Space (P/O). The Livable Employment Area Community Plan includes consideration of the Project site as a zoological park.

Project Characteristics

The Project consists of the following components:

- ▶ Zoological Park SPA
- ▶ Zoological Park
- ▶ Parking facilities
- ▶ Off-site public infrastructure improvements
- ▶ Animal Browse Program

POTENTIAL APPROVALS AND PERMITS REQUIRED

The following discretionary actions and permits are anticipated for the proposed Project.

Local and Regional

- ▶ City's approval of Zoning Amendment to include the New Zoo Special Planning Area;
- ▶ City's approval of the site development permits for the Project, including Conditional Use Permits, a District Development Plan (e.g., site plan), and Design Review (e.g., building architecture);
- ▶ City's approval of a License and Management and Operations Agreement between the City and the Sacramento Zoological Society;
- ▶ Sacramento County Water Agency approval of water supply distribution facility connections;
- ▶ Sacramento Area Sewer District approval of wastewater conveyance facility connections;
- ▶ Sacramento Municipal Utility District (SMUD) approval of electrical conveyance facility connections;
- ▶ Central Valley Regional Water Quality Control Board: Waste Discharge Requirements; and
- ▶ Sacramento Metropolitan Air Quality Management District: Clean Air Act compliance, approval of an Authority to Construct and Permit to Operate.

State

- ▶ California Fish and Wildlife approval of Section 1602 Permit.

Federal

- ▶ US Army Corps of Engineers Section 401 and 404 permits; and
- ▶ Licensing by the US Department of Agriculture

ENVIRONMENTAL IMPACTS AND RECOMMENDED MITIGATION MEASURES

This EIR has been prepared pursuant to CEQA (PRC Section 21000 et seq.) and the State CEQA Guidelines (California Code of Regulations, Title 14, Chapter 3, Section 15000 et seq.) to evaluate the physical environmental effects of the proposed Project. The City is the lead agency for the Project. The City Council has the principal responsibility for approving the Project and for ensuring that the requirements of CEQA have been met.

Table ES-1, presented at the end of this chapter, provides a summary of the environmental impacts of the Project. The table identifies the level of significance of the impact before mitigation, recommended mitigation measures, and the level of significance of the impact after implementation of the mitigation measures.

For detailed discussions of all Project impacts and mitigation measures, the reader is referred to the topical environmental analysis in Chapter 3, "Environmental Setting, Impacts, and Mitigation Measures." Cumulative impacts are discussed in Chapter 6, "Cumulative Impacts."

Significant and Unavoidable Impacts

Implementing the Project would result in the following significant and unavoidable impacts:

- ▶ Impact 3.7-1: Project-generated GHG emissions and consistency with plans and regulations
- ▶ Impact 3.13-2: Result in an Exceedance of City of Elk Grove General Plan VMT Thresholds
- ▶ Impact 4-12: Contribute to Cumulative Greenhouse Gas Impacts
- ▶ Impact 4-22: Contribute to Cumulative Impacts on Vehicle Miles Traveled

ALTERNATIVES TO THE PROPOSED PROJECT

The following alternatives are evaluated in this Draft EIR:

- ▶ **Alternative 1: No Project–No Development Alternative** assumes no construction of the New Zoo. The Project site would remain vacant in its current condition.
- ▶ **Alternative 2: Reduced Development Alternative** assumes development of Phase 1a and 1b only.
- ▶ **Alternative 3: New Site Location Alternative** assumes the New Zoo would be developed at the site of the Elk Grove Park.

Alternative 1: No Project–No Development Alternative would avoid the significant impacts of the Project and is considered the environmentally superior alternative. When the environmentally superior alternative is the No Project Alternative, the State CEQA Guidelines (Section 15126[d][2]) require selection of an environmentally superior alternative other than the No Project Alternative from among the other alternatives evaluated. As further addressed in Chapter 6, "Alternatives," Alternative 2: Reduced Development Alternative would be the environmentally superior alternative.

AREAS OF CONTROVERSY

State CEQA Guidelines Section 15123 requires the summary section of a Draft EIR to identify the areas of controversy known to the lead agency, including issues raised by agencies and the public. The areas of controversy associated with the Project are:

- ▶ Potential impacts to biological resources from development of a vacant site;
- ▶ Emissions from zoo operations and transportation to the New Zoo;
- ▶ Hydrology and water quality impacts from development of a vacant site;
- ▶ Transportation impacts from visitation to the New Zoo;
- ▶ Noise impacts from visitors, animals, and nighttime activities.

ISSUES TO BE RESOLVED

State CEQA Guidelines Section 15123 requires the summary section of a Draft EIR to identify issues to be resolved related to the proposed project. Issues to be resolved by the City are identified below, including issues that will not necessarily be resolved through the EIR:

- ▶ Should the Project be approved as proposed?
- ▶ Should the Project be modified to include only Phase 1?
- ▶ Should the Project include the animal browse program?

Table ES-1 Summary of Impacts and Mitigation Measures

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
Aesthetics			
<p>Impact 3.1-1: Substantially Degrade the Existing Visual Character Project implementation would introduce structures that, because of their massing and height, would alter the current visual character of the Project area. Specifically, the Project would alter the existing low-density rural and agricultural character of the landscape to one that is more densely developed. However, the Project would complement planned urban development of the area, be predominantly screened from view with appropriate landscaping, would adhere to the City’s adopted design guidelines, including those of the proposed Zoological Park Special Planning Area (SPA). As a result, the Project would be largely compatible with the visual quality and character of the surrounding area. This impact would be less than significant.</p>	LTS	No mitigation is required.	LTS
<p>Impact 3.1-2: Consistency with Regulations Governing Site Design and Architecture Project site design and architectural character are regulated by the City through compliance with General Plan policies; compliance with Zoning Code Chapters 23.29, 23.54, 23.56, and 23.62; and application of the Design Guidelines. The Project would not conflict with City design policies and guidelines that are associated with site design and architecture. Impacts would be less than significant.</p>	LTS	No mitigation is required.	LTS
<p>Impact 3.1-3: Create a New Source of Substantial Light or Glare That Would Adversely Affect Day or Nighttime Views The Project would not include new materials or surfaces that would create substantial new sources of glare. However, the Project would introduce new sources of nighttime lighting, including interior building lighting and exterior lighting needed for the safety and visibility of the Project site as well as zoo events. The Project would be subject to lighting requirements in the EGMC and Zoological Park SPA to minimize light spillover on adjacent properties. This impact would be less than significant.</p>	LTS	No mitigation is required.	LTS
Air Quality			
<p>Impact 3.2-1: Generate Short-Term Construction-Related Emissions of ROG, NO_x, CO, SO_x, PM₁₀, and PM_{2.5} Consistent with SMAQMD’s guidance, average daily construction-generated emissions were quantified for the Project. The Project would not generate construction emissions of NO_x that would exceed SMAQMD’s daily mass emissions</p>	PS	<p>Mitigation Measure 3.2-1: Implement SMAQMD’s Basic Construction Emissions Control Practices SMAQMD requires construction projects to implement basic construction emissions control practices to control fugitive dust and diesel exhaust emissions. These basic construction emissions control practices are considered best management</p>	LTS

NI = No impact LTS = Less than significant PS = Potentially significant S = Significant SU = Significant and unavoidable

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
<p>thresholds of significance. These thresholds are inherently tied to long-term regional air quality planning for ozone attainment (i.e., SMAQMD’s air quality management plans), which demonstrates that the Project would not conflict with the applicable air quality plans as they relate to ozone. However, because the Project does not incorporate SMAQMD’s construction BMPs into the Project description, emissions of PM₁₀ and PM_{2.5} would exceed SMAQMD’s recommended thresholds of 0 lb/day. Implementation of Mitigation Measure 3.2-1 would require the Project to implement SMAQMD’s construction BMPs (which adjusts SMAQMD’s PM₁₀ and PM_{2.5} thresholds to 80 and 82 lb/day, respectively) and would be sufficient to reduce this impact to a less-than-significant level.</p>		<p>practices, as recommended by SMAQMD. The New Zoo shall implement the following control measures during Project construction:</p> <ul style="list-style-type: none"> ▶ Control fugitive dust as required by SMAQMD Rule 403 and enforced by SMAQMD staff. ▶ Water all exposed surfaces twice daily. Exposed surfaces include but are not limited to soil piles, graded areas, unpaved parking areas, staging areas, and access roads. ▶ Cover or maintain at least 2 feet of freeboard space on haul trucks transporting soil, sand, or other loose material on the site. Any haul trucks that would travel along freeways or major roadways should be covered. ▶ Use wet power vacuum street sweepers to remove any visible track-out of mud or dirt from adjacent public roads at least once a day. Use of dry power sweeping is prohibited. ▶ Complete all roadways, driveways, sidewalks, and parking lots to be paved as soon as possible. In addition, lay building pads as soon as possible after grading unless seeding or soil binders are used. ▶ Limit vehicle speeds on unpaved roads to 15 miles per hour. ▶ Minimize idling time, either by shutting equipment off when it is not in use or by reducing the time of idling to 5 minutes (required by 13 CCR Sections 2449[d][3] and 2485). Provide clear signage that posts this requirement for workers at the site entrances. ▶ Maintain all construction equipment in proper working condition according to the manufacturers’ specifications. The equipment must undergo a one-time inspection by a certified mechanic and be determined to be running in proper condition before the start of construction activities. 	
<p>Impact 3.2-2: Generate Long-Term Operational Emissions of ROG, NO_x, CO, SO_x, PM₁₀, and PM_{2.5} Operation of the Project would not generate emissions of ROG or NO_x in exceedance of SMAQMD’s daily mass emissions thresholds of significance during the opening phase in 2029 or at full buildout in 2043. However, operation would exceed SMAQMD’s 0 lb/day PM₁₀ and PM_{2.5} threshold because it would emit 16 lb/day of PM₁₀ and 4 lb/day of PM_{2.5} at full buildout. Nevertheless, the Project would comply with SMAQMD’s operational BMPs for operational PM for land use development projects, including compliance with the mandatory measures of Parts</p>	LTS	No mitigation is required.	LTS

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PS = Potentially significant

S = Significant

SU = Significant and unavoidable

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
<p>6 and 11 of the Title 24 California Building Code, which would result in the readjustment of SMAQMD’s thresholds for PM₁₀ and PM_{2.5} to 80 and 82 lb/day, respectively. Project emissions of PM₁₀ and PM_{2.5} after compliance with the California Building Code would be below SMAQMD’s operational emissions thresholds of significance of 80 and 82 lb/day for PM₁₀ and PM_{2.5}, respectively (SMAQMD’s thresholds when operational BMPs and BACTs are applied). Therefore, the impact related to operational emissions would be less than significant</p>			
<p>Impact 3.2-3: Expose Receptors to TAC Concentrations Adversely Affecting a Substantial Number of People Based on the HRA prepared for the Project, construction would produce substantial diesel PM such that SMAQMD’s threshold for TAC cancer risk exposure of 10 in 1 million would be exceeded. Using this numerical threshold, the Project would generate substantial emissions of TACs, causing an adverse health impact from TAC exposure. Implementation of Mitigation Measure 3.2-3 would direct the zoo construction activities to use CARB-certified Tier 4 engines for diesel-powered construction equipment during construction of the Project. Mitigation Measure 3.2-3 would be sufficient to reduce TAC levels to below SMAQMD’s 10 in 1 million threshold of significance. With mitigation, this impact would be reduced to a less-than-significant level.</p>	PS	<p>Mitigation Measure 3.2-3: Apply Tier-4 Emission Standards to All Diesel-Powered Off-Road Equipment The New Zoo shall require the construction contractor to use only off-road construction equipment that meets EPA’s Tier 4 emission standards, as defined in 40 CFR 1039, and to comply with the appropriate test procedures and provisions contained in 40 CFR Parts 1065 and 1068. This measure can also be achieved by using battery-electric off-road equipment as it becomes available. Implementation of this measure shall be required in the contract the Project applicant establishes with its construction contractors. The New Zoo shall demonstrate its plan to fulfill the requirements of this measure in a report or in Project improvement plan details submitted to the City before the use of any off-road diesel-powered construction equipment on the site.</p>	LTS
<p>Impact 3.2-4: Generate Other Emissions (Such as Those Leading to Odors) Adversely Affecting a Substantial Number of People The Project would not introduce an odor source identified by SMAQMD that could result in an adverse odor impact. Because of the unusual character of the Project (i.e., a zoo sheltering and feeding exotic species), data acquired from the existing Sacramento Zoo has been used to characterize the potential for an adverse odor to occur from Project implementation. SMAQMD records odor complaint history for existing odor-generated sources. SMAQMD has not received an odor complaint regarding the Sacramento Zoo’s operations since commencing operations. Given that the Project would entail operational activities similar to those of the Sacramento Zoo, it is foreseeable that the Project also would not receive odor complaints. This impact would be less than significant.</p>	LTS	No mitigation is required.	LTS

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LTS = Less than significant

PS = Potentially significant

S = Significant

SU = Significant and unavoidable

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
Biological Resources			
<p>Impact 3.3-1: Result in Disturbance to or Loss of Special-Status Wildlife Species and Habitat</p> <p>Project implementation would include development activities, such as ground disturbance and construction of new buildings, that could result in disturbance to several special-status bird species if they are present. Implementing the Project may result in injury, mortality, reduced breeding productivity, and loss of species habitat for special-status birds. Implementation of Mitigation Measures 3.3-1a through 3.3-1c would reduce the significant impact on Swainson’s hawk, white-tailed kite, other raptors, tricolored blackbird, loggerhead shrike, common native nesting birds, burrowing owl, greater sandhill crane, and lesser sandhill crane related to construction and off-site improvement activities because it would require preconstruction surveys and implementation of avoidance measures (e.g., no-disturbance buffers) to prevent injury or mortality, disturbance, and nest abandonment if active nests are determined to be present on or near the Project site or in off-site improvement areas. These mitigation measures would reduce the impacts to a less-than-significant level.</p>	<p>PS</p>	<p>Mitigation Measure 3.3-1a: Conduct Take Avoidance Survey for Burrowing Owl, Implement Avoidance Measures, and Compensate for Loss of Occupied Burrows</p> <p>The New Zoo shall implement the following measures to reduce impacts on burrowing owl:</p> <ul style="list-style-type: none"> ▶ A qualified biologist shall conduct focused breeding and nonbreeding season surveys for burrowing owls in areas of suitable habitat on and within 500 feet of the Project site. To ensure accuracy and the most up-to-date information, surveys shall be conducted before the start of construction activities and in accordance with Appendix D of the Staff Report on Burrowing Owl Mitigation (CDFG 2012), which recommends at least three surveys conducted at least 3 weeks apart. ▶ If no occupied burrows are found, the qualified biologist shall submit a report documenting the survey methods and results to the City, and no further mitigation shall be required. ▶ If an active burrow is found during the nonbreeding season (September 1 through January 31), the applicant shall consult with CDFW regarding protective buffers to be established around the occupied burrow and maintained throughout construction. The buffer shall be a minimum of 150 feet around the active, nonbreeding burrow but may be reduced in consultation with CDFW. If occupied burrows are present that cannot be avoided or adequately protected with a no-disturbance buffer, a burrowing owl exclusion plan shall be developed, as described in Appendix E of the Staff Report. Burrowing owls shall not be excluded from occupied burrows until the Project burrowing owl exclusion plan is approved by CDFW and only during the nonbreeding season. The exclusion plan shall include methods for determining burrow vacancy, type and timing for scoping burrows, what will determine excavation timing, a monitoring plan for determining exclusion has been successful, remedial measures to prevent owl reuse and avoid take, and a burrowing owl mitigation and management plan (see below). ▶ If an active burrow is found during the breeding season (February 1 through August 31), occupied burrows shall not be disturbed and shall be provided with a protective buffer at a minimum of 650 feet unless a qualified biologist verifies through noninvasive means that either (1) the birds have not begun egg laying or (2) juveniles from the occupied burrows are foraging independently and are capable of independent survival. The size of the buffer may be adjusted 	<p>LTS</p>

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Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		<p>depending on the time of year and level of disturbance as outlined in the Staff Report (CDFG 2012: 9). The size of the buffer may be reduced if a broad-scale, long-term monitoring program acceptable to CDFW is implemented so that burrowing owls are not adversely affected. After the fledglings are capable of independent survival, the owls can be evicted, and the burrow can be destroyed in accordance with the terms of a CDFW-approved burrowing owl exclusion plan developed in accordance with Appendix E of the Staff Report.</p> <ul style="list-style-type: none"> ▶ If burrowing owls are excluded from burrows and the burrows are destroyed as a result of Project construction activities, the applicant shall mitigate the loss of occupied habitat such that habitat acreage and the number of burrows are replaced through permanent conservation of comparable or better habitat at a 1:1 mitigation ratio with similar vegetation communities and burrowing mammals (e.g., ground squirrels) present to provide for nesting, foraging, wintering, and dispersal. The applicant shall retain a qualified biologist to develop a burrowing owl mitigation and management plan that incorporates the following goals and standards, among others: <ul style="list-style-type: none"> ▪ Mitigation lands shall be selected based on comparison of the habitat lost to the compensatory habitat, including type and structure of habitat; disturbance levels; potential for conflicts with humans, pets, and other wildlife; density of burrowing owls; and relative importance of the habitat to the species throughout its range. ▪ Where available, mitigation lands shall be provided adjacent or proximate to the development area so that displaced owls can relocate with reduced risk of injury or mortality, depending on the availability of habitat sufficient to support displaced owls that may be preserved in perpetuity. ▪ If habitat suitable for burrowing owl is not available for conservation adjacent or proximate to the development area, mitigation lands shall be secured off-site and shall aim to consolidate and enlarge conservation areas outside of planned development areas and within foraging distance of other conservation lands. Alternatively, mitigation may be accomplished through purchase of mitigation credits at a CDFW-approved mitigation bank, if available. Alternative mitigation sites and acreages may also be determined in consultation with CDFW. If burrowing owl habitat mitigation is completed through permittee-responsible conservation lands, the mitigation plan shall include mitigation objectives, site selection factors, site management roles and responsibilities, vegetation management goals, financial assurances and 	

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		<p>funding mechanisms, performance standards and success criteria, monitoring and reporting protocols, and adaptive management measures. Success shall be based on the number of adult burrowing owls and pairs using the site and whether the numbers are maintained over time. Measures of success, as suggested in the Staff Report, shall include site tenacity, the number of adult owls present and reproducing, colonization by burrowing owls from elsewhere, changes in distribution, and trends in stressors.</p> <p>Mitigation Measure 3.3-1b: Conduct Focused Surveys for Swainson’s Hawk, White-Tailed Kite, Northern Harrier, Tricolored Blackbird, Loggerhead Shrike, and Other Nesting Birds</p> <p>The Project applicant shall implement the following measures to reduce impacts on special-status and other tree-nesting birds:</p> <ul style="list-style-type: none"> ▶ To minimize the potential for loss of nesting birds protected under the Migratory Bird Treaty Act or California Fish and Game Code Section 3503, Project construction activities (e.g., tree removal, vegetation clearing, ground disturbance, staging) shall be conducted during the nonbreeding season (approximately September 1 through January 31, as determined by a qualified biologist), when possible. If Project construction activities are conducted during the nonbreeding season, no further mitigation shall be required. ▶ Within 14 days before the onset of Project construction activities during the breeding season (approximately February 1 through August 31, as determined by a qualified biologist), a qualified biologist familiar with birds of California and with experience conducting nesting bird surveys shall conduct focused surveys for Swainson’s hawk, white-tailed kite, tricolored blackbird, northern harrier, loggerhead shrike, and other nesting birds protected under the Migratory Bird Treaty Act or California Fish and Game Code Section 3503. Surveys shall be conducted in accessible areas (i.e., not including private property) within 1,000 foot buffer of the Project site for Swainson’s hawk and white-tailed kite, within 500 feet of the site for nonraptor native bird nests. ▶ If no nests are found, the qualified biologist shall submit a report documenting the survey methods and results to the City, and no further mitigation shall be required. ▶ For Project activities that begin between March 1 and September 15, the qualified biologists shall conduct additional preconstruction surveys for nesting raptors and birds no more than 10 days before implementation of Project activities to identify active nests on and within a 1,000 foot buffer of the Project 	

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		<p>site. The surveys shall be conducted within 14 days before the beginning of any construction activities between March 1 and September 15.</p> <ul style="list-style-type: none"> ▶ Impacts on nesting Swainson’s hawk, white-tailed kite, and other raptors shall be avoided by establishing appropriate buffers around active nest sites identified during preconstruction raptor surveys. The exclusionary buffer shall remain in place until the chicks have fledged or as otherwise determined by a qualified biologist. No Project activity shall commence in the buffer areas until a qualified biologist has determined, in consultation with CDFW, that the young have fledged, the nest is no longer active, or reducing the buffer would not likely result in nest abandonment. CDFW guidelines recommend implementation of 0.5-mile-wide buffer for Swainson’s hawk and 500-foot-wide buffer for other raptors, but the size of the buffer may be adjusted if a qualified biologist, in consultation with CDFW, determines that such an adjustment would not be likely to adversely affect the nest. The appropriate no-disturbance buffer for other nesting birds (i.e., species other than Swainson’s hawk and burrowing owl) shall be determined by a qualified biologist based on site-specific conditions, the species of nesting bird, the nature of the Project activity, visibility of the disturbance from the nest site, and other relevant circumstances. ▶ Monitoring of all active nests by a qualified biologist during construction activities shall be required if the activity has potential to adversely affect the nest. If construction activities cause the nesting bird to vocalize, make defensive flights at intruders, get up from a brooding position, or fly off the nest, then the no-disturbance buffer shall be increased until the agitated behavior ceases. The exclusionary buffer shall remain in place until the chicks have fledged or as otherwise determined appropriate by a qualified biologist to avoid adverse effects on the nest(s). ▶ Trees containing white-tailed kite or other raptor (excluding Swainson’s hawk) nests that must be removed as a result of Project implementation shall be removed during the non-breeding season (September 1–January 1) unless otherwise authorized by CDFW. <p>Mitigation Measure 3.3-1c: Mitigate Loss of Swainson’s Hawk Foraging Habitat in Accordance with the City of Elk Grove Swainson’s Hawk Impact Mitigation Fee Program</p> <p>The Project applicant shall implement the following measures to mitigate the potential loss of Swainson’s hawk foraging habitat:</p>	

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		<ul style="list-style-type: none"> ▶ The Project applicant shall acquire conservation easements or other instruments to preserve suitable foraging habitat for Swainson’s hawk. The location of the mitigation parcels, as well as the conservation instruments protecting them, shall be approved by the City. ▶ The amount of land preserved shall be at a ratio provided in Chapter 16.130, Swainson’s Hawk Mitigation Fees of the Elk Grove Municipal Code, for each acre developed at the Project site. In deciding whether to approve the land proposed for preservation, the City shall consider the benefits of preserving lands in proximity to other protected lands. The preservation of land shall be secured before any site disturbance, such as clearing or grubbing, or the issuance of any permits for grading, building, or other site improvements, whichever occurs first. ▶ The Project applicant shall implement the following minimum conservation easement content standards, or such other requirements as may be updated by the City Council from time to time and as provided in Chapter 16.130: <ul style="list-style-type: none"> ▪ The land to be preserved must be found to be suitable Swainson’s hawk foraging habitat as determined by the City based on substantial evidence. ▪ The land shall be protected through either fee title or a conservation easement (“legal agreement”) acceptable to the City. ▪ The legal agreement shall be recordable and contain an accurate legal description of the mitigation land. ▪ The legal agreement shall prohibit any activity that in the sole discretion of the City substantially impairs or diminishes the land’s capacity as suitable Swainson’s hawk foraging habitat. ▪ If the land’s suitability as foraging habitat is related to existing agricultural uses on the land, the legal agreement shall protect any existing water rights necessary to maintain such agricultural uses on the land covered by the document and retain such water rights for ongoing use on the mitigation land. ▪ Mitigation monitoring fees shall be paid to cover the costs of administering, monitoring, and enforcing the document in an amount determined by the City or a third-party receiving entity approved by the City, not to exceed 10 percent of the easement price or a different amount approved by the City Council. ▪ Interests in mitigation land shall be held in trust by an entity acceptable to the City and/or the City in perpetuity. The entity shall not sell, lease, or 	

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		<p>convey any interest in mitigation land without the prior written approval of the City.</p> <ul style="list-style-type: none"> ▪ The City shall be named a beneficiary under any legal agreement conveying the interest in the mitigation land to an entity acceptable to the City, and the City shall receive indemnification and defense, and in any legal agreement. ▪ If any qualifying entity owning an interest in mitigation land ceases to exist, the duty to hold, administer, monitor, and enforce the interest shall be transferred to another entity acceptable to the City or to the City. <p>► Before committing to the preservation of any land, the applicant shall obtain approval of the land proposed for preservation. This mitigation measure may be fulfilled in combination with a mitigation measure imposed on the Project requiring the preservation of agricultural land as long as the agricultural land is suitable Swainson’s hawk habitat as determined by the City in its sole discretion.</p> <p>Mitigation Measure 3.3-1d: Conduct Worker Environmental Awareness Program The New Zoo shall retain a qualified biologist to conduct an environmental awareness training program for construction crews before Project construction. The awareness program shall include a brief review of the special-status species with the potential to occur on the Project site (including their life history, habitat requirements, and photographs of the species). The training shall identify the portions of the Project site in which the species may occur, as well as their legal status and protection. The program shall also cover the relevant permit conditions and mitigation measures that must be followed by all construction personnel to reduce or avoid effects on these resources during Project construction. The training shall emphasize the role that the construction crew plays in identifying and reporting any special-status species observations to the onsite biologist. Training shall identify the steps to be taken if a special-status species is found within the construction area (i.e., notifying the crew foreman, who will inform the designated biologist). An environmental awareness handout that describes and illustrates sensitive resources to be avoided during project construction and identifies all relevant permit conditions shall be provided to each crew member. The crew foreman shall be responsible for ensuring that crew members adhere to the guidelines and restrictions. Education programs shall be conducted for new personnel as they are brought on the job during the construction period.</p>	

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Archaeological, Historical, and Tribal Cultural Resources			
<p>Impact 3.4-1: Cause a Substantial Adverse Change in the Significance of Unique Archaeological Resources</p> <p>Results of the records search and pedestrian survey did not result in the identification of archaeological resources within the Project site. However, Project-related ground-disturbing activities, including off-site roadway and utility improvements, could result in discovery of or damage to yet undiscovered archaeological resources as defined in State CEQA Guidelines Section 15064.5 or CEQA Section 21083.2(g). If unanticipated archaeological resources are discovered during ground-disturbing activities, implementation of Mitigation Measure 3.4-1 would require that construction be halted and the find evaluated. This impact would be less than significant.</p>	PS	<p>Mitigation Measure 3.4-1: Halt Ground Disturbance Upon Discovery of Subsurface Archaeological Features during All Ground-Disturbing Construction Activities</p> <p>If any precontact or historic-era subsurface archaeological features or deposits (e.g., ceramic shard, trash scatters), including locally darkened soil (“midden”), which may conceal cultural deposits, are discovered during construction, all ground-disturbing activity within 100 feet of the resources shall be halted, and a qualified professional archaeologist (one who meets the Secretary of the Interior’s Professional Qualification Standards for archaeology) shall be retained to assess the significance of the find.</p> <p>If the qualified archaeologist determines the archaeological material to be Native American in nature, the City shall contact the appropriate California Native American tribe, with the Wilton Rancheria tribe being initially contacted. A tribal representative from the Wilton Rancheria, or other appropriate California Native American tribe that is traditionally and culturally affiliated with the Project site, may make recommendations for further evaluation and treatment as necessary and provide input on the preferred treatment of the find. If the find is determined to be significant by the archaeologist or the tribal representative (i.e., because it is determined to constitute a unique archaeological resource or a tribal cultural resource, as appropriate), the archaeologist and tribal representative, as appropriate, shall develop, and the City shall implement, appropriate procedures to protect the integrity of the resource and ensure that no additional resources are affected. Procedures may include but would not necessarily be limited to processing materials for reburial, minimizing handling of cultural objects, leaving objects in place within the landscape, construction monitoring of any further activities by a tribal representative, and or returning the objects to a location within the project area where they will not be subject to future impacts. Wilton Rancheria does not consider curation of TCRs to be appropriate or respectful and requests that materials not be permanently curated, unless specifically requested by the Tribe, archival research, subsurface testing, or contiguous block unit excavation and data recovery (pursuant to a data recovery plan). No work at the discovery location shall resume until all necessary investigation and evaluation of the resource has been satisfied. This requirement shall be placed on Project improvement plans and will be verified by the City’s Public Works Department.</p>	LTS

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<p>Impact 3.4-2: Cause a Substantial Adverse Change in the Significance of a Tribal Cultural Resource</p> <p>Tribal consultation under AB 52 has not resulted in the identification of tribal cultural resources on the Project site. However, excavation activities associated with Project construction may disturb or destroy previously undiscovered significant subsurface tribal cultural resources. If these activities disturb or destroy previously undiscovered significant subsurface tribal cultural resources, implementation of Mitigation Measure 3.4-2a would require that construction be halted and the resources evaluated, Mitigation Measure 3.4-2b would require cultural awareness training, and Mitigation Measure 3.4-2c would require tribal monitoring. With implementation of these mitigation measures, this impact would be less than significant.</p>	<p>PS</p>	<p>Mitigation Measure 3.4-2a: Implement Mitigation Measure 3.4-1</p> <p>Mitigation Measure 3.4-2b: Implement Cultural Awareness Training Prior to the start of any grading, utility-related excavation, and other ground disturbing phases of construction, individuals participating in work, on-site lead, foreman, City and Sacramento Zoological Society (SZS) staff members, and any other key personnel, shall receive the relevant information regarding sensitive tribal cultural resources, including applicable regulations, protocols for avoidance, and consequences of violating State laws and regulations. The Cultural Awareness Training shall describe appropriate avoidance and minimization measures for resources that have the potential to be located on the Project site and shall outline what to do and whom to contact if any potential archaeological resources or artifacts are encountered. The Cultural Awareness Training shall also underscore the requirement for confidentiality and culturally appropriate treatment of any kind of significance to Native Americans and behaviors, consistent with Native American Tribal values. Upon completion of the Worker Cultural Awareness Program individuals participating in work, on-site lead, foreman, and City and SZS staff members and any other key personnel shall sign a form that acknowledges receipt and understanding of the training. The training may be done in coordination with the Project Archaeologist. The New Zoo shall engage with the Wilton Rancheria Tribe to provide this training.</p> <p>Mitigation Measure 3.4-2c: Implement Native American Monitoring For grading, utility-related excavation, and other ground disturbing phases of construction, the New Zoo shall notify Wilton Rancheria and provide access to the Project site for a tribal monitor. The City Public Works Department shall contact the tribal representative a minimum of 7 days before beginning earthwork or other ground-disturbing activities. The tribal monitor will be invited to be present on-site during the construction phases that involve ground-disturbing activities, including tree removal, boring, excavation, drilling, and trenching.</p> <p>Should the tribal monitor be present the City would request copies of complete daily monitoring logs that provide details on each day's activities, including construction activities, locations, soil, and any cultural materials identified. Should a tribal monitor not elect to participate the City's Construction Manager will monitor for potential discoveries. The on-site monitoring shall end when the site grading and excavation activities are completed or when the tribal representatives and monitor have indicated that the site has a low potential for affecting tribal cultural resources.</p>	<p>LTS</p>

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<p>Impact 3.4-3: Disturb Human Remains Based on documentary research, no evidence suggests that any precontact or historic-era marked or unmarked human interments are present within or in the immediate vicinity of the Project site. However, ground-disturbing construction activities could uncover previously unknown human remains. With compliance with California Health and Safety Code Section 7050.5 and PRC Section 5097, this impact would be less than significant.</p>	LTS	No mitigation is required.	LTS
Energy			
<p>Impact 3.5-1: Result in Wasteful, Inefficient, or Unnecessary Consumption of Energy during Project Construction or Operation Implementation of the Project would result in the consumption of additional energy supplies during construction in the form of gasoline and diesel fuel. However, this energy expenditure would not be considered wasteful, because construction would be temporary, and standard construction practices would be implemented. Project operations would result in additional energy consumption but would be required to comply with the most recent version of the California Energy Code and the City of Elk Grove CAP. The Project would incorporate measures included in the City’s CAP, including zero net energy requirements in 2030 for commercial development. The Project would include on-site photovoltaic solar systems to supply electricity to the Project site. In addition, the Project would be fully electric with on-site EV charging and bicycle infrastructure for visitors and employees. Therefore, the Project would not result in wasteful, inefficient, or unnecessary consumption of energy during Project construction or operations. This impact would be less than significant.</p>	LTS	No mitigation is required.	LTS
<p>Impact 3.5-2: Conflict with or Obstruct a State or Local Plan for Renewable Energy or Energy Efficiency The Project would incorporate various design features that are similar to the GHG reduction measures included in the City’s CAP, such as prohibiting on-site natural gas infrastructure, including EV charging and bicycle infrastructure, and including on-site solar photovoltaic systems. As a result, implementation of the Project would not conflict with or obstruct a State or local plan for renewable energy or energy efficiency. This impact would be less than significant.</p>	LTS	No mitigation is required.	LTS

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Geology and Soils			
<p>Impact 3.6-1: Directly or Indirectly Cause Adverse Effects Related to Strong Seismic Shaking</p> <p>The Project site is not susceptible to surface fault rupture, and seismic-related ground failure and soil liquefaction are not expected to be a concern on the site. However, the Project site is susceptible to ground shaking from regional fault activity. In addition, Project-related grading would result in the creation of new topographic variation that would be susceptible to failure if they are not properly reinforced. The Project would incorporate all of the recommendations in the site-specific Geotechnical Investigation prepared for the Project and standard engineering practices and specifications, which would minimize risk of adverse effects from seismic hazards. The recommendations in the Geotechnical Investigation account for the unique geotechnical factors affecting the Project site and conform to the requirements of the CBC and Elk Grove Municipal Code. Implementation of the recommendations included in the Geotechnical Investigation and standard engineering practices and specifications would be enforced through the City's development review process. Therefore, impacts related to the potential to expose people or structures to substantial adverse impacts from seismic ground-shaking or related ground failure would be less than significant.</p>	LTS	No mitigation is required.	LTS
<p>Impact 3.6-2: Result in Substantial Soil Erosion or the Loss of Topsoil</p> <p>Project implementation has the potential to result in soil erosion. Because construction activities would disturb more than 1 acre of soil, the Project would be required to comply with a site-specific SWPPP that includes BMPs designed to control stormwater runoff and reduce erosion from the construction site. The Project would also be required to obtain and comply with a grading and erosion control permit from the City. In addition, construction activities would be subject to SMAQMD rules regarding dust control, which would reduce the potential for erosion and sedimentation. Further, the Project design would incorporate postconstruction stormwater management strategies to reduce the potential for erosion during operation. Therefore, the impact related to substantial soil erosion or the loss of topsoil would be less than significant.</p>	LTS	No mitigation is required.	LTS

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New Zoo Project Draft EIR

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
<p>Impact 3.6-3: Locate Project Features on an Unstable Geologic Unit or Soils, or a Geologic Unit or Soil that Would Become Unstable as a Result of the Project, and Potentially Result in On- or –Off-Site Landslide, Lateral Spreading, Subsidence, Liquefaction, or Collapse</p> <p>Lateral spreading, subsidence, liquefaction, and collapse are not anticipated on the Project site based on the site’s topography and soil characteristics. Regardless, the Project would incorporate all of the recommendations in the site-specific Geotechnical Investigation prepared for the Project and standard engineering practices and specifications, which would minimize potential hazards related to unstable geologic units and soils. The Geotechnical Investigation includes recommendations that account for the unique geotechnical factors affecting the Project site and conform to the requirements of the CBC and Elk Grove Municipal Code. Implementation of the recommendations included in the Geotechnical Investigation and standard engineering practices and specifications would be enforced through the City’s development review process. Therefore, the impact related to the potential for these hazards would be less than significant.</p>	LTS	No mitigation is required.	LTS
<p>Impact 3.6-4: Locate Project Features on Expansive Soils</p> <p>Portions of the Project site are underlain with soils that have a high proportion of clay and that would be prone to expansion. The site-specific Geotechnical Investigation prepared for the Project confirmed that expansive clay soils are present on the Project site. All Project-specific recommendations contained in the Geotechnical Investigation would be implemented as part of the Project to conform to the requirements of the CBC and Elk Grove Municipal Code and minimize the risk of structural failure in areas where expansive soils are present (Geocon Consultants, Inc. 2023). Implementation of these recommendations and standard engineering practices and specifications would be enforced through the City’s development review process. Therefore, the potential to create substantial direct or indirect risks to life or property from locating Project facilities on expansive soils would be less than significant.</p>	LTS	No mitigation is required.	LTS
<p>Impact 3.6-5: Directly or Indirectly Destroy a Unique Paleontological Resource or Site or Unique Geologic Feature</p> <p>Project construction would include ground disturbance in previously undisturbed soils in an area with high sensitivity for paleontological resources. If previously undiscovered paleontological resources are encountered during ground-disturbing activities, damage to or destruction of a paleontological resource could occur.</p>	PS	<p>Mitigation Measure 3.6-5: Implement Procedures to Protect Paleontological Resources</p> <p>Before the start of any earthmoving activities, the New Zoo shall retain a qualified scientist (e.g., geologist, biologist, paleontologist) to train all construction personnel involved with earthmoving activities, including the site superintendent, regarding the possibility of encountering fossils, the appearance and types of fossils likely to be seen during construction, and proper notification procedures to follow if fossils are encountered. Training on paleontological resources shall also be provided to all</p>	LTS

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<p>Implementation of Mitigation Measure 3.6-5 would reduce this impact to a less-than-significant level.</p>		<p>other construction workers, and a video recording of the initial training and/or written materials may be used rather than in-person training.</p> <p>If any paleontological resources are discovered during grading or construction activities on the Project site, work shall be halted immediately within 50 feet of the discovery, and the City Public Works Department shall be notified immediately. The New Zoo shall retain a qualified paleontologist to evaluate the resource and prepare a recovery plan in accordance with the most current Society of Vertebrate Paleontology guidelines. The recovery plan shall include a field survey, construction monitoring, sampling and data recovery procedures, museum storage coordination for any specimen recovered, and a report of findings. The New Zoo will implement all recommendations in the recovery plan that are determined to be necessary by the City Public Works Department and possible before construction activities resume in the area where the paleontological resources were discovered.</p>	
<p>Greenhouse Gas Emissions and Climate Change</p>			
<p>Impact 3.7-1: Project-generated GHG emissions and consistency with plans and regulations</p> <p>Construction of the Project would generate 8,242 MTCO₂e over the course of the Project’s 17-construction-year period (2025–2042). The Project’s construction emissions would not exceed SMAQMD’s 1,100 MTCO₂e/year threshold of significance for evaluating construction-related climate change impacts for each year of construction. As part of operations the Project would include EV charging spaces. However, the number proposed EV charging spaces does not meet the Tier 2 requirements of the CalGreen Code (SMAQMD’s tier 1 BMP 2). While opening year emissions would not exceed SMAQMD thresholds, at full buildout Project emissions would be above SMAQMD’s bright-line threshold of significance of 1,100 MTCO₂e/year that triggers the need for the Project to implement SMAQMD’s tier 2 BMP. With implementation of Mitigation Measures 3.7-1 and Mitigation Measures 3.13-2a and 3.13-2b the Project would be required to reduce mobile emissions associated with the Project to meet SMAQMD’s thresholds. However, operational emissions would remain significant and conflict with the long-term goal of achieving carbon neutrality by 2045 as mandated by AB 1279. This impact would be significant and unavoidable.</p>	<p>SU</p>	<p>Mitigation Measure 3.7-1: Install EV Capable and EVSE Spaces Consistent with the Tier 2 Requirements of the 2022 CalGreen Code</p> <p>The Zoo shall equip 45 percent of the Project’s total parking spaces with EV capable infrastructure. Of the EV capable spaces, 33 percent shall support EVSE infrastructure with Level 2 or Direct Current Fast Chargers.</p> <p>Mitigation Measure 3.7-1b: Implement Mitigation Measure 3.13-2a: Subsidize Transit for New Zoo Employees.</p> <p>Mitigation Measure 3.7-1bc: Implement Mitigation Measure 3.13-2b: Provide a Local Transit Stop.</p>	<p>SU</p>

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Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
Hazards and Hazardous Materials			
<p>Impact 3.8-1: Create a Risk to Human Health and the Environment Resulting from the Routine Use, Transport, Storage, and Disposal of Hazardous Materials or the Accidental Release of Hazardous Materials</p> <p>The Project would be subject to federal, State, and local regulations related to the use, transport, storage, and disposal of hazardous materials. Additionally, the New Zoo would operate in accordance with AZA accreditation standards to protect the safety of the animals, zookeepers, and visitors. This impact would be less than significant.</p>	LTS	No mitigation is required.	LTS
<p>Impact 3.8-2: Interfere with an Adopted Emergency Response Plan or Emergency Evacuation Plan</p> <p>Implementing the Project would not impair the implementation of an emergency response or evacuation plan, such as the Sacramento County LHMP or the City's EOP. This impact would be less than significant.</p>	LTS	No mitigation is required.	LTS
Hydrology and Water Quality			
<p>Impact 3.9-1: Violate Any Water Quality Standards or Waste Discharge Requirements or Substantially Degrade Surface Water or Groundwater Quality during Construction Activities</p> <p>Project site construction activities and off-site improvements would involve ground-disturbing and excavation activities that would expose soils to wind and water erosion and potentially transport pollutants to surface water bodies, particularly during storm events. In addition, accidental spills of construction-related fuels, oils, hydraulic fluid, and other hazardous substances could contaminate stormwater flows, resulting in the potential degradation of surface water quality downstream of the disturbance area. The potential for erosion and transport of sediment and pollutants would be addressed through compliance with EGMC Chapter 16.44, which requires all projects to implement erosion control measures to minimize erosion, sediment, dust, and other pollutant runoff created by improvement activities. In addition, any project that disturbs more than 1 acre of soil would be required to obtain coverage under the Construction General NPDES permit, including completion of a SWPPP. With compliance with these existing regulations, impacts to surface and groundwater quality would be less than significant.</p>	LTS	No mitigation is required.	LTS

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<p>Impact 3.9-2: Violate Any Water Quality Standards or Waste Discharge Requirements or Substantially Degrade Surface Water or Groundwater Quality from Polluted Stormwater Runoff</p> <p>Development can increase the rate of runoff and eliminate storage and infiltration that would naturally occur along drainage paths. Runoff from developed areas can carry pollutants and sediment, which can be potentially harmful to downstream receiving waters. Implementation of the Project would increase the total amount of impervious surfaces in the Project site through the construction of walkways, buildings, roadways, and parking lots. However, the Project would implement LID measures, including directing stormwater into a bioretention basin west of the Project site, to prevent the contamination of stormwater and allow the infiltration of most of the stormwater on-site. All pollution control measures would be designed in accordance with the Sacramento Region Stormwater Quality Design Manual and enforced through the City permitting process. Therefore, impacts from polluted stormwater runoff would be less than significant.</p>	LTS	No mitigation is required.	LTS
<p>Impact 3.9-3: Substantially Decrease Groundwater Supplies or Interfere Substantially with Groundwater Recharge Such That the Project May Impede Sustainable Groundwater Management or Conflict with Implementation of a Groundwater Management Plan</p> <p>Implementation of the Project would slightly increase the total extent of impervious area at the site and could reduce recharge of shallow groundwater systems, but this reduction would be mitigated by following landscaping and drainage requirements. Although implementing the Project would increase water demand relative to existing conditions, this change represents a small percentage of the service volume for the Laguna Vineyard service area and would not substantially decrease groundwater supplies or impede sustainable groundwater management. The Project would not conflict with or obstruct implementation of a groundwater management plan and this impact would be less than significant.</p>	LTS	No mitigation is required.	LTS
Land Use and Planning			
<p>Impact 3.10-1: Cause a Significant Environmental Impact Because of a Conflict with any Land Use Plan, Policy, or Regulation Adopted for the Purpose of Avoiding or Mitigating an Environmental Effect</p> <p>The Project would establish an SPA intended to implement the New Zoo consistent with the policy provisions of the General Plan and LEA Community Plan. Implementation of the Project would be consistent with the EGMC and the SACOG</p>	PS	No additional mitigation is required beyond compliance with Mitigation Measures 3.2-1, Mitigation Measure 3.4-1, Mitigation Measure 3.7-1, Mitigation Measure 3.11-5, and Mitigation Measures 3.13-2a and 3.13-2b.	LTS

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City of Elk Grove

New Zoo Project Draft EIR

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
<p>2020 MTP/SCS. With implementation of mitigation measures throughout this EIR the impact would be reduced to less than significant.</p>			
Noise and Vibration			
<p>Impact 3.11-1: Create Substantial Temporary (Construction) Noise Hourly noise levels during construction activities would be as loud as 79 dBA L_{eq} and 82 dBA L_{max} at nearby residential land uses. Based on available existing noise level data for the Project site, hourly noise levels closest to the nearest sensitive receivers are approximately 61 dBA L_{eq}. Considering that noise levels at this location could reach as high as 76 dBA L_{eq} (i.e., as much as 15 dBA over existing levels), construction noise would constitute a substantial increase (perceived more than doubling of the existing noise levels) for an extended period. The requirements listed in Mitigation Measure 3.11-1 would decrease exposure of sensitive receivers to construction-generated noise and reduce the impact to less than significant.</p>	<p>PS</p>	<p>Mitigation Measure 3.11-1: Implement Measures to Reduce Exposure of Noise-Sensitive Receivers to Construction-Generated Noise To minimize noise levels generated by construction activities, the New Zoo shall require its construction contractors to comply with the following measures during construction to reduce construction noise by at least 8 dBA:</p> <ul style="list-style-type: none"> ▶ All construction equipment and material staging areas shall be set back as far as possible from nearby off-site noise-sensitive receivers, including but not limited to the residences along Lotz Parkway and Overture Way. ▶ All construction equipment shall be properly maintained and equipped with noise-reduction intake and exhaust mufflers and engine shrouds, in accordance with manufacturer specifications. Equipment engine shrouds shall be closed during equipment operation. ▶ Construction equipment with back-up alarms shall be equipped with either audible self-adjusting backup alarms or alarms that sound only when an object is detected. Self-adjusting backup alarms shall automatically adjust to 5 dBA louder than the surrounding background levels. All non-self-adjusting backup alarms shall be set to the lowest setting required to be audible above the surrounding noise levels. ▶ The construction contractor shall use noise-reducing operation measures, techniques, and equipment that reduce construction noise by at least 8 dBA. This requirement shall be enforced through its inclusion on all construction bid specifications for construction contractors hired to work on the Project site. The bid specifications shall require that construction contractors provide an equipment inventory list for all equipment within the fleet with engines greater than 50 horsepower. The list will identify (at a minimum), make, model, and horsepower of equipment; operating noise levels at 50 feet; available noise control devices that are installed on each piece of equipment; and associated noise reduction from the installed technology. Control devices shall include, but shall not be limited to, high-efficiency mufflers; acoustic dampening; protected internal noise absorption layers; enclosures; and electric motors. In addition, the contractor shall specify how proposed alternative construction procedures would be employed to reduce noise at sensitive receivers compared to other 	<p>LTS</p>

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Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		<p>more traditional methods. Examples include, but are not limited to, welding instead of riveting, mixing concrete off-site instead of on-site, and using a thermal lance instead of drive motors and bits. In all cases, the requirement is that the best commercially available noise-reducing technology and noise-reducing alternative construction method shall be used, provided that there are no safety concerns, engineering limits, or environmental constraints preventing it from being used. If a unique circumstance does exist that prevents a quieter alternative construction method from being used, the contractor shall provide evidence to support its proposal. The noise reduction elements of construction shall be approved by the City.</p> <ul style="list-style-type: none"> ▶ Combine noisy operations (e.g., riveting, cutting, hammering) to occur in the same period (e.g., day or construction phase), such that the overall duration of these activities is reduced to the extent practical. When the noisiest operations are performed together within the same period, the overall duration that excessive noise would occur is reduced, minimizing the disturbing effects of exposure to prolonged increased noise levels. ▶ The contractor shall designate a disturbance coordinator and post that person’s telephone number conspicuously around the publicly accessible portions of the construction site and provide it to nearby residences. A minimum of one sign shall be posted for every 1,000 feet of public frontage, or a minimum of six postings. The disturbance coordinator shall receive all public complaints and be responsible for determining the cause of the complaint and implementing any possible measures to alleviate the problem. ▶ When construction activities would occur within 400 feet of existing residential land uses (i.e., the distance at which noise levels of 66 dBA L_{eq} are achieved), the following measures shall be implemented: <ul style="list-style-type: none"> ▪ Use noise-reducing enclosures and techniques around stationary noise-generating equipment (e.g., concrete mixers, generators, compressors). ▪ Install temporary noise curtains as close as possible to the boundary of the construction site within the direct line of sight path of the nearby sensitive receptor(s). The noise curtains will consist of durable, flexible composite material featuring a noise barrier layer bounded to sound-absorptive material on one side. ▪ Retain a qualified noise specialist to develop a noise monitoring plan, and conduct noise monitoring to ensure that noise reduction measures are achieving the necessary reductions such that levels at the receiving land uses do not exceed 5 dBA over existing levels. 	

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Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
<p>Impact 3.11-2: Create Substantial Temporary (Construction) Vibration Levels The use of heavy-duty construction equipment can generate levels of vibration that could result in disturbance to nearby sensitive residential land uses or structural damage. Based on modeling conducted, vibration levels for a vibratory roller at the structure nearest to the Project site, approximately 50 feet from where the use of construction equipment could occur, would be 87 VdB and 0.098 PPV in/sec. Construction vibration would occur during daytime hours, when people are less likely to be disturbed. Therefore, the potential for disturbance to nearby receivers is low. In addition, the Caltrans criterion of 0.2 PPV in/sec would not be exceeded at the nearest structure. This impact would be less than significant.</p>	LTS	No mitigation is required.	LTS
<p>Impact 3.11-3: Create Long-Term (Operational) Traffic-Generated Noise Project-generated weekday and weekend traffic would not expose residential land uses to transportation noise standards included in General Plan Policy N-2-2. Therefore, this impact would be less than significant.</p>	LTS	No mitigation is required.	LTS
<p>Impact 3.11-4: Create a Substantial Increase in Operational On-Site Activities The Project would involve the long-term operation of new noise sources and new noise-generating activities on the Project site that may expose off-site noise-sensitive receivers to excessive noise levels. New operational noise sources would include animals, mechanical equipment that is part of the buildings' HVAC systems, activity at the proposed parking lots, truck delivery activity, outdoor cafes, and backup generators. Noise from zoo operations would not exceed applicable noise standards. This impact would be less than significant.</p>	LTS	No mitigation is required.	LTS
<p>Impact 3.11-5: Create a Substantial Increase in Special Event Noise Levels Noise from special events, such as private parties and weddings, would not exceed City noise standards at nearby sensitive receivers. However, amplification noise from the nighttime safari would expose off-site residential land uses to noise exceeding City standards. Implementation of Mitigation Measures 3.11-5 would reduce this impact to a less-than-significant level.</p>	PS	<p>Mitigation Measure 3.11-5: Restrict Noise Levels from Amplification Devices Exterior amplified noise from the nighttime safari shall be limited to a maximum sound level of 65 dBA Leq at approximately 50 feet from the nighttime safari route boundaries by adjusting amplification equipment accordingly. The New Zoo staff/nighttime safari event coordinator shall ensure that sound equipment is calibrated annually. Sound testing of the amplification equipment shall occur annually. Two sound level measurements shall be conducted at 50 feet from the amplification equipment. The sound level meter used for the sound level measurements should meet a minimum Type 2 compliance and be fitted with the manufacturer's windscreen and calibrated before use. Noise measurement readings shall be used to ensure that 65 dBA Leq at 50 feet is not exceeded.</p>	LTS

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Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
Public Services and Recreation			
<p>Impact 3.12-1: Result in Substantial Adverse Physical Construction-Related Impacts Associated with the Provision or the Need for New or Physically Altered Fire Facilities, to Maintain Acceptable Service Ratios and Response Times</p> <p>Implementing the Project would result in the construction and operation of new structures, including a zoological park with various facilities and buildings, parking areas, and off-site infrastructure improvements. The CCSD Fire Department has adequate facilities and staff to provide fire protection services for the New Zoo. Construction or expansion of fire protection facilities would not be required to service the Project. The impact related to fire facilities would be less than significant.</p>	LTS	No mitigation is required.	LTS
<p>Impact 3.12-12 Result in Substantial Adverse Physical Construction-Related Impacts Associated with the Provision or the Need for New or Physically Altered Police Facilities, to Maintain Acceptable Service Ratios and Response Times</p> <p>Implementation of the Project would result in an increased demand for law enforcement services. Because the Project would include private on-site security services, it would require minimal local police support. On-site security would reduce the need for local police support, maintaining acceptable service ratios and response times without the need for additional police facilities. Therefore, the impact related to police facilities would be less than significant.</p>	LTS	No mitigation is required.	LTS
Transportation			
<p>Impact 3.13-1: Result in Impacts on Bicycle, Pedestrian, and Transit Facilities and City Policies</p> <p>The Project includes the implementation of off-site bicycle and pedestrian facilities along the Project frontage on Road B, on Lotz Parkway, and along the northern perimeter of the Project site consistent with the City of Elk Grove General Plan, BPTMP, and Improvement Standards. The Project would be designed to accommodate future transit service extensions. Additionally, the Project would not permanently alter the physical transportation network external to the Project site such that the bus stops serving these routes would be adversely affected. The impact on bicycle, pedestrian, and transit facilities would be less than significant.</p>	LTS	No mitigation is required.	LTS
<p>Impact 3.13-2: Result in an Exceedance of City of Elk Grove General Plan VMT Thresholds</p> <p>Full buildout of the Project would result in an estimated net increase of 30,040 daily VMT when compared to VMT from the existing Sacramento Zoo in Land Park. The net increase in VMT would result in a significant impact as it could conflict with</p>	PS	<p>Mitigation Measure 3.13-2a: Subsidize Transit for New Zoo Employees</p> <p>The New Zoo shall provide a subsidized or discounted transit program to provide free transit passes (or reimburse for transit passes) for employees when requested by the employee.</p>	SU

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Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
<p>the Citywide cumulative limit of 8,039,802 VMT under General Plan Policy MOB-1-1. Implementation of Mitigation Measures 3.13-2a and 3.13-2b would require the New Zoo to subsidize employee transit and provide a local transit stop. However, implementation of these mitigation measures would not reduce the total daily VMT to below VMT from the existing Sacramento Zoo. Therefore, the Project's impact to VMT with would be significant and unavoidable.</p>		<p>Mitigation Measure 3.13-2b: Provide a Local Transit Stop: The New Zoo, in coordination with the City and SacRT, shall construct a bus stop within the immediate vicinity of the Project site, allowing the extension of SacRT bus services to the Project. The Project applicant shall coordinate with SacRT to ensure that the transit stop is located and designed in accordance with applicable design and safety standards. The applicant shall coordinate with SacRT on the implementation of the service extension.</p>	
<p>Impact 3.13-3: Substantially Increase Hazards Due to a Geometric Design Feature or Incompatible Uses The Project would involve the construction and operation of a zoological park and associated off-site roadway and circulation improvements. It would be subject to, and constructed in accordance with, applicable roadway design and safety guidelines. Because the Project could increase safety hazards related to increased queuing and vehicular activity during the Project's opening month, implementation of Mitigation Measure 3.13-3 would require the Project applicant to develop and implement a traffic management plan to address increased queuing anticipated during the New Zoo's opening month and special events and to optimize safe and efficient travel for pedestrians, bicyclists, and vehicles. Implementation of this mitigation measure would reduce this impact to less than significant.</p>	PS	<p>Mitigation Measure 3.13-3: Prepare and Implement Traffic Management Plans for the Opening Month and Special Events The New Zoo shall be responsible for preparing a traffic management plan (TMP) and providing it to the City for approval by the Public Works Director (or their designee) before opening day/weekend or other special events occurring at the New Zoo that may result in queuing spillover. The TMP shall include specific interventions for traffic conditions associated with the New Zoo opening and any other special events determined to warrant a TMP. The New Zoo shall be responsible for implementing the interventions to which the Public Works Director has agreed. All traffic controls shall be installed in accordance with the California Manual on Uniform Traffic Control Devices and applicable City regulations. At a minimum, the TMP shall include the following strategies:</p> <ul style="list-style-type: none"> ▶ Flaggers shall be provided to control traffic when necessary or requested by the City in compliance with Section 6-13.06 of the City's Standard Construction Specifications 2022 or latest equivalent (City of Elk Grove 2022b: 52). ▶ Changeable Message Signs shall display one or more alternating messages along likely patron access routes to broadcast up-to-date information regarding desired routing. The signs shall be in place no less than 72 hours before the date of the event or 5 business days in advance of a detour and shall remain in place for the duration of the event in compliance with Section 12-3.02 of the City's Standard Construction Specifications 2022 or latest equivalent (City of Elk Grove 2022b: 103). ▶ Wayfinding strategies, including permanent and temporary signs, shall be implemented to provide directions on access to the New Zoo for pedestrians, bicyclists, and vehicles. ▶ Emergency access shall be maintained at all times, and emergency apparatus routes during the opening month and special events shall be reviewed by the City's emergency service department for approval. 	LTS

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Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
<p>Impact 3.13-4: Result in Inadequate Emergency Access The Project would be required to meet standards and regulations identified in the 2022 California Fire Code as adopted by the City of Elk Grove, including provisions related to maintaining emergency access during construction and operations. Additionally, the Project design would be subject to review by City emergency services and responsible agencies, ensuring that the Project would be designed to meet all applicable emergency access design standards. Implementation of Mitigation Measure 3.13-3 to address substantial queuing during the opening month and special events would reduce this impact to less than significant.</p>	PS	<p>Mitigation Measure 3.13-4: Implement Mitigation Measure 3.13-3 - Prepare and Implement Traffic Management Plans for the Opening Month and Special Events.</p>	LTS
Utilities and Service Systems			
<p>Impact 3.14-1: Result in Insufficient Water Supplies As described in the WSA prepared by SCWA for the Project, sufficient water would be available to meet the demands of the Project during normal, single, and multiple dry years. This impact would be less than significant.</p>	LTS	No mitigation is required.	LTS
<p>Impact 3.14-2: Result in Impacts on Available Wastewater Treatment Capacity The Project's wastewater generation of approximately 0.17 mgd ADFW would be an increase over the Project site's existing wastewater treatment volumes. However, the SRWTP has been master planned to accommodate 350 mgd ADFW. Therefore, the Project's wastewater generation could be accommodated within the existing and planned treatment capacity of the SRWTP. This impact would be less than significant.</p>	LTS	No mitigation is required.	LTS
<p>Impact 3.14-3: Result in Impacts on Solid Waste Facilities and Compliance with Regulations Related to Solid Waste The Project would include uses that would increase the generation of municipal solid waste. Waste generated at the Project site could be accommodated by several permitted haulers, and wastes would be hauled to a permitted landfill for disposal as selected by the hauler. There is substantial remaining capacity in the landfills in the area serving local waste haulers, with an average remaining capacity of more than 70 percent. Therefore, because the Project would not generate solid waste in excess of State or local standards or in excess of the capacity of the local infrastructure, negatively affect the provisions of solid waste services, or affect the attainment of solid waste reduction goals, this impact would be less than significant.</p>	LTS	No mitigation is required.	LTS

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City of Elk Grove

New Zoo Project Draft EIR

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1 INTRODUCTION

This draft environmental impact report (Draft EIR) evaluates the environmental impacts of the proposed New Zoo at Elk Grove Project. This Draft EIR has been prepared under the direction of the City of Elk Grove in accordance with the requirements of the California Environmental Quality Act (CEQA) (Public Resources Code [PRC] Section 21000 et seq.) and the State CEQA Guidelines (California Code of Regulations [CCR], Title 14, Division 6, Chapter 3, Sections 15000-15387). This chapter of the Draft EIR provides information on:

- ▶ the project requiring environmental analysis (synopsis);
- ▶ the type, purpose, and intended uses of the Draft EIR;
- ▶ the scope of this Draft EIR;
- ▶ the agency roles and responsibilities;
- ▶ the public review process;
- ▶ the organization of the Draft EIR; and
- ▶ standard terminology.

1.1 PROJECT REQUIRING ENVIRONMENTAL ANALYSIS

The Project consists of the construction and operation of a zoological park and associated support and operational facilities, restaurant, retail, lodging, and guest services facilities on the Project site. The Project would include a new Special Planning Area (SPA) referred to as the Zoological Park SPA. The reader is referred to Chapter 2, "Project Description," of this Draft EIR for a detailed description of the Project.

1.2 PURPOSE AND INTENDED USES OF THIS DRAFT EIR

According to CEQA, preparation of an EIR is required whenever it can be fairly argued, based on substantial evidence, that a proposed project may result in a significant environmental impact. An EIR is an informational document used to inform public-agency decision makers and the general public of the significant environmental impacts of a project, identify possible ways to minimize the significant impacts, and describe reasonable alternatives to the project that could feasibly attain most of the basic objectives of the project while substantially lessening or avoiding any of the significant environmental impacts. Public agencies are required to consider the information presented in the EIR when determining whether to approve a project.

This Draft EIR has been prepared to meet the requirements of a project EIR as defined by Section 15161 of the State CEQA Guidelines. A project EIR focuses on the changes in the physical environment that would result from the implementation of a project, including its planning, construction, and operation. The State's intention is that a lead agency preparing a project EIR would not be required to provide further environmental analysis for additional regulatory approvals following approval of the project, absent conditions requiring a subsequent EIR, a supplement to the EIR, or an addendum. (See State CEQA Guidelines Sections 15162–15164.)

1.3 SCOPE OF THIS DRAFT EIR

This Draft EIR includes an evaluation of the following 14 environmental issue areas, as well as other CEQA-mandated issues (e.g., cumulative impacts, growth-inducing impacts, significant irreversible environmental changes, significant unavoidable impacts, and alternatives):

- ▶ aesthetics;
- ▶ air quality;
- ▶ biological resources;
- ▶ cultural and tribal cultural resources;
- ▶ energy;
- ▶ geology and soils;
- ▶ greenhouse gas emissions and climate change;
- ▶ hazards and hazardous materials;
- ▶ hydrology and water quality;
- ▶ land use and planning;
- ▶ noise and vibration;
- ▶ public services;
- ▶ transportation; and
- ▶ utilities and service systems.

The remaining Appendix G questions are included in Section 3, "Environmental Setting." Under the CEQA statute and the State CEQA Guidelines, a lead agency may limit an EIR's discussion of environmental effects when such effects are not considered potentially significant (PRC Section 21002.1[e]; State CEQA Guidelines Sections 15128, 15143).

Information used to determine which impacts would be potentially significant was derived from review of the applicant's Project plans and technical studies, review of applicable planning documents and CEQA documentation, fieldwork, feedback from public and agency consultation, and comments received on the Notice of Preparation (NOP) (see Appendix A of this Draft EIR).

The NOP was distributed on November 18, 2022, to responsible agencies, interested parties, and organizations, as well as private organizations and individuals that may have an interest in the Project. A scoping meeting for the Project was held during the review period and posted online. The purpose of the NOP and the scoping meeting was to provide notification that a Draft EIR for the Project was being prepared and to solicit input on the scope and content of the environmental document. Through review of existing information and the scoping process, it was determined that each of the issue areas listed above should be fully discussed in this Draft EIR. Further information on the NOP and scoping process is provided below in Section 1.6, "Public Review Process."

1.4 AGENCY ROLES AND RESPONSIBILITIES

1.4.1 Lead Agency

The City is the lead agency responsible for approving the Project and for ensuring that the requirements of CEQA have been met. After the EIR public review process is complete, the City Council will determine whether to certify the EIR (see State CEQA Guidelines Section 15090) and approve the Project.

1.4.2 Trustee and Responsible Agencies

A trustee agency is a State agency that has jurisdiction by law over natural resources that are held in trust for the people of the State of California. The only trustee agency that has jurisdiction over resources potentially affected by the Project is the California Department of Fish and Wildlife.

Responsible agencies are public agencies other than the lead agency that have discretionary-approval responsibility for reviewing, carrying out, or approving elements of a project. Responsible agencies should participate in the lead agency's CEQA process, review the lead agency's CEQA document, and use the document when making a decision on project elements. The following agencies may have responsibility for, or jurisdiction over, the implementation of elements of the Project.

STATE AGENCIES

- ▶ California Department of Fish and Wildlife (CDFW)
- ▶ Central Valley Regional Water Quality Control Board (Central Valley RWQCB)

REGIONAL AND LOCAL AGENCIES

- ▶ Cosumnes Community Services District (CSD)
- ▶ Sacramento Metropolitan Air Quality Management District (SMAQMD)
- ▶ Sacramento Area Sewer District (SacSewer)
- ▶ Sacramento County Water Agency (SCWA)
- ▶ Sacramento Municipal Utility District (SMUD)

1.5 PUBLIC REVIEW PROCESS

As identified above in Section 1.4, "Scope of This Draft EIR," in accordance with CEQA regulations, a NOP was distributed on November 18, 2022, to responsible agencies, interested parties and organizations, and private organizations and individuals that could have interest in the Project.

The purpose of the NOP was to provide notification that an EIR for the Project was being prepared and to solicit input on the scope and content of the document. The public comment period for the NOP began on November 21, 2022 and ended on January 13, 2023. A recorded presentation on the NOP was given and posted online on November 18, 2022. The NOP and responses to the NOP are included in Appendix A of this Draft EIR.

This Draft EIR is being circulated for public review and comment for a minimum period of 46 days. During this period, comments from the general public, as well as organizations and agencies, on environmental issues may be submitted to the lead agency.

Upon completion of the public review and comment period, a Final EIR will be prepared that will include both written and oral comments on the Draft EIR received during the public review period, responses to those comments as required, and any revisions to the Draft EIR made in response to public comments. Together, the Draft EIR and Final EIR make up the EIR for the Project.

1.6 DRAFT EIR ORGANIZATION

This Draft EIR is organized into chapters, as identified and briefly described below. The chapters are further divided into sections (e.g., Chapter 3, "Environmental Setting, Impacts, and Mitigation Measures," and Section 3.5, "Energy"):

- ▶ The Executive Summary: This chapter introduces the Project; provides a summary of the environmental review process and key environmental issues; and lists significant impacts and mitigation measures to reduce significant impacts to a less-than-significant level.
- ▶ Chapter 1, "Introduction": This chapter provides a synopsis of the Project; identifies the type, purpose, and intended uses of this Draft EIR; describes the scope of this Draft EIR; identifies the lead and responsible agencies; describes the public review process; describes the organization of this Draft EIR; and identifies standard terminology.

- ▶ Chapter 2, "Project Description": This chapter describes the location, background, and goals and objectives for the Project and describes the Project elements in detail.
- ▶ Chapter 3, "Environmental Setting, Impacts, and Mitigation Measures": The sections in this chapter evaluate the expected environmental impacts generated by the Project, arranged by subject area (e.g., Hydrology and Water Quality). The introduction to this chapter describes the approach to the environmental analysis and also lists the effects found not to be significant and therefore not evaluated further in the subsections of Chapter 3. In each subsection of Chapter 3, the regulatory background, existing conditions, analysis methodology, and thresholds of significance are described. The anticipated changes to the existing conditions after development of the Project are then evaluated for each subject area. For any significant or potentially significant impact that would result from Project implementation, mitigation measures are presented, and the level of impact significance after mitigation is identified. Environmental impacts are numbered sequentially within each section (e.g., Impact 3.2-1, Impact 3.2-2, Impact 3.2-3 and so forth and so on). Any required mitigation measures are numbered to correspond to the impact numbering; therefore, the mitigation measure for Impact 3.2-2 would be Mitigation Measure 3.2-2.
- ▶ Chapter 4, "Cumulative Impacts": This chapter provides information regarding cumulative impacts that would result from implementation of the Project together with other past, present, and probable future projects.
- ▶ Chapter 5, "Other CEQA-Mandated Sections": This chapter evaluates growth-inducing impacts and the irreversible and irretrievable commitment of resources and discloses any significant and unavoidable adverse impacts.
- ▶ Chapter 6, "Alternatives": This chapter evaluates alternatives to the Project, including alternatives considered but eliminated from further consideration, the No-Project Alternative, and two alternative development options. The environmentally superior alternative is identified.
- ▶ Chapter 7, "Report Preparers": This chapter identifies the preparers of the document.
- ▶ Chapter 8, "References": This chapter identifies the organizations and persons consulted during preparation of this Draft EIR and the documents and individuals used as sources for the analysis.
- ▶ Chapter 9, "List of Abbreviations," defines terms used throughout this Draft EIR.

The appendices contain a number of reference items providing support and documentation of the analyses performed for this report.

1.7 STANDARD TERMINOLOGY

This Draft EIR uses the following standard terminology:

- ▶ "No impact" means no change from existing conditions (no mitigation is needed).
- ▶ "Less-than-significant impact" means no substantial adverse change in the physical environment (no mitigation is needed).
- ▶ "Potentially significant impact" means a substantial adverse change in the environment that might occur (mitigation is recommended because potentially significant impacts are treated as significant).
- ▶ "Significant impact" means a substantial adverse change in the physical environment that would occur (mitigation is recommended).
- ▶ "Significant and unavoidable impact" means a substantial adverse change in the physical environment that would occur and that cannot be avoided, even with the implementation of all feasible mitigation.

2 PROJECT DESCRIPTION

The proposed New Zoo at Elk Grove Project (New Zoo, or Project) would result in the construction and operation of a zoological park and associated support and operational facilities, restaurant, retail, lodging, and guest services facilities on the Project site. The Project would include a new Special Planning Area (SPA) referred to as the Zoological Park SPA, development of the zoo, parking facilities, off-site public infrastructure improvements, and an animal browse program. The following includes a detailed description of the Project components.

2.1 PROJECT LOCATION

The Project site (Assessor's Parcel Numbers [APNs] 132-0320-010, -001 and -002; and 132-2390-006) is located at the northwest intersection of Kammerer Road and Lotz Parkway (Figure 2-1) in the City of Elk Grove. The Project site is a fallow field surrounded by single-family residences to the east, agriculture to the south and west, and active construction of a new residential subdivision to the north (Figure 2-2). Historically, the Project site was used as rangeland for cattle from April to December. More detailed setting information is provided in Section 3 specific for each environmental topic area. The Project site is within the Livable Employment Area Community Plan and the core of the site has a land use designation of Parks and Open Space (P/O). The Livable Employment Area Community Plan includes consideration of the Project site as a zoological park.

2.2 PROJECT BACKGROUND AND HISTORY

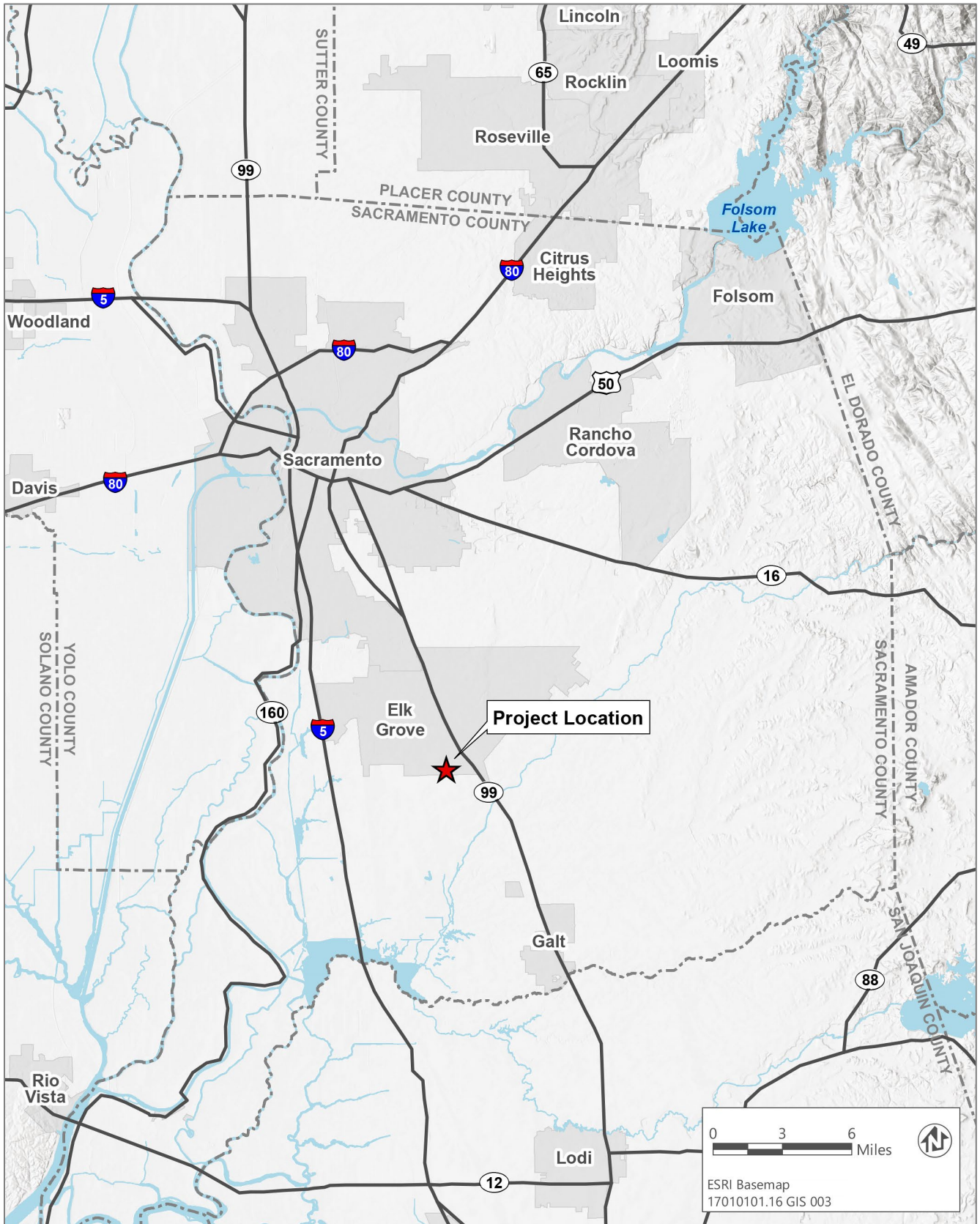
The Sacramento Zoo is located in William Land Park in the City of Sacramento. The Sacramento Zoo site is owned by the City of Sacramento and is operated, pursuant to a Partnership Agreement, by the Sacramento Zoological Society (also referred to as Society), the nonprofit organization that has complete managerial and financial control of the Zoo. The existing Zoo is a 94-year-old zoo in need of renovations to habitat and facilities to meet current animal care standards and guest experiences. The 14.7-acre facility is landlocked and unable to provide the necessary space for many of the species housed at the Sacramento Zoo. Space is also limited for visitor parking at the Sacramento Zoo and restricts the number of attendees and access to the Zoo.

The Sacramento Zoological Society manages the care and welfare of the Zoo and its animals. Over the past 30 years the Sacramento Zoo has lost many of its iconic animal species, such as tiger and bear, due to space constraints. The existing challenges at the Sacramento Zoo are proposed to be resolved by relocating the Zoo to an area that allows for large, modern habitats that meet the welfare needs of the animals, opportunity to care for a wider variety of animals to improve guest experience, and increased visitor parking to enhance visitor access.

2.3 PROJECT OBJECTIVES

The primary objectives of the New Zoo at Elk Grove Project are to:

- ▶ construct a new larger, sustainable, zoo with expanded habitats and facilities to support a broader range of animal species;
- ▶ meet current animal care Association of Zoos and Aquariums standards for animals housed in the zoo;
- ▶ increase access to the zoo with adequate parking facilities, easy accessibility, and access to transit and trails;
- ▶ increase and expand on the zoo mission and mission impact to inspire appreciation, respect and a connection with wildlife and nature through education, recreation, and conservation;
- ▶ provide enhanced visitor experience through education, overnight stay, event spaces, and animal encounters.



Source: adapted by Ascent in 2022.

Figure 2-1 Regional Location



Source: adapted by Ascent in 2022.

Figure 2-2 Project Site

2.4 PROPOSED PROJECT

This section describes the requested entitlements needed to support Project implementation and includes a detailed description of all Project elements. The Project does not include repurposing of the existing Sacramento Zoo site in the City of Sacramento. Upon opening of the New Zoo the existing Sacramento Zoo would close and some animals may be transported to the New Zoo. Animals not transferred to the New Zoo would be re-homed to other facilities pursuant to Association of Zoos and Aquarium standards. The 1997 Zoo Operating Agreement (Agreement) between Sacramento City and the Society only requires the Society to remove its furniture and fixtures. Therefore, the Society and the City of Sacramento may need to amend their agreement if Sacramento City would like certain closure procedures from the Society. At a minimum the Society would turn over keys to the existing zoo site and explain locking mechanisms for the eight-foot-tall perimeter fence. The Society would remove from the Sacramento Zoo and relocate to the New Zoo assets including but are not limited to the carousel and okapi barn. Most other buildings and exhibit materials would remain at the Sacramento Zoo. The Sacramento Zoo site would remain under the jurisdiction of the City of Sacramento. The Society would no longer provide onsite security and the City of Sacramento would utilize their existing police personnel to patrol and respond to any potential issues at the vacant site, until such time as the former Sacramento Zoo property is open to the public. Sacramento City is aware that the Zoo's entrance, designed in 1961 ("Googie" style architecture, which developed out of mid-century modern architecture) was deemed a historic landmark because such demarcation was performed by their City Council and is a part of the City's register of historic and cultural resources. City policy regarding landmarks is clearly laid out and any disturbance of the entrance will require compliance with their preservation policy. The City of Sacramento has a parks maintenance department who would maintain the grounds within the fenced former Zoo area until such time as Sacramento City determines a future use in which it would then be subject to the appropriate environmental review. The City currently maintains the Land Park area outside the fence perimeter.

The Project consists of the following components that are described in further detail below:

- ▶ Zoological Park SPA
- ▶ Zoological Park
- ▶ Parking facilities
- ▶ Off-site public infrastructure improvements
- ▶ Animal Browse Program

2.4.1 Zoological Park SPA

The Project would result in a new SPA for the Project site that would establish a land use plan and allowed uses for properties within the Zoological Park SPA. The SPA would also include development standards such as minimum setbacks and height limits. The SPA would cover approximately 100 acres including areas for off-site improvements, such as the proposed parking facilities. Permitting requirements including thresholds for Design Review and identification of the approving authority for various permits required to construct and operate the proposed New Zoo would be contained in the SPA.

2.4.2 Zoological Park Overview

The zoological park would include various facilities and buildings to be developed in phases potentially starting in 2025 that would encompass the proposed New Zoo. The main facility would be on approximately 65 acres and would be designed to support an average annual attendance of between 1.1 and 1.6 million visitors. The facility would be organized into four primary zones: Green Corridor, Africa, California, and Australasia. The Green Corridor would be the main pedestrian pathway through the New Zoo. The proposed site plan for the New Zoo is shown in Figure 2-3. Table 2-1 shows proposed elements of the New Zoo.

It is currently anticipated that Phase 1 of the Project would involve construction of the Green Corridor and Africa (Figure 2-4). However, specific animal habitats within these zones may themselves be phased depending on project funding. Phase 1A would include the base Zoo footprint and Phase 1B would include the additional zoological features as shown in Figure 2-4. Phase 1A of the New Zoo would open for operation in early 2029 (or as early as 2027 with a rolling opening). Phase 1C would include the hippopotamus and additional savannas in the northwest corner of the site (Figure 2-4). The other zones of California and Australasia, along with development of permanent administrative offices, would occur in one or more phases as funding becomes available as are referred to as future phases (Phases 2-4) (see Figure 2-4). Detailed design of Phases 1A and 1B has been developed, while conceptual designs for future phases have been provided. Design approval for future phases would occur subsequent to the approval of the Zoological Park SPA, overall site plan, and Phase 1A/B. Construction of Phase 1A/B is anticipated to begin in summer of 2025 and last approximately 36 months. However, as previously mentioned, additional sub-phasing may occur based upon project funding.

Table 2-1 Project Summary

Phase/Timing	Planning Area	Description	Proposed Facilities	Proposed Exhibits ¹
Phase 1A: Near Term (30 months)				
	Main Entry Complex and Lodge	<ul style="list-style-type: none"> ▶ Visitor services, ticketing, administration, gift shop, coffee café ▶ Lodge 	<ul style="list-style-type: none"> ▶ Guest services/ticketing/restrooms: 4,700sf ▶ Retail building: 10,000sf (incl covered area over ticketing) ▶ Educational entry restrooms: 500sf ▶ Giraffe Lodge: 12,000 sf ▶ 4,800 square foot events lawn (including pre-function and dining areas) 	<ul style="list-style-type: none"> ▶ Dwarf mongoose: 215 sf ▶ Giraffe feeding shelter: 2,400 sf
	Green Corridor	<ul style="list-style-type: none"> ▶ Primary guest pathway through the New Zoo 	<ul style="list-style-type: none"> ▶ Open lawn ▶ Wildlife wetlands garden ▶ Carousel shelter: 1,600 sf ▶ Train station and tickets: 1,000 sf ▶ Multipurpose Rooms: (3) at 1000 sf each 	<ul style="list-style-type: none"> ▶ Flamingo aviary: 8,600 sf ▶ Gelada: 24,000 sf ▶ Thick billed parrot: 2,500 sf ▶ Okapi: 12,150 sf ▶ Animal care quarters: 9,000 sf
	Africa Zone	<ul style="list-style-type: none"> ▶ Savannas ▶ Overnight camp lawn 	<ul style="list-style-type: none"> ▶ Three educational buildings: 1,000 sf each ▶ Restrooms:800 sf ▶ Hay storage: 500 sf ▶ Browse cooler: 200 sf ▶ Fodder storage: 200 sf ▶ Beer Garden Point of Sale 1: 250sf ▶ Beer Garden Point of Sale 2: 250 sf 	<ul style="list-style-type: none"> ▶ Lion: 22,300 sf ▶ Savanna West: 52,300 sf ▶ Savanna East: 73,575 sf ▶ Rhino: 23380 sf ▶ Cheetah: 15,230 sf ▶ African Small Mammal 400 sf ▶ Meerkat: 1,600 sf ▶ Animal care quarters: 25,500 sf
	Animal Care Center	<ul style="list-style-type: none"> ▶ Gelada café & guest restrooms ▶ Nutrition Center ▶ Animal Care Hospital ▶ Animal Quarantine 	<ul style="list-style-type: none"> ▶ Gelada café: 3,200 sf ▶ Guest restrooms: 1,000 sf ▶ Animal care center: 21,000 sf ▶ Viewing area: 2,500 sf ▶ Enclosed vet yard ▶ Service corridor and truck loading ▶ Maintenance Shed/Shops: 8,700 sf 	NA

Phase/Timing	Planning Area	Description	Proposed Facilities	Proposed Exhibits ¹
	Parking	<ul style="list-style-type: none"> ▶ Two guest parking lots – North Lot and South Lot ▶ On- and off-site employee parking 	<ul style="list-style-type: none"> ▶ Paved north lot: 500 spaces ▶ Gravel south lot: 700 spaces 	NA
	Off-site Improvements	<ul style="list-style-type: none"> ▶ Roadway improvements to Lotz Parkway, Kammerer Road, and Classical Drive ▶ New roadway B Drive ▶ Pedestrian and bicycle facilities ▶ Sewer infrastructure ▶ Water infrastructure ▶ Storm drainage detention basin ▶ Electrical, gas, and telecommunication facilities 	NA	NA
Phase 1B: Near Term				
	Main Entry and Green Corridor	NA	NA	<ul style="list-style-type: none"> ▶ Alligator: 2,500 sf ▶ Squirrel Monkey: 1,300 sf ▶ Lemur: 5,100 sf ▶ Africa Aviary (birds): 15,000 sf ▶ African Aviary (okapi area only): 7,500 sf ▶ Colobus Monkey: 3,200 sf ▶ Giant Tortoise: 5,800 sf ▶ Animal care quarters: 5,130 sf
Phase 1C: Mid Term				
	Africa Zone	<ul style="list-style-type: none"> ▶ Removal of overnight camping lawn, replace with wild dog exhibits ▶ Tent camp area ▶ Overnight Guest Suites 	<ul style="list-style-type: none"> ▶ Overnight Guest Suites: 3 at 900 sf ea.; 1 at 1,400 sf 	<ul style="list-style-type: none"> ▶ Savanna North: 45,500sf ▶ Wild Dog: 25,500 sf ▶ Hippopotamus: 24,500 sf ▶ African Ape: 41,000 sf ▶ Animal care quarters: 20,000 sf

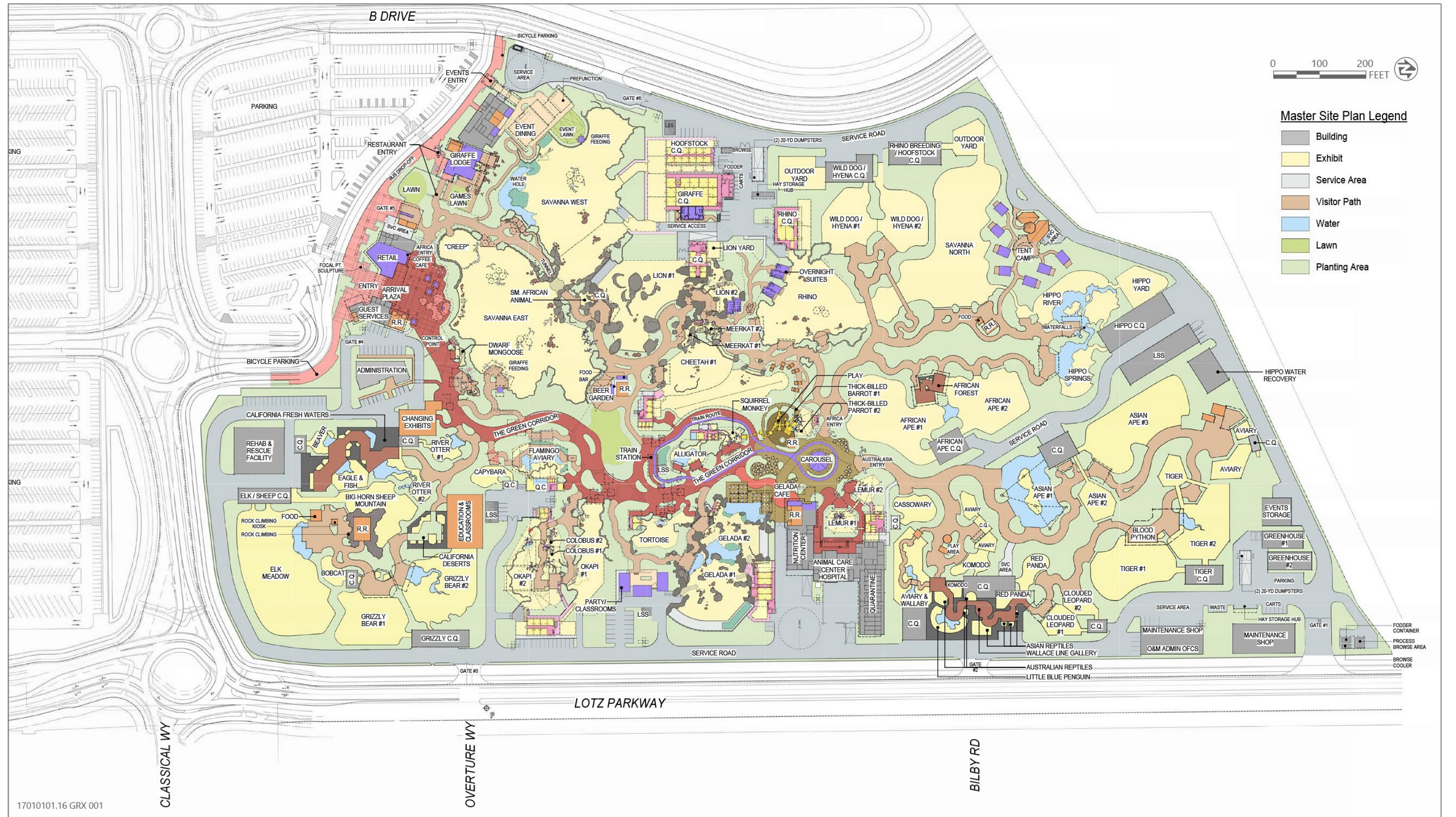
Phase/Timing	Planning Area	Description	Proposed Facilities	Proposed Exhibits ¹
Future Phases 2-4: Long Term				
Phase 2	California Zone	▶ California exhibits	<ul style="list-style-type: none"> ▶ Rehab and rescue facility: 11,000 sf ▶ Food kiosk: 500 sf ▶ Restrooms: 1,800 sf ▶ Deserts Interior Exhibits building: 6,400 sf ▶ Fresh Waters Interior Exhibits building: 18,600 sf ▶ Education Building: 9,000 sf ▶ Changing Exhibits: 5,000 sf 	<ul style="list-style-type: none"> ▶ Beaver: 2,100 sf ▶ Big horn sheep: 12,700 sf ▶ Bobcat: 2,100 sf ▶ California deserts interior exhibits: 2,000 sf ▶ California fresh waters interior exhibits: 2,000sf ▶ Eagle and fish: 4,000 sf ▶ Elk Meadow: 42,000 sf ▶ Grizzly Bear: 36,000 sf ▶ River otter: 8,300 sf ▶ California Sierra Nevada mountain exhibits: 500 sf ▶ Animal care quarters: 11,500 sf
Phase 3	Administrative Buildings	▶ Office complex	▶ Administration Building: 9,500 sf	NA
Phase 4	Australasia Zone	<ul style="list-style-type: none"> ▶ Australia exhibits ▶ Asia exhibits ▶ Maintenance buildings and shops 	<ul style="list-style-type: none"> ▶ Wallace Line Building: 22,000 sf ▶ Food Kiosk: 500 sf ▶ Playground ▶ Photo opportunity area ▶ Restrooms 1,000 sf ▶ Greenhouse 1 and 2: 7,600 sf ▶ Maintenance shed/shops: 8,500 sf ▶ Event storage: 3,800 sf 	<ul style="list-style-type: none"> ▶ Australia Aviaries: 3,000 sf ▶ Australia/Wallaby aviary: 11,000 sf ▶ Cassowary: 4,500 sf ▶ Komodo Dragon: 3,000 sf ▶ Interior Exhibits: 8,300 sf ▶ Asian aviaries: 5,500 sf ▶ Blood python: 200 sf ▶ Clouded leopard: 7,000 sf ▶ Tiger: 38,000 sf ▶ Red Panda: 3,000 sf ▶ Asian Apes: 33,000 sf ▶ Animal care quarters: 18,000 sf

Sf = square feet; NA = not applicable

¹ Species listed are intended for each proposed exhibit; however, exhibits may house different species upon construction of future phases of the New Zoo.

Source: Ascent 2023.

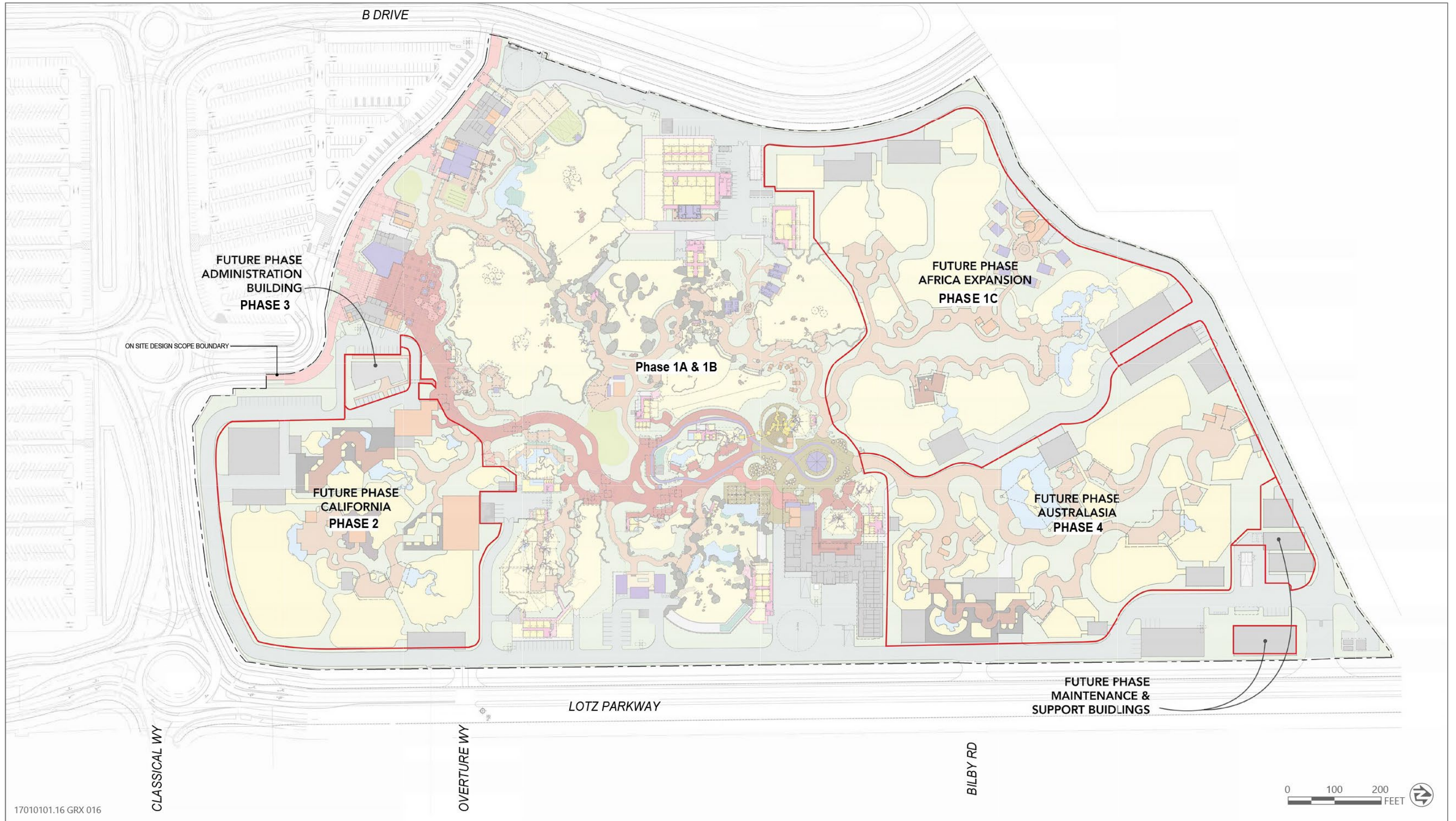
Note: All square footage numbers are approximate.



17010101.16 GRX 001

Source: SHR Studios.

Figure 2-3 New Zoo Plans Full Buildout



Source: SHR Studios.

Figure 2-4 New Zoo Development Phases

2.4.3 Phase 1

The following is a summary of the components of Phase 1, inclusive of subphases 1A, 1B, and 1C. As mentioned previously, Phases 1A and 1B may be built concurrently. Additionally, Phase 1C could be deferred until after Phase 2, 3, or 4, depending upon the needs of the Project and community and financial priorities.

MAIN ENTRY COMPLEX

The main entry complex would be located at the southern portion of the site accessible from the main parking lot. The main entry complex would include visitor services, ticketing, administration, a gift shop, coffee café, and other concessions. The following buildings would be included in the main entry complex: guest services/ticketing/restroom building (4,700 square feet), retail building (6,000 square feet), and educational entry restrooms (500 square feet). Buildings range from approximately 12 to 20 feet tall with insulated metal stud walls, sheathing, and glazed doors and openings. The main entrance building would include steel framed walls and structural framing (Figure 2-5). Two focal point structures would be included in the entry complex. One on the exterior plaza and a second focal element in the arrival plaza. Buildings at the entry area would also include employee and office spaces for staff east of the main entry building.

RESTAURANTS AND FOOD PAVILIONS

The New Zoo would include several restaurants and food pavilions. The main entry complex would include a coffee café for visitors. A beer garden is proposed along the Green Corridor near the savannah and cheetah habitat. The beer garden would include two 300 square foot buildings for beer and food, 1,000 square foot restrooms, and shade structures. The two buildings would be prefabricated 10 foot tall buildings.

A café and dining terrace, referred to as the Gelada Café, is proposed near the gelada exhibit and carousel and would be one of the main dining areas in the New Zoo. The 3,200 square foot Gelada Café would be connected to the nutrition center building, described below. The café would have a service counter, pickup counter, shaded queuing area, and outdoor seating area. The dining terrace would include views into the gelada exhibit from inside the cafe.

The Giraffe Café would be the main restaurant for the New Zoo. The café would be located on the southern portion of the site west of the main entry complex. The café would offer interior and exterior seating and be accessible inside the Zoo (as part of the ticketed experience) and to the general public (Figure 2-6). An outdoor games lawn would be connected to the café for visitor use. Visitors would be provided views of the savanna from the outdoor seating and windows in the café. The 12,000 square foot building would range from 13 to 18 feet in height with solar panels on the roof. A service entry with a separate gate system for the Giraffe Café would be provided off proposed B Drive. This area would include a truck turnaround for deliveries to the café and New Zoo. A 4,000 square foot concrete pad, with potential to be closed in later phases of construction, would be located adjacent to the Giraffe Café building for event dining. A 850 square foot prefunction concrete pad would be located adjacent to the concrete pad for setting up and prepping events. The concrete pad would include a separate event entry west of the Giraffe Lodge.

ANIMAL CARE CENTER

The animal care center would be located along the eastern portion of the site near the gelada and lemur exhibits. The animal care center would consist of a nutrition center, animal care hospital, and quarantine area. The 16 foot tall building would be 21,000 square feet with solar panels on the roof, heated and cooled via a heat pump HVAC system. The building would be made of insulated metal stud walls with glazed doors and openings.

The veterinary hospital portion of the building would include areas for surgery, two treatment rooms, a recovery area, radiology room, lab, pharmacy and pharmacy storage, laundry, diet preparation room, and oxygen storage. Visitors would have the opportunity to experience views into the operating rooms (the two treatment rooms, surgery, and

lab) through the glazed openings from an approximately 2,500 square foot viewing area. The viewing area would be covered with shade structures. The animal care and quarantine areas would include housing areas for small, medium, and large animals, aquatic species, and reptiles. Hoofstock would have an indoor and outdoor housing area. An enclosed veterinary yard would be located east of the building with a separate secured gate for access. The yard would be large enough to allow for truck turnaround. A proposed gate off Lotz Parkway would provide a truck loading area, waste storage, and truck turnaround for additional access to the animal care center. The nutrition center would be located on the southern portion of the animal care center and consist of multiple rooms for animal food preparation and storage. Windows will allow guests to view the food preparation area and learn about animal caretaking and nutrition.

PLAY AREAS

Play areas and structures would be located throughout the New Zoo. A carousel would be located toward the center of the New Zoo along the Green Corridor in a designated Play Zone. The carousel would be moved from the existing Sacramento Zoo and transported and installed at the New Zoo. A train ride route would be located near the carousel and circle the alligator and squirrel monkey exhibits. A play structure with ropes and other climbing and play apparatus would also be located near the carousel in the Play Zone. Other play structures in the New Zoo could include climbing towers and water play.

OVERNIGHT ACCOMMODATIONS

The Project would include overnight accommodation facilities where guests could stay overnight at the New Zoo. Overnight accommodations would include an open lawn area in the northern portion of the site near the lion and rhino exhibits in the African Zone. The open lawn would be a place for guests to pitch their personal tents. The lawn would also serve as an event space for potential functions. Overnight guests would be able to attend a nighttime safari. The nighttime safari experience would follow the Green Corridor route and include a light display and amplified noise (Figure 2-7).

The site plan also identifies a "tent camp" lodging component, which would provide between seven and fifteen hospitality suites for overnight guests (Figure 2-8). The "tent camp" would function more like a hotel, in that it would be a permanent, constructed facility with beds, bathrooms, and other furniture. Support facilities may include, but are not necessarily limited to, a camp fire/fire pit gathering space, "front desk" and administration space, and dining space. The exact design of the "tent camp" is unknown at this time but could be in the form of safari tents or could be a more traditional building structure with solid walls, windows, and doors.

Additional overnight accommodations may be integrated into some of the animal habitats and care areas, including lion, giraffe, and rhino. Up to 30 suites would provide sleeping and restroom facilities for guests and provide viewing into the animal habitats or care areas. Inclusion of these accommodations is dependent upon financial capacity.

EDUCATION SERVICES

The New Zoo would provide the opportunity for educational experiences for a variety of guests. As part of Phase 1, education operations and administration would occur within the modular office complex. Educational programs would occur throughout the campus, including at the overnight/event lawn and within three party rooms/classrooms located near the gelada and tortoise exhibits. The area would include three 1,000 square foot buildings, each approximately 14 feet tall, a food prep and storage area, restrooms and two patio courtyards.

A dedicated educational building would be included in Phase 2.

ADMINISTRATION AND OPERATIONS

Administrative and office functions of the New Zoo would be located at numerous locations around the complex. Admissions and security would be located at the main entry complex at the front of the New Zoo. Animal medical staff would be located at the animal care building near Lotz Parkway. Animal care staff administration would be located in a modular office complex (measuring approximately 3,000 square feet) just north of the animal care building; however, the majority of care staff would be stationed or otherwise work out of the animal care areas located adjacent to each animal habitat.

Overall administrative functions would be housed at a modular office complex also just north of the animal care building. The total building area would include approximately 8,900 square feet. Each operations function would be located in a separate modular structure, with the group surrounding a central restroom and breakroom modular. In Phase 3, this complex would be replaced by a permanent office building just east of the main entry.

WAREHOUSE AND STORAGE

Primary warehouse and storage support facilities would be located in a support services complex in the northeast corner of the site adjacent to Lotz Parkway. This area would provide storage and shop space for support staff, including a plant nursery, maintenance and construction equipment, event equipment storage, and other campus support operations. Generally, animal food would not be stored in this area, though some hay or other dry storage may occur here. Additional animal hay/dry food storage would occur near the hoofstock habitats on the west side of the New Zoo.

LIFE SUPPORT SYSTEMS

Several of the exhibits at the New Zoo would incorporate aquatic features that would require life support systems (LSS). LSS would be located throughout the site as indicated as "LSS" on Figure 2-3. These systems would be designed to maintain suitable water quality for exhibit inhabitants and guest viewing stations. The LSS design for each exhibit depends on the exhibit volume, pool configuration, environmental influences, food loading, animal species, and viewing arrangement. A list of each exhibit requiring LSS and the water demand is included in Appendix B. Overall, the Project would require 153 acre feet per year of water during Phases 1A and 1B and 208 acre feet per year of water during Phase 1C, and Phases 2-4.

ANIMAL HABITATS AND OFF-EXHIBIT CARE AREAS

The New Zoo would include numerous animal exhibits clustered throughout the Zoo by region of species origin (Figure 2-3). Exhibit zones for Phase 1 include Green Corridor and Africa. The Africa zone would include savanna areas with various species including giraffe and other hoof stock, as described in Table 2-1. Lion and cheetah habitats would be located north of savanna. Further north would be a rhino habitat. Care quarters for rhino, hoof stock, and giraffe are located on the perimeter near Road B (Figure 2-3). The Green Corridor would include the flamingo aviary, okapi habitat, gelada habitat, and thick-billed parrot habitat. Phase 1B would include additional habitats, as described in Table 2-1, but may be included with Phase 1A depending on funding. Examples include areas for colobus monkey, additional aviaries, giant tortoise, squirrel monkey, and alligator. Phase 1C would include expansion of the Africa Zone. Under Phase 1C the Africa zone would include wild dog, hornbill, zebra, and ostrich exhibits located further north, along with an expansion of rhino. The northern portion of the New Zoo would also include exhibits for hippopotamus and an African primate habitat. The primate habitat would be constructed at the location of the overnight camping lawn. Camping opportunities would relocate to other lawn area(s) of the New Zoo, to be determined at a later date. A detailed list of species and habitat size is included in Appendix C.

2.4.4 Future Phases

Phases 2 through 4 would include the buildout of the California and Australasia zones (see Table 2-1 and Figure 2-4) and construction of a permanent administration office building.

Phase 2 of the New Zoo would include the California zone with exhibits at the southeast portion of the site for eagle, river otter, elk, grizzly bear, waters for freshwater species, and other species native to California. The California zone would include restrooms, a rehab and rescue facility, as well as a building for changing exhibits and an education building. Additional overnight guest accommodations may also be included, with views into the animal habitats and holding areas.

Phase 3 would consist of construction of a permanent administration office building, replacing the modular buildings constructed in Phase 1. The Administration building would be located between the California zone and the entry complex. The building(s) would be no more than three stories tall.

The Australasia zone, Phase 4, would be located north of the Animal Care building near the northeast corner of the site. Habitats that may be included in this zone include, but are not limited to, cassowary, wallaby, emu, red panda, clouded leopard, tiger, orangutan, and other Australian and Asian animal species. Additional overnight guest accommodations may also be included, with views into the animal habitats and holding areas.

Animals for the California, Australia, and Asia zones would be housed at other zoos until completion of their habitats as part of future phases of the New Zoo.

Greenhouses and events storage buildings would be located north of the Australasia zone. The northeast corner of the New Zoo would be built out under future phases with maintenance shops, support offices, and other shop and warehouse spaces as shown in Table 2-1.

2.4.5 Other Project Improvements

LANDSCAPE IMPROVEMENTS

Native and drought resistant plants would be included in Project landscaping to conserve water and create native species habitat. The landscaping would be designed to reduce runoff volume, peak flow rate, load, and water usage. Trees would line the Green Corridor to provide shade for visitors. The Green Corridor would include native plants with riparian groupings. Landscaped and lawn areas for Phase 1 are shown in Figure 2-9. Additional landscaping would be provided along the exterior of the site, in the main parking lot, and other areas of the site.

ACCESS AND CIRCULATION

The main point of entry for the New Zoo site for guests would be from a driveway connecting along Classical Way. Additional details regarding guest arrival, parking, and access is described in more detail below.

Service and employee access to the site would be provided at several points along the exterior of the site. The primary access for staff would be a pedestrian gate at Lotz Parkway at the southern end of the site. The primary vehicle access for waste pickup vehicles would be a connection at Lotz Parkway at the north end of the site, just south of the Shed C Channel, with an uncontrolled left turn movement to enter the site. The entrance would remain an unsignalized intersection.

New roadways around and to the site would include Classical Way and B Drive. B Drive would extend from the Shed C Channel along the western portion of the site south to Kammerer Road (Figure 2-3). Roundabouts to direct traffic would be located at Classical Way and the entrance to the New Zoo and Classical Way and B Drive. A driveway would connect B Drive to the New Zoo's southwest service entrance, where deliveries to the Giraffe Lodge and the event space would occur. Off-site roadway improvements are discussed in Section 2.4.7.

The Project site would include six pedestrian gates (Figure 2-10). Four of the gates (pedestrian gates 6, 8, 9, and 10) would be located along the southern portion of the Zoo. Gates 6 and 9 would serve as guest entry and exit. Gate 8 would be the pedestrian gate for entry to the educational area. Gates 9 and 10 would serve as a controlled entry/exit from the Giraffe Lodge to the New Zoo and a controlled entry/exit for special events. Pedestrian gate 11 along the southwestern border of the Zoo site would serve as the pedestrian and vehicle entry to the service entry for events at the New Zoo. Pedestrian gate 4 would be located off Lotz Parkway for Zoo staff only as described above.

The Project site would include six vehicle gates for entry into the Zoo facilities (Figure 2-10). Gate 1, located at the northeast corner of the site, would serve as the main entrance/exit and entry for non-zoo vehicles with an attendant at the gate. Gates 2, 3, and 5 would serve as emergency entrance/exit gates and would be accessible via keycard. Gate 7 would be the service gate to serve the guest food deliveries and back of house waste areas, accessible via keycard. Finally, gate 12 at the southwest portion of the site would be for entry and exit via a keycard. Food and goods would be distributed to cafes around the Project site from the delivery area along the site perimeter (Figure 2-10).

INFRASTRUCTURE IMPROVEMENTS

Drainage and Water Quality

The Project site is undeveloped without storm drain and water quality infrastructure. Project development would include the addition of drainage and water quality improvements to the site. Stormwater from the Project site flows into the Shed C channel. To manage these flows and address impacts from hydromodification, two new stormwater retention basins would be constructed in the southern parking lot and a series of retention basins in the northern parking lot (Figure 2-11). Additionally, a new stormwater detention basin would be constructed at the north end of B Drive south of Shed C channel, across the street from the Project. This facility was contemplated in the original approvals for the SouthEast Policy Area (SEPA) in 2014 (referred to as Basin S4). The environmental impacts of ground disturbance and general development of the new basin were addressed in the SouthEast Area Policy EIR (State Clearinghouse No. 2013042054). However, as part of the Project, the location and configuration of the basin is being modified such that the basin is west of B Drive and extends more north-south, as opposed to east-west. The basin would be constructed in phases, with Phase 1 addressing the needs of the Project. A future Phase 2 would increase the size of the basin, extending the basin west, to add capacity for development west of the Project site that is within the same storm drainage Subshed S4, as described in the SEPA plans. A new outfall of the basin into Shed C channel is included in the Project design. The Project would seek modifications to the existing Federal and State permits issued for the Shed C channel and detention basin improvements to allow for this modified and phased design. Movement and amending the basin permit would occur as part of ongoing refinements to the Storm Water Drainage Master Plan and would be covered through modification to existing permits. Stormwater from the Project, as well as B Drive and Classical Way, would be directed to the basin by way of storm water pipelines in the roadways. The Project would connect to these pipelines at various locations.

The majority of wastewater would not flow into stormwater because any wastewater within the buildings would flow into the sewer, as described below under "Wastewater Service." Wastewater collected from most of the exhibits would be collected on site in the stormwater retention basins. Incidental waste from the exhibits would go either into the LSS, where backwash would go into the sewer, or into one of the stormwater features on the site, as described above, and through layers of treatment before entering the stormwater retention basin.

The Project would utilize hydromodifications on the site to account for storage and water quality treatment prior to discharging into the City's storm drain infrastructure, proposed along B Drive. Features would include bioretention basins, Low Impact Development (LID) principles, and treatment control measures permitted within the Sacramento Regional Stormwater Quality Design Manual. These features would mitigate peak flows and work in concert with the storm drainage infrastructure planned west of the site. Hydromodification features in the New Zoo would increase natural water storage and slow runoff. The site has been delineated into drainage management areas to direct flow. All storm drain inlets are proposed to include catch basin insert filters for full trash capture measures.

Wastewater Service

Wastewater service would be provided to the Project by the Sacramento Area Sewer District (SacSewer). Flows from the Project site, specifically wastewater from inside the buildings, would be directed to the SEPA Sewer Lift Station (identified as facility number S153), located on Bilby Road just east of Bruceville Road. To connect to this facility, sewer lines would be constructed in B Drive and Classical Way (10-inches and 8-inches, respectively) (Figure 2-12). These lines would connect to the 12-inch sewer line in B Drive within the Souza Dairy development by way of a pipeline extended either by the Souza Dairy development or by the Project under the Shed C channel at the northern portion of the of B Drive. The onsite LSS system would collect incidental waste from the animal exhibits where backwash would enter the sewer.

Water Supply Service

Water services to the Project would be provided by the Sacramento County Water Agency (SCWA). Extension of backbone water pipelines would be necessary to serve the Project. The following facilities would be constructed to serve the Project:

- ▶ A new 24-inch pipeline would be constructed in Lotz Parkway from Kyler Road south to Kammerer Road. Along this corridor the pipeline would connect with pipelines in Bilby Road and Kammerer Road.
- ▶ A new 20-inch pipeline would be constructed in Classical Way from Lotz Parkway west to B Drive.
- ▶ A new 20-inch pipeline would be constructed in B Drive from Classical Way north to Shed B, where the pipeline would connect with improvements completed by the Souza Dairy project.

These improvements would provide a looped water service system along three sides of the Project site, complying with minimum service requirements for fire suppression (Figure 2-12). Water infrastructure would surround the main Zoo complex with connections into the Zoo to serve restrooms, restaurants, and the LSS systems. Additionally, the Project would construct recycled water service lines within B Drive and/or Classical Way, consistent with the Recycled Water Master Plan for the Southeast Policy Area.

Dry Utilities

Dry utilities refer to electrical, gas, and telecommunications infrastructure. These facilities are typically constructed along public roads within Public Utility Easements (PUEs). Improvements to Lotz Parkway, Classical Way, B Drive, and Kammerer Road include the extension of these services within the proposed PUEs.

SMUD infrastructure for electrical services would be extended to the site within the PUEs, with points of connection to the Project. All SMUD wires would exist in underground conduits. Above ground transformers would be placed at various locations within landscape areas along the roadways as determined by SMUD, as well as interior to the Project. Existing power runs to the Project site would be sufficient to meet energy needs of the New Zoo and substation improvements would not be needed to serve the Project.

Buildings such as the guest services, retail, Giraffe Café, Gelada Café, and Animal Care Center would include solar panels on the roof to provide additional electricity. Solar panels may also be located in the parking lots on the site. Emergency power to serve the New Zoo during a power outage would be provided to the Animal Care Center and entry building to maintain animal health and site security. Backup power would be provided by battery systems that would operate overnight or otherwise when the photovoltaic systems are insufficient to provide power to the specified buildings/functions.

The New Zoo would be all electric with no natural gas for energy usage. Decorative gas usage for fire pits or lanterns may occur. While much of the Project would not involve the use of natural gas, there is the potential for Pacific Gas and Electric Company, the area natural gas provider, to extend their services along the area roadways. These services would be located underground within the PUEs.

Telecommunications facilities would be provided by various providers. Conduits would occur underground within the PUEs or within trenching within the roadway consistent with the City's Improvement Standards. On occasion, above

ground utility cabinets would be constructed by the provider(s). These cabinets would be similar to other telecommunications infrastructure found in Elk Grove.

Solid Waste Services

The Project site would include trash, recycling, and compost for solid waste (Figure 2-10). Two compostable animal waste and five non-compostable animal waste low boys or hoppers would be located on the site. Trash, recycling, and compost bins would be located throughout the New Zoo. Two collector areas at the northeast and northwest portions of the site would include a 20 yard dumpster for animal waste compost and three hoppers for trash, recycling, and compost. Animal waste would be picked up every one to two days.

2.4.6 Parking Facilities

Several parking facilities would be constructed to support the New Zoo. The primary parking facilities are two guest parking lots: the North Lot, which adjoins the guest entrance to the facility, and the South Lot, which would be across Classical Way to the south of the New Zoo (Figure 2-3). The North Lot would be paved with asphalt, while the South Lot would be a gravel lot. Between 1,600 and 1,700 parking stalls would be constructed in the two lots (Figure 2-12). The parking lots would be landscaped around the perimeter and the north parking lot would feature parking lot shading through a combination of landscaping and possible solar facilities. The Project would include 120 bicycle parking spaces.

Employee parking would occur in two ways: on-site and off-site of the New Zoo. Some employee parking would occur within the secured perimeter of the New Zoo, including adjoining the administration building, at the animal care center, and at the warehouse/storage support facilities.

A stand-alone employee lot would be constructed off-site, across Lotz Parkway at the intersection of Lotz Parkway and Overture Way (Figure 2-2). This site, which is approximately 2.22 acres, is currently owned by the Cosumnes Community Services District (CCSD). In 2008, this site was identified as a potential location for a new fire station; however, at this time the CCSD has identified an alternative location near Promenade Parkway and Kammerer Road that would provide superior emergency response time within the station's traditional service area and, as such, CCSD is open to selling the site. This parking lot would be constructed with fencing and landscaping around the perimeter and include parking lot shading from landscaping and/or solar facilities. An existing masonry is provided along the southern edge of the lot. Fencing would likely be constructed along the north, east, and west frontages. Driveway access would occur along Overture Way. This lot would be constructed after Phase 1B and as demand warrants.

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17010101.16 GRX 002

Source: SHJR Studios and Noll & Tam.

Figure 2-5 New Zoo Main Entrance Rendering



17010101.16 GRX 003

Source: SHJR Studios and Noll and Tam.

Figure 2-6 New Zoo Lodge Rendering



Source: SH|R Studios and Mangolin Creative.

Figure 2-7 Nighttime Experience Route



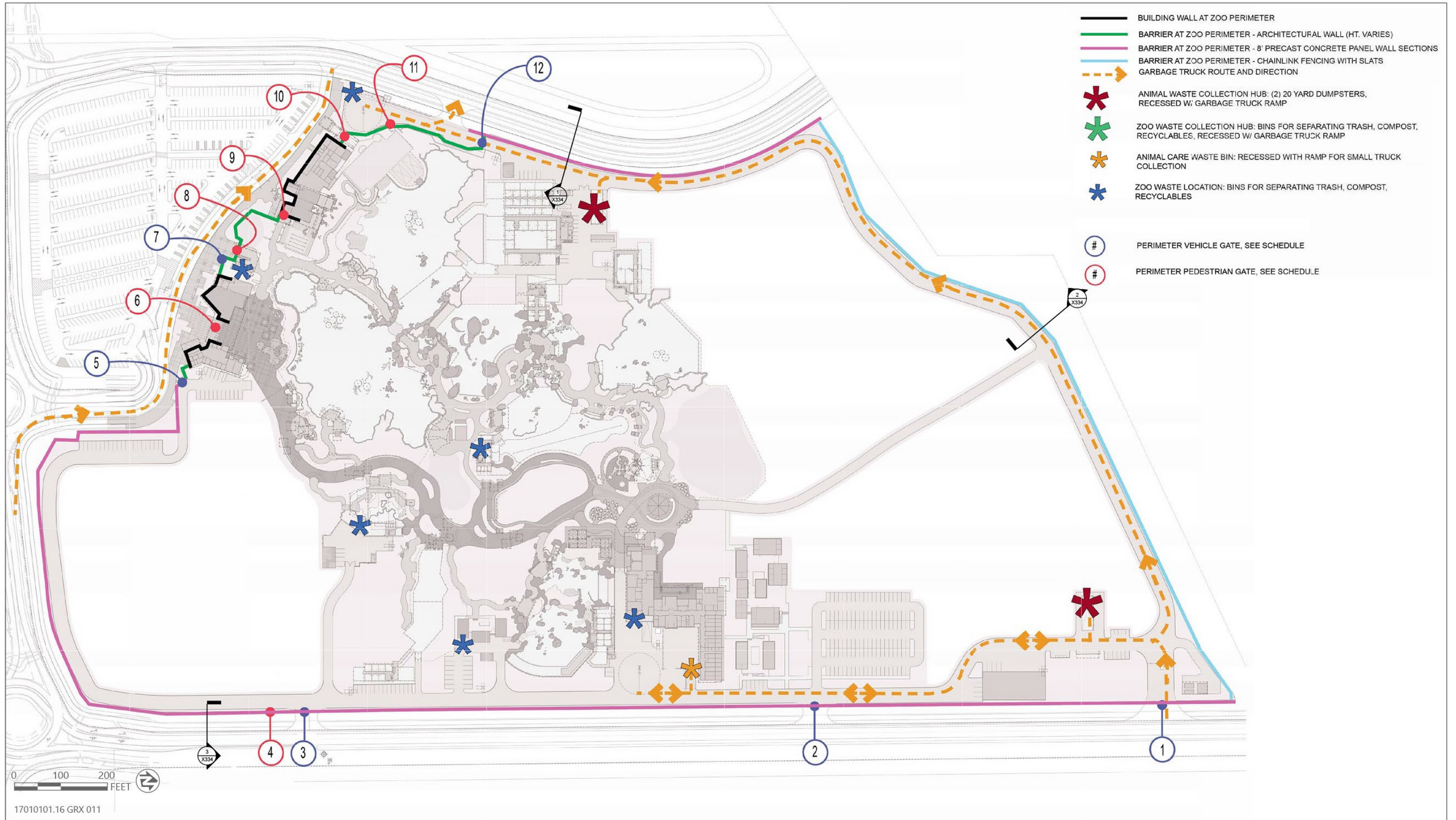
Source: SH|R Studios and Mangolin Creative.

Figure 2-8 Proposed Tent Camp Rendering



Source: SHJR Studios.

Figure 2-9 Phase 1 Landscaping



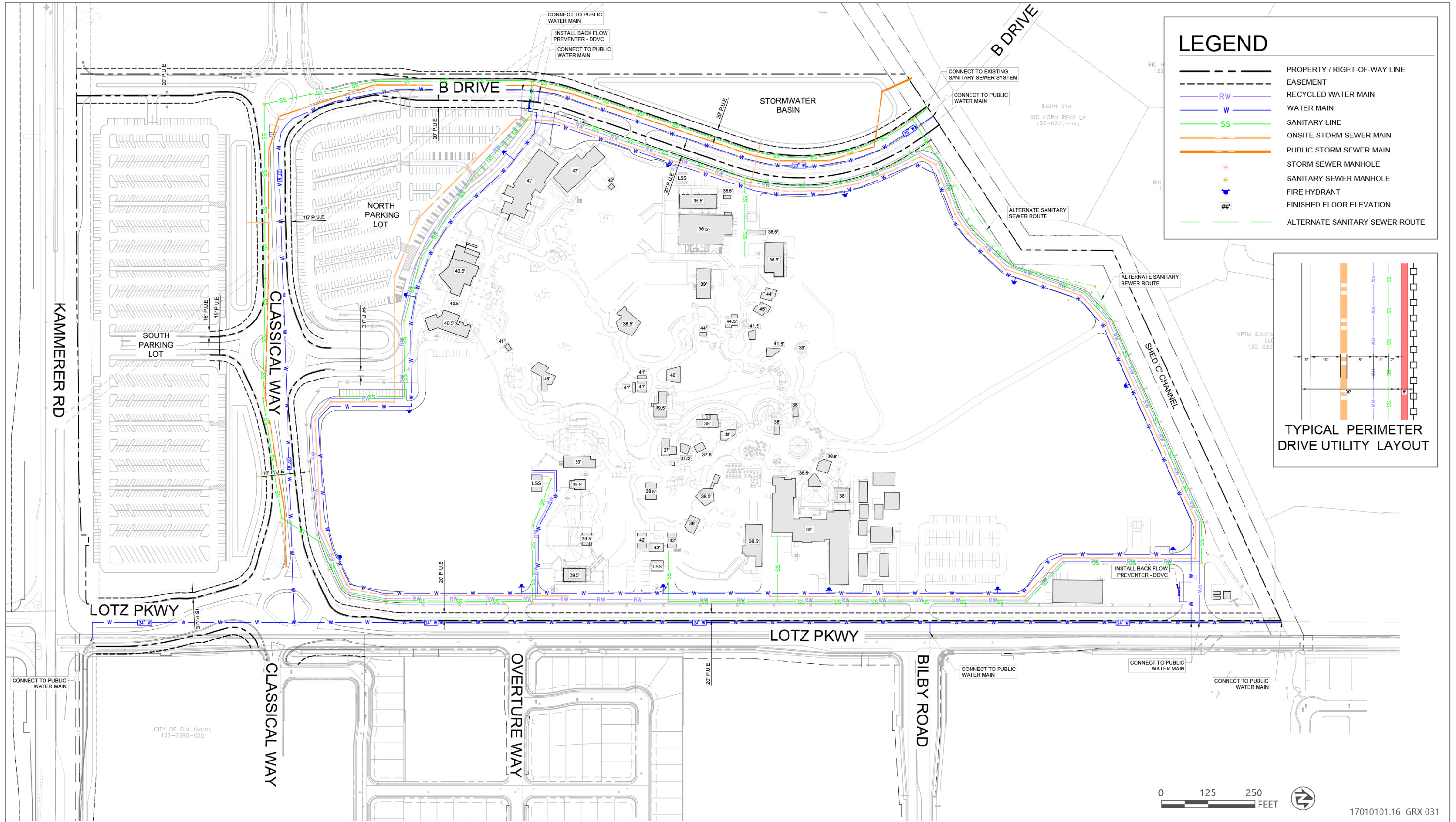
Source: SH|R Studios.

Figure 2-10 New Zoo Perimeter Gates



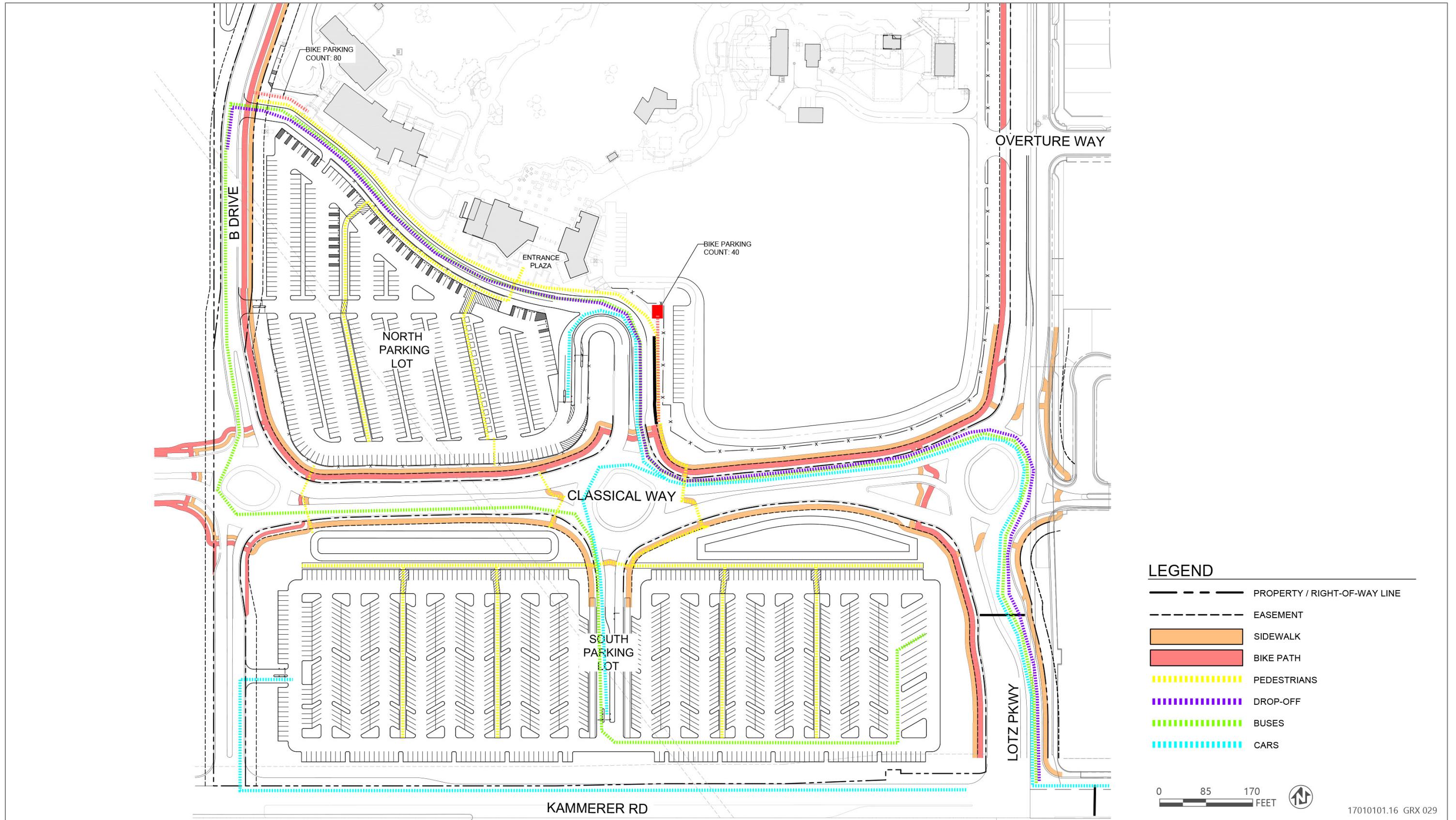
Source: shr Studios.

Figure 2-11 Drainage Management Areas



Source: Kimley Horn and shr Studios.

Figure 2-12 New Zoo Utility Plan



Source: shr Studios.

Figure 2-13 Proposed Site Circulation

2.4.7 Off-site Infrastructure Improvements

To support development of the New Zoo several off-site public infrastructure facilities would be constructed. Specific infrastructure improvements are described below.

ROADWAY IMPROVEMENTS

Access to the Project site would occur from Kammerer Road, Lotz Parkway, Classical Drive, and from a new street, referred to as B Drive. Directional signage would be included along major approaches to the Project site. Improvements to these roadways are described below.

Kammerer Road extends from State Highway 99 (SR 99) west past the Project site. The portion from SR 99 to Lent Ranch Parkway is constructed as a six- to eight-lane facility. West of Lent Ranch Parkway, the center median and inside lanes (one each east- and westbound) have been constructed. As determined from roadway segment capacity analysis prepared for the Project, the Project would contribute to additional deficiency at the intersection of Kammerer Road and Promenade Parkway during the Cumulative (2050) scenario, which includes full Project buildout. The Project is not deemed to create this deficiency (attributed to robust development south of Kammerer Road anticipated in the future TDM), no improvement or modification is required at this time (Kimley Horn 2023).

Lotz Parkway is a planned arterial roadway that parallels SR 99 from the Elk Grove Automall south to Kammerer Road. As of the date of the EIR, portions of this road have been constructed as part of various private and public development projects, including the Madera East Subdivision, the Souza Dairy Subdivision, and the Sterling Meadows subdivision. Along the Project's eastern limits, Lotz Parkway exists as an undivided two-lane roadway. The two-lane roadway configuration reflects partial improvement, as the planned roadway condition included in the City's General Plan, is for a four-lane facility. Expansion to four-lanes will occur in stages. The first stage is the construction of the median and the inside southbound lane from the Shed C Channel to Kammerer Road. This improvement is the responsibility of the Souza Dairy project pursuant to a Development Agreement between the developer and the City of Elk Grove, dated August 2021. As of the date of preparation of this EIR, the construction plans for this phase of work have been reviewed and approved by the City and construction has commenced. It is anticipated that construction will be completed before the end of 2024.

The second phase of work would involve the construction of the outside southbound lane along the Project frontage, which would be completed by the Project (See Figure 2-3). The Project would also construct a landscape corridor and off-street bicycle and pedestrian facilities west of the roadway curb along the Project frontage. Additionally, the Project would include intersection improvements along the length of Lotz Parkway, as follows:

- ▶ Conversion of the intersection of Lotz Parkway and Classical Drive to a roundabout (see Figure 2-3);
- ▶ Construction of the signal and intersection at Lotz Parkway and Overture Drive to add the service driveway into the Project site;
- ▶ Modification of the signal and intersection at Lotz Parkway and Bilby Road to add the service driveway into the Project; and
- ▶ Modification of Lotz Parkway to add an unprotected left turn movement into the Project site just south of the Shed C crossing.

Classical Way is an east-west road within the Sterling Meadows subdivision to the east of the Project site. As part of the Project, Classical Way would be extended west as a four-lane facility to B Drive (Figure 2-13). This road would be constructed in phases, with Phase 1 as a two-lane facility and future widening to four lanes. Future development, as described in the City's Livable Employment Area Community Plan, would extend this roadway further to the west. Along Classical Way, three roundabout intersections would be constructed (see Figure 2-13). The first would be at Lotz Parkway as previously described. The next two would be at the public entry into the Project site and at the intersection with B Drive. As part of the initial development of the Project these roundabouts would be sized based

upon the roadway segment sizing (e.g., two lanes) and widened in future phases as Classical Drive is widened to four lanes.

B Drive is a future 2-lane roadway that extends south from the Souza Dairy project across Shed C towards Kammerer Road. Construction of the culvert across B Drive is under the responsibility of the Souza Dairy project pursuant to their Development Agreement, described earlier. The Project would extend these improvements from the Shed C channel south along the western frontage of the Project site. Improvements would include, but are not limited to, one travel lane in each direction, pedestrian and bicycle facilities paralleling the roadway, and landscaping along the Project frontage. Partial intersection improvements at the intersection of B Drive and Kammerer Road are also included in the Project, allowing for right turn access from and onto Kammerer Road. No left turn access would be provided.

PEDESTRIAN AND BICYCLE FACILITIES

Various pedestrian and bicycle facilities would be constructed as part of the Project. A new Class I bicycle and pedestrian trail would be located along the west side of Lotz Parkway from Shed C channel to Classical Way, then follow Classical Way to the entrance of the New Zoo (Figure 2-13). A new Class IV bicycle facility and a separate pedestrian sidewalk would be located along the east side of B Drive from the Shed C Channel to the New Zoo entrance. The Project would include up to 120 bicycle stalls. Bicycle showers would be provided for staff use following bicycling to work.

One or more of the pedestrian crossings at the intersection of Classical Way and the guest parking lot entrances may be grade separated. This improvement would require increasing the height of the finish grade of the roundabout approximately 14 feet to provide enough vertical clearance for pedestrian and bicycle users.

2.4.8 Sustainability Improvements

The Project would include several sustainability features. The New Zoo would be designed to be certified at minimum Leadership in Energy and Environmental Design (LEED) Silver. Solar panels would be included on several roofs of proposed buildings on the Project site. A minimum 20-kilowatt (kW) solar array would be installed on the proposed retail building and a minimum 14-kw array would be installed on the proposed office building. The Giraffe Lodge building would not have solar panels but would be photovoltaic (PV) ready. The Project would include 327 electric vehicle (EV) parking spaces consisting of 313 EV capable spaces, 80 EV charging stations, 7 EV standard accessible spaces, 2 EV van accessible spaces, and 5 EV ambulatory spaces. The Project would be all electric with no natural gas. Heating, ventilation, and air conditioning systems would use a packaged air cooled heat pump system and backup generators would be battery powered.

2.4.9 Project Operations and Special Events

The New Zoo would be open seven days a week from approximately 9 a.m. to 5 p.m., except Thanksgiving and Christmas, supporting an average annual attendance of between 1.1 million and 1.6 million visitors per year. Extended hours of operation would be provided for special events (as described below), or, based upon seasonal conditions, additional regular hours may occur (e.g., as late as 9 p.m.). Dining at the Giraffe Lodge may be open as late as 11:00 p.m. The New Zoo would employ approximately 150 to 300 people. Employment would vary seasonally with additional staff during the summer months to support summer camp, educational, and special event activities.

Deliveries to the project site would include food delivery to support restaurants at the New Zoo, as well as feed the animals. Food deliveries to support the restaurants and fresh food for the animals would occur twice a week. Hay and dry animal feed would be delivered up to four times a month. Waste removal would occur several times a week and would be picked up from the waste bins throughout the site.

Special events at the New Zoo are anticipated to include corporate events, birthdays, weddings, and other private parties. The New Zoo would host seasonal events such as happy hours, galas, membership evenings, daytime and nighttime safaris, and other nighttime programs and events. Evening events are expected to run from 6:00 p.m. to

11:00 p.m., though some activities, such as at the event space at the Giraffe Café, may begin earlier in the day. Overnight camping, as well as the “tent camp” and other lodging, would allow guests to spend the night at the New Zoo. These overnight stays would include various nighttime and early morning programming. The proposed educational buildings on the site would support field trips, summer camps, girl/boy scout badge days, and other similar events. Various events and programs will include the use of amplified sound, including music and representative animal sounds, as well as lighting and video displays.

2.4.10 Animal Browse Program

To address the nutritional needs of the herbivore and omnivore species housed at the New Zoo, the Project would include the development of a new Animal Browse Program. Under this program, plant clippings would be gathered from various sites around the City, processed at the New Zoo, and then fed to the animals. A shed would be located in the northeast corner of the Project site to process vegetation from the Animal Browse Program. Three types of facilities are planned for the Animal Browse Program:

1. Existing Parks, Open Space, and Other Landscaping. The Zoological Society would work with the City and Consumes Community Services District (CCSD) to procure plant clippings from vegetation at exiting parks, open space areas, and other landscaped sites around the community. New tree plantings could occur at some facilities, at the discretion of the property owner.
2. New Browse Property Development. The CCSD would develop two sites to support the Browse Program:
 - a. Arcadian Village Park Site (located at APN 115-0150-074 and an historic address of 8341 Sheldon Road). This site, which measures approximately 8.55 gross acres, would include approximately 2-3 acres of local park features, including a play structure, picnic area, and other traditional neighborhood park amenities to support the active park needs of the community. The balance of the property would be developed with a Browse Grove, featuring a collection of tree and shrub species that would be selectively pruned or harvested to feed the animals. The Browse Grove would include trails and pathways for walking through the Grove, along with interpretative signage informing the public of the connection between the Grove and the New Zoo.
 - b. Elk Ridge Way Property (located between Elk Ridge Way and Lodestone Circle, just east of the Oaks Mobile Home Community, APNs 125-0060-004, -008, & -013). This 4.4-acre property would be enhanced with additional plantings that could be selectively pruned or harvested to feed the animals. The existing oak grove would be retained.
3. Community Browse Partnership. The Zoological Society would work with the community to expand their current browse donation program into Elk Grove. While all residents/neighborhoods could participate in the program, the Zoological Society would specifically work with the Rural Area of the City on opportunities to expand plant coverage in that area and take advantage of the rural densities and available open space to develop browse material.

2.5 PROJECT CONSTRUCTION

Construction of all Project phases is likely to be completed over 20 years. Timing of Project buildout would ultimately be based on economic conditions as funding becomes available. Roadway and infrastructure components may begin construction in late 2025. Phase 1 would include construction of the Green Corridor and Africa zones and is anticipated to begin in 2026 and last 36 months within anticipated opening in 2029. Opening of Phase 1 may also be phased with partial opening as early as 2027 while construction continues. Specific animal habitats within the Green Corridor and Africa zones may be further phased as funding allows. The California, administrative offices, and Australasia zones would be developed as part of future phases as funding becomes available.

Construction would generally occur 5 to 6 days per week (Monday through Saturday), up to 12 hours per day, during the daytime construction hour limits of 7:00 a.m. to 7:00 p.m. established under Section 6.32.100.E and 6.32.140.A of the Elk Grove Municipal Code. Cut and fill would be balanced on the Project site with approximately 98,000 cubic yards of cut. If additional fill material is needed it would be provided from the Sterling Meadows site adjacent to the Project site.

2.5.1 Other Local and Regional Agency Approvals

The following other local and regional permits and approvals would be required for the Project:

- ▶ City's approval of Zoning Amendment to include the New Zoo Special Planning Area;
- ▶ City's approval of the site development permits for the Project, including Conditional Use Permits, a District Development Plan (e.g., site plan), and Design Review (e.g., building architecture);
- ▶ City's approval of a License and Management and Operations Agreement between the City and the Sacramento Zoological Society;
- ▶ Sacramento County Water Agency approval of water supply distribution facility connections;
- ▶ Sacramento Area Sewer District approval of wastewater conveyance facility connections;
- ▶ Sacramento Municipal Utility District (SMUD) approval of electrical conveyance facility connections;
- ▶ Central Valley Regional Water Quality Control Board: Waste Discharge Requirements; and
- ▶ Sacramento Metropolitan Air Quality Management District: Clean Air Act compliance, approval of an Authority to Construct and Permit to Operate.

The following permits and approvals would also likely be required to construct the proposed Project:

State

- ▶ California Fish and Wildlife approval of Section 1602 Permit;

Other state approvals may be necessary relative to University of California Davis support for animal care facilities and operations.

Federal

- ▶ US Army Corps of Engineers Section 401 and 404 permits; and
- ▶ Licensing by the US Department of Agriculture

In addition to the above approvals /subsequent actions, the City anticipates that as part of the License and Management and Operations Agreement the Sacramento Zoological Society will be required to make best efforts to secure and maintain accreditation of the facility with the Association of Zoos and Aquariums, or a similar organization deemed satisfactory to the City.

3 ENVIRONMENTAL SETTING, IMPACTS, AND MITIGATION MEASURES

This chapter is organized by environmental resource topic. Each resource topic is addressed in a separate section that presents an integrated discussion of the existing conditions (including environmental setting and regulatory setting) associated with the resource, potential environmental effects of the Project (including direct and indirect impacts) on the resource, and mitigation measures to reduce significant effects.

Cumulative and growth-inducing impacts are discussed in Chapter 4, "Cumulative Impacts," and Chapter 5, "Other CEQA-Mandated Sections," respectively.

APPROACH TO THE ENVIRONMENTAL ANALYSIS

This Draft EIR identifies and focuses on the environmental impacts associated with the New Zoo at Elk Grove Project, in accordance with CEQA (PRC Section 21000 et seq.) and the State CEQA Guidelines (CCR Section 15000 et seq.). Sections 3.1 through 3.14 of this Draft EIR present a discussion of regulatory background, existing conditions, environmental impacts associated with construction and operation of the Project, mitigation measures to reduce the level of impact, and the residual level of significance (i.e., after application of mitigation, including impacts that would be significant and unavoidable after application of all feasible mitigation measures). Issues evaluated in these sections consist of the environmental topics identified for review in the notice of preparation (NOP) prepared for the Project as well as responses received on the NOP (see Appendix A of this Draft EIR). Chapter 4 of this Draft EIR, "Cumulative Impacts," presents an analysis of the Project's impacts considered together with the related impacts of other past, present, and probable future projects, as required by Section 15130 of the State CEQA Guidelines. Chapter 5, "Effects Determined to be Less Than Significant" includes an analysis of State CEQA Guidelines Appendix G environmental issue areas scoped out of this EIR during the NOP process. Chapter 6, "Other CEQA-Mandated Sections," includes an analysis of the Project's growth-inducing impacts and significant irreversible environmental effects. Chapter 7, "Alternatives," presents a reasonable range of alternatives and evaluates the environmental effects of those alternatives relative to those of the Project, as required by Section 15126.6 of the State CEQA Guidelines.

The remainder of this chapter addresses the following resource topics:

- ▶ Section 3.1, "Aesthetics";
- ▶ Section 3.2, "Air Quality";
- ▶ Section 3.3, "Biological Resources";
- ▶ Section 3.4, "Cultural and Tribal Cultural Resources";
- ▶ Section 3.5, "Energy";
- ▶ Section 3.6, "Geology and Soils";
- ▶ Section 3.7, "Greenhouse Gas Emissions and Climate Change";
- ▶ Section 3.8, "Hazards and Hazardous Materials";
- ▶ Section 3.9, "Hydrology and Water Quality";
- ▶ Section 3.10, "Land Use and Planning";
- ▶ Section 3.11, "Noise and Vibration";
- ▶ Section 3.12, "Public Services";
- ▶ Section 3.13, "Transportation"; and
- ▶ Section 3.14, "Utilities and Service Systems."

Sections 3.1 through 3.14 of this Draft EIR each include the following components.

- ▶ **Regulatory Setting:** This subsection presents information on the laws, regulations, plans, and policies relevant to each resource topic, including federal, State, regional, and City regulations that address potentially adverse environmental impacts.
- ▶ **Environmental Setting:** This subsection describes existing environmental conditions at the Project site and in the surrounding area, in accordance with the State CEQA Guidelines (CCR Section 15125). This setting generally serves as the baseline against which environmental impacts are evaluated. The NOP for the Project was issued on November 21, 2022. Typically, and in accordance with State CEQA Guidelines Section 15125, the date on which the NOP is issued is considered appropriate for establishing the baseline.
- ▶ **Impacts and Mitigation Measures:** In accordance with the State CEQA Guidelines (CCR Sections 15126, 15126.2, and 15143), this section identifies the method of analysis to determine whether an impact may occur, and the thresholds of significance used to determine the level of significance of the environmental impacts for each resource topic. The thresholds of significance are based on the checklist presented in Appendix G of the State CEQA Guidelines, best available data, applicable regulatory standards, and local practice and standards. The level of each impact is determined by analyzing the effect of the Project on the defined baseline conditions and comparing it to the applicable significance threshold. In determining the level of significance, the analysis assumes that the Project would comply with relevant federal, state, and local ordinances and regulations.

Project impacts and mitigation measures are numbered sequentially in each subsection (e.g., Impact 3.2-1, Impact 3.2-2, Impact 3.2-3, etc.). A summary impact statement precedes a more detailed discussion of each environmental impact. The discussion presents the analysis, rationale, and substantial evidence upon which conclusions are drawn regarding the level of significance of the impact.

An impact would be considered “less than significant” if it would not involve a substantial adverse change in the physical environment. An impact would be “potentially significant” or “significant” if it could or clearly would, respectively, result in a substantial adverse change in the physical environment; both are treated the same under CEQA in terms of procedural requirements and the need to identify feasible mitigation.

This EIR identifies feasible mitigation measures that could avoid, minimize, rectify, reduce, or compensate for potentially significant or significant adverse impacts. Mitigation measures are not required for effects found to be less than significant. Where feasible mitigation for a significant or potentially significant impact is available, it is described in this EIR following the impact, along with its effectiveness at addressing the impact. Each identified mitigation measure is labeled numerically to correspond with the impact it addresses. Where feasible mitigation is not sufficient to reduce an impact to a less-than-significant level, the impact is identified as significant and unavoidable. The final determination of the level of significance of each impact is presented in bold text in the impact summary and at the end of each impact discussion.

It is important to note that environmental impact analyses under CEQA generally are not required to analyze the impact of existing environmental conditions on a project’s future users or residents unless the proposed project might cause or risk exacerbating environmental hazards or conditions that already exist (CCR Section 15126.2[a]). In those specific instances, it is the project’s impact on the environment and not the environment’s impact on the project that compels an evaluation of how future residents or users could be affected by exacerbated conditions (*California Building Industry Association v. Bay Area Air Quality Management District* [2015] 62 Cal. 4th 369).

The full references associated with the sources cited in Sections 3.1 through 3.14 are presented in Chapter 8, “References,” organized by section number.

EFFECTS FOUND NOT TO BE SIGNIFICANT

CEQA allows a lead agency to limit the detail of discussion of environmental effects that are not potentially significant (PRC Section 21100, CCR Section 15128). Following research and analysis of technical studies and data, it was determined that the Project would not result in significant environmental impacts on the resources identified below. Accordingly, these resources are not addressed in later sections of this Draft EIR.

Agriculture and Forestry Resources

The Project site is designated as Farmland of Statewide Importance (DOC 2023). Although the site is designated for agricultural uses it does not include any active agricultural or farming activities. The site is currently used for cattle grazing from April to December.

State CEQA Guidelines Section 15183 provides streamlined review of projects. Section 15183 states that, where a project is consistent with the use and density established for a property under an existing general plan for which a city has already certified an EIR, additional environmental review is not required "except as might be necessary to examine whether there are project-specific significant effects which are peculiar to the project or its site." The SEIR certified for the City of Elk Grove General Plan Amendments and Update of Vehicle Miles Traveled Standards Project (SCH No. 2022020463) evaluated the potential for impacts on agricultural resources in the City's Livable Employment Area (LEA) Community Plan Area, including the Project site. The SEIR identified the Project site as a New Zoo and identified the loss of Farmland of Statewide Importance and conversion from grazing land to development of a zoo (City of Elk Grove 2023). Therefore, the Project would not result in any new or increased impacts from the loss of farmland on the Project site. As required by General Plan SEIR projects within the LEA Community Plan, such as the New Zoo, would be required to adhere to mitigation in the General Plan SEIR to address potential impacts to farmland. General Plan Mitigation Measure 3.11-1 includes protection of one acre of existing farmland of equal or higher quality for each acre of Farmland of Statewide Importance that would be developed in the LEA Community Plan Area. In accordance with Mitigation Measure 3.11-1, as a project within the LEA Community Plan Area, the Project applicant would be required to protect farmland in Sacramento County in perpetuity at a ratio of at least 1:1. Therefore, there are no agricultural impacts particular to the project and further analysis is not required pursuant to CEQA Guidelines Section 15183.

There are approximately 2,892 acres of agricultural land under Williamson Act Contract in the Planning Area, of which 172 acres are in the City limits (DOC 2023). Active Williamson Act properties are located south of Kammerer Road in the LEA Community Plan Area and South and West Study Areas of the City (City of Elk Grove 2023). Therefore, the Project site is not located on land under a Williamson Act Contract. No forestry resources or timberlands are on the Project site or in the Project area (City of Elk Grove 2023). Because this issue was evaluated in the City of Elk Grove General Plan Amendments and Update of Vehicle Miles Traveled Standards Project SEIR and the Project would be required to adhere to General Plan policies and mitigation measures from the SEIR as part of development in the LEA Community Plan Area no additional or particular agricultural impacts would occur as a result of implementing the Project. This issue is not discussed in this Draft SEIR.

Mineral Resources

The California Department of Conservation Division of Mines and Geology (now CGS) has developed guidelines for the classification and designation of mineral lands, known as Mineral Resource Zones (MRZs), and retains publications of the SMARA Mineral Land Classification Project dealing with mineral resources in California. Based on mapping by CGS, the Project site is within an area classified as MRZ-3, which indicates areas containing known or inferred concrete aggregate resources of undetermined mineral resource significance (CGS 2018). Inferred mineral resources within the City are Portland cement concrete-grade aggregate composed of Lower Unit Riverbank Formation alluvium deposits (City of Elk Grove 2018). According to the City's General Plan, there are no mineral deposits or mineral extraction activities located within the City (City of Elk Grove 2018). The Project site consists of a fallow field and is not currently utilized for mineral resource extraction. Therefore, no impacts on mineral resources would occur.

Population and Housing

The Project would not include residential development or result in an increase in the City's population. The Project site is a vacant site surrounded by vacant land uses. Development of the Project would not remove any existing residences. However, the Project would also include the hiring of approximately 50 to 200 new employees, for a total of 150 to 300 employees at the New Zoo. The minimal number of new employees required for the Project are anticipated to be from the Sacramento region. Project employment would not induce population or housing. The New Zoo would not create structures, such as roadways, that could physically divide an established community. Proposed off-site improvements would include roadway improvements and pedestrian and bicycle facilities that would occur within the existing roadways right-of-way. The Project would have no impacts related to physical division of an established community. Therefore, there would be no impact related to population and housing, and this issue is not discussed in this Draft EIR.

Recreation

The Project has no residential components and would not result in an increase in population. Therefore, the Project would not substantially increase the use of or physically affect existing parks and recreational facilities. In addition, the construction or expansion of recreational facilities that might have an adverse physical effect on the environment would not be required. Furthermore, implementation of the Project would increase recreational opportunities in Elk Grove by providing a zoo and educational opportunities that would benefit the immediate community. This issue is not discussed further.

Wildfire

The Project site is not located in or near a Very High Fire Hazard Severity Zone or a State Responsibility Area (CAL FIRE 2022). The nearest Very High Fire Hazard Severity Zone is over 10 miles southeast of the Project site (CAL FIRE 2022). Therefore, there would not be a significant impact related to wildfire, and this issue is not discussed in this Draft EIR.

3.1 AESTHETICS

This section provides a description of existing visual conditions, meaning the physical features that make up the visible landscape, near the New Zoo Project site and an assessment of changes to those conditions that would occur from Project implementation. The effects of the Project on the visual environment are generally defined in terms of the Project's physical characteristics and potential visibility, the extent to which the Project's presence would change the perceived visual character and quality of the environment, and the expected level of sensitivity that the viewing public may have where the Project would alter existing views. The "Analysis Methodology" discussion below provides further detail on the approach used in this evaluation.

A comment in response to the notice of preparation regarding aesthetics was received from an individual stressing consideration for both animals and visitors and how that is reflected in the design renderings. This issue is addressed in the impact analysis below.

3.1.1 Regulatory Setting

FEDERAL

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

STATE

California Scenic Highway Program

California's Scenic Highway Program (Streets and Highways Code, Section 260 et seq) was created by the Legislature in 1963 to preserve and protect scenic highway corridors from change that would diminish the aesthetic value of lands adjacent to highways. The State Scenic Highway System includes a list of highways that are either eligible for designation as scenic highways or have been so designated. There are no designated scenic highways in the City (Caltrans 2023).

LOCAL

City of Elk Grove General Plan

The *City of Elk Grove General Plan* contains the following policies and actions related to aesthetics that apply to the Project. These policies are contained in Chapter 4, "Urban and Rural Development" (City of Elk Grove 2021).

- ▶ **Policy LU-5-1:** Ensure that new development reflects the City's desire to create a high-quality, attractive, functional, and efficient built environment.
- ▶ **Policy LU-5-2:** Provide and implement regulations that encourage high-quality signage, ensure that businesses and organizations can effectively communicate through sign displays, promote wayfinding, achieve visually vibrant streetscapes, and control excessive visual clutter.
- ▶ **Policy LU-5-3:** Reduce the unsightly appearance of overhead and aboveground utilities by requiring the undergrounding of appropriate services within the urban areas of the City.
 - **Standard LU-5-3a:** New utility facilities should be located underground to the extent possible. Facilities to be placed underground should include electrical transformers (where consistent with the guidelines of the electrical utility), water backflow preventers, and similar items.

- **Standard LU-5-3.b:** Require that existing overhead utility facilities be undergrounded as a condition of project approval. This shall include electrical service lines under 69kV. Electrical service lines of 69kV and higher are encouraged to be undergrounded.
- ▶ **Policy LU-5-4:** Require high standards of architectural and site design, and apply strong design controls for all development projects, both public and private, for the enhancement and development of community character and for the proper transition between areas with different types of land uses. Design standards shall address new construction and the reuse and remodeling of existing buildings.
 - **Standard LU-5-4.a:** Nonglare glass shall be used in all nonresidential buildings to minimize and reduce impacts from glare. Buildings that are allowed to use semi-reflective glass must be oriented so that the reflection of sunlight is minimized. This requirement shall be included in subsequent development applications.
- ▶ **Policy LU-5-5:** Improve the visual appearance of business areas and districts by applying high standards for architectural design, landscaping, and signs for new development and the reuse or remodeling of existing buildings.
- ▶ **Policy LU-5-6:** When resources are available, seek to enliven the public right-of-way with attractive landscaping, public art, lighting, civic landmarks, sidewalk cafés, gateways, water features, interpretive/wayfinding signage, farmers markets, festivals, outdoor entertainment, pocket parks, street furniture, plazas, squares, or other amenities in spaces for public use.
- ▶ **Policy LU-5-7:** Encourage incorporation of publicly accessible spaces, such as plazas or squares, into new commercial and mixed-use developments.
- ▶ **Policy LU-5-8:** Require developers to provide pedestrian amenities, such as trees, lighting, recycling and refuse containers, seating, awnings, and/or art, in pedestrian areas along project frontages. Where appropriate, install pedestrian amenities in public rights-of-way.
- ▶ **Policy LU-5-9:** Emphasize placemaking design principles in new development projects.
 - **Standard LU-5-9a:** Prioritize the pedestrian by implementing the following measures:
 - Minimize parking areas and curb cuts along commercial street frontages.
 - Encourage a vertical and horizontal mix of land uses.
 - Provide urban plazas and gathering spaces in commercial and multifamily development.
 - Provide pedestrian amenities such as lighting, landscaping, and benches.
- ▶ **Policy LU-6-9:** Support potential changes to the South Pointe Policy Area that incorporate retail, office, and light industrial/flex land uses along Kammerer Road.
- ▶ **Policy NR-1-9:** Encourage development clustering where it would facilitate on-site protection of woodlands, grasslands, wetlands, stream corridors, scenic areas, or other appropriate features such as active agricultural uses and historic or cultural resources under the following conditions and requirements. Except as otherwise provided, clustering shall not be allowed in the Sheldon Rural Area.
 - Urban infrastructure capacity is available for urban use. If clustering is allowed in the Rural Area, those properties shall be exempt from providing urban water and sewer connections in accordance with the policies of the Sheldon/Rural Area Community Plan (see Chapter 9).
 - On-site resource protection is appropriate and consistent with other General Plan policies.
 - The architecture and scale of development are appropriate for and consistent with the intended character of the area.
 - Development rights for the open space area are permanently dedicated and appropriate long-term management is provided for by a public agency or another appropriate entity.
 - The *City of Elk Grove General Plan* does not contain any policies related to shadow effects.

City of Elk Grove Municipal Code

The Elk Grove Municipal Code (EGMC) provides regulations imposed by the City on development and business activities in the City. Title 23 of the Municipal Code (the Zoning Code) contains development standards and permit requirements that address building mass and setbacks (Chapter 23.29), landscaping (Chapter 23.54), lighting (Chapter 23.56), and signage (Chapter 23.62).

Chapter 23.54: Landscaping

The Municipal Code Title 23 requires landscaping to be provided for all development types in setbacks, unused areas, and parking areas. Minimum landscape area requirements are established by zoning district. Specific standards are provided for parking lot landscaping and shade requirements and for overall landscape design.

Chapter 23.56: Lighting

This chapter addresses multifamily and nonresidential outdoor lighting standards. Full shielding is required for outdoor lighting to be constructed. Where the light source from an outdoor light fixture is visible beyond the property line, shielding is required to reduce glare so that the light source is not visible from within any residential dwelling unit.

Section 23.56.030 specifically provides standards for the level of illumination and requires preparation of a point-by-point photometric calculation listing the number, type, height, and level of illumination of all outdoor lighting fixtures in conjunction with the development permit application and before issuance of a building permit or site improvement plans to ensure compliance with the provisions of this chapter. The maximum height of freestanding outdoor light fixtures for development abutting residential, agricultural-residential, and agricultural property is limited to 20 feet. Otherwise, the maximum height for freestanding outdoor light fixtures is 30 feet.

EGMC Section 23.56.040 prohibits certain types of lighting, such as neon tubing or band lighting along building structures, searchlights, illumination of entire buildings, roof-mounted lights (except for security purposes with motion detection), and any light that interferes with a traffic signal or other necessary safety or emergency light.

Chapter 23.62: Signs on Private Property

Section 23.62.130 addresses permitted signs by type and development characteristics. Signs are regulated by sign and development type and/or zoning district. EGMC Section 23.62.070 addresses permits, as well as entitlements required for signs. A sign permit is required for all permanent signs (attached to a building or freestanding) before their erection, relocation, alteration, or replacement. Under EGMC Section 23.62.100, certain types of signs are prohibited, including animated, moving, flashing, blinking (intermittent light), fluctuating, reflecting, revolving, or other, similar signs; pole signs; electronic reader board signs other than time/temperature signs; and roof signs erected and constructed on or over the roofline of a building and supported by the roof structure. Exceptions are possible in some cases.

City of Elk Grove Design Guidelines

In 2003, the City Council adopted amendments to the City's Municipal Code, establishing a design review process for new development and redevelopment of properties. This process is enumerated in Municipal Code Section 23.16.080, Design Review, and has been updated as recently as 2022. Adoption of the design review process was accompanied by adoption of the corresponding Elk Grove Citywide Design Guidelines (City of Elk Grove 2022). Section 23.16.080 establishes an expanded design review process for all development Citywide, requiring additional site and design consideration beyond conformance with minimum standards of the Zoning Code.

The Design Guidelines include design provisions for site planning, architecture, lighting, and landscaping, as well as provisions regarding the preservation of natural features. They encourage the use of landscaping to reduce potential impacts of lighting from parking areas on both the project area and adjacent vacant land. In addition, the guidelines specify that perimeter landscaping must be designed to maximize screening and buffering between adjacent uses. Supplemental guidelines have been established for the Laguna Ridge area, and other guidelines or protocols have been established for the LEA Community Plan Area.

Chapter 5.1 of the Design Guidelines addresses site planning for nonresidential development. These site planning guidelines are based on the following design concepts (City of Elk Grove 2022):

- ▶ Encourage development that is sustainable, functional and attractive.
- ▶ Ensure that developments address all improvements such as streetscape, public realm, high quality architecture, and appropriate to the scale, scope and location of the project.
- ▶ Ensure that new development creates a sense of place by enhancing the community character and providing economic vitality of the community.
- ▶ Ensure compatibility with surrounding uses.
- ▶ Promote context sensitive theming of projects while allowing for incorporation of corporate architecture to blend with the project theme.
- ▶ Design projects to be appropriate to both pedestrian and vehicular use.
- ▶ Provide design flexibility for mixed-use development that ensures compatibility with the existing and new development.

Chapter 5.2 of the Design Guidelines addresses architecture for nonresidential development. These architecture guidelines are based on the following design concepts (City of Elk Grove 2022):

- ▶ Promote high quality building designs that are visually welcoming.
- ▶ Is constructed of durable and high-quality materials that is attractive and will contribute to the longevity of the buildings.
- ▶ Ensure building design achieves human scale and interest.
- ▶ Ensure the design of proposed buildings or structures is sensitive to the neighborhood character with regard to scale, architectural style, use of materials and bulk.

The Livable Employment Area (LEA) Community Plan Area includes its own form-based code that provides design guidelines and standards for all forms of development including zoning requirements and site planning consistent with the City's General Plan.

3.1.2 Environmental Setting

REGIONAL SETTING

Visual quality is defined as the overall visual impression or attractiveness of an area as determined by the landscape characteristics, including landforms, rock forms, water features, and vegetation patterns. The attributes of line, form, and color combine in various ways to create landscape characteristics whose variety, vividness, coherence, uniqueness, harmony, and pattern contribute to the overall visual quality of an area.

Sacramento County lies near the center of California's Central Valley, at the southern end of the Sacramento Valley. Views in the region are generally characterized by broad, sweeping panoramas of flat agricultural lands and open space dotted with trees, divided by numerous rivers and creeks, and populated with scattered towns and cities. To the east, the Sierra Nevada and their foothills form a background, and the Coast Range provides a backdrop on the western horizon.

Elk Grove is a suburban city in the Sacramento Valley containing mostly flat land with no significant landforms, offering a wide view of the surrounding region. The visual character of the City generally consists of suburban development, including single- and multi-family residences set along wide meandering streets lined with sidewalks, commercial and office uses set in large retail and business centers, and smaller strip malls, parks, and public spaces, as well as roadways and other infrastructure. There are also scattered vacant parcels and open agricultural land. The western and central

portions of the City are more urbanized. The eastern portions and the areas south and west of the City boundaries predominantly contain rural residential uses surrounded by agricultural land and natural grasslands, with riparian habitat areas to the southeast along the Cosumnes River. State Route (SR) 99 bisects the City, extending north to south and providing access to the primary commercial areas along Bond Road/Laguna Boulevard and Elk Grove Boulevard. Interstate 5 (I-5) also runs in a north–south direction along the City’s western boundary. Elk Grove’s riparian corridors bring natural areas into urbanized neighborhoods (City of Elk Grove 2018:5.1-1).

VISUAL CHARACTER OF THE PROJECT SITE AND SURROUNDINGS

The Project site is a component in a larger landscape that also encompasses single-family residential uses, agricultural fields, and Kammerer Road. The proposed New Zoo site would be located in the southcentral portion of the City, which consists entirely of open space containing native grasslands (Figure 3.1-1). The Project site is bordered by Kammerer Road to the south, Lotz Parkway to the east, the Shed C Channel, a manmade canal, directly north, and fallow fields to the west.

The Project vicinity has a low-density suburban and agricultural character, given the presence of scattered low-rise residential development and wide expanses of agricultural fields. Land uses surrounding the proposed Project site include agricultural uses to the west and south, single-family residential to the east along Lots Parkway, and vacant land to the north that is currently under construction. The site is relatively flat and consists entirely of irrigated pasturelands, ranging in elevation from 35 to 40 feet above mean sea level. The Project site is currently and has historically been used for cattle grazing. Ongoing development in the Project vicinity is converting the existing agricultural and rural visual character to urban development. As a result, the Project area is planned to be built out as an urban area.

PUBLIC VIEWS OF THE PROJECT SITE

Public views of the Project site are minimal and largely consist of motorists along Kammerer Road and Lotz Parkway. However, because motorists would be passing the Project site at relatively fast speeds, the duration and frequency of exposure from motorists to the Project site would be low. Motorists traveling along Overture Way, Encore Way, and Classical Way would have a direct view of the Project site. However future planned development of residential, commercial, and office uses in the Project area would obscure views of the Project site, with the exception of views of the Project frontage from Kammerer Road. Additionally, the Project site is not visible from SR-99, the nearest major highway, as existing development east of the Project site along SR-99 blocks views.



Source: Ascent Environmental in 2023.

Looking north along Lotz Parkway.



Source: Ascent Environmental in 2023.

Looking south along Lotz Parkway.

Figure 3.1-1 **Representative Aesthetic Photographs**

SCENIC VISTAS AND CORRIDORS

Scenic vistas and corridors are designated by local, regional, or state jurisdictions to identify and preserve areas of significant aesthetic value. These designated areas generally have development and design requirements pertaining to the preservation of views, minimization of visual impact, and visual integration into the overall landscape.

Vistas

Areas may be designated as a scenic vista by jurisdictions in local and regional plans. There are currently no officially designated scenic vistas in Elk Grove (City of Elk Grove 2018).

Corridors

Scenic corridors are designated under the California Scenic Highway Program to preserve the aesthetic value of lands adjacent to and visible from highways. There are currently no designated scenic corridors within or visible from Elk Grove. However, a portion of SR 160, 1 mile west of the current City limits, is an officially designated scenic corridor (City of Elk Grove 2018). No officially designated scenic corridors are visible from the Project site (Caltrans 2023).

LIGHT AND GLARE CONDITIONS

Views of the night sky can be an important part of the natural environment, particularly in communities surrounded by extensive open space. Light pollution refers to all forms of unwanted light in the night sky, including glare, light trespass, skyglow, and over-lighting. The terms "glare" and "skyglow" are used in this analysis to describe the visual effects of lighting. Glare is direct exposure to bright lights. Light that is either emitted directly upward by luminaires or reflected from the ground is scattered by dust and gas molecules in the atmosphere, producing a luminous background known as skyglow.

Natural and artificial light reflect off various surfaces and can create localized occurrences of daytime and nighttime glare. Buildings and structures made with glass, metal, and polished exterior roofing materials exist throughout Elk Grove. Within the City limits, light and glare are concentrated in the western and central portions where commercial and more densely developed residential areas are located, further north of the Project site. Light and glare adjacent to the Project site occurs from passing motorists along Kammerer Road and Lotz Parkway and from nearby residents and street lighting located east of Lotz Parkway. There are currently no sources of light and glare on the Project site.

SHADOWS

The evaluation of shading and shadows in this EIR is limited to daytime shadows cast by objects blocking sunlight. The angle of the sun, and hence the character of shadows, varies depending on the time of year and the time of day; however, in the Northern Hemisphere, the sun always arcs across the southern portion of the sky. During the winter, the sun is lower in the southern sky, casting longer shadows compared to other times of year. During the summer months, the sun is higher in the southern sky, resulting in shorter shadows. During the summer, the sun can be almost directly overhead at midday, resulting in almost no shadow being cast. During all seasons, as the sun rises in the east in the morning, shadows are cast to the west; at mid-day, the sun is at its highest point and shadows are their shortest and cast to the north; and as the sun sets in the west in the afternoon/evening, shadows are cast to the east. Because of the climate in the region, midday and afternoon shade in summer can be beneficial. In the winter, however, access to sunlight can be beneficial, especially for solar (photovoltaic) energy systems. Existing residences adjacent to the Project site (east of Lotz Parkway) have solar energy systems on their roofs. Solar power generation hours vary based on the season (angle of the sun) with the peak energy generation occurring between the hours of 10:00 a.m. and 4:00 p.m. (California Independent System Operator 2020). Minimal energy is generated by rooftop photovoltaic solar systems after 4:00 p.m. because of the sun's angle in the sky, resulting in reduced solar irradiance (National Renewable Energy Laboratory 2020).

3.1.3 Environmental Impacts and Mitigation Measures

METHODOLOGY

This analysis of aesthetics is qualitative. It evaluates changes to the existing visual character of public views of the Project site described in Section 3.1.2, "Environmental Setting," related to Project construction activities and development and operation of the site. It involved review of visual simulations of the proposed zoo, proposed massing of other Project buildings, and proposed building design. It also involved an evaluation of the Project's consistency with the City of Elk Grove General Plan, the Design Guidelines, and the Zoning Code standards identified in Section 3.1.1, "Regulatory Setting," which are intended to address visual quality and design compatibility with the surrounding area and City. This information, in combination with the thresholds below, was used to determine whether implementing the Project may create adverse visual effects.

Visual Simulations

The Project site is currently undeveloped and consists of irrigated pasturelands (Figure 3.1-1). Therefore, Project construction and establishment of the New Zoo would result in a noticeable change in the visual character of the Project area through building massing and height.

Construction Activities

As described in Chapter 2, "Project Description," construction activities on the Project site would be staged in four phases, although the bulk of construction would occur during Phase 1 over a period of approximately 36 months. Construction activities on the Project site would include construction equipment staging, site preparation, excavation, grading, and building construction that would be publicly visible from Lotz Parkway and Kammerer Road. Construction equipment and materials would be temporarily staged on-site during each phase of site development. All staging and construction areas would be fenced for security and safety reasons. On-site Project construction activities would result in temporary but substantial alteration of the visual character of Project area.

Developed Conditions

The proposed Project would include developed conditions on the Project site with building heights ranging between 10 and 20 feet. Figures 3.1-2 through 3.1-6 are simulations which provide a range of vision of the New Zoo from public views along Lotz Parkway as well as birds eye views along Kammerer Road, further illustrating the visual change from Phase 1 to full buildout of the Project. These visual simulations are used to determine if the Project would have a significant visual effect.

THRESHOLDS OF SIGNIFICANCE

An impact on aesthetics, light, and glare would be significant if implementation of the Project would:

- ▶ have a substantial adverse effect on a scenic vista;
- ▶ damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway;
- ▶ substantially degrade the existing visual character or quality of public views of the site and its surroundings and/or conflict with applicable zoning and other regulations governing site design and architecture; or
- ▶ create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.



17010101.16 GRX 023

Source: shr Studios and Mangolin Creative.

Figure 3.1-2 Ground Level Elevation From Lotz Parkway Looking West



North Birdseye Phase 1

North Birdseye Full Build

17010101.16 GRX 024

Source: shr Studios and Mangolin Creative.

Figure 3.1-3 North Birdseye



North View Phase 1

North View Full Build

17010101.16 GRX 025

Source: shr Studios and Mangolin Creative.

Figure 3.1-4 North View



South View Phase 1

South View Full Build

17010101.16 GRX 026

Source: shr Studios and Mangolin Creative.

Figure 3.1-5 South Birdseye View



South View Phase 1

South View Full Build

17010101.16 GRX 027

Source: shr Studios and Mangolin Creative.

Figure 3.1-6 South View

ISSUES NOT DISCUSSED FURTHER

Scenic Vista

A scenic vista is a view of an area that has remarkable scenery or a natural or cultural resource that is indigenous to the area. The Project site is located in a predominately rural agricultural setting and does not contain remarkable scenery or views of natural areas that would be considered a scenic vista. It consists of agricultural uses; however, the area is identified for development in the General Plan. Areas may be designated as a scenic vista by jurisdictions in local and regional plans. There are currently no officially designated scenic vistas in the City of Elk Grove (City of Elk Grove 2018: 5.1-4). Because there would be no impact on designated scenic vistas, this topic is not discussed further.

State Scenic Highway

State Route 160, the State-designated scenic highway located closest to the Project site, traverses the top of levees along the Sacramento River from the Contra Costa County line to the southern city limit of the City of Sacramento. At the point where it is closest to the Project site, it is located approximately 1 mile west of the current Elk Grove City limits, approximately 7.5 miles west of the Project site (Caltrans 2023). Therefore, the Project would have no impact on scenic resources in a designated scenic highway. This topic is not addressed further in this Draft EIR.

Construction Lighting

Construction would occur during daytime hours between 7:00 a.m. and 7:00 p.m. on Monday through Saturday, pursuant to EGMC Section 6.32.100(E). As a result, no nighttime lighting for construction would occur. This topic is not addressed further in this Draft EIR.

Shadow Impacts

As described below in Impact 3.1-1, Project buildings would range from 10 to 20 feet in height and would not be tall enough or located within close enough proximity to create significant shadow impacts on residences east of the site that could inhibit solar (photovoltaic) energy systems. The nearest residences from the Project site are located approximately 150 feet east of Lotz Parkway. Although buildings would be permitted to be as tall as 60 feet, pursuant to the Zoological Park SPA, only the maintenance shops located in the northeast corner of the Project site would potentially be built as tall as 60 feet. The maintenance shops would be located adjacent to a bioretention pond to the east and more than 250 feet to the nearest of residences to the north. As a result, there would be no shadow impacts to nearby residences.

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Impact 3.1-1: Substantially Degrade the Existing Visual Character

Project implementation would introduce structures that, because of their massing and height, would alter the current visual character of the Project area. Specifically, the Project would alter the existing low-density rural and agricultural character of the landscape to one that is more densely developed. However, the Project would complement planned urban development of the area, be predominantly screened from view with appropriate landscaping, would adhere to the City's adopted design guidelines, including those of the proposed Zoological Park Special Planning Area (SPA). As a result, the Project would be largely compatible with the visual quality and character of the surrounding area. This impact would be **less than significant**.

Construction

Construction staging, the use of heavy equipment, and ground-clearing activities associated with construction activities would temporarily degrade the visual character of the Project site. Construction of Phase 1, which would include constructing the bulk of the New Zoo, would occur for a period of approximately 36 months. During this time, construction of the New Zoo could be visible to travelers along Kammerer Road and Lotz Parkway, as well as local

roadways adjacent to Lotz Parkway, including Bilby Road, Overture Way, Encore Way, and Classical Way. Construction of future phases would be blocked from public views by the proposed fencing and landscaping as part of the New Zoo.

During the construction period, various types of construction equipment (e.g., backhoes, excavator, forklifts, graders, and pavers) would be present on-site. The equipment in use would vary depending on the location and Project component being constructed. The initial phases of construction would include site grading and excavation, utility trenching, and building foundation pouring. However, construction activities would become more perceptible as the construction advances. During the building construction phase, construction activities would occur above ground level and may impede long-distance views. However, the use of construction equipment would be temporary, and the equipment would consistently move throughout the later phases of the 65-acre Project site. Therefore, no one off-site area would be exposed to views of construction equipment for an extended period.

Construction activities would also include off-site improvements associated with the construction of employee parking, utilities, and roadway improvements to support the Project. These construction activities would result in short-term partial roadway lane closures and the use of backhoes, haul trucks, and other construction equipment. Roadway lanes are anticipated to be reopened at the end of each construction day, and construction equipment and materials are not expected to be stored in the roadway. Construction disturbance would be localized and would move as portions of these linear improvements are completed. The proposed employee parking lot has been previously disturbed and graded. Construction disturbance on the site would consist of final grading and paving, minimally disrupting public view.

Construction activities would be visible temporarily at various locations throughout the 65-acre site, but they would not permanently degrade existing visual characteristics. Additionally, construction activities are already occurring in the Project area north of the site in the Southeast Policy Area. Construction activities for the New Zoo would appear similar to existing construction nearby and would therefore not result in a new visual feature in the Project area. Therefore, Project construction would not diminish the natural rural condition of long-distance views in the area. Project construction would not constitute a substantial adverse effect on the existing visual character of the Project site. This impact would be **less than significant**.

Operation

The Project would include various aboveground structures as part of the proposed facilities and animal exhibits. Prominent aboveground structures would include the main entry complex, restaurants and food pavilions, the animal care center, multiple play areas, the overnight "tent camp," a modular administrative office complex, and a support services complex, including the giraffe care quarters, as illustrated in Section 2, "Project Description," Figures 2-4 through 2-8. Proposed buildings would range in height from 10 to 20 feet tall, and several would include solar panels on their roof. Animal exhibits would be clustered throughout the Project site and may include care quarters and habitat structures.

Although the proposed architectural design and neutral color pallet of the New Zoo would soften its appearance, the buildings' mass and height would alter the visual character of the Project area as viewed along Lotz Parkway and Kammerer Road, including a few buildings which are partially visible above the perimeter fencing (Figures 3.1-2 through 3.1-6). Exhibits that may be visible from off-site public viewpoints include the giraffe care quarters, the lion Kopje, a staff-only warehouse, and partial elements from the California Zone. The proposed New Zoo would also alter visual character at night through the illumination of various buildings, pathways, and along the Green Corridor (Figure 2-11). The reader is referred to the discussion of Impact 3.1-3 for further analysis of nighttime illumination.

Upon buildout (completion of all phases), the Project site would include additional buildings that would range in height. Building massing and height would appear as a substantial alteration to the existing visual character of the Project area (Figure 3.1-1), however fencing and mature vegetation along the perimeter of the New Zoo would reduce visual impacts. Project landscaping would assist in softening the appearance of the Project site, including vegetative screening planted along the roadway frontage, as shown in Figure 3.1-2 that illustrates six years of vegetation growth. As a result, visual changes from Phase 1 to full buildout from public viewpoints are minimal.

The general height of the proposed buildings and animal enclosures would range from 10 to 20 feet and would not surpass the height of other existing taller buildings in the city. Although buildings would be permitted to be as tall as 60

feet, pursuant to the Zoological Park SPA, this height is consistent with the existing zoning in the Project vicinity and would not result in additional visual impacts. Landscaping would be designed and maintained for partial screening of vehicles and buildings. Landscaping would consist of a collection of trees and shrubs, designed such that the denser plantings between the sidewalk and the fence would provide the predominate screening of the Project site (see Figure 2-14 in Section 2, "Project Description"). Additional screening materials would include a combination of plant materials, earthen berms, solid masonry walls, raised planters, or other, similar screening devices. Street trees would be planted along the outer perimeter parallel to the sidewalk to provide shading and soften views of the Project site. Furthermore, pursuant to Zoological Park SPA, the Project would include perimeter fencing at a minimum of 8 feet tall. Fencing around the site would be required to be of a high-quality aesthetic along all public street frontages to provide for further screening of the site. Furthermore, the surrounding LEA Community Area is planned for urban development which would result in the New Zoo blending into the urban environment and maintaining a cohesive visual character throughout the area.

Pursuant to the design guidelines included in the Zoological Park SPA, proposed Project buildings would incorporate materials and colors that complement each other and are reflective of the use, functionality, and character of the existing surroundings. The overall architectural design of the New Zoo would incorporate the use of neutral tones in varying shades and material types used to break up the massing of large building façades. Buildings and cafes would consist of light to medium earth tones, including brighter and more prominent colors for accent walls to attract visitors to their destinations. Buildings proposed under Phase 1 would include window styles and shades and exterior finishes to provide visual interest and avoid a monotone appearance of the building façade. Buildings proposed under Phases 2–4 would be required to use neutral tones and materials consistent with those used in Phase 1, pursuant to the Zoological Park SPA. The New Zoo would be in operation after the completion of Phase 1, and operation of Phases 2-4 would not significantly change the visual character of the site.

The Project would require signage to direct visitors to and throughout the site. Signage would include various forms of arrival, entry, and building signage, which would be subject to the provisions of EGMC Chapters 23.61 and 23.62 and the Zoological Park SPA. All signage would be consistent with the character, quality, branding, and architectural theme of the Project as required by the Zoological Park SPA. Signage may include both fixed and digital signage. The main entry signage would be secured on the roof of the entrance building..

Portions of the Project site would be visible from Kammerer Road and Lotz Parkway, but for the most part, because of the intervening landscaping and topography, development on the site would not be visible from most vantage points farther away. Because of the proposed surrounding landscaping and limited stature of Project structures, none of the Project components would be considered prominent features in the local landscape. Given that the tallest proposed building, the giraffe care quarters, would be constructed no higher than 20 feet, the Project would result in minimal shadow effects., Building heights are allowed up to 60 feet pursuant to Zoological Park SPA. However, 60-foot buildings would not be permitted within 250 feet of the centerline of Lotz Parkway and would thus not result in shadow effects to the residents east of Lotz Parkway. The proposed development of the maintenance shops could be as high as 60 feet, however, would be located adjacent to fallow fields to the north and a bioretention pond to the east, away from any nearby residences. As a result, there would be no additional visual impacts.

The proposed design of the New Zoo would include buildings not taller than 20 feet in height, neutral muted tones, natural materials, and thoughtful architectural design that would help it blend in with the surrounding environment. Proposed fencing and landscaping would further screen the New Zoo from area roadways and other public viewpoints. In addition, the Project would be subject to design guidelines contained in the Zoological Park SPA and EGMC. Therefore, the Project would be largely compatible with the visual quality and character of the surrounding area and would not represent a substantial adverse change from the current condition of long-distance views of and through the area. Furthermore, although the Project area is generally vacant, the Kammerer Road corridor is planned for development as part of the LEA Community Plan Area. Therefore, operation of the Project would be similar in character to the surrounding area and would not substantially alter the visual quality and character of the site. Therefore, this impact would be **less than significant**.

Mitigation Measures

No mitigation is required.

Impact 3.1-2: Consistency with Regulations Governing Site Design and Architecture

Project site design and architectural character are regulated by the City through compliance with General Plan policies; compliance with Zoning Code Chapters 23.29, 23.54, 23.56, and 23.62; and application of the Design Guidelines. The Project would not conflict with City design policies and guidelines that are associated with site design and architecture. Impacts would be **less than significant**.

Site design and architectural character are regulated by the City through compliance with General Plan policies; compliance with Zoning Code Chapters 23.29, 23.54, 23.56, and 23.62; and application of the Design Guidelines.

As identified below, the Project would be consistent with the following City design policies and guidelines, which are associated with visual character:

- ▶ High-quality, attractive, functional, and efficient development and signage (General Plan Policies LU-5-1, LU-5-2, and LU-5-4; Standard LU-5-4a; Policies LU-5-5, LU-5-6, LU-5-7, LU-5-8, and LU-5-9; Standard LU-5-9[a]; Zoning Code Chapters 23.29, 23.54, 23.56, and 23.62; Design Guidelines 1, 2, 3, 17, 20, 21, 22, 23, 25, 26, 29, 63, and 65 of Chapter 5A; and Design Guidelines 1, 2, 3, 4, 5, 6, 7, 8, 10, 14, and 27 of Chapter 5B)

The Project site design would cluster the largest buildings and associated massing along the southern and western boundary to provide a transition of building intensity from the existing residential and commercial uses in the surrounding area (Figures 2-4 and 2-8). This cluster would include the 20-foot-tall giraffe care quarters, the tallest proposed building, which would be sited along the western boundary of the site, set back behind the proposed service road and away from public roads and nearby residences, located north of the site. Future development on the site from maintenance shop buildings could be as tall as 60 feet, which is permitted by the Zoological Park SPA. However, the Project would be compatible with Zoning Code Chapter 23.29, and not exceed the 60-foot building height maximum.

The site plan illustrates a centralized open space and gathering feature with pedestrian paths that connect to planning areas throughout various corners of the site (Figure 2-4). Perimeter and building landscaping would provide visual transition and soften the appearance of the proposed New Zoo. Parking lots are proposed to be landscaped to minimize the extent of paved areas. The Project's signage program would be consistent with City policy provisions and guidelines and would not expand the extent of perimeter Project site signage beyond existing conditions.

As described in Chapter 2, "Project Description," Phase 1 of the Project includes architectural details for the proposed New Zoo. The overall architectural design of the zoo incorporates the use of neutral tones in varying shades and material types. Buildings alter window styles and shades and exterior finishes to provide visual interest and avoid a monotone appearance. The buildings would range in height from 10 to 20 feet tall and would include the same neutral tones and materials. Although the rest of the proposed buildings under Phases 2 through 4 have not been fully designed, they would be required to use neutral tones similar to and materials consistent with those used in Phase 1.

- ▶ Integration of new development with surrounding areas (General Plan Policy LU-5-4; Standard LU-5-4a; Zoning Code Chapters 23.29 and 23.54; Design Guidelines 3 and 6 of Chapter 5A; Design Guidelines 6, 7, and 8 of Chapter 5B)

The Project site design would cluster the largest buildings and associated massing along the southern and western boundary to provide a transition of building intensity from the existing residential commercial uses in the surrounding area (Figures 2-4, 2-8, 3.1-2 through 3.1-6). This cluster would include the 20-foot-tall giraffe care quarters, the tallest proposed building, which would be sited along the western boundary of the site, set back behind the proposed service road and away from public roads and nearby residences, located north of the site. Perimeter and building landscaping would provide visual transition and soften the appearance of the proposed New Zoo. Future development on the site from maintenance shop buildings could be as tall as 60 feet, which is permitted by the Zoological Park SPA. However, the maintenance shops would be located adjacent to fallow fields to the north and a bioretention pond to the east, away from nearby residences, resulting in no additional visual impacts.

The Project also includes a wall, landscaping, and surface parking at the southern portion of the site to soften the visual character of the Project and partially screen the Project from passing motorists and nearby residential uses (Figure 2-3).

- ▶ Conceal utilities (General Plan Policy LU-5-3, Standard LU-5-3a, and Design Guidelines 36 of Chapter 5A) As identified in Chapter 2, "Project Description," the Project infrastructure improvements would be placed underground, consistent with City policy provisions.

Although the Project is atypical from other commercial and residential uses that City design provisions address, as shown in the analysis above, the Project would not conflict with City design policies and guidelines that are associated with visual character. Impacts would be **less than significant**.

Mitigation Measures

No mitigation is required.

Impact 3.1-3: Create a New Source of Substantial Light or Glare That Would Adversely Affect Day or Nighttime Views

The Project would not include new materials or surfaces that would create substantial new sources of glare. However, the Project would introduce new sources of nighttime lighting, including interior building lighting and exterior lighting needed for the safety and visibility of the Project site as well as zoo events. The Project would be subject to lighting requirements in the EGMC and Zoological Park SPA to minimize light spillover on adjacent properties. This impact would be **less than significant**.

Lighting

At buildout, the Project would include new lighting within and around the site. On-site buildings may have exterior lighting for nighttime safety. Safety lighting would include exterior building and gateway illumination, safety lighting along pedestrian pathways, quad and promenade lighting, and lighting throughout on-site parking areas. In addition, exterior lighting would be included around the Project site. The camp areas, such as the overnight tent lawn for Phase 1 and tent camp area for future phases, would require nighttime lighting. The nighttime safari along the Green Corridor route in the northwestern portion of the site would require lighting for the safari experience (Figure 2-11). Additionally, Figure 3.1-7 illustrates the nighttime lighting glow plan resulting from the New Zoo. Therefore, lighting within and surrounding the Project site has the potential to spill over onto adjacent properties, specifically residential land uses east of the site across Lotz Parkway.

Exterior lighting for the Project would be subject to the Zoological Park SPA. Pursuant to Zoological Park SPA design guidelines, exterior lighting would be integrated with the overall architectural character of the development, and the scale and location would be appropriate to the area to be illuminated, including walkways, building entries, and parking areas, and sign lighting at night would be directed to the sign to avoid glare and harshness. Adjustable luminaires will be mounted in trees that would provide a downward moonlighting effect along main pathways, and LED nodes will be integrated into railings on stairs resulting in minimal glow, as detailed in the Lighting Design Concept Book. Moreover, automatic timing devices would be required for all outdoor lighting fixtures, further reducing nighttime lighting. In addition, pursuant to EGMC Section 23.56.030, all outdoor lighting would be fully shielded to reduce light spillage onto adjacent properties. Finally, the Project would comply with the most current California Building Energy Efficiency Standards (Title 24 of the CCR) at the time of construction, which requires the use of light-emitting diode (LED) fixtures with lighting controls. These features would avoid significant potential spillover light onto adjacent properties.

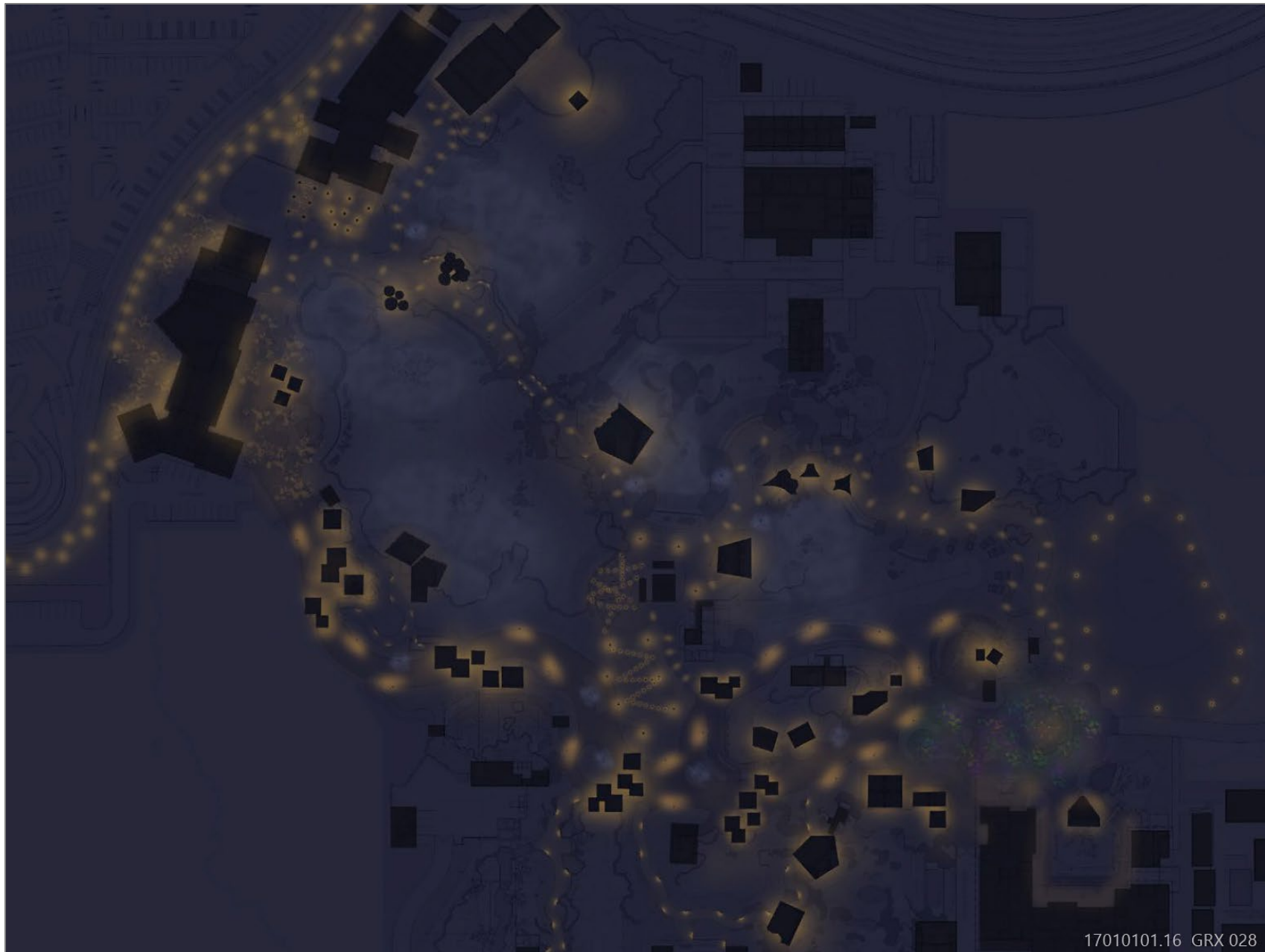


Figure 3.1-7 Exterior Site FOH Lighting Glow Plan

Project design features would further reduce lighting spillover. The Project would include only the minimum amount of outdoor wayfinding and security lighting necessary to maintain safety and comfort. Landscaping and trees around the periphery of the Project site would be maintained and enhanced to provide screening and minimize spillover effects on adjacent properties. Buildings would be as tall as 20 feet, although heights are allowed up to 60 feet pursuant to Zoological Park SPA. The limited building height would require less lighting and allow for additional landscaped screening. Future development on the site from maintenance shop buildings could be as tall as 60 feet; however, the maintenance shops would be located adjacent to fallow fields to the north and a bioretention pond to the east, away from nearby residences, resulting in no additional lighting or glare impacts.

In summary, exterior lighting at the Project site may be visible from adjacent properties; however, Project lighting would be designed to avoid significant spillover offsite. Because of the limited height and massing of the proposed buildings and the suburban nature of the surrounding environment, the proposed lighting would not represent a substantial increase in existing lighting. In addition, Project lighting would require the use of shielded and cutoff-type light fixtures that would minimize light spillage and skyglow in accordance with City and Zoological Park SPA. This impact would be **less than significant**.

Glare

Construction

During construction, glare would be introduced to the Project site as a result of increased vehicular presence at the site (e.g., from windshields of vehicles and construction equipment). These sources of glare would be limited to the ground level. In addition, the use of construction vehicles and equipment would be temporary, and the vehicles would be consistently moving throughout the 65-acre Project site, off-site employee parking area, and linearly for off-site improvements. Therefore, no one area would be exposed to glare for an extended period. Glare from project construction would be minor and would not adversely affect daytime views of the area. This impact would be **less than significant**.

Operation

The New Zoo would include multiple structures throughout the Project site that would conform to the design guidelines in the City's General Plan, City's Design Guidelines, and Zoological Park SPA, as described above. The proposed structures would include the use of textured, nonreflective surfaces, nonreflective (not mirrored) glass, and downward-directed, shielded lighting to minimize glare and prevent spillover effects onto adjacent properties and roadways. Parked vehicles in the proposed parking area located in the southern portion of the Project site would be partially visible from off-site locations and may produce additional glare from reflecting windshields. However, proposed landscape improvements would reduce glare from parked vehicles by providing shade and blocking views. Furthermore, on-site employee vehicles located on the lot immediately north of the administration modular hub would reflect minimal amounts of sunlight because of the lot's limited size and the surrounding landscaping, introducing marginal sources of spillover glare to adjacent viewers. Therefore, glare from Project operation would be minor and would not adversely affect daytime views of the area. This impact would be **less than significant**.

Summary

The Project would include the use of nonreflective surfaces and directional lighting with shielded and cutoff-type light fixtures that would minimize light spillage and skyglow. As a result, glare and off-site light spillage would be prevented such that the Project would not represent a substantial source of light and glare. This impact would be **less than significant**.

Mitigation Measures

No mitigation is required.

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3.2 AIR QUALITY

This section includes a discussion of existing air quality conditions, a summary of applicable regulations, and an analysis of potential construction and operational air quality impacts caused by proposed development of the Project. Mitigation is developed as necessary to reduce significant air quality impacts to the extent feasible.

The Sacramento Metropolitan Air Quality Management District (SMAQMD) submitted a comment in response to the notice of preparation (NOP). The letter included recommendations for what to evaluate in this air quality analysis. Specifically, the comment letter recommended that the Project be reviewed for consistency with applicable plans and potential cancer risk. Consistency with applicable plans is evaluated in the impact discussions in this section. Table 3.2-5 presents data regarding potential annual incremental health incidences, and toxic air contaminant (TAC) exposure is discussed under Impact 3.2-3.

3.2.1 Regulatory Setting

Air quality in the Project area is regulated through the efforts of various federal, State, regional, and local government agencies. These agencies work jointly, as well as individually, to improve air quality through legislation, planning, policymaking, education, and a variety of programs. The agencies responsible for improving the air quality in the air basin in which the Project area is located are discussed below.

FEDERAL

In *Massachusetts et al. v. Environmental Protection Agency et al.*, 549 U.S. 497 (2007), the Supreme Court of the United States ruled that CO₂ is an air pollutant as defined under the federal Clean Air Act (CAA) and that the US Environmental Protection Agency (EPA) has the authority to regulate greenhouse gas (GHG) emissions. In 2010, the EPA started to address GHG emissions from stationary sources through its New Source Review permitting program, including operating permits for "major sources" issued under Title V of the CAA.

The National Highway Traffic Safety Administration (NHTSA) also regulates vehicle emissions through the Corporate Average Fuel Economy (CAFE) Standards.

The CAFE Standards, which were first enacted by Congress in 1975, set fleet-wide averages that must be achieved by each automaker for its car and truck fleet. The purpose of the CAFE Standards is to reduce energy consumption by increasing the fuel economy of cars and light trucks. On April 1, 2022, Transportation Secretary Pete Buttigieg unveiled new CAFE standards for 2024–2026 model year passenger cars and light-duty trucks, requiring new vehicles sold in the US to average at least 40 miles per gallon.

Criteria Air Pollutants

The CAA required EPA to establish the national ambient air quality standards (NAAQS) (42 United States Code Section 7409). As shown in Table 3.2-1, EPA has established primary and secondary NAAQS for the following criteria air pollutants: ozone, carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur dioxide, respirable particulate matter with an aerodynamic diameter of 10 micrometers or less (PM₁₀), fine particulate matter with an aerodynamic diameter of 2.5 micrometers or less (PM_{2.5}), and lead. The primary standards protect public health, and the secondary standards protect public welfare. The CAA also requires each state to prepare a State Implementation Plan (SIP) for attaining and maintaining the NAAQS. The federal CAA amendments of 1990 added requirements for states with nonattainment areas to revise their SIPs to incorporate additional control measures to reduce air pollution. Individual SIPs are modified periodically to reflect the latest emissions inventories, planning documents, and rules and regulations of the air basins as reported by their jurisdictional agencies. EPA is responsible for reviewing all SIPs to determine whether they conform to the mandates of the CAA and its amendments and whether implementation will achieve air quality goals. If EPA determines a SIP to be inadequate, a federal implementation plan that imposes additional control measures may be prepared for the nonattainment area. If an approvable SIP is not submitted or implemented within the mandated time frame, sanctions may be applied to transportation funding and stationary air pollution sources in the air basin.

Table 3.2-1 National and California Ambient Air Quality Standards

Pollutant	Averaging Time	California (CAAQS) ^{ab}	National (NAAQS) ^c	
			Primary ^{bd}	Secondary ^{be}
Ozone	1-hour	0.09 ppm (180 µg/m ³)	—	Same as primary standard
	8-hour	0.070 ppm (137 µg/m ³)	0.070 ppm (147 µg/m ³)	
Carbon monoxide (CO)	1-hour	20 ppm (23 mg/m ³)	35 ppm (40 mg/m ³)	Same as primary standard
	8-hour	9 ppm ^f (10 mg/m ³)	9 ppm (10 mg/m ³)	
Nitrogen dioxide (NO ₂)	Annual arithmetic mean	0.030 ppm (57 µg/m ³)	53 ppb (100 µg/m ³)	Same as primary standard
	1-hour	0.18 ppm (339 µg/m ³)	100 ppb (188 µg/m ³)	—
Sulfur dioxide (SO ₂)	24-hour	0.04 ppm (105 µg/m ³)	—	—
	3-hour	—	—	0.5 ppm (1300 µg/m ³)
	1-hour	0.25 ppm (655 µg/m ³)	75 ppb (196 µg/m ³)	—
Respirable particulate matter (PM ₁₀)	Annual arithmetic mean	20 µg/m ³	—	Same as primary standard
	24-hour	50 µg/m ³	150 µg/m ³	
Fine particulate matter (PM _{2.5})	Annual arithmetic mean	12 µg/m ³	12.0 µg/m ³	15.0 µg/m ³
	24-hour	—	35 µg/m ³	Same as primary standard
Lead ^f	Calendar quarter	—	1.5 µg/m ³	Same as primary standard
	30-Day average	1.5 µg/m ³	—	—
	Rolling 3-Month Average	—	0.15 µg/m ³	Same as primary standard
Hydrogen sulfide	1-hour	0.03 ppm (42 µg/m ³)	No national standards	
Sulfates	24-hour	25 µg/m ³		
Vinyl chloride ^f	24-hour	0.01 ppm (26 µg/m ³)		
Visibility-reducing particulate matter	8-hour	Extinction of 0.23 per km		

Notes: µg/m³ = micrograms per cubic meter; km = kilometers; ppb = parts per billion; ppm = parts per million.

^a California standards for ozone, carbon monoxide, SO₂ (1- and 24-hour), NO₂, particulate matter, and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

^b Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based on a reference temperature of 25 degrees Celsius (°C) and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

^c National standards (other than ozone, particulate matter, and those based on annual averages or annual arithmetic means) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration in a year, averaged over three years, is equal to or less than the standard. The PM₁₀ 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m³ is equal to or less than one. The PM_{2.5} 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the US Environmental Protection Agency for further clarification and current federal policies.

^d National primary standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.

^e National secondary standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

^f The California Air Resources Board has identified lead and vinyl chloride as toxic air contaminants with no threshold of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

Source: CARB 2016a.

Toxic Air Contaminants/Hazardous Air Pollutants

TACs, or, in federal parlance, hazardous air pollutants (HAPs), are a defined set of airborne pollutants that may pose a present or potential hazard to human health. A TAC is defined as an air pollutant that may cause or contribute to an increase in mortality or in serious illness, or that may pose a hazard to human health. A substance that is listed as a HAP pursuant to subsection (b) of Section 112 of the CAA (42 United States Code Section 7412[b]) is considered a TAC. TACs are usually present in minute quantities in the ambient air; however, their high toxicity or health risk may pose a threat to public health even at low concentrations.

A wide range of sources, from industrial plants to motor vehicles, emit TACs. The health effects associated with TACs are quite diverse and generally are assessed locally, rather than regionally. TACs can cause long-term health effects, such as cancer, birth defects, neurological damage, asthma, bronchitis, and genetic damage, or short-term acute effects, such as eye-watering, respiratory irritation (a cough), running nose, throat pain, and headaches.

For evaluation purposes, TACs are separated into carcinogens and noncarcinogens based on the nature of the physiological effects associated with exposure to the pollutant. Carcinogens are assumed to have no safe threshold below which health impacts would not occur. This contrasts with criteria air pollutants, for which acceptable levels of exposure can be determined and for which ambient standards have been established (Table 3.2-1). Cancer risk from TACs is expressed as excess cancer cases per one million exposed individuals, typically over a lifetime of exposure.

EPA and, in California, the California Air Resources Board (CARB) regulate HAPs and TACs, respectively, through statutes (i.e., 42 United States Code Section 7412[b]) and regulations that generally require the use of the maximum achievable control technology or best available control technology (BACT) for toxics to limit emissions.

STATE

CARB is the agency responsible for coordination and oversight of State and local air pollution control programs in California and for implementing the California Clean Air Act (CCAA). The CCAA, which was adopted in 1988, required CARB to establish California ambient air quality standards (CAAQS) (Table 3.2-1).

Criteria Air Pollutants

CARB has established CAAQS for sulfates, hydrogen sulfide, vinyl chloride, visibility-reducing particulate matter, and the above-mentioned criteria air pollutants. In most cases, the CAAQS are more stringent than the NAAQS. Differences in the standards are generally explained by the health effects studies considered during the standard-setting process and the interpretation of the studies. In addition, the CAAQS incorporate a margin of safety to protect sensitive individuals.

The CCAA requires that all local air districts in the State endeavor to attain and maintain the CAAQS by the earliest date practical. It specifies that local air districts should focus particular attention on reducing the emissions from transportation and areawide emission sources, and it provides air districts with the authority to regulate indirect emission sources.

CARB regulates the emission of criteria air pollutants through several programs, regulations, and plans. The 2022 State SIP Strategy (2022 SIP) serves as a compilation document of all actions taken by CARB and local air districts to further the attainment of the NAAQS. Pertinent regulations to the Project included in the 2022 SIP include but are not limited to, the Advanced Clean Cars II Program, Advanced Clean Fleets, and Zero-Emissions Trucks Measure, which all serve to electrify the transportation sector through sales requirements for benchmark years (CARB 2022).

Toxic Air Contaminants

TACs in California are regulated primarily through the Tanner Air Toxics Act (Assembly Bill [AB] 1807, Chapter 1047, Statutes of 1983) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588, Chapter 1252, Statutes of 1987). AB 1807 sets forth a formal procedure for CARB to designate substances as TACs. Research, public participation, and scientific peer review are required before CARB can designate a substance as a TAC. To date, CARB has identified more than 21 TACs and adopted EPA's list of HAPs as TACs. Most recently, particulate matter (PM) exhaust from diesel engines (diesel PM) was added to CARB's list of TACs.

After a TAC is identified, CARB then adopts an airborne toxics control measure for sources that emit that particular TAC. If a safe threshold exists for a substance at which there is no toxic effect, the control measure must reduce exposure below that threshold. If no safe threshold exists, the measure must incorporate the best available control technology for toxics to minimize emissions.

The Hot Spots Act requires that existing facilities that emit toxic substances above a specified level prepare an inventory of toxic emissions, prepare a risk assessment if emissions are significant, notify the public of significant risk levels, and prepare and implement risk reduction measures.

CARB has adopted diesel exhaust control measures and more stringent emissions standards for various transportation-related mobile sources of emissions, including transit buses, and off-road diesel equipment (e.g., tractors, generators). Over time, the replacement of older vehicles will result in a vehicle fleet that produces substantially lower levels of TACs than under current conditions. Mobile-source emissions of TACs (e.g., benzene, 1-3-butadiene, diesel PM) have been reduced significantly over the last decade and will be reduced further in California through a progression of regulatory measures (e.g., Low Emission Vehicle/Clean Fuels and Phase II reformulated gasoline regulations) and control technologies. With the implementation of CARB's Risk Reduction Plan and other regulatory programs, it is estimated that emissions of diesel PM will be less than half of those in 2010 by 2035 (CARB 2020). Adopted regulations are also expected to continue to reduce formaldehyde emissions emitted by cars and light-duty trucks. As emissions are reduced, it is expected that risks associated with exposure to the emissions will also be reduced.

LOCAL

Sacramento Metropolitan Air Quality Management District

Criteria Air Pollutants

SMAQMD is the primary agency responsible for planning to meet NAAQS and CAAQS in Sacramento County. SMAQMD works with other local air districts in the Sacramento region to maintain the region's portion of the SIP for ozone. The SIP is a compilation of plans and regulations that govern how the region and State will comply with the CAA requirements to attain and maintain the NAAQS for ozone. The Sacramento Region has been designated as a "moderate" 2015 8-hour ozone nonattainment area with an extended attainment deadline of June 15, 2019 (EPA 2020a). The 2018 Sacramento Regional 2008 8-Hour Ozone Attainment and Further Reasonable Progress Plan was approved by CARB on November 16, 2017. The previous 2013 Update to the 8-Hour Ozone Attainment and Reasonable Further Progress Plan was approved and promulgated by EPA for the 1997 8-Hour Ozone Standard. EPA has not released a notice of approval and promulgation of the 2017 SIP (CARB 2017). At a public meeting to be held on October 26, 2023, CARB will consider the approval of the 2023 Sacramento Regional Plan for the 2015 70-ppb 8-Hour Ozone Standard (2023 Plan). The 2023 Plan was prepared by the five local air districts of the Sacramento Federal Non-attainment Area (Sacramento Region, or SFNA), with the support of CARB.

SMAQMD has developed a set of guidelines for use by lead agencies when preparing environmental documents. The guidelines contain thresholds of significance for criteria pollutants and TACs, and also make recommendations for conducting air quality analyses. After SMAQMD guidelines have been consulted and the air quality impacts of a project have been assessed, the lead agency's analysis undergoes a review by SMAQMD. SMAQMD submits comments and suggestions to the lead agency for incorporation into the environmental document.

All projects are subject to adopted SMAQMD rules and regulations in effect at the time of construction. Specific rules relevant to the construction of future development under the Project may include the following:

- ▶ **Rule 201: General Permit Requirements.** Any project that includes the use of equipment capable of releasing emissions to the atmosphere may be required to obtain permit(s) from SMAQMD before equipment operation. The Applicant, developer, or operator of a project that includes an emergency generator, boiler, or heater should contact SMAQMD early to determine whether a permit is required, and to begin the permit application process. Portable construction equipment (e.g., generators, compressors, pile drivers, lighting equipment) with an internal combustion engine greater than 50 horsepower must have a SMAQMD permit or CARB portable equipment registration.

- ▶ **Rule 202: New Source Review.** The purpose of this rule is to provide for the issuance of authorities to construct and permits to operate at new and modified stationary air pollution sources and to provide mechanisms, including emission offsets, by which authorities to construct such sources may be granted without interfering with the attainment or maintenance of ambient air quality standards.
- ▶ **Rule 207: Federal Operating Permit.** The purpose this rule is to establish an operating permitting system consistent with the requirements of Title V of the United States Code and pursuant to 40 FR Part 70. Stationary sources subject to the requirements of this rule are also required to comply with any other applicable federal, state, or SMAQMD orders, rules and regulations, including requirements pertaining to prevention of significant deterioration pursuant to Rule 203, requirements to obtain an authority to construct pursuant to Rule 201, or applicable requirements under SMAQMD's new source review rule in the SIP.
- ▶ **Rule 402: Nuisance.** A person shall not discharge from any source whatsoever such quantities of air contaminants or other materials which cause injury, detriment, nuisance or annoyance to any considerable number of persons or the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause or have natural tendency to cause injury or damage to business or property.
- ▶ **Rule 403: Fugitive Dust.** The developer or contractor is required to control dust emissions from earthmoving activities or any other construction activity to prevent airborne dust from leaving the project site. Fugitive dust controls include the following:
 - Water all exposed surfaces two times daily.
 - Cover or maintain at least two feet of free board on haul trucks transporting soil, sand, or other loose material on the site.
 - Use wet power vacuum street sweepers to remove any visible trackout mud or dirt onto adjacent public roads at least once a day.
 - Limit vehicle speeds on unpaved roads to 15 miles per hour.
 - All roadways, driveways, sidewalks, parking lots to be paved should be completed as soon as possible. In addition, building pads should be laid as soon as possible after grading unless seeding or soil binders are used.
 - Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to 5 minutes.
 - Maintain all construction equipment in proper working condition according to manufacturer's specifications.
- ▶ **Rule 442: Architectural Coatings.** The purpose of this rule is to limit the emissions of volatile organic compounds from the use of architectural coatings supplied, sold, offered for sale, applied, solicited for application, or manufactured for use within Sacramento County.
- ▶ **Rule 902: Asbestos.** The developer or contractor is required to notify SMAQMD of any regulated renovation or demolition activity. Rule 902 contains specific requirements for surveying, notification, removal, and disposal of material containing asbestos.

In addition, if modeled construction-generated emissions for a project are not reduced to levels below SMAQMD's mass emission threshold (of 85 pounds per day [lb/day] for nitrogen oxide [NO_x], 80 lb/day or 13.2 tons per year (tpy) for PM₁₀, and 82 lb/day or 15 tpy for PM_{2.5}) after the standard construction mitigation is applied, then SMAQMD requires an offsite construction mitigation fee to purchase offsite emissions reductions. Such purchases are made through SMAQMD's Heavy Duty Incentive Program, through which select owners of heavy-duty equipment in Sacramento County can repower or retrofit their old engines with cleaner engines or technologies (SMAQMD 2019).

As discussed in greater detail under, "Thresholds of Significance," and "Methodology," the Thresholds of Significance have been developed in consideration of long-term regional air quality planning. Projects that are found to emit emissions in exceedance of these bright-line thresholds would generate a cumulatively considerable contribution of regional air pollution which could obstruct the region's attainment of the NAAQS and/or CAAQS or cause a localized exceedance of these concentration-based standards within the Sacramento Valley Air Basin (SVAB). Conversely,

projects that emit levels of air pollution below these thresholds would not affect the SVAB's ability to attain the NAAQs and/or CAAQS.

Also discussed in greater detail under, "Methodology," SMAQMD has released several versions of guidance in response to the California Supreme Court Case *Sierra Club v. County of Fresno* (2018) 6 Cal.App.5th 503 (herein referred to as the Friant Ranch Decision). The Final Guidance, released in October 2020, is discussed in greater detail under, "Methodology."

Toxic Air Contaminants

At the local level, air districts may adopt and enforce CARB control measures for TACs. Under SMAQMD Rule 201 ("General Permit Requirements"), Rule 202 ("New Source Review"), and Rule 207 ("Federal Operating Permit"), all sources that possess the potential to emit TACs are required to obtain permits from SMAQMD. Permits may be granted to these operations if they are constructed and operated in accordance with applicable regulations, including New Source Review standards and air toxics control measures. SMAQMD limits emissions and public exposure to TACs through a number of programs. SMAQMD prioritizes TAC-emitting stationary sources based on the quantity and toxicity of the TAC emissions and the proximity of the facilities to sensitive receptors. Sensitive receptors are people, or facilities that generally house people (e.g., schools, hospitals, residences), that may experience adverse effects from unhealthful concentrations of air pollutants.

Odors

Although offensive odors rarely cause any physical harm, they can be very unpleasant, leading to considerable stress among the public and often generating citizen complaints to local governments and SMAQMD. SMAQMD's Rule 402 ("Nuisance") regulates odors.

City of Elk Grove General Plan

The following policies in the Elk Grove General Plan are relevant to the analysis of air quality effects (City of Elk Grove 2019).

- ▶ **Policy NR-4-1:** Require all new development projects which have the potential to result in substantial air quality impacts to incorporate design, and/or operational features that result in a reduction in emissions equal to 15 percent compared to an "unmitigated baseline project." An unmitigated baseline project is a development project which is built and/or operated without the implementation of trip reduction, energy conservation, or similar features, including any such features which may be required by the Zoning Code or other applicable codes.
- ▶ **Policy NR-4-3:** Implement and support programs that reduce mobile source emissions.
- ▶ **Policy NR-4-4:** Promote pedestrian/bicycle access and circulation to encourage residents to use alternative modes of transportation in order to minimize direct and indirect emissions of air contaminants.
- ▶ **Policy NR-4-5:** Emphasize demand management strategies that seek to reduce single-occupant vehicle use in order to achieve State and federal air quality plan objectives.
- ▶ **Policy NR-4-8:** Require that development projects incorporate best management practices during construction activities to reduce emissions of criteria pollutants.
- ▶ **Policy NR-5-2:** Improve the health and sustainability of the community through improved regional air quality and reduction of greenhouse gas emissions that contribute to climate change.
- ▶ **Policy N-1-7:** The standards outlined in Table 8-4 shall not apply to transportation- and City infrastructure-related construction activities as long as construction occurs between the hours of 7 a.m. and 7 p.m., Monday through Friday, and 8 a.m. and 5 p.m. on weekends and federally recognized holidays. Work may occur beyond these time frames for construction safety or because of existing congestion that makes completing the work during these time frames infeasible.

City of Elk Grove Municipal Code

Elk Grove Municipal Code (EGMC) Chapter 16.07 provides permitting guidance for electric vehicle (EV) charging stations. Municipal Code Sections 16.07.200 through 16.07.500 summarize the streamlined permitting process for the installation of EV charging stations, including provisions pertaining to the completion of a technical review checklist that ensures that installation of an EV charging station would not result in any adverse environmental or health effects. As stated in EGMC Section 16.07.400, “the intent of this chapter [is] to encourage the installation of electric vehicle charging stations by removing obstacles to permitting for charging stations so long as the action does not supersede the Building Official’s authority to address higher priority, life-safety situations.”

EGMC Section 23.58.120 requires nonresidential developments with over 200 parking spaces to have a minimum of 20 percent of the parking spaces to be EV capable and 25 percent of EV capable spaces to be EV ready parking spaces. This section also implements the requirements of Part 6 of the 2022 Title 24 California Building Code (CalGreen Code) for multi-family residential units and non-residential land uses.

EGMC 6.32 details the City’s noise standards, including allowed hours for construction. Consistent with General Plan Policy Noise Policy NO-1-7, EGMC Section 6.32.100 limits construction activities within the proximity of sensitive receptors to 7 a.m. to 7 p.m., thus minimizing exposure of air pollution to nearby receptors. Section 6.32.100 states that construction activities not located near residential uses may be allowed to occur daily between 6 a.m. and 8 p.m. Additionally, when an unforeseen or unavoidable condition occurs during a construction project and the nature of the project necessitates that work in progress be continued until a specific phase is completed, the contractor or owner shall be allowed to continue work after 7 p.m. and to operate machinery and equipment necessary until completion of the specific work in progress can be brought to conclusion under conditions which will not jeopardize inspection acceptance or create undue financial hardships for the contractor or owner.

EGMC 23.60.050 directs development to comply with the relevant rules and regulations pertaining to odors and particulate matter overseen by SMAQMD. EGMC 23.60.050 also directs sources of odors to be modified to prevent the release of noxious odorous emissions, with the exception of agricultural operations.

3.2.2 Environmental Setting

The Project site is located within the SVAB. The SVAB includes all of Butte, Colusa, Glenn, Sacramento, Shasta, Sutter, Tehama, Yolo, and Yuba Counties. The ambient concentrations of air pollutant emissions are determined by the number of emissions released by the sources of air pollutants and the atmosphere’s ability to transport and dilute such emissions. Natural factors that affect transport and dilution include terrain, wind, atmospheric stability, and sunlight. Therefore, existing air quality conditions in the area are determined by such natural factors as topography, meteorology, and climate, in addition to the number of emissions released by existing air pollutant sources, as discussed separately below.

CLIMATE, METEOROLOGY, AND TOPOGRAPHY

The SVAB is a relatively flat area bordered by the north Coast Ranges to the west and the northern Sierra Nevada to the east. Air flows into the SVAB through the Carquinez Strait, the only breach in the western mountain barrier, and moves across the Sacramento River–San Joaquin River Delta (Delta) from the San Francisco Bay area.

The Mediterranean climate type of the SVAB is characterized by hot, dry summers and cool, rainy winters. During the summer, daily temperatures range from 50 degrees Fahrenheit (°F) to more than 100°F. The inland location and surrounding mountains shelter the area from much of the ocean breezes that keep the coastal regions moderate in temperature. Most precipitation in the area results from air masses that move in from the Pacific Ocean, usually from the west or northwest, during the winter months. More than half the total annual precipitation falls during the winter rainy season (November through February); the average winter temperature is a moderate 49°F. Also characteristic of SVAB winters are periods of dense and persistent low-level fog, which are most prevalent between storms. The prevailing winds are moderate in speed and vary from moisture-laden breezes from the south to dry land flows from the north.

The mountains surrounding the SVAB create a barrier to airflow, which leads to the entrapment of air pollutants when meteorological conditions are unfavorable for transport and dilution. The highest frequency of poor air movement occurs in the fall and winter when high-pressure cells are often present over the SVAB. The lack of surface wind during these periods, combined with the reduced vertical flow caused by a decline in surface heating, reduces the influx of air and leads to the concentration of air pollutants under stable meteorological conditions. Surface concentrations of air pollutant emissions are highest when these conditions occur in combination with agricultural burning activities or with temperature inversions, which hamper dispersion by creating a ceiling over the area and trapping air pollutants near the ground.

May through October is ozone season in the SVAB. This period is characterized by poor air movement in the mornings with the arrival of the Delta sea breeze from the southwest in the afternoons. In addition, longer daylight hours provide a plentiful amount of sunlight to fuel photochemical reactions between reactive organic gases (ROG) and NO_x , which result in ozone formation. Typically, the Delta breeze transports air pollutants northward out of the SVAB; however, a phenomenon known as the Schultz Eddy prevents this from occurring during approximately half of the time from July to September. The Schultz Eddy phenomenon causes the wind to shift southward and blow air pollutants back into the SVAB. This phenomenon exacerbates the concentration of air pollutant emissions in the area and contributes to the area violating the ambient air quality standards.

The local meteorology of the Project site and surrounding area is represented by measurements recorded at the Western Regional Climate Center (WRCC) Sacramento Executive Airport Station. The normal annual precipitation is approximately 17.24 inches. January temperatures range from a normal minimum of 37.8°F to a normal maximum of 53.5°F. July temperatures range from a normal minimum of 58.2°F to a normal maximum of 92.7°F (WRCC 2016). The prevailing wind direction is from the south (WRCC 2002).

CRITERIA AIR POLLUTANTS

Concentrations of criteria air pollutants are used to indicate the quality of the ambient air. A brief description of key criteria air pollutants in the SVAB is provided below. Emission source types and health effects are summarized in Table 3.2-2. Sacramento County's attainment status for the CAAQS and the NAAQS are shown in Table 3.2-3.

Ozone

Ozone is a photochemical oxidant (a substance whose oxygen combines chemically with another substance in the presence of sunlight) and the primary component of smog. Ozone is not directly emitted into the air but is formed through complex chemical reactions between precursor emissions of ROG and NO_x in the presence of sunlight. ROG are volatile organic compounds that are photochemically reactive. ROG emissions result primarily from incomplete combustion and the evaporation of chemical solvents and fuels. NO_x are a group of gaseous compounds of nitrogen and oxygen that result from the combustion of fuels.

Emissions of the ozone precursors ROG and NO_x have decreased over the past several years because of more stringent motor vehicle standards and cleaner burning fuels. Emissions of ROG and NO_x decreased from 2000 to 2010 and are projected to continue decreasing from 2010 to 2035 (CARB 2013).

Nitrogen Dioxide

NO_2 is a brownish, highly reactive gas that is present in all urban environments. The major human-made sources of NO_2 are combustion devices, such as boilers, gas turbines, and mobile and stationary reciprocating internal combustion engines. Combustion devices emit primarily nitric oxide (NO), which reacts through oxidation in the atmosphere to form NO_2 . The combined emissions of NO and NO_2 are referred to as NO_x and are reported as equivalent NO_2 . Because NO_2 is formed and depleted by reactions associated with photochemical smog (ozone), the NO_2 concentration in a particular geographical area may not be representative of the local sources of NO_x emissions (EPA 2012).

Particulate Matter

Respirable particulate matter with an aerodynamic diameter of 10 micrometers or less is referred to as PM_{10} .

PM_{10} consists of particulate matter emitted directly into the air, such as fugitive dust, soot, and smoke from mobile

and stationary sources, construction operations, fires and natural windblown dust, and particulate matter formed in the atmosphere by reaction of gaseous precursors (CARB 2013). Fine particulate matter (PM_{2.5}) includes a subgroup of smaller particles that have an aerodynamic diameter of 2.5 micrometers or less. PM₁₀ emissions in the SVAB are dominated by emissions from area sources, primarily fugitive dust from vehicle travel on unpaved and paved roads, farming operations, construction and demolition, and particles from residential fuel combustion. Direct emissions of PM₁₀ are projected to remain relatively constant through 2035. Direct emissions of PM_{2.5} have steadily declined in the SVAB between 2000 and 2010 and then are projected to increase very slightly through 2035. Emissions of PM_{2.5} in the SVAB are dominated by the same sources as emissions of PM₁₀ (CARB 2013).

Table 3.2-2 Sources and Health Effects of Criteria Air Pollutants

Pollutant	Sources	Acute ¹ Health Effects	Chronic ² Health Effects
Ozone	Secondary pollutant resulting from the reaction of ROG and NO _x in the presence of sunlight. ROG emissions result from incomplete combustion and evaporation of chemical solvents and fuels; NO _x results from the combustion of fuels	increased respiration and pulmonary resistance; cough, pain, shortness of breath, lung inflammation	permeability of respiratory epithelia, the possibility of permanent lung impairment
Carbon monoxide (CO)	Incomplete combustion of fuels; motor vehicle exhaust	headache, dizziness, fatigue, nausea, vomiting, death	permanent heart and brain damage
Nitrogen dioxide (NO ₂)	combustion devices, e.g., boilers, gas turbines, and mobile and stationary reciprocating internal combustion engines	coughing, difficulty breathing, vomiting, headache, eye irritation, chemical pneumonitis or pulmonary edema; breathing abnormalities, cough, cyanosis, chest pain, rapid heartbeat, death	chronic bronchitis, decreased lung function
Sulfur dioxide (SO ₂)	coal and oil combustion, steel mills, refineries, and pulp and paper mills	Irritation of the upper respiratory tract, increased asthma symptoms	Insufficient evidence linking SO ₂ exposure to chronic health impacts
Respirable particulate matter (PM ₁₀), Fine particulate matter (PM _{2.5})	fugitive dust, soot, smoke, mobile and stationary sources, construction, fires, and natural windblown dust, and formation in the atmosphere by condensation and/or transformation of SO ₂ and ROG	breathing and respiratory symptoms, aggravation of existing respiratory and cardiovascular diseases, premature death	alterations to the immune system, carcinogenesis
Lead	metal processing	reproductive/ developmental effects (fetuses and children)	numerous effects including neurological, endocrine, and cardiovascular effects

Notes: NO_x = oxides of nitrogen; ROG = reactive organic gases.

¹ "Acute" refers to the effects of short-term exposures to criteria air pollutants, usually at fairly high concentrations.

² "Chronic" refers to the effects of long-term exposures to criteria air pollutants, usually at lower, ambient concentrations.

Sources: EPA 2016.

Table 3.2-3 Attainment Status Designations for Sacramento County

Pollutant	National Ambient Air Quality Standard	California Ambient Air Quality Standard
Ozone	Attainment (1-hour) ¹	Nonattainment (1-hour) Classification-Serious ²
	Nonattainment (8-hour) ³ Classification=Moderate	Nonattainment (8-hour) Nonattainment (8-hour)
Respirable particulate matter (PM ₁₀)	Attainment (24-hour)	Nonattainment (24-hour)
		Nonattainment (Annual)
Fine particulate matter (PM _{2.5})	Nonattainment (24-hour)	(No State Standard for 24-Hour)
	Attainment (Annual)	Attainment (Annual)
Carbon monoxide (CO)	Attainment (1-hour)	Attainment (1-hour)
	Attainment (8-hour)	Attainment (8-hour)
Nitrogen dioxide (NO ₂)	Unclassified/Attainment (1-hour)	Attainment (1-hour)
	Unclassified/Attainment (Annual)	Attainment (Annual)
Sulfur dioxide (SO ₂) ⁵	(Attainment Pending) (1-Hour)	Attainment (1-hour)
		Attainment (24-hour)
Lead (Particulate)	Attainment (3-month rolling avg.)	Attainment (30-day average)
Hydrogen Sulfide	No Federal Standard	Unclassified (1-hour)
Sulfates		Attainment (24-hour)
Visibly Reducing Particles		Unclassified (8-hour)
Vinyl Chloride		Unclassified (24-hour)

¹ Air Quality meets federal 1-hour Ozone standard (77 FR 64036). EPA revoked this standard, but some associated requirements still apply. SMAQMD attained the standard in 2009. SMAQMD has requested EPA recognize attainment to fulfill the requirements.

² Per Health and Safety Code Section 40921.5(c), the classification is based on 1989–1991 data, and therefore does not change.

³ 2015 Standard.

⁴ 2010 Standard.

Source: CARB 2019b.

TOXIC AIR CONTAMINANTS

According to the 2013 Edition of the California Almanac of Emissions and Air Quality, health risks from TACs can largely be attributed to relatively few compounds, the most important being diesel PM (CARB 2013:5-2 to 5-4). Diesel PM differs from other TACs in that it is not a single substance, but rather a complex mixture of hundreds of substances. Although diesel PM is emitted by diesel-fueled internal combustion engines, the composition of the emissions varies depending on engine type, operating conditions, fuel composition, lubricating oil, and whether an emissions control system is being used. Unlike the other TACs, no ambient monitoring data are available for diesel PM because no routine measurement method currently exists. The TACs for which data are available that pose the greatest existing ambient risk in California are benzene, 1,3-butadiene, acetaldehyde, carbon tetrachloride, hexavalent chromium, para-dichlorobenzene, formaldehyde, methylene chloride, and perchloroethylene. Diesel PM poses the greatest health risk among the 10 TACs mentioned. Overall, Statewide emissions of diesel PM are forecasted to decline by 71 percent between 2000 and 2035 (CARB 2013: 3-8). The Project is not located within 1,000 feet from any stationary or major TAC-emitting roadways.

ODORS

Odors are generally regarded as an annoyance rather than a health hazard. However, manifestations of a person's reaction to foul odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache).

With respect to odors, the human nose is the sole sensing device. The ability to detect odors varies considerably among the population and overall is quite subjective. Some individuals can smell very minute quantities of specific substances; others may not have the same sensitivity but may have sensitivities to odors of other substances. In addition, people may have different reactions to the same odor; an odor that is offensive to one person may be perfectly acceptable to another (e.g., fast food restaurant). It is important to also note that an unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. This is because of the phenomenon known as odor fatigue, in which a person can become desensitized to almost any odor, and recognition only occurs with an alteration in the intensity.

Odor sources of concern include wastewater treatment plants, sanitary landfills, composting facilities, recycling facilities, petroleum refineries, chemical manufacturing plants, painting operations, rendering plants, food packaging plants, and cannabis (SMAQMD 2016). The Project site is not within the vicinity of any of these sources of odors.

SENSITIVE RECEPTORS

Sensitive receptors are generally considered to include those land uses where exposure to pollutants could result in health-related risks to sensitive individuals, such as children or the elderly. Residential dwellings, schools, hospitals, playgrounds, and similar facilities are of primary concern because of the presence of individuals particularly sensitive to pollutants and/or the potential for increased and prolonged exposure of individuals to pollutants. Sensitive receptors near the New Zoo include residences and a playground east of the Project site along Lotz Parkway.

3.2.3 Impacts and Mitigation Measures

METHODOLOGY

Criteria Air Pollutants

The analysis in this section is consistent with the recommendations of SMAQMD's Guide to Air Quality Assessment in Sacramento County (CEQA Guide) (SMAQMD 2021). The analysis primarily focuses on the extent to which the Project would conflict with air quality planning efforts. The net increase in criteria air pollutant (PM₁₀ and PM_{2.5}) and ozone precursor (ROG and NO_x) emissions (i.e., pollutants for which the region is in nonattainment of ambient air quality standards) generated by the Project was estimated based on predicted vehicle miles traveled and maximum development under the Project (i.e., buildout of Phases 1–4), identified in Table 2-1 of Chapter 2, "Project Description," to address the largest extent of potential air quality impacts. The Project's emissions are compared to SMAQMD's thresholds of significance.

Both short-term construction and long-term operational emissions of criteria air pollutants and precursors were calculated using the California Emissions Estimator Model (CalEEMod) Version 2022.1.1.16 computer program, as recommended by SMAQMD's CEQA Guide. Modeling was based on Project-specific information (e.g., size, area to be graded, area to be paved) where available, reasonable assumptions based on typical construction activities, and default values in CalEEMod that are based on the Project's location and land use type. Construction would be separated into Phases 1A, 1B, 1C, 2, 3, and 4. Phase 1A is anticipated to begin as early as summer 2025, and Phase 4 is anticipated to be completed by the end of 2042. Emissions from trips associated with moving the animals are speculative at the time of this analysis. The animals housed at the New Zoo would be from either the Sacramento Zoo or another AZA accredited zoo. The decision of where animals at the New Zoo would arrive from would be determined closer to the opening of the New Zoo and subsequent phases. Therefore, quantifying emissions from these vehicle trips would be speculative and is not included in this analysis.

The Project would include land use designations, such as for animal habitats and animal care quarters, that are not available in CalEEMod; in such cases, land uses were assigned that most closely resemble them. With respect to operational emissions, mobile source emissions were estimated using Project-estimated annual vehicle miles traveled derived from the study prepared for the Project (see Section 3.13, "Transportation"). The Project would be fully electric (i.e., no on-site natural gas use); therefore, this air quality analysis assumes that no emissions would be generated on-site from energy consumption. See Section 3.7, "Greenhouse Gases and Climate Change," for the assessment of emissions from the use of energy off the grid. In accordance with SMAQMD's guidance operational GHG emissions were modeled at the initial zoo opening in 2029 and as at one phase assuming operation of full buildout in 2043. Specific model assumptions, inputs, and land use equivalencies for these calculations can be found in Appendix D.

Health Effects

The California Supreme Court issued a ruling in *Sierra Club v. County of Fresno*, 6 Cal.5th 502 (2018) regarding an air quality analysis prepared for the Friant Ranch Development Project EIR in December 2018. The court asserted that the air quality analysis performed for the project did not adequately explain the nature and magnitude of long-term air quality impacts from emissions of criteria pollutants and ozone precursors. The court held that the EIR lacked "sufficient detail to enable those who did not participate in its preparation to understand and consider meaningfully the issues the proposed project raises."

The court expressed the need to determine whether there was a connection between the significant project emissions and the human health impacts associated with such emissions. According to the court, one pathway would be to estimate the level of ozone that would be produced from the project, measure to what extent human health would be affected, and describe where daily exceedances of the NAAQS and CAAQS would occur in an air basin. This detailed approach to modeling is founded on the assumption that such an exercise would produce estimates of meaningful accuracy.

In response to this court case, a discussion of the development of air quality thresholds of significance for criteria pollutants and ozone precursors and their connection to attainment of the NAAQS and CAAQS, as well as a discussion of the applicability of regional air pollution modeling, is provided below.

Typically, air districts develop thresholds of significance for CEQA evaluation (summarized below) in consideration of maintaining or achieving attainment under the NAAQS and CAAQS for the geographical area they oversee (long-term regional air quality planning). These thresholds are tied to a SIP for an air district in nonattainment for criteria air pollutants within a cumulative context. These SIPs, which are submitted to CARB, contain an inventory of existing ambient air pollutant concentrations and, if applicable, a suite of measures to reduce air pollution and a projected date of achieving attainment under the NAAQS and CAAQS. Air quality plans identify a budget that accounts for new future sources of pollution from land use development and stationary sources. These budgets inform the development of CEQA thresholds of significance and represent an allowable level of pollution that, when emitted in volumes below such thresholds, would not conflict with an air district's long-term regional air quality planning or attainment date.

As discussed previously, the NAAQS and CAAQS represent concentrations of criteria air pollutants protective of human health and are substantiated by extensive scientific evidence. EPA and CARB recognize that ambient air quality below these concentrations would not cause adverse health impacts on exposed receptors. In connecting an air district's (e.g., SMAQMD's) thresholds of significance to its anticipated date of attainment, projects that demonstrate levels of construction and/or operational emissions below the applicable thresholds would be consistent with long-term regional planning efforts. These projects would not result in emissions that would conflict with an area achieving future attainment status under the NAAQS and CAAQS as outlined by an applicable air quality plan.

Similarly, projects that demonstrate emissions levels in exceedance of an applicable threshold could contribute to the continued nonattainment designation of a region or potentially degrade a region from attainment to nonattainment, resulting in acute or chronic respiratory and cardiovascular illness associated with exposure to concentrations of criteria air pollutants above what EPA and CARB consider safe. Symptoms can include coughing, difficulty breathing, chest pain, eye and throat irritation, and, in extreme cases, death caused by exacerbation of existing respiratory and cardiovascular disease, cancer, or impaired immune and lung function.

However, modeling with a high degree of accuracy the exact location and magnitude of specific health impacts that could occur as a result of project-level construction- or operation-related emissions is infeasible. Although dispersion modeling of project-generated PM may be conducted to evaluate resulting ground-level concentrations, the secondary formation of PM is similar in complexity to ozone formation, and because emissions can be transported, localized impacts of directly emitted PM do not always equate to local PM concentrations. Ozone is a secondary pollutant formed from the oxidation of ROG and NO_x in the presence of sunlight. Rates of ozone formation are a function of a variety of complex physical factors, including topography, building influences on airflow (e.g., downwash), ROG and NO_x concentration ratios, multiple meteorological conditions, and sunlight exposure (Seinfeld and Pandis 1996: 298). For example, rates of ozone formation are highest in elevated temperatures and when the ratio of ROG to NO_x is 5.5:1. When temperatures are lower and this ratio shifts, rates of ozone formation are stunted (Seinfeld and Pandis 1996: 299–300). In addition, ROG emissions are composed of many compounds that have different levels of reactivity leading to ozone formation. Methane, for instance, is the most common ROG compound, yet it has one of the lowest reactivity potentials (Seinfeld and Pandis 1996: 309, 312). Moreover, some groups may develop more severe health impacts than others. For instance, infants, children, the elderly, and individuals with preexisting medical conditions are more susceptible to developing illnesses from exposure to air pollutants.

Notably, during the litigation process in the Friant Ranch case, the San Joaquin Valley Air Pollution Control District (SJVAPCD) (a leading air district governing air quality planning in the San Joaquin Valley Air Basin) submitted an amicus curiae brief that provided scientific context and expert opinion regarding the feasibility of performing regional dispersion modeling for ozone. Although SJVAPCD does not regulate air pollution in the SVAB, it has the technical and scientific expertise to comment on the feasibility of performing photochemical regional dispersion modeling for project-level CEQA analyses. In the brief, SJVAPCD states that “CEQA does not require an EIR to correlate a project’s air quality emissions to specific health impacts, because such an analysis is not reasonably feasible.” SJVAPCD reiterates that (SJVAPCD 2015):

the Air District has based its thresholds of significance for CEQA purposes on the levels that scientific and factual data demonstrate that the [SVAB] can accommodate without affecting the attainment date for the NAAQS. The Air District has tied its CEQA significance thresholds to the level at which stationary pollution sources must “offset” their emissions.... Thus the CEQA air quality analysis for criteria air pollutants is not really localized, project-level impact analysis but one of regional “cumulative impacts.”

The brief asserts that these CEQA thresholds of significance are not intended to be applied such that any localized human health impact associated with a project’s emissions could be identified. Rather, CEQA thresholds of significance are used to determine whether a project’s emissions would obstruct a region’s capability of attaining the NAAQS and CAAQS according to the emissions inventory prepared in a SIP, which is then submitted and reviewed by CARB and EPA. This sentiment is corroborated in an additional brief submitted by the South Coast Air Quality Management District (SCAQMD 2015).

SMAQMD developed Final Friant Ranch Guidance based on modeling that estimates the incremental health effects of a project’s emissions of criteria air pollutants and ozone precursors (SMAQMD 2020). The Minor Project Health Effects Screening Tool contained in the guidance was used to project and evaluate the Project’s incremental health effects because Project-related emission rates of ROG, NO_x, and PM_{2.5} are anticipated to match the lowest (i.e., most stringent) thresholds of significance for air districts in the area. The most stringent thresholds of significance applied in this tool include 82 lb/day of PM_{2.5} (derived from SMAQMD), 82 lb/day for PM₁₀ (derived from the Placer County Air Pollution Control District), and 82 lb/day for ROG and NO_x (derived from the El Dorado County Air Quality Management District).

The Minor Projects Health Effects Screening Tool estimates the mean incidence of health outcomes, such as mortality, hospital admissions, emergency room visits, and heart attacks (acute myocardial infarction), in the SVAB that may result from emissions from a new project that emits 82 lb/day of NO_x, ROG, or PM. Projects with emissions lower than these thresholds of significance would have lower estimated health effects. Based on the impact determinations summarized below, the Project’s associated adverse health outcomes were estimated only for operational emissions.

Toxic Air Contaminants

A Health Risk Assessment (HRA) was prepared to quantify and evaluate TAC impacts from construction. Construction-related emissions of diesel PM were determined by conducting detailed construction emissions modeling for the Project using the SMAQMD's-approved CalEEMod, Project-specific details (e.g., construction phasing, building sizes, excavation estimates), and model defaults where Project-specific information was not available. Emissions were quantified for all phases of Project construction that are anticipated to occur across the areas of the Project site for the entire duration of Project buildout (i.e., 17 years). Mass emissions were averaged over the anticipated construction duration, in accordance with SMAQMD's guidance and consistent with the district's adopted average daily mass emissions thresholds. Outputs from the mass emissions calculations conducted with CalEEMod were used to conduct the HRA.

Dispersion modeling was conducted with the CARB-approved American Meteorological Society/EPA Regulatory Model Improvement Committee modeling system (AERMOD), Version 11.2.0 (EPA 2022). Dispersion modeling was conducted in AERMOD to estimate ground-level TAC concentrations at each receptor location. This approach enabled the output files assign an appropriate emission rates to estimate diesel PM (PM₁₀ exhaust) concentrations, as well as resulting cancer and noncancer risk levels, at each receptor location, to be estimated. Residential receptor locations were modeled, and the health risk at each individual sensitive receptor location was estimated by scaling the CalEEMod and AERMOD emissions in Excel.

The modeling included all standard regulatory default options, including the use of rural dispersion parameters and local terrain. Project specifics, such as meteorological data inputs and selection of emission sources and receptors, were used to perform airborne dispersion modeling and the assessment of health risks related to diesel PM resulting from Project construction. Full modeling assumptions and inputs can be found in Appendix E.

Odors

Impacts related to odors were also assessed qualitatively, based on proposed construction activities, equipment types and duration of use, overall construction schedule, zoo operations such as maintaining animal habitats and enclosure, handling of animal waste, and distance to nearby sensitive receptors. To evaluate an odor impact, SMAQMD recommends that the lead agency provide the buffer distance and a description of the land features and topography in the buffer zone that separates nearby sensitive receptors and the odor source.

THRESHOLDS OF SIGNIFICANCE

An air quality impact would be significant if implementation of the Project would:

- ▶ conflict with or obstruct implementation of the applicable air quality plan;
- ▶ result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is nonattainment under an applicable federal or State ambient air quality standard;
- ▶ expose sensitive receptors to substantial pollutant concentrations; or
- ▶ result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

For the Project, the significance criteria used to evaluate project impacts on air quality under CEQA are based on Appendix G of the State CEQA Guidelines and thresholds of significance adopted by SMAQMD. SMAQMD's air quality thresholds of significance are tied to achieving or maintaining attainment designations with the NAAQS and CAAQS, which are scientifically substantiated, numerical concentrations of criteria air pollutants considered to be protective of human health. Implementing the Project would have a significant impact related to air quality such that human health would be adversely affected if it would (SMAQMD 2021):

- ▶ cause construction-generated criteria air pollutant or precursor emissions to exceed the SMAQMD-recommended thresholds of 85 lb/day for NO_x, 80 lb/day or 13.2 tpy for PM₁₀, and 82 lb/day or 15 tpy for PM_{2.5} after SMAQMD's Basic Construction Emission Control Practices (construction BMPs) have been implemented;

- ▶ result in a net increase in long-term operational criteria air pollutant or precursor emissions that exceed the SMAQMD-recommended thresholds of 65 lb/day for ROG and NO_x, 80 lb/day or 13.2 tpy for PM₁₀, and 82 lb/day or 15 tpy for PM_{2.5} after SMAQMD's BACT) and operational BMPs have been applied;
- ▶ result in long-term operational local mobile-source CO emissions that would violate or contribute substantially to concentrations that exceed the 1-hour CAAQS of 20 parts per million (ppm) or the 8-hour CAAQS of 9 ppm;
- ▶ result in an incremental increase in cancer risk (i.e., the risk of contracting cancer) greater than 10 in one million at any off-site receptor and/or a noncarcinogenic hazard index of 1.0 or greater; or
- ▶ result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

IMPACTS NOT DISCUSSED FURTHER

Carbon Monoxide Hotspots

Implementation of the Project would introduce new vehicle trips to the Project area. Based on the transportation analysis prepared for the Project, the Project would result in a maximum of 1,100 new trips per day at any one intersection. This level of trips would contribute CO to the SVAB, however, as stated in SMAQMD's CEQA Guide, "pollutants such as carbon monoxide (CO), sulfur dioxide, and lead are of less concern because operational activities are not likely to generate substantial quantities of these criteria air pollutants and the Sacramento Valley Air basin has been in attainment for these criteria air pollutants for multiple years" (SMAQMD 2021: 4-1). SMAQMD no longer has a recommended screening criteria for assessing the potential of a CO hotspot; however, other air districts, such as the Bay Area Air Quality Management District (BAAQMD), have numerical screening criteria available. Based on BAAQMD's guidance, which can be applied to projects within SMAQMD's jurisdiction for determining localized CO hotspot impacts, projects meeting the following criteria would not result in a CO hotspot (BAAQMD 2023):

- ▶ Project-generated traffic would not increase traffic volumes at affected intersections to more than 44,000 vehicles per hour, and
- ▶ Project-generated traffic would not increase traffic volumes at affected intersections to more than 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited (e.g., tunnel, parking garage, bridge underpass, natural or urban street canyon, below-grade roadway).

The Project would not introduce new vehicle trips to an intersection meeting these criteria. Thus, a CO hotspot would not result from Project implementation. Moreover, CO emissions have historically decreased due to the advent of catalytic converters and progressively more stringent fuel economy standards. Because the Project would not meet the applicable screening criteria and the long-term CO attainment designation of the SVAB, CO hotspots have been dismissed from the analysis. This issue is not discussed further.

Stationary Source Toxic Air Contaminants

The Project would not include activities that generate long-term operational emissions of TACs and does not propose any permitted sources. Additionally, the Project would not include any onsite natural gas infrastructure and would install two solar arrays to ensure the Project is fully electric. Stationary sources of TACs include industrial land uses that would be permitted through SMAQMD and subject to BACT. Therefore, stationary source TAC emissions have been dismissed from the analysis. This issue is not discussed further.

Construction-Related Odors

The Project would introduce construction-generated odors from the use of diesel-powered equipment. However, diesel odors would dissipate rapidly and would not be located in one area for an extended period of time. Construction-related odors are inherently short-term, therefore, the likelihood of an adverse odor affecting a receptor is minimal. The Project's emissions would be further regulated by SMAQMD's Rule 402, "Nuisance." Thus, construction-related odor impacts have been dismissed from the analysis. This issue is not discussed further.

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Impact 3.2-1: Generate Short-Term Construction-Related Emissions of ROG, NO_x, CO, SO_x, PM₁₀, and PM_{2.5}

Consistent with SMAQMD's guidance, average daily construction-generated emissions were quantified for the Project. The Project would not generate construction emissions of NO_x that would exceed SMAQMD's daily mass emissions thresholds of significance. These thresholds are inherently tied to long-term regional air quality planning for ozone attainment (i.e., SMAQMD's air quality management plans), which demonstrates that the Project would not conflict with the applicable air quality plans as they relate to ozone. However, because the Project does not incorporate SMAQMD's construction BMPs into the Project description, emissions of PM₁₀ and PM_{2.5} would exceed SMAQMD's recommended thresholds of 0 lb/day. Implementation of Mitigation Measure 3.2-1 would require the Project to implement SMAQMD's construction BMPs (which adjusts SMAQMD's PM₁₀ and PM_{2.5} thresholds to 80 and 82 lb/day, respectively) and would be sufficient to reduce this impact to a **less-than-significant** level.

Although impacts from construction-related air pollutant emissions are temporary, such emissions can have a significant air quality impact. Construction activities, such as grading, excavation, building construction, and paving, can generate substantial amounts of air pollution. Emissions from construction equipment engines also contribute to elevated concentrations of ROG, NO_x, PM₁₀, PM_{2.5}, CO, and SO_x.

Several pieces of diesel-powered heavy equipment would operate during construction of the Project. Site preparation activity emissions have been estimated based on the maximum fleet recommended by SMAQMD. Exhaust and fugitive dust emissions would be generated by excavation and grading, construction vehicle traffic, wind blowing over exposed earth, construction workers traveling to and from the construction sites, heavy-duty construction equipment operation, and application of architectural coatings.

Dust from construction activities can cause impacts both locally and regionally. The dry climate of the area during summer, combined with regional fine and silty soils, creates a high potential for dust generation. Therefore, increased dust fall and locally elevated PM₁₀ levels near the construction activity are anticipated. Depending on the weather, soil conditions, the amount of activity taking place at any one time, and the nature of dust control efforts, these impacts could affect existing land uses near the Project site. See the discussion in the "Methodology" section and Appendix D for additional modeling information.

In addition to fugitive dust, implementing the Project would result in ROG, nitrogen oxide (NO_x), PM₁₀, PM_{2.5}, CO, and sulfur oxides (SO_x) during construction. Table 3.2-4, summarizes the estimated average daily construction emissions by years compared to applicable SMAQMD's thresholds of significance.

As shown in Table 3.2-4, emissions of NO_x would not exceed SMAQMD's construction thresholds of significance. Because emissions of NO_x (a pollutant that contributes to the secondary formation of ozone) would be below SMAQMD's thresholds of significance, which are developed in consideration of long-term regional air quality planning, the Project would not conflict with the *Sacramento Regional 2008 NAAQS 8-Hour Ozone Attainment and Reasonable Further Progress Plan* (EDCAQMD et al. 2017).

Maximum construction emissions of PM₁₀ and PM_{2.5} were estimated to be 29 and 16 lb/day, respectively. Emissions of PM₁₀ and PM_{2.5} would thus exceed SMAQMD's thresholds of 0 lb/day without the implementation of construction BMPs for fugitive dust control. Mitigation Measure 3.2-1 contains SMAQMD Basic Construction Emissions Control Practices, also referred to as SMAQMD's construction BMPs. The Project would be required to implement fugitive dust BMPs, such as limiting vehicle speeds, watering unpaved surfaces, and construction equipment maintenance. Implementation of these construction BMPs would change SMAQMD's construction thresholds of significance for PM₁₀ and PM_{2.5} to 80 and 82 lb/day. Because construction emissions of PM₁₀ and PM_{2.5} would be reduced to less than SMAQMD's 80 and 82 lb/day thresholds of significance, as shown in Table 3.2-4, with the implementation of the construction BMPs provided in Mitigation Measure 3.2-1, this impact would be reduced to **less than significant**.

Table 3.2-4 Maximum Emissions of Criteria Pollutants and Precursors Associated with Construction of the Project

Year	Phase(s)	ROG (lb/day)	NO _x (lb/day)	CO (lb/day)	SO _x (lb/day)	PM ₁₀ (lb/day)	PM _{2.5} (lb/day)
Maximum Daily Emissions							
2025	1A, 1B	5	48	47	<1	29	16
2026	1A, 1B	2	21	26	<1	1	1
2027	1A, 1B	2	20	25	<1	1	1
2028	1A, 1B	53	19	25	<1	1	1
2029	1B, 1C	3	26	29	<1	21	11
2030	1C	1	9	13	<1	<1	<1
2031	1C	1	8	13	<1	<1	<1
2032	1C	1	8	13	<1	<1	<1
2033	1C, 2	3	21	25	<1	21	11
2034	2	8	8	13	<1	<1	<1
2035	3	1	9	15	<1	6	3
2036	3	<1	3	7	<1	<1	<1
2037	3	<1	3	7	<1	<1	<1
2038	3	<1	3	7	<1	<1	<1
2039	3	1	4	7	<1	<1	<1
2040	4	2	16	20	<1	20	11
2041	4	1	7	13	<1	<1	<1
2042	4	8	7	13	<1	<1	<1
SMAQMD Thresholds of Significance		None	65	None	None	0/80¹	0/82¹
Exceeds Thresholds of Significance?		N/A	No	N/A	N/A	Yes¹	Yes¹

Notes: lb/day = pounds per day; ROG = reactive organic gases; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM₁₀ = respirable particulate matter; PM_{2.5} = fine particulate matter; SMAQMD = Sacramento Metropolitan Air Quality Management District; N/A = not applicable.

¹ SMAQMD recommends using a 0 lb/day threshold of significance for evaluating construction-related emissions of PM₁₀ and PM_{2.5} before the implementation of best management practices. Following the implementation of best management practices and/or the best available control technology, construction emissions of PM₁₀ are evaluated against a threshold of significance of 80 lb/day, and PM_{2.5} is evaluated against a threshold of significance of 82 lb/day.

Source: Modeling performed by Ascent Environmental in 2023.

Mitigation Measures

Mitigation Measure 3.2-1: Implement SMAQMD's Basic Construction Emissions Control Practices

SMAQMD requires construction projects to implement basic construction emissions control practices to control fugitive dust and diesel exhaust emissions. These basic construction emissions control practices are considered best management practices, as recommended by SMAQMD. The New Zoo shall implement the following control measures during Project construction:

- ▶ Control fugitive dust as required by SMAQMD Rule 403 and enforced by SMAQMD staff.
- ▶ Water all exposed surfaces twice daily. Exposed surfaces include but are not limited to soil piles, graded areas, unpaved parking areas, staging areas, and access roads.

- ▶ Cover or maintain at least 2 feet of freeboard space on haul trucks transporting soil, sand, or other loose material on the site. Any haul trucks that would travel along freeways or major roadways should be covered.
- ▶ Use wet power vacuum street sweepers to remove any visible track-out of mud or dirt from adjacent public roads at least once a day. Use of dry power sweeping is prohibited.
- ▶ Complete all roadways, driveways, sidewalks, and parking lots to be paved as soon as possible. In addition, lay building pads as soon as possible after grading unless seeding or soil binders are used.
- ▶ Limit vehicle speeds on unpaved roads to 15 miles per hour.
- ▶ Minimize idling time, either by shutting equipment off when it is not in use or by reducing the time of idling to 5 minutes (required by 13 CCR Sections 2449[d][3] and 2485). Provide clear signage that posts this requirement for workers at the site entrances.
- ▶ Maintain all construction equipment in proper working condition according to the manufacturers' specifications. The equipment must undergo a one-time inspection by a certified mechanic and be determined to be running in proper condition before the start of construction activities.

Significance after Mitigation

Less than significant.

Impact 3.2-2: Generate Long-Term Operational Emissions of ROG, NO_x, CO, SO_x, PM₁₀, and PM_{2.5}

Operation of the Project would not generate emissions of ROG or NO_x in exceedance of SMAQMD's daily mass emissions thresholds of significance during the opening phase in 2029 or at full buildout in 2043. However, operation would exceed SMAQMD's 0 lb/day PM₁₀ and PM_{2.5} threshold because it would emit 16 lb/day of PM₁₀ and 4 lb/day of PM_{2.5} at full buildout. Nevertheless, the Project would comply with SMAQMD's operational BMPs for operational PM for land use development projects, including compliance with the mandatory measures of Parts 6 and 11 of the Title 24 California Building Code, which would result in the readjustment of SMAQMD's thresholds for PM₁₀ and PM_{2.5} to 80 and 82 lb/day, respectively. Project emissions of PM₁₀ and PM_{2.5} after compliance with the California Building Code would be below SMAQMD's operational emissions thresholds of significance of 80 and 82 lb/day for PM₁₀ and PM_{2.5}, respectively (SMAQMD's thresholds when operational BMPs and BACTs are applied). Therefore, the impact related to operational emissions would be **less than significant**.

Significance of Operational Emissions

Implementation of the Project would result in a new zoo in the City of Elk Grove, which would in turn increase the emission of criteria air pollutants and ozone precursors in an area currently designated as nonattainment for several of the NAAQS and CAAQS.

Emissions would be generated from vehicles trips to and from the Project site and from the use of landscaping equipment. The Project would be fully electric; therefore, the Project would not produce emissions from the combustion of on-site natural gas use. Table 3.2-5 summarized the total modeled operational emissions associated with the Project at opening year of the New Zoo in 2029 following the completion of Phase 1 construction. Table 3.2-6 summarizes the total modeled operational emissions associated with the full buildout of the Project for the assumed first full year of operation (i.e., 2043).

As shown in Tables 3.2-5 and 3.2-6, the Project would not generate emissions of ROG or NO_x exceeding SMAQMD's operational mass emissions thresholds of significance. In addition, the Project would comply with the mandatory requirements of Parts 6 and 11 of the Title 24 California Building Code (the recommended BMP for operation emissions of PM₁₀ and PM_{2.5} for land use development projects) as a component of the Project's design. These project design features include the implementation of EV parking spaces, the prohibition of onsite natural gas infrastructure, and the installation of two solar arrays to ensure the Project. With these Project design features, the Project would be fully electric, would receive renewable energy procured onsite, and would provide the infrastructure for visitors and employees to charge their EVs while accessing the Project site. Therefore, SMAQMD's thresholds of 80 and 82 lb/day for PM₁₀ and PM_{2.5} have been applied in this analysis. In addition, as shown in Tables 3.2-5 and 3.2-6, at the initial opening in 2029 and at full

buildout in 2043, the Project would not generate operational emissions of PM₁₀ and PM_{2.5} in exceedance of SMAQMD's thresholds of 80 and 82 lb/day for PM₁₀ and PM_{2.5}, respectively. This impact would be **less than significant**.

Table 3.2-5 Maximum Annual Emissions of Criteria Pollutants and Precursors Associated with Operation of the Project at the Initial Opening (2029)

Sector	ROG	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
Mobile	<1	<1	3	<1	<1	<1
Area	<1	<1	1	0	0	0
Energy	0	0	0	0	0	0
Total	<1	<1	4	<1	<1	<1
SMAQMD CEQA Significance Threshold	65	65	None	None	80 ¹	82 ¹
Exceeds Threshold?	No	No	N/A	N/A	No	No

Notes: lb/day = pounds per day; ROG = reactive organic gases; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM₁₀ = respirable particulate matter; PM_{2.5} = fine particulate matter; SMAQMD = Sacramento Metropolitan Air Quality Management District; N/A = not applicable.

¹ SMAQMD recommends using a 0 lb/day threshold of significance for evaluating construction-related emissions of PM₁₀ and PM_{2.5} before implementation of best management practices or best available control technology. Following the implementation of best management practices and/or the best available control technology, operational emissions of PM₁₀ are evaluated against a threshold of significance of 80 lb/day, and PM_{2.5} is evaluated against a threshold of significance of 82 lb/day. The Project would comply with the mandatory requirements of Parts 6 and 11 of the Title 24 California Building Code (the recommended best management practice for operational emissions of PM₁₀ and PM_{2.5} for land use development projects); therefore, SMAQMD's thresholds of 80 and 82 lb/day for PM₁₀ and PM_{2.5} have been applied in this analysis.

Source: Modeling performed by Ascent Environmental in 2023.

Table 3.2-6 Maximum Annual Emissions of Criteria Pollutants and Precursors Associated with Operation of the Project at full buildout (2043)

Sector	ROG	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
Mobile	6	5	73	<1	21	5
Area	19	<1	4	0	<1	<1
Energy	0	0	0	0	0	0
Total	25	5	77	<1	21	5
SMAQMD CEQA Significance Threshold	65	65	None	None	80 ¹	82 ¹
Exceeds Threshold?	No	No	N/A	N/A	No	No

Notes: lb/day = pounds per day; ROG = reactive organic gases; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM₁₀ = respirable particulate matter; PM_{2.5} = fine particulate matter; SMAQMD = Sacramento Metropolitan Air Quality Management District; N/A = not applicable.

¹ SMAQMD recommends using a 0 lb/day threshold of significance for evaluating construction-related emissions of PM₁₀ and PM_{2.5} before implementation of best management practices or best available control technology. Following the implementation of best management practices and/or the best available control technology, operational emissions of PM₁₀ are evaluated against a threshold of significance of 80 lb/day, and PM_{2.5} is evaluated against a threshold of significance of 82 lb/day. The Project would comply with the mandatory requirements of Parts 6 and 11 of the Title 24 California Building Code (the recommended best management practice for operational emissions of PM₁₀ and PM_{2.5} for land use development projects); therefore, SMAQMD's thresholds of 80 and 82 lb/day for PM₁₀ and PM_{2.5} have been applied in this analysis.

Source: Modeling performed by Ascent Environmental in 2023.

Health Effects

Consistent with SMAQMD's Final Friant Ranch Guidance, the potential annual incremental health incidences of the Project were estimated using SMAQMD's Minor Project Health Effects Screening Tool. Using the best approximate GPS coordinates and the estimated operational air pollutant emissions, PM_{2.5}- and ozone exposure-related health incidences were calculated as shown in Table 3.2-7. The percent of background health incidences represents the mean health incidence within the boundaries of the SVAB; the total number of health incidences is an estimate of the average number of people who are affected by the health endpoint in a given population over a given period. In this case, these background incidence are specific to the SVAB and were derived using the Benefits Mapping and Analysis (BenMAP) program (SMAQMD 2020).

Based on this modeling, operational emissions from implementation of the Project would represent approximately 0.035 percent of all total incidences from exposure to ozone and PM_{2.5} in the context of an incident background of 184,505, or approximately 0.65 health incidence in total. Notably, SMAQMD's Minor Project Health Effects Screening Tool projects new health incidences (represented in Table 3.2-6) for projects that emit criteria air pollutants in volumes equaling 82 lb/day for ROG, NO_x, PM₁₀, and PM_{2.5}. However, as shown in Tables 3.2-5 and 3.2-6, the Project would emit substantially less ROG, NO_x, PM₁₀, and PM_{2.5} than what the Minor Project Health Effects Screening Tool characterizes. Therefore, the potential new health incidences overstate the likely new adverse health outcomes that could occur from Project operations.

There is no established threshold of significance that addresses anticipated incidences; however, consistent with guidance from the Friant Ranch Decision and SMAQMD in its Final Friant Ranch Guidance, this information has been included to provide a meaningful level of detail to readers of this Draft EIR. Notably, there is inherent difficulty in evaluating the exact location and degree of adverse health outcomes from Project-level emissions. Moreover, the Minor Project Health Effects Screening Tool cannot account for personal information such as age, preexisting conditions, genetic propensities, and lifestyle choices that may contribute to a receptor's sensitivity to air pollution.

Table 3.2-7 Potential Annual Incremental Health Incidences for the Project

PM _{2.5} Health Endpoint	Age Range	Incidences (Mean)	Percent of Background Incidences	Total Number of Health Incidences (per Year) ¹
Respiratory				
Emergency room visits	0–99	0.82	0.0045%	18,419
Hospital admissions, asthma	0–64	0.054	0.0029%	1,846
Hospital admissions, all respiratory	65–99	0.26	0.0013%	19,644
Cardiovascular				
Hospital admissions, all cardiovascular (less myocardial infarctions)	65–99	0.15	0.00061%	24,037
Acute myocardial infarction, nonfatal	18–24	0.000069	0.0018%	4
Acute myocardial infarction, nonfatal	25–44	0.0061	0.0020%	308
Acute myocardial infarction, nonfatal	45–54	0.016	0.0021%	741
Acute myocardial infarction, nonfatal	55–64	0.026	0.0021%	1,239
Acute myocardial infarction, nonfatal	65–99	0.094	0.0019%	5,052
Mortality				
Mortality, all causes	30–99	1.8	0.0040%	44,766
Ozone Health Endpoint	Age Range	Incidences (Mean)	Percent of Background Incidences	Total Number of Health Incidences (per Year)
Respiratory				
Hospital admissions, all respiratory	65–99	0.065	0.00033%	19,644
Emergency room visits, asthma	0–17	0.39	0.0066%	5,859
Emergency room visits, asthma	18–99	0.59	0.0047%	12,560
Mortality				
Mortality, nonaccidental	0–99	0.042	0.00014%	30,386
Total Incidences	0–99	4.31	0.035%	184,505

Note: PM_{2.5} = fine particulate matter.

¹ These numbers represent the total background health incidences per year in the Sacramento Region and not incidences created by the Project. Source: Modeling conducted by Ascent Environmental in 2023.

Summary

As shown in Tables 3.2-5 and 3.2-6 the Project would not generate emissions of ROG, NO_x, PM₁₀, and PM_{2.5} in exceedance of SMAQMD's mass emissions thresholds, under either opening year of full buildout scenarios, with compliance with the mandatory provisions of Parts 6 and 11 of the Title 24 California Building Code. Therefore, the impact related to operational emissions would be **less than significant**.

Mitigation Measures

No mitigation is required.

Impact 3.2-3: Expose Receptors to TAC Concentrations Adversely Affecting a Substantial Number of People

Based on the HRA prepared for the Project, construction would produce substantial diesel PM such that SMAQMD's threshold for TAC cancer risk exposure of 10 in 1 million would be exceeded. Using this numerical threshold, the Project would generate substantial emissions of TACs, causing an adverse health impact from TAC exposure. Implementation of Mitigation Measure 3.2-3 would direct the zoo construction activities to use CARB-certified Tier 4 engines for diesel-powered construction equipment during construction of the Project. Mitigation Measure 3.2-3 would be sufficient to reduce TAC levels to below SMAQMD's 10 in 1 million threshold of significance. With mitigation, this impact would be reduced to a **less-than-significant** level.

SMAQMD has developed a quantitative threshold of significance for carcinogenic risk exposure (i.e., 10 in 1 million) in consideration of dosage, risk exposure, background risk levels, and guidance established by AB 2588, the Air Toxics "Hot Spots" Information and Assessment Act.

In addition, AB 2588 directs each air district to establish a prioritization score threshold for stationary sources of TACs. To assist the districts with this requirement, the California Air Pollution Control Officers Association (CAPCOA) Toxics Committee, in cooperation with the Office of Environmental Health Hazard Assessment (OEHHA) and CARB, developed the Air Toxics "Hot Spots" Program, Facility Prioritization Guidelines (July 1990). The purpose of the guideline is to provide districts with suggested procedures for prioritizing facilities. However, districts may develop and use prioritization methods that differ from the CAPCOA guidelines. In 2015, CAPCOA updated these guidelines to incorporate the changes made to the OEHHA risk assessment methodology.

Construction-related activities would result in temporary, short-term Project-generated emissions of diesel PM from the exhaust of off-road heavy-duty diesel equipment used for site preparation (e.g., demolition, clearing, grading), paving, application of architectural coatings, and other miscellaneous activities. The dose to which receptors are exposed is the primary factor used to determine health risk (i.e., potential exposure to TAC emission levels that exceed applicable standards). Dose is a function of the concentration of a substance or substances in the environment and the duration of exposure to the substance. Dose is positively correlated with time, meaning that a longer exposure period would result in a higher exposure level for any exposed receptor. Therefore, the risks estimated for an exposed individual are higher if a fixed exposure occurs over a longer period. According to guidance from OEHHA's *The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*, a 30-year exposure duration is used for estimating cancer risk at residential land uses (OEHHA 2015). Construction activity is anticipated to take place over a 17.5-year timeframe for the Project and would not result in intensive construction activities for any one extended period during Project construction.

The TAC that is the focus of this analysis is diesel PM because it is known that diesel PM would be emitted during Project construction. Construction-related activities that would result in temporary, intermittent emissions of diesel PM from the exhaust of off-road heavy-duty diesel equipment for site preparation (e.g., demolition, clearing, grading), paving, application of architectural coatings, and other miscellaneous activities. Particulate exhaust emissions from diesel PM were identified as a TAC by CARB in 1998. On-road diesel-powered haul trucks traveling to and from the construction area to deliver materials and equipment are less of a concern because they do not operate at any one location for extended periods such that they would expose a single receptor to excessive diesel PM

emissions. Nevertheless, a construction HRA was prepared to evaluate potential TAC exposure from Project construction (Appendix E). Table 3.2-8 summarizes the findings of the HRA.

Based on the findings of the HRA, the lifetime cancer risk for the maximally exposed individual resident (identified as a residence across the street, approximately 75 feet from the Project site) was estimated to be 26.77 in one million, which is above SMAQMD's significance threshold of 10 in one million. To reduce this impact, additional mitigation is required. The Tier 4 engine standards enumerated in Mitigation Measure 3.2-3 would be sufficient to reduce this impact to **less than significant**.

Table 3.2-8 Maximum Cancer Risk under an Unmitigated Project Scenario

Receptor	Unmitigated Scenario Cancer Risk (Chances in One Million)
MEIR (On-Site)	26.77
SMAQMD Significance Threshold	10.0
Threshold Exceeded?	Yes

Note: MEIR = maximally exposed individual resident.

Source: Modeling performed by Ascent Environmental in 2023.

Mitigation Measure 3.2-3: Apply Tier-4 Emission Standards to All Diesel-Powered Off-Road Equipment

The New Zoo shall require the construction contractor to use only off-road construction equipment that meets EPA's Tier 4 emission standards, as defined in 40 CFR 1039, and to comply with the appropriate test procedures and provisions contained in 40 CFR Parts 1065 and 1068. This measure can also be achieved by using battery-electric off-road equipment as it becomes available. Implementation of this measure shall be required in the contract the Project applicant establishes with its construction contractors. The New Zoo shall demonstrate its plan to fulfill the requirements of this measure in a report or in Project improvement plan details submitted to the City before the use of any off-road diesel-powered construction equipment on the site.

Significance after Mitigation

Implementation of Mitigation Measure 3.2-3 would reduce the Project's emissions of diesel PM by requiring the use of Tier 4 engines. Table 3.2-9 summarizes the Project's emissions following the implementation of Mitigation Measure 3.3-3.

Table 3.2-9 Maximum Cancer Risk under a Mitigated Project Scenario

Receptor	Mitigated Scenario Cancer Risk (Chances in One Million)
MEIR (On-Site)	5.23
SMAQMD Significance Threshold	10.0
Threshold Exceeded?	No

Note: MEIR = maximally exposed individual resident.

Source: Modeling performed by Ascent Environmental in 2023.

As shown in Table 3.2-9, implementation of Mitigation Measure 3.2-3 would reduce the Project's incremental cancer risk to 5.23 in one million, which is below SMAQMD's recommended threshold of 10 in one million. This impact would be **less than significant** with mitigation.

Impact 3.2-4: Generate Other Emissions (Such as Those Leading to Odors) Adversely Affecting a Substantial Number of People

The Project would not introduce an odor source identified by SMAQMD that could result in an adverse odor impact. Because of the unusual character of the Project (i.e., a zoo sheltering and feeding exotic species), data acquired from the existing Sacramento Zoo has been used to characterize the potential for an adverse odor to occur from Project implementation. SMAQMD records odor complaint history for existing odor-generated sources. SMAQMD has not received an odor complaint regarding the Sacramento Zoo's operations since commencing operations. Given that the Project would entail operational activities similar to those of the Sacramento Zoo, it is foreseeable that the Project also would not receive odor complaints. This impact would be **less than significant**.

According to SMAQMD's CEQA Guide, each project that would generate odors should be evaluated to determine the likelihood that it would result in nuisance odors. SMAQMD recognizes the subjective nature of odor impacts and recommends that each project be assessed on a "case-by-case" basis, taking into consideration all available pertinent information to qualitatively determine whether a significant impact is likely to occur, such as information regarding the characteristics of the buffer zone between the sensitive receptor(s) and the odor source(s), local meteorological conditions, and the nature of the odor source. To facilitate the evaluation of odors, SMAQMD has produced a list of common types of facilities, along with the distance from the source within which odors could possibly be significant. The list provides a qualitative assessment of a project's potential to adversely affect off-site receptors. Table 3.2-10 presents the list of common facilities and the minimum distance from the source below which the odor impacts may be significant. The Project does not include any uses identified by the SMAQMD as being associated with odors; thus, the Project would not result in odors adversely affecting a substantial number of people.

Table 3.2-10 Sacramento Metropolitan Air Quality Management District Screening Levels for Potential Odors Sources

Type of Facility	Distance
Wastewater Treatment Facility	2 miles
Wastewater Pumping Facilities	1 mile
Sanitary Landfill	1 mile
Transfer Station	1 mile
Composting Facility	2 miles
Petroleum Refinery	2 miles
Asphalt Batch Plant	2 miles
Chemical Manufacturing	1 mile
Fiberglass Manufacturing	1 mile
Painting/Coating Operations	1 mile
Rending Plant	4 miles
Coffee Roaster	1 mile
Food Processing Facility	1 mile
Feed Lot/Dairy	1 mile
Green Waste and Recycling Operations	2 miles
Metal Smelting Plants	1 mile

Source: SMAQMD 2009.

However, the Project is a unique land use that may emit natural odors from animal enclosures and care facilities. This analysis uses odor data acquired from the existing Sacramento Zoo to determine whether the New Zoo would generate adverse odors. The Sacramento Zoo is bordered by the Holy Spirit Elementary School. The school provides

outdoor activities for its students, who could be subjected to unpleasant odors. Odors from current operations at the Sacramento Zoo are not detectable at the boundary between the existing Sacramento Zoo and school. At the New Zoo, two compostable animal waste and five non-compostable animal waste low boys or hoppers located on the project site. Two collector areas at the northeast and northwest portions of the site would include a 20 yard dumpster for animal waste compost and three hoppers for trash, recycling, and compost. Animal waste would be picked up every one to two days. However, SMAQMD has not received an odor complaint from zoo activities at the Sacramento Zoo since commencing operations (Carter, pers comm., 2023). The Project involves development of a New Zoo in Elk Grove that would generate odors similar to those generated at the existing Sacramento Zoo. Based on the nonexistent complaint history of the Sacramento Zoo, the Project would likely not generate odors or other emissions that would adversely affect a substantial number of people. The main source of odors at the New Zoo would be animal waste, which would be picked up and trucked off the site several times a week. Furthermore, the Project's odor emissions would be regulated by SMAQMD's Rule 402, "Nuisance." This impact would be **less than significant**.

Mitigation Measures

No mitigation is required.

3.3 BIOLOGICAL RESOURCES

This section addresses common and sensitive biological resources that could be affected by implementation of the New Zoo at Elk Grove Project (Project). Data reviewed in preparation of this analysis included:

- ▶ Results of California Natural Diversity Database (CNDDDB) record search of the Elk Grove, Carmichael, Galt, Sacramento West, Florin, Courtland, Bruceville, Sacramento East, and Clarksburg U.S. Geological Survey (USGS) 7.5-minute quadrangles (CNDDDB 2023);
- ▶ Results of California Native Plant Society (CNPS), Inventory of Rare Plants search of the Elk Grove, Carmichael, Galt, Sacramento West, Florin, Courtland, Bruceville, Sacramento East, and Clarksburg Dam USGS 7.5-minute quadrangles (CNPS 2023);
- ▶ A list of species obtained from U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) system, that are known or expected to be on or near the Project location or could be affected by projects in this location (USFWS 2023);
- ▶ Results of a biological survey conducted by Dokken Engineering (Dokken) biologists Scott Salembier and Vincent Chevreuil on January 26, 2022 (Dokken 2022);
- ▶ And aerial imagery of the Project site and region.

In addition, a biologist from Ascent Environmental conducted a reconnaissance-level survey of the Project site on July 7, 2023, to evaluate biological resource conditions.

The City of Elk Grove General Plan Update EIR (2019), 2023 City of Elk Grove General Plan Amendments and Update of Vehicle Miles Traveled Standards [VMT] Subsequent EIR (State Clearinghouse No. 2022020463), and previously prepared environmental documents that evaluated the Project site or surrounding areas were also reviewed, including:

- ▶ Southeast Policy Area Strategic Plan (adopted June 2014 – referred to as Southeast Policy Area in the General Plan) and EIR (State Clearinghouse 2013042054).
- ▶ Laguna Ridge Specific Plan (adopted June 2004 and amended December 2019 – referred to as the Laguna Ridge Policy Area in the General Plan) and EIR (State Clearinghouse 2000082139).
- ▶ Lent Ranch Marketplace Special Planning Area (various Districts approved June 2001, June 2008, December 2008, and October 2014 – referred to as the Lent Ranch Policy Area in the General Plan) and EIR (State Clearinghouse 1997122002).
- ▶ Sterling Meadows Tentative Subdivision Map (approved May 2008) and EIR (State Clearinghouse 1999122067), referred to as the SouthPoint Policy Area in the General Plan.

Comments were received from the California Department of Fish and Wildlife (CDFW), in response to the notice of preparation regarding a complete assessment of flora and fauna; assessment of direct, indirect, and cumulative impacts to biological resources; minimization and avoidance mitigation for all impacts; impacts to Swainson's hawk; identification of aquatic features on the Project site; and recommendations of a nesting bird avoidance strategy and consideration of available planting. These issues are considered below.

3.3.1 Regulatory Setting

FEDERAL

Federal Endangered Species Act

Pursuant to the federal Endangered Species Act (ESA) (16 U.S.C. Section 1531 et seq.), the U.S. Fish and Wildlife Service (USFWS) regulates the taking of species listed in the ESA as threatened or endangered. In general, persons subject to

ESA (including private parties) are prohibited from “taking” endangered or threatened fish and wildlife species on private property, and from “taking” endangered or threatened plants in areas under federal jurisdiction or in violation of state law. Under Section 9 of the ESA, the definition of “take” is to “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.” USFWS has also interpreted the definition of “harm” to include significant habitat modification that could result in take.

Section 10 of the ESA applies if a non-federal agency is the lead agency for an action that results in take and no other federal agencies are involved in permitting the action. Section 7 of the ESA applies if a federal discretionary action is required (e.g., a federal agency must issue a permit), in which case the involved federal agency consults with USFWS.

Clean Water Act

Section 404 of the Clean Water Act (CWA) (33 U.S.C. Section 1344) requires project proponents to obtain a permit from the U.S. Army Corps of Engineers (USACE) before performing any activity that involves any discharge of dredged or fill material into waters of the United States, including wetlands. Many surface waters and wetlands in California meet the criteria for waters of the United States. In accordance with Section 401 of the CWA, projects that apply for a USACE permit for discharge of dredged or fill material must obtain water quality certification from the appropriate regional water quality control board (RWQCB) indicating that the action would uphold State water quality standards.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA), first enacted in 1918, provides for protection of international migratory birds and authorizes the Secretary of the Interior to regulate the taking of migratory birds. The MBTA provides that it will be unlawful, except as permitted by regulations, to pursue, take, or kill any migratory bird, or any part, nest, or egg of any such bird. Under the MBTA, “take” is defined as “to pursue, hunt, shoot, wound, kill, trap, capture, or collect, or any attempt to carry out these activities.” A take does not include habitat destruction or alteration, as long as there is not a direct taking of birds, nests, eggs, or parts thereof. The current list of species protected by the MBTA can be found in Title 50 of the Code of Federal Regulations (CFR), Section 10.13 (50 CFR 10.13). The list includes nearly all birds native to the United States.

STATE

California Endangered Species Act

Pursuant to the California Endangered Species Act (CESA), a permit from CDFW is required for projects that could result in the “take” of a plant or animal species that is listed by the State as threatened or endangered. Under CESA, “take” is defined as an activity that would directly or indirectly kill an individual of a species but does not include “harm” or “harass,” as does the federal definition. As a result, the threshold for take is higher under CESA than under the federal ESA. Authorization for take of State-listed species can be obtained through a California Fish and Game Code Section 2081 incidental take permit.

California Fish and Game Code Sections 3503 and 3503.5—Protection of Bird Nests and Raptors

Section 3503 of the Fish and Game Code states that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird. Section 3503.5 of the California Fish and Game Code states that it is unlawful to take, possess, or destroy any raptors (i.e., species in the orders *Falconiformes* and *Strigiformes*), including their nests or eggs. Typical violations include destruction of active nests as a result of tree removal or disturbance caused by project construction or other activities that cause the adults to abandon the nest, resulting in loss of eggs and/or young.

Fully Protected Species under the California Fish and Game Code

The regulation of fully protected species is described in Sections 3511, 4700, 5050, and 5515 of the California Fish and Game Code. These statutes prohibit take or possession of fully protected species and do not provide for authorization of incidental take, except under specific conditions for the following kinds of projects:

- ▶ A maintenance, repair, or improvement project to the State Water Project, including existing infrastructure, undertaken by the Department of Water Resources.
- ▶ A maintenance, repair, or improvement project to critical regional or local water agency infrastructure.
- ▶ A transportation project, including any associated habitat connectivity and wildlife crossing project, undertaken by a State, regional, or local agency, that does not increase highway or street capacity for automobile or truck travel.
- ▶ A wind project and any appurtenant infrastructure improvement, and any associated electric transmission project carrying electric power from a facility that is located in the State to a point of junction with any California-based balancing authority.
- ▶ A solar photovoltaic project and any appurtenant infrastructure improvement, and any associated electric transmission project carrying electric power from a facility that is located in the State to a point of junction with any California-based balancing authority.

Lake and Streambed Alteration - California Fish and Game Code Section 1602

All diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake in California that supports wildlife resources are subject to regulation by CDFW under Section 1600 et seq. of the California Fish and Game Code. Under Section 1602, it is unlawful for any person to substantially divert or obstruct the natural flow or substantially change or use any material from the bed, channel, or bank of any river, stream, or lake designated by CDFW without first notifying CDFW of such activity and obtaining a final agreement authorizing such activity. The removal or treatment of vegetation from the bed or banks of lake and stream features is considered a substantial change and is regulated under Section 1602. CDFW's jurisdiction in altered or artificial waterways is based on the value of those waterways to fish and wildlife.

Porter-Cologne Water Quality Control Act

Under the Porter-Cologne Water Quality Control Act (Water Code Section 13000 et seq.), waters of the State fall under the jurisdiction of the appropriate RWQCB. RWQCBs must prepare and periodically update water quality control plans (basin plans). Each basin plan sets forth water quality standards for surface water and groundwater, as well as actions to control point and nonpoint sources of pollution to achieve and maintain these standards. The Regional Water Quality Control Boards jurisdiction includes federally protected waters, as well as areas that meet the definition of "waters of the State." "Waters of the State" is defined as any surface water or groundwater, including saline waters, within the boundaries of the State. The Regional Water Quality Control Board has the discretion to take jurisdiction over areas not federally protected under Section 401 of the CWA provided they meet the definition of waters of the State. The California Water Code generally regulates more substances contained in discharges and defines discharges to receiving waters more broadly than does the CWA. In addition, waters of the State cover a broader range of aquatic habitats than the CWA, including ephemeral streams and wetlands and isolated wetlands. Actions that affect waters of the State, including wetlands, must meet the Regional Water Quality Control Board's waste discharge requirements.

LOCAL

City of Elk Grove General Plan Policies

The City of Elk Grove General Plan Update was adopted in January 2019 and the General Plan Amendments were adopted in December 2023. The City of Elk Grove General Plan Community and Resource Protection chapter (City of Elk Grove 2019) includes policies and actions aimed at reducing development impacts on native and nonnative habitats, plants, and animals. The Community and Resource Protection element ensures careful management and protection of the City's natural heritage. The following General Plan policies are applicable to the Project:

- ▶ **Policy NR-1-2:** Preserve and enhance natural areas that serve, or may potentially serve, as habitat for special-status species. Where preservation is not possible, require that appropriate mitigation be included in the project.

- **Standard NR-1.2a:** Require a biological resources evaluation for private and public development projects in areas identified to contain or possibly contain special-status plant and animal species.
- **Standard NR-1.2b:** Require development projects to retain movement corridor(s) adequate (both in size and in habitat quality) to allow for the continued wildlife use based on the species anticipated in the corridor.
- ▶ **Policy NR-1-3:** Support the establishment of multipurpose open space areas to address a variety of needs, including but not limited to maintenance of agricultural uses, wildlife habitat, recreational open space, aesthetic benefits, and flood control. To the extent possible, lands protected in accordance with this policy should be in proximity to Elk Grove to facilitate use of these areas by Elk Grove residents, assist in mitigation of habitat loss within the City, and provide an open space resource close to the urbanized areas of Elk Grove.
- ▶ **Policy NR-1-4:** Avoid impacts to wetlands, vernal pools, marshland, and riparian (streamside) areas unless shown to be technically infeasible. Ensure that no net loss of wetland areas occurs, which may be accomplished by avoidance, revegetation, restoration onsite or through creation of riparian habitat corridors, or purchase of credits from a qualified mitigation bank.
- ▶ **Policy NR 1-5:** Recognize the value of naturally vegetated stream corridors, commensurate with flood control and public desire for open space, to assist in removal of pollutants, provide native and endangered species habitat, and provide community amenities.
- ▶ **Policy NR-1-6:** Encourage the retention of natural stream corridors, and the creation of natural stream channels where improvements to drainage capacity are required.
 - **Standard NR 1-6a:** Stream crossings shall be minimized and be aesthetically compatible with the natural appearance of the stream channel. The use of bridges and other stream crossings with natural (unpaved) bottoms shall be encouraged to minimize impacts to natural habitat.
 - **Standard NR 1-6b:** Uses in the stream corridors shall be limited to recreation and agricultural uses compatible with resource protection and flood control measures. Roads, parking, and associated fill slopes shall be located outside of the stream corridor, except at stream crossings.
 - **Standard NR 1-6c:** Open space lands within a stream corridor shall be required to be retained as open space as a condition of development approval for projects that include a stream corridor. Unencumbered maintenance access to the stream shall be provided.
 - **Standard NR 1-6d:** To the extent possible, retain natural drainage courses in all cases where preservation of natural drainage is physically feasible and consistent with the need to provide flood protection. Where a stream channel is to be created, such man-made channels shall be designed and maintained such that they attain functional and aesthetic attributes comparable to natural channels.

City of Elk Grove Municipal Code Chapter 19.12 Tree Preservation and Protection

Chapter 19.12 of the Elk Grove Municipal Code (EGMC), Tree Preservation and Protection, strives to protect and preserve trees of local importance, including coast live oak, valley oak, blue oak, interior live oak, oracle oak, California sycamore, and California black walnut with a single trunk 6 inches diameter at breast height (dbh) or greater or multiple trunks with a combined dbh of 6 inches or greater. EGMC Chapter 19.12 requires mitigation for the removal of trees of local importance with dimensions described above, trees that have been selected for preservation, all portions of adjacent off-site native trees that have driplines that extend onto a project site, and all off-site native trees that may be impacted by utility installation and/or improvements associated with a project. Current policies require that every inch lost will be mitigated by an inch planted or equivalent credit obtained from a tree mitigation bank.

City of Elk Grove Municipal Code Chapter 16.130: Swainson's Hawk Impact Mitigation Fees

EGMC Chapter 16.130 addresses impacts from typical urban development projects and requires mitigation for the loss of Swainson's hawk habitat at a 1:1 ratio or other ratio that may be approved through future revisions to Chapter 16.130. Mitigation can be achieved, if available, through purchase of City-owned credits for projects of 40 acres or

less. For projects larger than 40 acres, options for achieving mitigation through the code include the direct transfer to the City of a Swainson's hawk habitat conservation easement along with an easement monitoring endowment, the purchase of credits at a CDFW-approved conservation bank, or "other means" of mitigating significant impacts on Swainson's hawk foraging habitat deemed appropriate by the City Council. If mitigated through a conservation easement, the easement area must be surveyed to determine if it contains foraging habitat suitable for Swainson's hawk and similar in habitat quality to habitat lost.

3.3.2 Environmental Setting

The Project site is located at the northwest intersection of Kammerer Road and Lotz Parkway in the City of Elk Grove. The site falls within the U.S. Geological Survey 7.5-minute quadrangles Florin and Bruceville. The Project site is an irrigated pasture surrounded by single-family residences to the east, agriculture to the south and west, and active construction of a new residential subdivision to the north. The Project site is heavily modified from its natural habitat condition and is routinely disturbed by human activity. It is currently and has historically been used for cattle grazing from April to December, and the vegetation is mowed and bailed for hay periodically.

VEGETATION AND WILDLIFE

Based on the reconnaissance site survey conducted by Ascent biologist Tammie Beyerl on July 7, 2023, habitat within the Project site consists primarily of irrigated pasture comprised of a mixture of native and nonnative perennial grasses and forbs. Characteristic plant species observed in the irrigated pasture include rye grass (*Festuca perennis*), Kentucky blue grass (*Poa pratensis*), dallisgrass (*Paspalum dilatatum*), bird's-foot trefoil (*Lotus corniculatus*), red clover (*Trifolium pratense*), white clover (*T. repens*), and curly dock (*Rumex crispus*). There are scattered patches of Himalayan blackberry (*Rubus armeniacus*) in the southern portion of the Project site. Other shrubs are not present.

Along the fence lines on all sides of the Project site, beyond the irrigated pasture boundaries, there is a narrow strip of vegetation dominated by weedy, nonnative annual grasses and forbs including soft chess (*Bromus hordeaceus*), ripgut grass (*Bromus diandrus*), rose clover (*Trifolium hirtum*), and shortpod mustard (*Hirschfeldia incana*). The Shed C Channel, an excavated agricultural drainage channel, runs along the northern boundary of the Project site and irrigation ditches that deliver water from Shed C Channel to the pastures run along the perimeter of each pasture. Sparse cover (less than 5 percent) of nonnative hydrophytes, including tall flatsedge (*Cyperus eragrostis*), narrowleaf plantain (*Plantago lanceolata*), and dallisgrass, is sporadically present on the edges of the ditches; however, they are mostly unvegetated. Two small Chinese pistache (*Pistacia chinensis*) trees are present along the western fence line, and two larger trees, a cottonwood (*Populus* sp.) and a pine (*Pinus* sp.), are present in the southeast corner of the site where there is a dilapidated mobile home, livestock pens, and wooden frames of other structures. No other trees are present on the site and there are very few trees in the surrounding area. Small rodent burrows were found throughout the irrigated pasture and some larger, and ground squirrel-sized burrows were observed within an earthen berm that parallels the south side of the Shed C Channel. Vegetation on the earthen berm is dominated by dense cover of blessed milkthistle (*Silybum marianum*), but there are barren areas on the berm as well.

Irrigated pastures tend to support large rodent populations and therefore provide good foraging habitat for Swainson's hawk (*Buteo swainsoni*), white-tailed kite (*Elanus leucurus*), northern harrier (*Circus cyaneus*), and more common raptors, such as great horned owl (*Bubo virginianus*) and red-tailed hawk (*Buteo jamaicensis*). Small rodent burrows were found throughout the irrigated pastures and ground squirrel burrows were observed within an earthen berm that parallels the south side of the Shed C Channel. During a 2022 biological survey by Dokken Engineering, burrowing owl (*Athene cunicularia*) and white-tailed kite were observed within the Project site (Dokken 2022). Additional wildlife species observed during the 2022 Dokken surveys and the 2023 Ascent biological reconnaissance survey include, American crow (*Corvus brachyrhynchos*), Say's phoebe (*Sayornis saya*), black phoebe (*Sayornis nigricans*), northern mockingbird (*Mimus polyglottos*), mourning dove (*Zenaida macroura*), American kestrel (*Falco sparverius*), killdeer (*Charadrius vociferus*), Lincoln's sparrow (*Melospiza lincolni*), and ground squirrel (*Otospermophilus beecheyi*), all of which are common species to the Elk Grove area. In general, irrigated pastures, especially those surrounded by suburban development, like the Project site, do not provide high-quality habitat for

most wildlife species because of an overall lack of native vegetation and natural communities, and a high level of noise and visual disturbance from human activities (e.g., traffic, anthropomorphic noise and light pollution). Additionally, the irrigated pasture is periodically mowed for hay.

SENSITIVE BIOLOGICAL RESOURCES

Special-Status Species

Special-status species are defined as species that are legally protected or that are otherwise considered sensitive by federal, State, or local resource agencies. Special-status species are species, subspecies, or varieties that fall into one or more of the following categories, regardless of their legal or protection status:

- ▶ officially listed by California or the federal government as endangered, threatened, or rare;
- ▶ a candidate for State or federal listing as endangered, threatened, or rare;
- ▶ taxa (i.e., taxonomic category or group) that meet the criteria for listing, even if not currently included on any list, as described in California Code of Regulations (CCR) Section 15380 of the State CEQA Guidelines;
- ▶ species identified by CDFW as Species of Special Concern;
- ▶ species listed as Fully Protected under the California Fish and Game Code;
- ▶ species afforded protection under local planning documents; and
- ▶ taxa considered by the CDFW to be “rare, threatened, or endangered in California” and assigned a California Rare Plant Rank (CRPR) of 1 or 2, defined as follows:
 - CRPR 1A - Plants presumed to be extinct in California;
 - CRPR 1B - Plants that are rare, threatened, or endangered in California and elsewhere;
 - CRPR 2A– Plants presumed to be extinct in California, but more common elsewhere;
 - CRPR 2B - Plants that are rare, threatened, or endangered in California but more common elsewhere;

The term “California species of special concern” is applied by CDFW to animals not listed under ESA or CESA, but that are considered to be declining at a rate that could result in listing, or that historically occurred in low numbers and known threats to their persistence currently exist. CDFW’s fully protected status was California’s first attempt to identify and protect animals that were rare or facing extinction. Most species listed as fully protected were eventually listed as threatened or endangered under CESA. However, some species remain listed as fully protected but do not have simultaneous listing under CESA. Fully protected species may not be taken or possessed at any time and no take permits can be issued for these species except for scientific research purposes or for relocation to protect livestock.

Table 3.3-1 provides a list of special-status species with potential to occur in the Project vicinity. The list was developed through a review of biological studies previously conducted in the area, as listed at the beginning of this Biological Resources section, and observations made during the July 7, 2023, site surveys. CDFW’s CNDDDB (CNDDDB 2023), a statewide inventory of the locations and conditions of the State’s rarest plant and animal taxa and vegetation types, was reviewed for specific information on documented observations of special-status species previously recorded in the Project vicinity. A nine-quad search radius around the Project site was used to identify potential special-status species. The CNDDDB is a positive sighting database consisting of observation data voluntarily provided to CNDDDB. Lack of occurrence data at a particular location is not evidence of species absence and CNDDDB does not constitute an exhaustive inventory of every resource.

The species list in Table 3.3-1 includes special-status wildlife species with both scientific and common names, legal status, description of habitat preference, and the potential for the species to occur on the Project site. No special-status plant species are included because there are no native vegetation communities or habitat types suitable for special-status plant species on the Project site. Most of the special-status species identified in Table 3.3-1 have little or no potential for occurrence because the habitat elements they require either were never present or are no longer

found on the site. Special-status wildlife species that could occur on or adjacent to the Project site are evaluated in this EIR and discussed in further detail below.

Table 3.3-1 Special-Status Wildlife Species Known or Expected to Occur in the Vicinity of the Project Area and Their Potential for Occurrence in the Project Area

Species ¹	Listing Status ^{2F} ederal	Listing Status ² State	Habitat	Potential for Occurrence ³
Amphibians and Reptiles				
California tiger salamander - central California DPS <i>Ambystoma californiense</i> pop. 1	FT	ST	Lives in vacant or mammal-occupied burrows throughout most of the year; in grassland, savanna, or open woodland habitats. Need underground refuges, especially ground squirrel burrows, and vernal pools or other seasonal water sources for breeding.	Not expected to occur. The Project site does not contain vernal pool or seasonal wetland habitat suitable for this species.
Giant Gartersnake <i>Thamnophis gigas</i>	FT	ST	Marsh, swamp, riparian scrub, and wetlands. Prefers freshwater marsh and low gradient streams. Has adapted to drainage canals and irrigation ditches. This is the most aquatic of the garter snakes in California.	Not expected to occur. Irrigation canals on the Project site lack riparian and emergent vegetation and consistency of flowing water during the snake's active season. Therefore, habitat conditions are not suitable for this species. Aside from the Shed C Channel, the irrigation ditches are too narrow and shallow to support a sufficient prey base for giant garter snake and lack vegetation or other refugia. Further, the irrigation ditches are routinely filled, dredged and recontoured. Additionally, there has been a lack of species observations in the Elk Grove area over the past 20 years and on-site ditches do not have a hydrological connection to waterways that are known to support this species.
Western pond turtle <i>Emys marmorata</i>	—	SSC	Ponds, marshes, rivers, streams, and irrigation ditches, usually with aquatic vegetation, below 6,000-foot elevation. Needs basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.5 kilometer from water for egg-laying.	Not expected to occur. The irrigation ditches and Shed C Channel on the Project site do not contain basking sites or aquatic vegetation suitable for this species.
Western spadefoot <i>Spea hammondi</i>	—	SSC	Cismontane woodland, coastal scrub, valley and foothill grassland, vernal pool, and wetlands. Occurs primarily in grassland habitats but can be found in valley-foothill hardwood woodlands. Vernal pools are essential for breeding and egg-laying.	Not expected to occur. The Project site does not contain vernal pool or wetland habitat suitable for this species and there is no aquatic breeding habitat suitable for this species in proximity to the Project site.

Species ¹	Listing Status ^{2F} ederal	Listing Status ² State	Habitat	Potential for Occurrence ³
Birds				
Bank swallow <i>Riparia riparia</i>	—	ST	Riparian scrub, riparian woodland. Colonial nester; nests primarily in riparian and other lowland habitats west of the desert. Requires vertical banks/cliffs with fine-textured/sandy soils near streams, rivers, lakes, ocean to dig nesting hole.	Not expected to occur. The Project site does not contain riparian habitat and vertical cliffs suitable for this species.
Burrowing owl <i>Athene cunicularia</i>	—	SSC	Nests and forages in grasslands, agricultural lands, open shrublands, and open woodlands with existing ground squirrel burrows or friable soils. Suitable burrow sites consist of short, herbaceous vegetation with only sparse cover of shrubs or taller herbs (Schuford and Gardali 2008: 221)	Known to occur. Open habitat with low-growing vegetation suitable for this species is present in the Project area. Burrowing owl was observed on the Project site during a 2022 biological survey (Dokken 2022).
California black rail <i>Laterallus jamaicensis coturniculus</i>	—	ST; FP	Inhabits freshwater marshes, wet meadows and shallow margins of saltwater marshes bordering larger bays. Needs water depths of about 1 inch that do not fluctuate during the year and dense vegetation for nesting habitat.	Not expected to occur. The Project site does not contain marsh or wetland habitat suitable for this species.
Tricolored blackbird <i>Agelaius tricolor</i>	—	ST; SSC	Highly colonial species, most numerous in Central Valley and vicinity. Largely endemic to California. Requires open water, protected nesting substrate, and foraging area with insect prey within a few kilometers of the colony.	May occur. Blackberry thickets on the Project site may provide marginally suitable nesting habitat for this species, and grassland habitats support insect populations for foraging.
Golden eagle <i>Aquila chrysaetos</i>	—	FP	Broadleaved upland forest, cismontane woodland, coastal prairie, Great Basin grassland, Great Basin scrub, lower montane coniferous forest, pinyon and juniper woodlands, upper montane coniferous forest, and valley and foothill grassland. Rolling foothills, mountain areas, sage-juniper flats, and desert. Cliff-walled canyons provide nesting habitat in most parts of range; also, large trees in open areas.	Not expected to occur. The Project site does not contain mountain or cliff habitat suitable for this species.

Species ¹	Listing Status ^{2F} ederal	Listing Status ² State	Habitat	Potential for Occurrence ³
Greater sandhill crane <i>Grus canadensis tabida</i>		ST, FP	Annual and perennial grassland habitats, moist croplands with rice or corn stubble, and open, emergent wetlands. Typically nests in mounds of wetland plants or hummocks in remote portions of extensive wetlands.	May occur. The irrigated pasture on the Project site provides winter foraging habitat for this species. Sandhill cranes are known to winter in the area between Elk Grove and Galt.
Lesser sandhill crane <i>Grus canadensis canadensis</i>		SSC	Annual and perennial grassland habitats, moist croplands with rice or corn stubble, and open, emergent wetlands.	May occur. The irrigated pasture on the Project site provides winter foraging habitat for this species. Sandhill cranes are known to winter in the area between Elk Grove and Galt.
Least Bell's vireo <i>Vireo bellii pusillus</i>	FE	SE	Riparian forest, riparian scrub, riparian woodland. Summer resident of southern California in low riparian in vicinity of water or in dry river bottoms; below 2,000 feet. Nests placed along margins of bushes or on twigs projecting into pathways, usually willow, coyote brush, mesquite.	Not expected to occur. The Project site does not contain riparian habitat suitable for this species.
Loggerhead shrike <i>Lanius ludovicianus</i>		SSC	Forages in grasslands and agricultural fields, and nests in scattered shrubs and trees.	May occur. Blackberry shrubs and small shrubs on the Project site provide suitable nesting habitat for this species.
Northern harrier <i>Circus cyaneus</i>		SSC	Uses a variety of open grassland, wetland, and agricultural habitats. Breeding habitats include marshy meadows, wet and lightly grazed pastures, and freshwater and brackish marshes; and dry upland habitats, such as grassland, cropland, drained marshland, and shrub-steppe in cold deserts. Nests on the ground within patches of dense, often tall, vegetation in undisturbed areas.	May occur. The irrigated pasture on the Project site provides foraging habitat for this species, and they could nest in herbaceous vegetation in portions of the Project site.
Purple martin <i>Progne subis</i>	—	SSC	Broadleaved upland forest, lower montane coniferous forest. Inhabits woodlands, low elevation coniferous forest of Douglas fir, ponderosa pine, and Monterey pine. Nests in old woodpecker cavities mostly, also in human-made structures. Nest often located in tall, isolated tree/snag.	Not expected to occur. The Project site does not contain coniferous forest or woodland habitat or human-made structures suitable for nesting by this species.

Species ¹	Listing Status ^{2F} ederal	Listing Status ² State	Habitat	Potential for Occurrence ³
Song sparrow ("Modesto" population) <i>Melospiza melodia</i> pop. 1	—	SSC	Nests and forages primarily in emergent marsh, riparian scrub, and early successional riparian forest habitats in the north-central portion of the Central Valley; infrequently in mature riparian forest and sparsely vegetated ditches and levees. Forages primarily on exposed ground or in leaf litter.	Not expected to occur. The Project site does not contain riparian or emergent marsh habitat suitable for this species.
Swainson's hawk <i>Buteo swainsoni</i>	—	ST	Forages in grasslands and agricultural lands; nests in riparian and isolated trees. Requires adjacent suitable foraging areas such as grasslands, or alfalfa or grain fields supporting rodent populations.	May occur. The irrigated pasture on the Project site provides foraging habitat for this species, and power poles in the area may provide opportunity for perching. There are no nesting substrates suitable for this species on the Project site, but many known nest sites are documented within 1 mile of the Project site (CNDDDB 2023).
Western yellow-billed cuckoo <i>Coccyzus americanus occidentalis</i>	FT	SE	Riparian forest nester, along the broad, lower flood-bottoms of larger river systems. Nests in riparian jungles of willow, often mixed with cottonwoods, with lower story of blackberry, nettles, or wild grape.	Not expected to occur. The Project site does not contain riparian habitat or river systems suitable for this species.
White-tailed kite <i>Elanus leucurus</i>	—	FP	Forages in grasslands and agricultural fields; nests in riparian zones, oak woodlands, and isolated trees.	Known to occur. The Project site contains open grassland habitat suitable for this species and nearby trees provide suitable nesting habitat. Additionally, white-tailed kite was observed foraging on the Project site during a 2022 biological survey (Dokken 2022).
Yellow-headed blackbird <i>Xanthocephalus xanthocephalus</i>	—	SSC	Marsh and swamp, wetland. Nests in freshwater emergent wetlands with dense vegetation and deep water. Often along borders of lakes or ponds. Nests only where large insects such as Odonata are abundant, nesting timed with maximum emergence of aquatic insects.	Not expected to occur. The Project site does not contain marsh or wetland habitat suitable for this species.
Fish				
Chinook salmon - Central Valley spring-run ESU <i>Oncorhynchus tshawytscha</i> pop. 11	FT	ST	Adult numbers depend on pool depth and volume, amount of cover, and proximity to gravel. Water temps greater than 27 Celsius are lethal to adults. Federal listing refers to populations spawning in Sacramento River and tributaries.	Not expected to occur. Irrigation canals on the Project site lack aquatic vegetation, gravel beds, or other habitat features suitable for this species.

Species ¹	Listing Status ^{2F} ederal	Listing Status ² State	Habitat	Potential for Occurrence ³
Chinook salmon - Sacramento River winter-run ESU <i>Oncorhynchus tshawytscha</i> pop. 7	FE	SE	Sacramento/San Joaquin flowing waters. Sacramento River below Keswick Dam. Spawns in the Sacramento River, but not in tributary streams. Requires clean, cold water over gravel beds with water temperatures between 6 and 14 Celsius for spawning.	Not expected to occur. Irrigation canals on the Project site lack aquatic vegetation, gravel beds, or other habitat features suitable for this species.
Delta smelt <i>Hypomesus transpacificus</i>	FT	SE	Estuary. Sacramento-San Joaquin Delta. Seasonally in Suisun Bay, Carquinez Strait and San Pablo Bay. Seldom found at salinities greater than 10 parts per trillion. Most often at salinities less than 2 parts per trillion.	Not expected to occur. Irrigation canals on the Project site lack aquatic vegetation, gravel beds, or other habitat features suitable for this species.
Green sturgeon - southern DPS <i>Acipenser medirostris</i> pop. 1	FT	—	Aquatic, estuary, marine bay, Sacramento/San Joaquin flowing waters Spawning site fidelity. Spawns in the Sacramento, Feather and Yuba Rivers. Presence in upper Stanislaus and San Joaquin Rivers may indicate spawning. Non-spawning adults occupy marine/estuarine waters. Delta Estuary is important for rearing juveniles. Spawning occurs primarily in cool (11–15 Celsius) sections of mainstem rivers in deep pools (25–30 feet) with substrate containing small to medium sized sand, gravel, cobble, or boulder.	Not expected to occur. Irrigation canals on the Project site lack aquatic vegetation, gravel beds, or other habitat features suitable for this species.
Longfin smelt <i>Spirinchus thaleichthys</i>	FC	ST; SSC	Estuary. Euryhaline, nektonic and anadromous. Found in open waters of estuaries, mostly in middle or bottom of water column. Prefer salinities of 15-30 parts per trillion, but can be found in completely freshwater to almost pure seawater.	Not expected to occur. Irrigation canals on the Project site lack aquatic vegetation, gravel beds, or other habitat features suitable for this species.
Sacramento perch <i>Archoplites interruptus</i>	—	SSC	Sacramento/San Joaquin flowing or standing waters. Historically found in the sloughs, slow-moving rivers, and lakes of the Central Valley. Prefers warm water. Aquatic vegetation is essential for young. Tolerates wide range of physio-chemical water conditions.	Not expected to occur. Irrigation canals on the Project site lack aquatic vegetation, gravel beds, or other habitat features suitable for this species.

Species ¹	Listing Status ^{2F} ederal	Listing Status ² State	Habitat	Potential for Occurrence ³
Sacramento splittail <i>Pogonichthys macrolepidotus</i>	—	SSC	Estuary, freshwater marsh, Sacramento/San Joaquin flowing waters. Endemic to the lakes and rivers of the Central Valley, but now confined to the Delta, Suisun Bay and associated marshes. Slow moving river sections, dead end sloughs. Requires flooded vegetation for spawning and foraging for young.	Not expected to occur. Irrigation canals on the Project site lack aquatic vegetation, gravel beds, or other habitat features suitable for this species.
Steelhead - Central Valley DPS <i>Oncorhynchus mykiss irideus</i> pop. 11	FT	—	Sacramento/San Joaquin flowing waters. Populations in the Sacramento and San Joaquin rivers and their tributaries.	Not expected to occur. Irrigation canals on the Project site lack aquatic vegetation, gravel beds, or other habitat features suitable for this species.
Invertebrates				
Crotch bumble bee <i>Bombus crotchii</i>	—	SC	Found primarily in California: Mediterranean, Pacific coast, western desert, Great Valley, and adjacent foothills through most of southwestern California. Habitat includes open grassland and scrub. Nests underground. Bumble bees have three basic habitat requirements: suitable nesting sites for the colonies, availability of nectar and pollen from floral resources throughout the duration of the colony period (spring, summer, and fall), and suitable overwintering sites for the queen.	Not expected to occur. The Project site consists of irrigated pasture, which provides potentially suitable habitat for this species in spring and summer when floral resources are present. Cattle grazing reduces available nectar and pollen sources, and the vegetation is typically harvested for hay by end of summer. Therefore, the site does not contain adequate nectar sources to support this species throughout the colony season. Additionally, while the Project site is within this species' historic range, crotch bumble bee has recently undergone a dramatic decline in abundance and distribution and is no longer present across much of its historic range (Xerces Society 2018), especially within the Central Valley.
Valley elderberry longhorn beetle <i>Desmocerus californicus dimorphus</i>	FT	—	Riparian scrub. Occurs only in the Central Valley of California, in association with blue elderberry (<i>Sambucus mexicana</i>). Prefers to lay eggs in elderberry stems 2-8 inches in diameter; some preference shown for "stressed" elderberry shrubs.	Not expected to occur. The Project site does not contain blue elderberry shrub habitat suitable for this species.
Vernal pool fairy shrimp <i>Branchinecta lynchi</i>	FT	—	Valley and foothill grassland, vernal pool, wetland. Endemic to the grasslands of the Central Valley, Central Coast mountains, and South Coast mountains, in astatic rain-filled pools. Inhabit small, clear-water sandstone-depression pools and grassed swale, earth slump, or basalt-flow depression pools.	Not expected to occur. The Project site does not contain vernal pool habitat suitable for this species.

Species ¹	Listing Status ^{2F} ederal	Listing Status ² State	Habitat	Potential for Occurrence ³
Vernal pool tadpole shrimp <i>Lepidurus packardii</i>	FE	—	Valley and foothill grassland, vernal pool, wetland. Inhabits vernal pools and swales in the Sacramento Valley containing clear to highly turbid water. Pools commonly found in grass bottomed swales of unplowed grasslands. Some pools are mud-bottomed and highly turbid.	Not expected to occur. The Project site does not contain vernal pool habitat suitable for this species.
Mammals				
Western red bat <i>Lasiurus blossevilli</i>	-	SSC	Roosts primarily in trees with dense canopies, often in edge habitats adjacent to streams or open fields, and orchards in the Central Valley; strongly associated with intact mature riparian forest.	Not expected to occur. The Project site does not contain riparian trees or orchards suitable for this species.
American badger <i>Taxidea taxus</i>	—	SSC	Alkali marsh, alkali playa, alpine, alpine dwarf scrub, bog and fen, brackish marsh, broadleaved upland forest, chaparral, chenopod scrub, cismontane woodland, closed-cone coniferous forest, coastal bluff scrub, coastal dunes, coastal prairie. Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Needs sufficient food, friable soils and open, uncultivated ground. Preys on burrowing rodents. Digs burrows.	Not expected to occur. The Project site does not contain shrub, grassland, or forest habitat suitable for this species. American badger is not known to use agricultural lands.

1 As determined in the *California Building Industry Association v. Bay Area Air Quality Management District* an EIR is not required to evaluate the Project's impacts on its future residents (i.e., endangered or threatened species that would be housed at the New Zoo).

2 Legal Status Definitions

Federal:

FE Federally Listed as Endangered (legally protected)

FT Federally Listed as Threatened (legally protected)

State:

SSC Species of Special Concern (no formal protection other than CEQA consideration)

SE State Listed as Endangered (legally protected)

ST State Listed as Threatened (legally protected)

FP Fully Protected (legally protected)

3 Potential for Occurrence Definitions

Not expected to occur: Species is unlikely to be present because of poor habitat quality, lack of suitable habitat features, or restricted current distribution of the species.

May occur: Suitable habitat is available; however, there are little to no other indicators that the species might be present.

Known to occur: Species has been documented within the treatment site.

Sources: CNDDDB 2023; Dokken 2022; USFWS 2023; Schuford and Gardali 2008; Xerces Society 2018.

US Fish and Wildlife Service: Birds of Conservation Concern

The USFWS's Birds of Conservation Concern 2021 list identifies migratory and non-migratory bird species that represent the agencies highest conservation priority besides those bird species that designated as threatened or endangered under the federal ESA. Twelve Birds of Conservation Concern were identified as potentially occurring in the project vicinity from a review of the USFWS IPaC report and they are: bald eagle, Belding's savannah sparrow,

Bullock's oriole, California gull, common yellowthroat, Nuttall's woodpecker, oak titmouse, short billed dowitcher, tricolored blackbird, western grebe, wrenit, and yellow-billed magpie. All these birds, are protected by California Fish and Game Code or the Migratory Bird Treaty Act described in the Regulatory Setting section above. The Belding's savannah sparrow is a subspecies of the protected Savannah sparrow, neither of which are expected to occur at the Project site. Bald eagle and golden eagle have additional protection under the Bald and Golden Eagle Protection Act of 1940 and golden eagle is a California fully protected species included in Table 3.3-1. Bald eagle is unlikely to occur on or near the Project site due to the lack of suitable nesting habitat. Tricolored blackbird is listed as threatened under CESA and is include in Table 3.3-1. Oak titmouse, wrenit, and yellow-billed magpie are not likely to occur in the Project site because their specific habitat requirements are not met onsite. The Project site is out of range, or out of range for migration/breeding seasons of the remaining bird species of conservation concern.

Riparian Habitat and Sensitive Natural Communities

Sensitive natural communities are those native plant communities defined by CDFW as having limited distribution statewide or within a county or region and that are often vulnerable to environmental effects of projects (CDFW 2018). These communities may or may not contain special-status plants or their habitat (CDFW 2018). CDFW designates sensitive natural communities based on their State rarity and threat ranking using NatureServe's Heritage Methodology. Natural communities with rarity ranks of S1 to S3, where S1 is critically imperiled, S2 is imperiled, and S3 is vulnerable, are considered sensitive natural communities to be addressed in the environmental review processes of CEQA and its equivalents (CDFW 2018). Lakes, streams, and associated riparian habitat are protected under California Fish and Game Code Section 1602 regardless of whether or not the riparian vegetation alliance is a designated sensitive natural community. There are no riparian habitats or vegetation alliances designated as sensitive natural communities on the Project site.

State and Federally Protected Wetlands

The Environmental Protection Agency (EPA) and USACE define wetlands as "Those areas that are saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas." Wetlands must typically exhibit three parameters: (1) wetland hydrology, (2) hydrophytic vegetation, and 3) hydric soils, to meet the federal definition of a wetland. Pursuant to the Revised Definition of Waters of the United States issued by USACE and the U.S. Environmental Protection Agency on August 29, 2023, wetlands are not waters of the United States unless they have a continuous surface connection to other waters of the United States (e.g., traditional navigable waters, waters used in interstate or foreign commerce, territorial seas, interstate waters).

The State Water Resources Control Board has adopted the following definition of wetlands: "An area is wetland if, under normal circumstances, (1) the area has continuous or recurrent saturation of the upper substrate caused by groundwater or shallow surface water or both; (2) the duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and (3) the area's vegetation is dominated by hydrophytes or the area lacks vegetation."

Aquatic resources on the Project site consist of the Shed C Channel, an agricultural drainage channel, and smaller irrigation ditches used to water the on-site pastures. None of these features meet either the federal or State definition of wetlands. Irrigation ditches excavated in and draining only uplands that do not flow relatively permanently are exempt from regulation under the Clean Water Act and Porter-Cologne Act.

In 2014, a Storm Water Drainage Master Plan was prepared and approved for the Project site and surrounding development area (City of Elk Grove 2014). This plan calls for improvements to the Shed C watershed to provide for flood control, stormwater quality treatment, and mitigation for changes in hydrology as the Southeast Plan Area, including the Project site, develops. The existing Shed C Channel is an agricultural drainage ditch that was created through extensive modification of historic seasonal drainage channels. The current channel alignment is straight with steep, uniform side slopes and is maintained free of vegetation. The Storm Water Drainage Master Plan includes replacing the existing Shed C Channel with a multifunctional drainage corridor with a stable low-flow channel and meanders within a larger floodway corridor that will provide flood conveyance as well as wetland habitat (City of Elk Grove 2014). The Shed C Channel improvements were already approved and are currently under construction to the

north of the Project with permits and approvals secured. The Project requires changes to the permits to move the water retention basin to serve the Project site. The new location would require an amendment to the SouthEast Policy Area Shed C permit for the revised basin location. The environmental impacts of ground disturbance and general development of the new basin location site were addressed in the SouthEast Area Policy EIR (State Clearinghouse 2013042054). Movement and amending the basin permit would occur as part of ongoing refinements to the Storm Water Drainage Master Plan and would be covered through modification to existing State and federal permits. Therefore, there are no State or federally protected wetlands on the Project site and no impacts to waters of the State or waters of the United States from the Project.

3.3.3 Impacts and Mitigation Measures

METHODOLOGY

This impact evaluation is based on data collected during a reconnaissance-level field survey conducted on July 7, 2023, review of aerial imagery, and information from several previously completed documents that address biological resources in the Project vicinity, as well as species lists and records obtained from the CNDDDB and IPaC.

THRESHOLDS OF SIGNIFICANCE

An impact on biological resources would be significant if implementation of the Project would:

- ▶ have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW or USFWS;
- ▶ have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by CDFW or USFWS;
- ▶ have a substantial adverse effect on State or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;
- ▶ interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
- ▶ conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or
- ▶ conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan.

ISSUES NOT DISCUSSED FURTHER

Special-Status Plants

The Project site does not contain habitat suitable for special-status plant species; therefore, Project implementation would not result in any impact on special-status plants. This issue is not discussed further.

Riparian Habitat or Other Sensitive Natural Communities

No sensitive natural communities and no riparian habitat are located in or immediately adjacent to the Project site or off-site improvement areas. Therefore, Project implementation would not result in any impact on these resources. This issue is not discussed further.

State or Federally Protected Wetlands

The Project site does not contain aquatic resources that meet the State or federal definition of a wetland or other water. Therefore, no impact on such resources would occur. This issue is not discussed further.

Wildlife Movement Corridors or Nurseries

According to the California Essential Habitat Connectivity Project, the Project site is not located in a Natural Landscape Block or Essential Habitat Connectivity Area (Spencer et al. 2010; CDFW 2023), because the site does not provide an important connection between any areas of natural habitat that would be isolated if the connection were lost. Although wildlife may use the Project site for nesting and roosting or may pass through the site occasionally, there is no evidence that the site functions as a significant wildlife movement corridor or wildlife nursery site, because the site and the area surrounding it lack natural habitat. Therefore, implementing the Project would not interfere substantially with the movement of any native resident or migratory wildlife species, and no impact would occur. This issue is not discussed further.

Consistency with Habitat Conservation Plans

The Project site is not within the plan area of any adopted Habitat Conservation Plan or Natural Community Conservation Plan; therefore, no impact regarding consistency with such plans would occur. This issue is not discussed further.

Consistency with Local Policies or Ordinances

The Project site does not contain trees protected under Chapter 19.12 of the EGMC, Tree Preservation and Protection (See Section 3.3.1, "Regulatory Setting"). The Project has been designed for consistency with Elk Grove General Plan policies relevant to biological resources; therefore, no impact would occur. This issue is not discussed further.

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Impact 3.3-1: Result in Disturbance to or Loss of Special-Status Wildlife Species and Habitat

Project implementation would include development activities, such as ground disturbance and construction of new buildings, that could result in disturbance to several special-status bird species if they are present. Implementing the Project may result in injury, mortality, reduced breeding productivity, and loss of species habitat for special-status birds. Implementation of Mitigation Measures 3.3-1a through 3.3-1c would reduce the significant impact on Swainson's hawk, white-tailed kite, other raptors, tricolored blackbird, loggerhead shrike, common native nesting birds, burrowing owl, greater sandhill crane, and lesser sandhill crane related to construction and off-site improvement activities because it would require preconstruction surveys and implementation of avoidance measures (e.g., no-disturbance buffers) to prevent injury or mortality, disturbance, and nest abandonment if active nests are determined to be present on or near the Project site or in off-site improvement areas. These mitigation measures would reduce the impacts to a **less-than-significant** level.

Several special-status bird species have potential to occur on or immediately adjacent to the Project site and could be affected by Project construction activities. As shown in Table 3.3-1 the following special-status species may occur on or around the Project site: burrowing owl, Swainson's hawk, white-tailed kite, northern harrier, tricolored blackbird, loggerhead shrike, greater sandhill crane, and lesser sandhill crane. In addition, common native birds and raptor species that do not meet the definition of special-status species but are protected by the California Fish and Game Code and the federal MBTA may also nest on or near the Project site. Project activities (e.g., vegetation clearing, ground disturbance, staging, heavy equipment use, building construction) may result in direct loss of special-status or otherwise protected wildlife species, loss of habitat, loss of or disturbance to nests, or disturbance leading to abandonment of active nests.

Burrowing Owl

Open pastureland and areas with burrowing mammals on the Project site may provide habitat suitable for burrowing owls. A burrowing owl observed on-site during a biological survey in 2022 has the potential to occupy the site during Project construction. Burrowing owls need burrows at all times to survive, and displacing individuals from their burrows can result in indirect impacts, such as predation, increased energy demands, increased stress, and risks associated with having to find and compete for burrows, all of which can lead to take or reduced reproduction.

Project activities (e.g., ground disturbance, staging, heavy equipment use) may result in direct loss of burrowing owls or active burrows if they are present on the Project site at the time of construction. Implementation of Mitigation Measure 3.3-1a (which is based on adopted Mitigation Measure 3.11-5 from the General Plan Amendments and Update of VMT Standards Subsequent EIR) would reduce the significant impact on burrowing owl related to construction activities because it would require focused preconstruction surveys, implementation of avoidance measures (e.g., protection buffers), consultation with CDFW, and implementation of mitigation for loss of occupied habitat. Implementation of Mitigation Measure 3.3-1a would reduce this impact to **less than significant**.

Swainson's Hawk, White-Tailed Kite, Northern Harrier, Tricolored Blackbird, Loggerhead Shrike, and Other Nesting Birds

Swainson's hawks most commonly occur in grasslands, low shrublands, and agricultural habitats that include large trees for nesting. Although the most important foraging habitat for Swainson's hawks lies within a 1-mile radius of each active nest (City of Sacramento et al. 2003), Swainson's hawks have been recorded foraging up to 18.6 miles from nest sites (Estep 1989). Any habitat within the foraging distance may provide food at some time in the breeding season that is necessary for reproductive success. Nests are found in riparian woodlands, roadside trees, trees along field borders, and isolated trees. Prey abundance and accessibility are the most important features determining the suitability of Swainson's hawk foraging habitat. Swainson's hawks feed primarily on small rodents but also consume insects and birds. Irrigated pastures such as those on the Project site support rodents and therefore provide suitable foraging habitat for Swainson's hawks. Although no trees suitable for Swainson's hawk nests are located on the Project site, trees that provide potentially suitable nest sites for this species are located within 0.05 mile of the Project site and could be disturbed by Project construction activities, resulting in nest abandonment and death of dependent young.

White-tailed kites commonly forage in grassland and agricultural habitats, including irrigated pastures like those on the Project site, and a white-tailed kite was observed foraging on the Project site during surveys conducted by Dokken Engineering in 2022. White-tailed kites are sensitive to human disturbance and construction activities, and it is necessary to ensure that nesting individuals are not present in the vicinity of construction sites. Although no trees suitable for white-tailed kite nests are located on the Project site, trees that provide potentially suitable nest sites for this species are located within 1,000 feet of the Project site and could be disturbed by Project construction activities.

Tricolored blackbirds nest in large colonies and may forage up to approximately 3 miles from nest sites. However, they mainly forage within 1 to 1.5 miles of an active nest colony. Tricolored blackbirds are known to nest in blackberry thickets, which can be found on the Project site. Loggerhead shrike could nest in any of the small trees on the Project site or in the blackberry thickets.

Northern harrier, Cooper's hawk, ferruginous hawk, red-tailed hawk, and great horned owl are other raptor species known to occur in this portion of the City of Elk Grove that could nest on or near the Project site. Northern harrier could potentially nest on the ground in the Project site's irrigated pasture vegetation.

Loss of common migratory birds and raptors (those not meeting the definition of special-status species provided in Section 3.3.1) are protected under California Fish and Game Code Section 3503 and the MBTA. Common migratory birds could nest on the ground, in the blackberry thickets, or in trees on or near the Project site.

If ground-disturbing activities occur during the nesting bird season (generally February 1 through August 31), Project construction could result in direct and indirect impacts on special-status and other nesting birds, including the loss of nests, eggs, and young through direct removal of nesting substrates or visual or noise disturbances that cause adults to abandon nests and young. Construction activities, such as grading, vegetation removal, and other activities that result in an increase in human activity (including noise), during the nesting season may result in disturbance or abandonment of nests of special-status bird species, which could result in mortality of eggs and young and reduced reproductive success.

Implementation of Mitigation Measure 3.3-1b (which is based on adopted Mitigation Measure 3.11-6 and 3.11-7 from the General Plan Amendments and Update of VMT Standards Subsequent EIR) would reduce significant Project-related impacts on Swainson's hawk and other nesting birds because it would require preconstruction surveys for nesting birds and nesting raptors before the start of construction during the nesting bird season, establishment of

avoidance buffers, and monitoring of active nests. These requirements would ensure that nesting bird and raptor species, including Swainson's hawk and white-tailed kite, are not disturbed during nesting, and Project construction would not result in nest abandonment and loss of eggs or young if nests are detected. Mitigation Measure 3.3-1c (which is based on adopted Mitigation Measure 3.11-8 from the General Plan Amendments and Update of VMT Standards Subsequent EIR) would address the potential loss of Swainson's hawk foraging habitat, and foraging habitat for other raptors such as white-tailed kite, by requiring acquisition and maintenance of foraging habitat for Swainson's hawk. These mitigation measures would reduce this impact to a **less-than-significant** level.

Sandhill Crane

Greater sandhill crane and lesser sandhill crane may occasionally use the irrigated pasture habitat on the Project site for foraging or loafing (i.e., behaviors not connected with breeding or feeding, such as resting or preening). However, the habitat on the Project site is marginal because of its patchy nature and relatively high level of disturbance from surrounding urban and suburban development. Sandhill crane species are known to occur in large numbers within Stone Lakes National Wildlife Refuge, located west of the Project site, and Cosumnes River Preserve, located south of the Project site, where large areas of habitat suitable for the species (e.g., marsh, grassland) are present. Sandhill cranes wintering in the area make daily flights between their nighttime roost sites at Stone Lakes and Cosumnes River Preserve to forage in open grasslands, pastures, and grain fields throughout the Elk Grove area during the day. Construction activities and land conversion within the irrigated pasture on the Project site would not result in a substantial reduction in high-quality suitable habitat for sandhill cranes in the region. Therefore, the impact on greater sandhill crane and lesser sandhill crane would be **less than significant**.

Mitigation Measures

Mitigation Measure 3.3-1a: Conduct Take Avoidance Survey for Burrowing Owl, Implement Avoidance Measures, and Compensate for Loss of Occupied Burrows

The New Zoo shall implement the following measures to reduce impacts on burrowing owl:

- ▶ A qualified biologist shall conduct focused breeding and nonbreeding season surveys for burrowing owls in areas of suitable habitat on and within 500 feet of the Project site. To ensure accuracy and the most up-to-date information, surveys shall be conducted before the start of construction activities and in accordance with Appendix D of the Staff Report on Burrowing Owl Mitigation (CDFG 2012), which recommends at least three surveys conducted at least 3 weeks apart.
- ▶ If no occupied burrows are found, the qualified biologist shall submit a report documenting the survey methods and results to the City, and no further mitigation shall be required.
- ▶ If an active burrow is found during the nonbreeding season (September 1 through January 31), the applicant shall consult with CDFW regarding protective buffers to be established around the occupied burrow and maintained throughout construction. The buffer shall be a minimum of 150 feet around the active, nonbreeding burrow but may be reduced in consultation with CDFW. If occupied burrows are present that cannot be avoided or adequately protected with a no-disturbance buffer, a burrowing owl exclusion plan shall be developed, as described in Appendix E of the Staff Report. Burrowing owls shall not be excluded from occupied burrows until the Project burrowing owl exclusion plan is approved by CDFW and only during the nonbreeding season. The exclusion plan shall include methods for determining burrow vacancy, type and timing for scoping burrows, what will determine excavation timing, a monitoring plan for determining exclusion has been successful, remedial measures to prevent owl reuse and avoid take, and a burrowing owl mitigation and management plan (see below).
- ▶ If an active burrow is found during the breeding season (February 1 through August 31), occupied burrows shall not be disturbed and shall be provided with a protective buffer at a minimum of 650 feet unless a qualified biologist verifies through noninvasive means that either (1) the birds have not begun egg laying or (2) juveniles from the occupied burrows are foraging independently and are capable of independent survival. The size of the buffer may be adjusted depending on the time of year and level of disturbance as outlined in the Staff Report (CDFG 2012: 9). The size of the buffer may be reduced if a broad-scale, long-term monitoring program acceptable to CDFW is

implemented so that burrowing owls are not adversely affected. After the fledglings are capable of independent survival, the owls can be evicted, and the burrow can be destroyed in accordance with the terms of a CDFW-approved burrowing owl exclusion plan developed in accordance with Appendix E of the Staff Report.

- ▶ If burrowing owls are excluded from burrows and the burrows are destroyed as a result of Project construction activities, the applicant shall mitigate the loss of occupied habitat such that habitat acreage and the number of burrows are replaced through permanent conservation of comparable or better habitat at a 1:1 mitigation ratio with similar vegetation communities and burrowing mammals (e.g., ground squirrels) present to provide for nesting, foraging, wintering, and dispersal. The applicant shall retain a qualified biologist to develop a burrowing owl mitigation and management plan that incorporates the following goals and standards, among others:
 - Mitigation lands shall be selected based on comparison of the habitat lost to the compensatory habitat, including type and structure of habitat; disturbance levels; potential for conflicts with humans, pets, and other wildlife; density of burrowing owls; and relative importance of the habitat to the species throughout its range.
 - Where available, mitigation lands shall be provided adjacent or proximate to the development area so that displaced owls can relocate with reduced risk of injury or mortality, depending on the availability of habitat sufficient to support displaced owls that may be preserved in perpetuity.
 - If habitat suitable for burrowing owl is not available for conservation adjacent or proximate to the development area, mitigation lands shall be secured off-site and shall aim to consolidate and enlarge conservation areas outside of planned development areas and within foraging distance of other conservation lands. Alternatively, mitigation may be accomplished through purchase of mitigation credits at a CDFW-approved mitigation bank, if available. Alternative mitigation sites and acreages may also be determined in consultation with CDFW. If burrowing owl habitat mitigation is completed through permittee-responsible conservation lands, the mitigation plan shall include mitigation objectives, site selection factors, site management roles and responsibilities, vegetation management goals, financial assurances and funding mechanisms, performance standards and success criteria, monitoring and reporting protocols, and adaptive management measures. Success shall be based on the number of adult burrowing owls and pairs using the site and whether the numbers are maintained over time. Measures of success, as suggested in the Staff Report, shall include site tenacity, the number of adult owls present and reproducing, colonization by burrowing owls from elsewhere, changes in distribution, and trends in stressors.

Mitigation Measure 3.3-1b: Conduct Focused Surveys for Swainson's Hawk, White-Tailed Kite, Northern Harrier, Tricolored Blackbird, Loggerhead Shrike, and Other Nesting Birds

The Project applicant shall implement the following measures to reduce impacts on special-status and other tree-nesting birds:

- ▶ To minimize the potential for loss of nesting birds protected under the Migratory Bird Treaty Act or California Fish and Game Code Section 3503, Project construction activities (e.g., tree removal, vegetation clearing, ground disturbance, staging) shall be conducted during the nonbreeding season (approximately September 1 through January 31, as determined by a qualified biologist), when possible. If Project construction activities are conducted during the nonbreeding season, no further mitigation shall be required.
- ▶ Within 14 days before the onset of Project construction activities during the breeding season (approximately February 1 through August 31, as determined by a qualified biologist), a qualified biologist familiar with birds of California and with experience conducting nesting bird surveys shall conduct focused surveys for Swainson's hawk, white-tailed kite, tricolored blackbird, northern harrier, loggerhead shrike, and other nesting birds protected under the Migratory Bird Treaty Act or California Fish and Game Code Section 3503. Surveys shall be conducted in accessible areas (i.e., not including private property) within 1,000 foot buffer of the Project site for Swainson's hawk and white-tailed kite, within 500 feet of the site for nonraptor native bird nests.
- ▶ If no nests are found, the qualified biologist shall submit a report documenting the survey methods and results to the City, and no further mitigation shall be required.

- ▶ For Project activities that begin between March 1 and September 15, the qualified biologists shall conduct additional preconstruction surveys for nesting raptors and birds no more than 10 days before implementation of Project activities to identify active nests on and within a 1,000 foot buffer of the Project site. The surveys shall be conducted within 14 days before the beginning of any construction activities between March 1 and September 15.
- ▶ Impacts on nesting Swainson's hawk, white-tailed kite, and other raptors shall be avoided by establishing appropriate buffers around active nest sites identified during preconstruction raptor surveys. The exclusionary buffer shall remain in place until the chicks have fledged or as otherwise determined by a qualified biologist. No Project activity shall commence in the buffer areas until a qualified biologist has determined, in consultation with CDFW, that the young have fledged, the nest is no longer active, or reducing the buffer would not likely result in nest abandonment. CDFW guidelines recommend implementation of 0.5-mile-wide buffer for Swainson's hawk and 500-foot-wide buffer for other raptors, but the size of the buffer may be adjusted if a qualified biologist, in consultation with CDFW, determines that such an adjustment would not be likely to adversely affect the nest. The appropriate no-disturbance buffer for other nesting birds (i.e., species other than Swainson's hawk and burrowing owl) shall be determined by a qualified biologist based on site-specific conditions, the species of nesting bird, the nature of the Project activity, visibility of the disturbance from the nest site, and other relevant circumstances.
- ▶ Monitoring of all active nests by a qualified biologist during construction activities shall be required if the activity has potential to adversely affect the nest. If construction activities cause the nesting bird to vocalize, make defensive flights at intruders, get up from a brooding position, or fly off the nest, then the no-disturbance buffer shall be increased until the agitated behavior ceases. The exclusionary buffer shall remain in place until the chicks have fledged or as otherwise determined appropriate by a qualified biologist to avoid adverse effects on the nest(s).
- ▶ Trees containing white-tailed kite or other raptor (excluding Swainson's hawk) nests that must be removed as a result of Project implementation shall be removed during the non-breeding season (September 1–January 1) unless otherwise authorized by CDFW.

Mitigation Measure 3.3-1c: Mitigate Loss of Swainson's Hawk Foraging Habitat in Accordance with the City of Elk Grove Swainson's Hawk Impact Mitigation Fee Program

The Project applicant shall implement the following measures to mitigate the potential loss of Swainson's hawk foraging habitat:

- ▶ The Project applicant shall acquire conservation easements or other instruments to preserve suitable foraging habitat for Swainson's hawk. The location of the mitigation parcels, as well as the conservation instruments protecting them, shall be approved by the City.
- ▶ The amount of land preserved shall be at a ratio provided in Chapter 16.130, Swainson's Hawk Mitigation Fees of the Elk Grove Municipal Code, for each acre developed at the Project site. In deciding whether to approve the land proposed for preservation, the City shall consider the benefits of preserving lands in proximity to other protected lands. The preservation of land shall be secured before any site disturbance, such as clearing or grubbing, or the issuance of any permits for grading, building, or other site improvements, whichever occurs first.
- ▶ The Project applicant shall implement the following minimum conservation easement content standards, or such other requirements as may be updated by the City Council from time to time and as provided in Chapter 16.130:
 - The land to be preserved must be found to be suitable Swainson's hawk foraging habitat as determined by the City based on substantial evidence.
 - The land shall be protected through either fee title or a conservation easement ("legal agreement") acceptable to the City.
 - The legal agreement shall be recordable and contain an accurate legal description of the mitigation land.
 - The legal agreement shall prohibit any activity that in the sole discretion of the City substantially impairs or diminishes the land's capacity as suitable Swainson's hawk foraging habitat.

- If the land's suitability as foraging habitat is related to existing agricultural uses on the land, the legal agreement shall protect any existing water rights necessary to maintain such agricultural uses on the land covered by the document and retain such water rights for ongoing use on the mitigation land.
 - Mitigation monitoring fees shall be paid to cover the costs of administering, monitoring, and enforcing the document in an amount determined by the City or a third-party receiving entity approved by the City, not to exceed 10 percent of the easement price or a different amount approved by the City Council.
 - Interests in mitigation land shall be held in trust by an entity acceptable to the City and/or the City in perpetuity. The entity shall not sell, lease, or convey any interest in mitigation land without the prior written approval of the City.
 - The City shall be named a beneficiary under any legal agreement conveying the interest in the mitigation land to an entity acceptable to the City, and the City shall receive indemnification and defense, and in any legal agreement.
 - If any qualifying entity owning an interest in mitigation land ceases to exist, the duty to hold, administer, monitor, and enforce the interest shall be transferred to another entity acceptable to the City or to the City.
- Before committing to the preservation of any land, the applicant shall obtain approval of the land proposed for preservation. This mitigation measure may be fulfilled in combination with a mitigation measure imposed on the Project requiring the preservation of agricultural land as long as the agricultural land is suitable Swainson's hawk habitat as determined by the City in its sole discretion.

Mitigation Measure 3.3-1d: Conduct Worker Environmental Awareness Program

The New Zoo shall retain a qualified biologist to conduct an environmental awareness training program for construction crews before Project construction. The awareness program shall include a brief review of the special-status species with the potential to occur on the Project site (including their life history, habitat requirements, and photographs of the species). The training shall identify the portions of the Project site in which the species may occur, as well as their legal status and protection. The program shall also cover the relevant permit conditions and mitigation measures that must be followed by all construction personnel to reduce or avoid effects on these resources during Project construction. The training shall emphasize the role that the construction crew plays in identifying and reporting any special-status species observations to the onsite biologist. Training shall identify the steps to be taken if a special-status species is found within the construction area (i.e., notifying the crew foreman, who will inform the designated biologist). An environmental awareness handout that describes and illustrates sensitive resources to be avoided during project construction and identifies all relevant permit conditions shall be provided to each crew member. The crew foreman shall be responsible for ensuring that crew members adhere to the guidelines and restrictions. Education programs shall be conducted for new personnel as they are brought on the job during the construction period.

Significance after Mitigation

Less than significant.

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3.4 ARCHAEOLOGICAL, HISTORICAL, AND TRIBAL CULTURAL RESOURCES

This section analyzes and evaluates the potential impacts of the Project on known and unknown cultural resources. Cultural resources include districts, sites, buildings, structures, or objects generally older than 50 years and considered to be important to a culture, subculture, or community for traditional, religious, scientific, or other reasons. They include pre-historic resources, historic-period resources, and “tribal cultural resources” (the latter as defined by Assembly Bill (AB) 52, Statutes of 2014, in Public Resources Code [PRC] Section 21074).

Archaeological resources are locations where human activity has measurably altered the earth or left deposits of precontract or historic-period physical remains (e.g., stone tools, bottles, former roads, house foundations). Historical (or built-environment) resources include standing buildings (e.g., houses, barns, outbuildings, cabins) and intact structures (e.g., dams, bridges, roads, districts), or landscapes. A cultural landscape is defined as a geographic area (including both cultural and natural resources and the wildlife therein), associated with a historic event, activity, or person or exhibiting other cultural or aesthetic values. Tribal cultural resources are sites, features, places, cultural landscapes, sacred places and objects, with cultural value to a tribe.

No comment letters regarding cultural, historical, and tribal resources were received in response to the Notice of Preparation. As described later in this chapter, the City sent consultation letters to 16 tribes, identified by the Native American Heritage Commission (NAHC), in December 2022. One tribe, the Wilton Rancheria, requested consultation. No other tribes requested consultation.

3.4.1 Regulatory Setting

FEDERAL

National Register of Historic Places

The National Register of Historic Places (NRHP) is the nation’s master inventory of known historic properties. It is administered by the National Park Service and includes listings of buildings, structures, sites, objects, and districts that possess historic, architectural, engineering, archaeological, or cultural significance at the national, state, or local level.

The formal criteria (36 CFR 60.4) for determining NRHP eligibility are as follows:

1. The property is at least 50 years old (however, properties under 50 years of age that are of exceptional importance or are contributors to a district can also be included in the NRHP);
2. It retains integrity of location, design, setting, materials, workmanship, feeling, and associations; and
3. It possesses at least one of the following characteristics:

Criterion A Is associated with events that have made a significant contribution to the broad patterns of history (events).

Criterion B Is associated with the lives of persons significant in the past (persons).

Criterion C Embodies the distinctive characteristics of a type, period, or method of construction, or represents the work of a master, or possesses high artistic values, or represents a significant, distinguishable entity whose components may lack individual distinction (architecture).

Criterion D Has yielded, or may be likely to yield, information important in prehistory or history (information potential).

For a property to retain and convey historic integrity, it must possess most of the seven aspects of integrity: location, design, setting, materials, workmanship, feeling, and association. Location is the place where the historic property was constructed or the place where a historic event occurred. Integrity of location refers to whether the property has been moved since its construction. Design is the combination of elements that create the form, plan, space, structure, and style of a property. Setting is the physical environment of a historic property that illustrates the character of the place. Materials are the physical elements that were combined or deposited during a particular period and in a particular pattern or configuration to form a historic property. Workmanship is the physical evidence of the crafts of a particular culture or people during any given period in history or prehistory. Feeling is a property's expression of the aesthetic or historic sense of a particular period. This intangible quality is evoked by physical features that reflect a sense of a past time and place. Association is the direct link between the important historic event or person and a historic property. Continuation of historic use and occupation help maintain integrity of association.

Listing in the NRHP does not entail specific protection or assistance for a property, but it does guarantee consideration in planning for federal or federally assisted projects, eligibility for federal tax benefits, and qualification for federal historic preservation assistance. In addition, project effects on properties listed in the NRHP must be evaluated under CEQA.

The National Register Bulletin series was developed to assist evaluators in the application of NRHP criteria. For example, National Register Bulletin #36 provides guidance in the evaluation of archaeological site significance. If a property cannot be placed within a particular theme or time period, and thereby lacks "focus," it will be unlikely to possess characteristics that would make it eligible for listing in the NRHP.

STATE

California Register of Historical Resources

All properties in California that are listed in or formally determined eligible for listing in the NRHP are also listed in the California Register of Historical Resources (CRHR). The CRHR is a listing of State of California resources that are significant in the context of California's history. It is a Statewide program with a scope and with criteria for inclusion similar to those used for the NRHP. In addition, properties designated under municipal or county ordinances are also eligible for listing in the CRHR.

California Historical Landmarks—buildings, structures, sites, or places that have been determined to have Statewide historical significance—are also automatically listed in the CRHR. California Points of Historical Interest are sites, buildings, features, or events that are of local (city or county) significance. Points of Historical Interest designated after December 1997 and recommended by the State Historical Resources Commission are also listed in the CRHR.

A historical resource must be significant at the local, State, or national level under one or more of the criteria defined in CCR Title 15, Chapter 11.5, Section 4850 to be included in the CRHR. The CRHR criteria are tied to CEQA because any resource that meets the criteria listed below is considered a significant historical resource under CEQA. As noted above, all resources listed in or formally determined eligible for listing in the NRHP are automatically listed in the CRHR.

The CRHR uses four evaluation criteria:

- Criterion 1. Is associated with events that have made a significant contribution to the broad patterns of local or regional history, or to the cultural heritage of California or the United States.
- Criterion 2. Is associated with the lives of persons important to local, California, or national history.
- Criterion 3. Embodies the distinctive characteristics of a type, period, region, or method of construction; represents the work of a master; or possesses high artistic values.
- Criterion 4. Has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California or the nation.

Similar to the NRHP, a historical resource must meet one of the above criteria and retain integrity to be listed in the CRHR. The CRHR uses the same seven aspects of integrity used by the NRHP.

California Environmental Quality Act

CEQA requires public agencies to consider the effects of their actions on "historical resources," "unique archaeological resources," and "tribal cultural resources." Pursuant to CEQA Section 21084.1, a "project that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment." Section 21083.2 requires agencies to determine whether projects would have effects on unique archaeological resources. CEQA Section 21084.2 establishes that "[a] project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment."

Historical Resources

"Historical resource" is a term with a defined statutory meaning (CEQA Section 21084.1; State CEQA Guidelines Sections 15064.5[a] and [b]). Under State CEQA Guidelines Section 15064.5(a), historical resources include the following:

1. A resource listed in, or determined to be eligible by the State Historical Resources Commission for listing in, the CRHR is considered a historical resource (PRC Section 5024.1).
2. A resource included in a local register of historical resources, as defined in PRC Section 5020.1(k) or identified as significant in a historical resource survey meeting the requirements of PRC Section 5024.1(g), will be presumed to be historically or culturally significant. Public agencies must treat any such resource as significant unless the preponderance of evidence demonstrates that it is not historically or culturally significant.
3. Any object, building, structure, site, area, place, record, or manuscript that a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California may be considered to be a historical resource, provided the lead agency's determination is supported by substantial evidence in light of the whole record. Generally, a resource will be considered by the lead agency to be historically significant if the resource meets the criteria for listing in the CRHR (PRC Section 5024.1).
4. The fact that a resource is not listed in or determined to be eligible for listing in the CRHR, not included in a local register of historical resources (pursuant to PRC Section 5020.1[k]), or not identified in a historical resources survey (meeting the criteria in PRC Section 5024.1[g]) does not preclude a lead agency from determining that the resource may be a historical resource as defined in PRC Sections 5020.1(j) or 5024.1.

Unique Archaeological Resources

CEQA also requires lead agencies to consider whether projects would affect unique archaeological resources. CEQA Section 21083.2(g) states that "unique archaeological resource" means an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets one or more of the following criteria:

1. Contains information needed to answer important scientific research questions, and there is a demonstrable public interest in that information.
2. Has a special and particular quality such as being the oldest of its type or the best available example of its type.
3. Is directly associated with a scientifically recognized important prehistoric or historic event or person.

Tribal Cultural Resources

CEQA also requires lead agencies to consider whether projects would affect tribal cultural resources. CEQA Section 21074 states:

- a) "Tribal cultural resources" are either of the following:
 - 1) Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either of the following:
 - A) Included or determined to be eligible for inclusion in the California Register of Historical Resources.
 - B) Included in a local register of historical resources as defined in subdivision (k) of Section 5020.1.

- 2) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Section 5024.1. In applying the criteria set forth in subdivision (c) of Section 5024.1 for the purposes of this paragraph, the lead agency shall consider the significance of the resource to a California Native American tribe.
- b) A cultural landscape that meets the criteria of subdivision (a) is a tribal cultural resource to the extent that the landscape is geographically defined in terms of the size and scope of the landscape.
- c) A historical resource described in Section 21084.1, a unique archaeological resource as defined in subdivision (g) of Section 21083.2, or a "nonunique archaeological resource" as defined in subdivision (h) of Section 21083.2 may also be a tribal cultural resource if it conforms with the criteria of subdivision (a).

CEQA Section 21080.3

AB 52, signed by the California Governor in September of 2014, established a new class of resources under CEQA: "tribal cultural resources," defined in CEQA Section 21074. Pursuant to CEQA Sections 21080.3.1, 21080.3.2, and 21082.3, lead agencies undertaking CEQA review must, upon written request of a California Native American Tribe, begin consultation before the release of an EIR, negative declaration, or mitigated negative declaration. CEQA Sections 21080.3.1 and 21080.3.2 state that within 14 days of determining that a project application is complete, or to undertake a project, the lead agency must provide formal notification, in writing, to the tribes that have requested notification of proposed projects in the lead agency's jurisdiction. If it wishes to engage in consultation on the project, the tribe must respond to the lead agency within 30 days of receipt of the formal notification. The lead agency must begin the consultation process with the tribes that have requested consultation within 30 days of receiving the request for consultation. Consultation concludes when either: 1) the parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource, or 2) a party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached.

If the lead agency determines that a project may cause a substantial adverse change to a tribal cultural resource, and measures are not otherwise identified in the consultation process, provisions under CEQA Section 21084.3(b) describe mitigation measures that may avoid or minimize the significant adverse impacts. Examples include:

- (1) Avoidance and preservation of the resources in place, including, but not limited to, planning and construction to avoid the resources and protect the cultural and natural context, or planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria.
- (2) Treating the resource with culturally appropriate dignity taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following:
 - (A) Protecting the cultural character and integrity of the resource
 - (B) Protecting the traditional use of the resource
 - (C) Protecting the confidentiality of the resource.
- (3) Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places.
- (4) Protecting the resource.

CEQA Section 21083.2

Treatment options under CEQA Section 21083.2(b) to mitigate impacts to archaeological resources include activities that preserve such resources in place in an undisturbed state. CEQA Section 21083.2 states:

- (a) As part of the determination made pursuant to Section 21080.1, the lead agency shall determine whether the project may have a significant effect on archaeological resources. If the lead agency determines that the project may have a significant effect on unique archaeological resources, the environmental impact report shall address the issue of those resources. An environmental impact report, if otherwise necessary, shall not address the issue

of nonunique archaeological resources. A negative declaration shall be issued with respect to a project if, but for the issue of nonunique archaeological resources, the negative declaration would be otherwise issued.

- (b) If it can be demonstrated that a project will cause damage to a unique archaeological resource, the lead agency may require reasonable efforts to be made to permit any or all of these resources to be preserved in place or left in an undisturbed state. Examples of that treatment, in no order of preference, may include, but are not limited to, any of the following:
 - (1) Planning construction to avoid archaeological sites.
 - (2) Deeding archaeological sites into permanent conservation easements.
 - (3) Capping or covering archaeological sites with a layer of soil before building on the sites.
 - (4) Planning parks, greenspace, or other open space to incorporate archaeological sites.
- (c) To the extent that unique archaeological resources are not preserved in place or not left in an undisturbed state, mitigation measures shall be required as provided in this subdivision.
- (d) Excavation as mitigation shall be restricted to those parts of the unique archaeological resource that would be damaged or destroyed by the project.
- (e) In no event shall the amount paid by a project applicant for mitigation measures required pursuant to subdivision (c) exceed the following amounts:
 - (1) An amount equal to one-half of 1 percent of the projected cost of the project for mitigation measures undertaken within the site boundaries of a commercial or industrial project.
 - (2) An amount equal to three-fourths of 1 percent of the projected cost of the project for mitigation measures undertaken within the site boundaries of a housing project consisting of a single unit.
 - (3) If a housing project consists of more than a single unit, an amount equal to three-fourths of 1 percent of the projected cost of the project for mitigation measures undertaken within the site boundaries of the project for the first unit plus the sum of the following:
 - (A) Two hundred dollars (\$200) per unit for any of the next 99 units.
 - (B) One hundred fifty dollars (\$150) per unit for any of the next 400 units.
 - (C) One hundred dollars (\$100) per unit in excess of 500 units.
- (f) Unless special or unusual circumstances warrant an exception, the field excavation phase of an approved mitigation plan shall be completed within 90 days after final approval necessary to implement the physical development of the project or, if a phased project, in connection with the phased portion to which the specific mitigation measures are applicable. However, the project applicant may extend that period if he or she so elects. Nothing in this section shall nullify protections for Indian cemeteries under any other provision of law.

California Native American Historical, Cultural, and Sacred Sites Act

The California Native American Historical, Cultural, and Sacred Sites Act (PRC Section 5097.9) applies to both State and private lands. The act requires, upon discovery of human remains, that construction or excavation activity cease and that the county coroner be notified. If the remains are those of a Native American, the coroner must notify NAHC, which notifies and has the authority to designate the most likely descendant of the deceased. The act stipulates the procedures the descendants may follow for treating or disposing of the remains and associated grave goods.

Health and Safety Code Section 7050.5

Section 7050.5 of the Health and Safety Code requires that construction or excavation be stopped in the vicinity of discovered human remains until the coroner can determine whether the remains are those of a Native American. If they are determined to be those of a Native American, the coroner must contact NAHC.

Public Resources Code Section 5097

PRC Section 5097 specifies the procedures to be followed if human remains are unexpectedly discovered on nonfederal land. The disposition of Native American burials falls within the jurisdiction of NAHC. Section 5097.5 of the code states:

No person shall knowingly and willfully excavate upon, or remove, destroy, injure, or deface any historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological site, including fossilized footprints, inscriptions made by human agency, or any other archaeological, paleontological or historical feature, situated on public lands, except with the express permission of the public agency having jurisdiction over such lands. Violation of this section is a misdemeanor.

LOCAL

City of Elk Grove General Plan

Chapter 7, "Community and Resource Protection," of the City of Elk Grove General Plan (2019) contains the following policies relevant to cultural and tribal cultural resources:

- ▶ **Policy HR 1-1:** Encourage the preservation and enhancement of existing historical and archaeological resources in the City.
- ▶ **Policy HR 1-2:** Strive to preserve historic buildings and resources through adaptive re-use.
- ▶ **Policy HR 1-3:** Encourage appropriate adaptive reuse of historic resources to prevent misuse, disrepair, and demolition.
- ▶ **Policy HR 2-1:** Protect and preserve prehistoric and historic archaeological resources throughout the City.
- ▶ **Policy HR 2-2:** Consult with local Native American tribes, the Native American Heritage Commission, and any other appropriate organizations and individuals to minimize potential impacts to cultural and tribal resources.
- ▶ **Policy HR 2-3:** Identify and evaluate local archaeological resources for inclusion in the National Register of Historic Places.
- ▶ **Policy HR 2-4:** Ensure that City ordinances, programs, and policies create an environment that fosters the preservation, rehabilitation, and maintenance of historic, archaeological, and tribal resources.
- ▶ **Policy HR 3-2:** Encourage new development to be compatible with adjacent existing historic structures in terms of scale, massing, building material, and general architectural treatment.

City of Elk Grove Municipal Code

City of Elk Grove Municipal Code (EGMC) Chapter 7, Historic Preservation, was last updated in 2017 and contains regulatory requirements to provide for "the identification, designation, protection, enhancement, perpetuation and use of historical resources including buildings, structures, objects, sites, districts, cultural landscapes, tribal cultural resources, and the historical personal histories and family stories of individuals, businesses, and associations in the City that reflect special elements of the City's heritage and cultural diversity."

The criteria for listing in the Elk Grove Register of Historic Resources are contained in Section 7.00.050 of the EGMC. A historical resource may be listed in the Elk Grove Register of Historic Resources if it meets any of the following four levels of significance within a given historic context:

1. Associated with events that have made a significant contribution to the broad patterns of Elk Grove's history;
2. Associated with the lives of persons significant in Elk Grove's past;
3. Embodies the distinctive characteristics of a type, period, or method of construction; or that represents the work of a master; or that possesses high artistic values; or that represents a significant and distinguishable entity whose components may lack individual distinction; and/or

4. Has yielded, or may be likely to yield, information noteworthy in prehistory or history.

To be listed in the Elk Grove Register of Historic Resources, resources must also retain four or more aspects of integrity outlined below:

1. Location: the place where a resource was constructed or the place where the historic event occurred.
2. Design: the combination of elements that create the form, plan, space, structure, and style of a resource.
3. Setting: the physical environment of a resource.
4. Materials: the physical elements that were combined or deposited during a particular period of time and in a particular pattern or configuration to form a resource.
5. Workmanship: the physical evidence of the crafts of a particular culture or people during any given period in history or prehistory.
6. Feeling: is a property's expression of the aesthetic or historic sense of a particular period of time.
7. Association: the direct link between an important historic event or person and a historic property.

3.4.2 Environmental Setting

REGIONAL PRECONTACT HISTORY

A tripartite classification system for cultural change in the Sacramento River Valley has been standard since the 1930s. More recently, this system has been adjusted based on modern radiocarbon calibration curves for the Georgian/Julian calendar (the terms B.C.E. for Before Common Era and C.E. for Common Era will be used). Based on this new system, the following classification system has been defined for the Precontact Period: Paleo-Indian (11,500–8550 cal [calibrated] B.C.E.), Lower Archaic (8550–5550 cal B.C.E.), Middle Archaic/Windmill Pattern (5550–550 cal B.C.E.), Upper Archaic/Berkeley Pattern (550 cal B.C.E.– 1100 cal. C.E.), and Emergent/Augustine Pattern (1100 cal C.E.– Historic era Contact) (Ascent Environmental 2023: 15).

Paleo-Indian and Lower Archaic Periods (11,500-5550 cal B.C.E.)

There is little evidence of the Paleo-Indian and Lower Archaic periods in the Central Valley. Recent geoarchaeological studies have found that large segments of the Late Pleistocene landscape throughout the California lowlands have been buried or removed by periodic episodes of deposition and erosion. Periods of climate change and associated alluvial deposition occurred at the end of the Pleistocene (approximately 9050 cal B.C.E.) and at the beginning of the early Middle Holocene (approximately 5550 cal B.C.E.). Earlier studies had also estimated that Paleo-Indian and Lower Archaic sites along the lower stretch of the Sacramento River and San Joaquin River drainage systems had been buried by Holocene alluvium up to 33 feet (10 meters) thick that was deposited during the last 5,000 to 6,000 years. The formation of the Sacramento–San Joaquin Delta began during the early Middle Holocene. After approximately 1,000 cal B.C.E. during the Late Holocene, there were renewed episodes of alluvial fan and floodplain deposition.

The archaeological evidence that is available for the Paleo-Indian Period is primarily defined by basally thinned, fluted projectile points. These points are morphologically similar to well-dated Clovis points found elsewhere in North America. In the Central Valley, fluted points have been recovered from remnant features of the Pleistocene landscape at only three archaeological localities, the Woolfsen Mound in Merced County; Tracey Lake in San Joaquin County; and Tulare Lake basin in Kings County (Ascent Environmental 2023: 15).

Middle Archaic Period/Windmill Pattern (5550-550 cal B.C.E.)

Archaeological sites dating to the first 3,000 years of the Middle Archaic are relatively scarce in the Sacramento River Valley, mainly due to natural geomorphic processes. On the valley floor, sites are more common after 2550 cal. B.C.E. The archaeological record in the valley and foothills indicates the subsistence system during this period included a wide range of natural resources (e.g., plants, small and large mammals, fish, and waterfowl) indicating people

followed a seasonal foraging strategy. Populations may have occupied lower elevations during the winter and moved to higher elevations in the summer.

Excavations at Windmill Pattern sites have yielded abundant remains of terrestrial fauna (deer, tule elk, pronghorn, and rabbits) and fish (sturgeon, salmon, and smaller fishes). Projectile points with triangular blades and contracting stems are common at Windmill Pattern sites. A variety of fishing implements such as angling hooks, composite bone hooks, spears, and baked clay artifacts, which may have been used as net or line sinkers, are also relatively common. The points are classified within the Sierra Contracting Stem and Houx Contracting Stem series. The presence of milling implements (grinding slabs, handstones, and mortar fragments) indicate that acorns or seeds were an important part of the Middle Archaic diet (Ascent Environmental 2023: 16).

Upper Archaic Period/Berkeley Pattern (550 cal B.C.E. - 1100 cal. C.E.)

The Upper Archaic is characterized by a shift over a 1,000-year period to the more specialized, adaptive Berkeley Pattern. Excavated archaeological sites dating to the Upper Archaic indicate an increase in mortar and pestle groundstone technology. This change is supported by dated palaeobotanical remains and a decrease in slab milling stones and handstones. Archaeologists generally agree mortars and pestles are better suited to crushing and grinding acorns, while milling slabs and handstones may have been used primarily for grinding wild grass grains and seeds. New types of shell beads, charmstones, bone tools, and ceremonial blades are additional evidence of the more specialized technology present during this period.

The artifact assemblage in Berkeley Pattern sites demonstrates that populations continued to exploit a variety plant and animal resources from different environmental zones, including grassland, riparian, and freshwater marsh settings. Deposits of this temporal period have a characteristic well-developed brown midden containing hearth features, fire-fractured rock, storage pits, and house floors. These features indicate that Upper Archaic sites were intensively occupied by large populations (Ascent Environmental 2023: 16).

Emergent Period/Augustine Pattern (1100 cal. C.E. - Historic era Contact)

The archaeological record for the Emergent or Late Precontact Period shows an increase in the number of archaeological sites associated with the Augustine Pattern in the Sacramento River Valley, as well as an increase in the number and diversity of artifacts. The Emergent Period was shaped by a number of cultural innovations, such as the bow and arrow and intricate fishing technology, as well as an elaborate social and ceremonial organization. Cultural patterns typical of the Emergent Period appear to be reflected in the cultural traditions known from historic period Native American groups.

During the Emergent Period, villages were located along major waterways with smaller settlements found in outlying areas. Settlements on natural levees and high spots in floodplains were common. House floors or other structural remains have been preserved at some sites dating to this period. The increase in sedentism and population growth led to the development of social stratification, with an elaborate social and ceremonial organization. Examples of items associated with rituals and ceremonials include flanged tubular pipes, incised patterned bird bone tubes and whistles, and baked clay effigies representing animals and humans. Mortuary practices changed to include flexed burials, cremations with grave goods and offerings, and pre-interment burning in a burial pit. Currency, in the form of clamshell disk beads, also developed during the later part of the period together with extensive exchange networks that included the Pacific Northwest and southern California (Ascent Environmental 2023: 17).

ETHNOHISTORY

Although the Project site is located in what is ethnographically defined as predominantly Plains Miwok territory, the boundaries documented in ethnographic literature are based on conditions after the Gold Rush, when population pressures would have forced the movements of indigenous groups due to the influx of Euro-Americans. In this region specifically, labor demands by John Sutter pushed the Nisenan (northern neighbors of the Plains Miwok) into Plains Miwok areas. Areas where precontact and ethnographic boundaries are not certain are referred to as grey areas; precontact sites identified within these grey areas may offer answers to important research questions (Ascent Environmental 2023: 17).

The Plains Miwok are part of the larger Eastern Miwok group that forms one of the two major divisions of the Miwokan subgroup of the Utian speakers. The Plains Miwok lived in the Sacramento Valley along the Sacramento, Cosumnes, and Mokelumne rivers. They built their homes on high ground, with major villages concentrated along the major waterways. Conical homes were constructed with poles and thatching of brush, grass, or tule, though semisubterranean earth-covered homes were built as well. Major villages contained an assembly house, which was a semisubterranean structure with a diameter of 40 to 50 ft, as well as a sweathouse, which was a scaled-down version of the assembly house. Plains Miwok people utilized the rich resources of the delta and surrounding area for both dietary needs and material culture. Tules were woven into matting and clothing, bundled to form canoes, and used in house and granary construction. Salt, nuts, basketry, and obsidian were obtained through trade with neighboring tribes to the east for shells, basketry, and bows obtained in turn through trade from tribes located to the west.

The Plains Miwok gathered food resources as the seasons varied. As with most California tribes, they subsided heavily on the acorn, but also gathered nuts, seeds, roots, greens, berries, and mushrooms. Animal foods included tule elk, pronghorn antelope, jackrabbits, squirrels, beaver, quail, and waterfowl. Salmon was the dominant animal food resource, ranking above other river resources, such as sturgeon. Technological items of the Plains Miwok included wooden digging sticks, poles, and baskets used for gathering vegetal resources, and stone mortars, pestles, and cooking stones used for processing. Items used for obtaining animal resources included nets, snares, seines, bows, and arrows. Arrow points were made primarily of basalt and obsidian (Ascent Environmental 2023: 17).

The Native American population in the Sacramento Valley first came into contact with Spanish explorers in the late 1700s as the Franciscan missions sought converts. Plains Miwok converts were sent to Mission San José in the early 1800s. Many labored in large ranchos awarded during the Mexican period.

During two epidemics, in 1830 and 1837, foreign diseases decimated the populations of indigenous people in the Sacramento Valley. The discovery of gold in 1848 and the ensuing Gold Rush also contributed to substantial population declines. Between 1805 and 1856, the Miwok population declined from nearly 20,000 to approximately 3,000. Surviving Miwok labored for the growing mining, ranching, farming, and lumber industries (City of Elk Grove 2018: 5.5-2, 5.5-3).

HISTORIC ERA SETTING

Regional History

Spanish exploration of the Central Valley dates to the late 1700s, but exploration of the northern section of the Central Valley and contact with its Native American population did not begin until the early 1800s. The second quarter of the 19th century encompasses the Mexican Period (ca. 1821–1848) in California. This period is an outgrowth of the Mexican Revolution, and its accompanying social and political views affected the mission system across California. In 1833, the missions were secularized, and their lands divided among the *Californios* as land grants called *ranchos*. These ranchos facilitated the growth of a semi-aristocratic group that controlled the larger ranchos. The work on these large tracts of land was accomplished by the forced labor of local Native Americans. The ranchos closest to the SAP area were in Sacramento County near the southern boundary of Placer County. These ranchos included the Rancho de Paso, the San Juan, and the Río de los Americanos (Ascent Environmental 2023: 18).

Simultaneously with the exploration of the Central Valley, trails were being blazed across Sierra Nevada plains and mountains, facilitating the westward migration of Euro-Americans. Early immigrants to California are typified by groups such as the 1841 Bartleson-Bidwell party and the 1844 Stevens-Murphy party. The commencement of the Mexican-American War in 1846 also affected the exploration and development of California, including the identification of new trails across the Sierra Nevada. The exploits of the Mormon Battalion and the establishment of the Mormon Emigrant Trail across the Sierra Nevada highlight these activities.

The discovery of gold at Sutter's Mill in Coloma in 1848 was the catalyst that caused a dramatic alteration of both Native American and Euro-American cultural patterns in California. After news of the discovery of gold spread, a flood of Euro-Americans entered the region and gravitated to the area of the "Mother Lode." Initially, the Euro-American population grew slowly, but soon it exploded as the presence of large deposits of gold was confirmed in

the Sacramento area. The Euro-American population of California quickly swelled, from an estimated 4,000 in 1848 to 500,000 in 1850. Sacramento, established in 1848 by John A. Sutter, also grew in population and was incorporated as a city in 1850 (Ascent Environmental 2023: 18).

Local History

During the Gold Rush, both Sacramento and Stockton served as convenient departure points for the mining camps in the Sierra Nevada foothills. The Monterey Trail, an important California transportation route which connected Sacramento to Stockton and eventually to Monterey, passed through Elk Grove. The trail, also known as the Lower Stockton and Upper Stockton Roads, increased traffic through the area and encouraged business opportunities, including a network of stage stops and hotels along Upper Stockton Road. The Elk Grove House, the first hotel and stage stop in Elk Grove, was opened in 1850 by English immigrant James Watson Hall. The hotel ultimately served as the namesake for the area and was located in the immediate vicinity of what is today Elk Grove Regional Park (Ascent Environmental 2023: 19).

Other prominent early settlers in the Elk Grove area included Albin Clark who moved to the area in 1850 and was one of the first grain farmers, and James B. Buckner who built the Buckner Hotel and was the first postmaster. By 1853, settlers in the area had established the San Joaquin School, built near the intersection of SR 99 and Grant Line Road. This school was the first public school in Sacramento County, and operated until 1928, when it was merged into the Elk Grove Grammar School. By 1855, the town boasted the original general store and one other, two hotels, a flouring mill, the railroad depot, a hardware store, a meat market, a furniture factory, two drug stores, a harness shop, a grain and hay warehouse, a dressmaking shop, two millinery shops, a boot shop, a wagon factory, and a blacksmith.

By the mid-1850s, discouraged gold miners turned to ranching or farming to meet the agricultural demands of California's growing population. Elk Grove business pursuits shifted from the service industry to ranching and farming. The principal agricultural output of the region included cattle, sheep, wheat, and barley until the late nineteenth century. Rapid railroad transportation introduced to the area, beginning in 1868, allowed agricultural production to shift to more perishable fruit products. As a result, area farmers experimented with fruit orchards, including peaches, plums, apricots, figs, lemons, and prunes, as well as vineyards and nut orchards (Nayyar 2016: 11). Elk Grove and the surrounding communities of Florin and Galt were connected by the Central Pacific Railroad, which connected the Bay Area with Sacramento and became part of the Southern Pacific Railroad in 1889. The proximity of the railroad to Elk Grove provided rapid growth and opportunities for the community in the 1870s.

In the twentieth century, strawberries emerged as an important agricultural produce along with ranching, dairying, nut and fruit production, and wine grapes. Most ranches and farms developed between 1900 and 1945 were family-operated, and typically comprised a main residence with ancillary buildings including barns. Orchard properties may have included packing sheds, drying racks, and dairy farms include milking sheds (Nayyar 2016: 11). The town continued to grow, first as a commercial center for the farmers in the area and recently as a suburban residential zone for greater Sacramento. The City of Elk Grove was incorporated in 2000, and the City has grown to become an important economic power in the region (Ascent Environmental 2023: 19).

RECORDS SEARCHES, SURVEYS, AND CONSULTATION

On April 27, 2023, a record search for the Project site was completed at the North Central Information Center (NCIC), at the California State University, Sacramento (File No. SAC-23-90). As part of the NCIC records search, the following information was reviewed:

- ▶ NRHP and CRHR,
- ▶ California Office of Historic Preservation Historic Property Directory,
- ▶ California Inventory of Historic Resources,
- ▶ California State Historic Landmarks,
- ▶ California Points of Historical Interest, and
- ▶ Historic properties reference map.

One previously recorded cultural resource was identified within the Project site, P-34-005185, a public utility building that was evaluated and recommended ineligible for the CRHR and NRHP. A total of 10 resources had been previously recorded within a one-half-mile radius of the Project site. These 10 resources consist of a railroad grade and several built environment features (structures, buildings, and residencies). The records search also found that six previous investigations have occurred within portions of the Project site, covering approximately 10 percent of the Project site. In addition, 15 investigations have occurred within one-half-mile of the Project site.

Although, not submitted to NCIC, the City provided a cultural memorandum (Campbell 2022), summarizing a records search and pedestrian survey for the main portion of the Project site (APNs 132-0320-001, 132-0320-002, and 132-0320-010). No cultural resources were identified as a result of this survey effort.

The remainder of the Project site was subject to a pedestrian survey on May 16, 2023. The survey consisted of a pedestrian inspection, with the surveyors walking 10 to 15-meter-wide intervals to ensure maximum ground. Surface visibility was generally poor across the Project site; the majority of the site was vegetated with thick grasses. Areas denuded of vegetation were examined carefully. Special attention was given to bare patches of ground, exposed soils, rodent burrows, and dirt piles. No precontact or historic era archaeological sites were observed. The previously recorded resource (P-34-005185) within the Project site is no longer present as it has been demolished. The pedestrian survey resulted in the findings of two historic features (described in detail below).

NRHP and CRHR criteria were used to evaluate the significance of the historic features. The NRHP criteria for eligibility are codified in 36 CFR Part 60 and explained in guidelines published by the Keeper of the NRHP. The NRHP and CRHR are discussed in more detail above in Section 3.4.1, "Regulatory Setting." Eligibility for listing on the NRHP and the CRHR rests on twin factors of significance and integrity. A resource must have both significance and integrity to be considered eligible. Loss of integrity, if sufficiently great, will become more important than the historical significance a resource may possess and render it ineligible. Likewise, a resource can have complete integrity, but if it lacks significance, it must also be considered ineligible.

Historic Features

Kammerer Rod

Kammerer Road is an east-west arterial roadway that connects SR 99 to Bruceville Road. It is generally a two-lane rural roadway, except for the portion from SR 99 to just west of Lent Ranch Parkway, where it is a four-lane divided arterial. The segment of Kammerer Road recorded as part of the Project is approximately 1.5 miles long, between McMillan Road and Lent Ranch Parkway. Available research has failed to provide any direct association between the existing road and significant events (Criterion A/1) or people (Criterion B/2). Being reconfigured and paved with modern asphalt, it also does not retain attributes or materials of its original construction and workmanship which indicate that it embodies distinctive characteristics of a type, period, or method of construction. Research has also failed to indicate that the road was the work of a master engineer. As such, the road segment does not appear to meet the requirements for significance under NRHP/CRHR Criterion C/3. Because there are no intact portions and due to the amount of disturbance which has occurred to the dimensions and location of the alignment, it does not retain the integrity required to answer questions about the past or contain information that cannot be gained in other ways; thus, the road segment is also not significant under NRHP/CRHR Criterion D/4.

Well 41

Well 41 is located approximately 700 feet north of Kammerer Road and 640 feet west of Lotz Parkway within a cattle-grazing field. The well and adjacent utility poles are surrounded by overgrown blackberry bushes; there is no associated pumphouse. Two sets of brand information visible on the well pump equipment: "Johnston Pump Co" and "Fresno Valves." The property has continually been used for agricultural practices and irrigation of some type has been part of the operation. The well does not appear to be eligible for listing in the NRHP or the CRHR as the system is not associated with events that have made a significant contribution to history (Criterion A/1), does not have any direct associations with any individuals significant to history (Criterion B/2), is without noteworthy architectural qualities (Criterion C/3), and is not likely to yield any additional important information about our history (Criterion D/4).

William Land Park Historic District

William Land Park is one of the City of Sacramento's largest parks and serves city residents and the region as a destination for multiple uses. Located at 3800 South Land Park Drive, the park has dedicated recreational areas including athletic fields, a golf course, an amphitheater, the Sacramento Zoo, Fairytale Town, and Funderland, among others that attract adults and children. As a designed landscape, the park's major features create distinct views and vistas, a tree canopy that provides shade during the summer, a curvilinear system of roadways with traffic islands, and a series of constructed water features interspersed by groupings of related buildings and structures.

In 2012, William Land Park and its major park features were evaluated as a historic district (Mead & Hunt 2012) and was recommended eligible for listing in the NRHP, the CRHR, and the Sacramento Register for its association with important local trends in the following areas of significance: *Community Planning and Development, Government, Entertainment/Recreation, and Landscape Architecture*. The character-defining features of the William Land Park Historic District reflected the key design characteristics and spatial arrangements, including:

- ▶ Dedicated recreational areas such as athletic fields and golf course fairways to provide Reform Movement principles.
- ▶ Open spaces and the use of natural features such as the use of vegetation and tree plantings in clusters to provide Naturalistic Park Design principles.
- ▶ Constructed features associated with the WPA.
- ▶ Constructed water features to create distinct vistas.
- ▶ Tree plantings that create a canopy to provide shade and views within the park.
- ▶ Curvilinear system of roadways with traffic islands.
- ▶ Groupings of related buildings and structures, such as the Rock Garden, the Swanston Memorial, and Fairytale Town.

Additionally, the following two park features within William Land Park meet the NRHP, the CRHR, and Sacramento Register evaluation criteria as individual properties, independent from their association with William Land Park:

- ▶ Entryway concession buildings constructed 1961 at the Sacramento Zoo in the area of *Architecture* – Designed by the local architectural firm of Rickey and Brooks, this series of three interconnected buildings are an important, rare, and intact example of Mid-Century Modernism in Sacramento.
- ▶ Fairytale Town in the areas of *Entertainment/Recreation and Architecture* – Also designed by Rickey and Brooks and constructed from 1958-1968, this site is an important, rare, and intact example of children's fantasy theme park design in Sacramento. Appendix B2 provides a list of the major contributing resources in Fairytale Town.

The 2012 report included Appendix B1 – Inventory of Major Park Features in William Land Park Historic District, which specifically addressed the Sacramento Zoo. The appendix states that because the majority of the buildings within the zoo fall outside of the historic district's period of significance (1922-1969) the Sacramento Zoo is not a contributor to the William Land Park Historic District.

Archaeological Sensitivity

There is one geologic unit present in the Project site, the Quaternary Riverbank Formation (Qr) and the surficial soils within the Project site are the San Joaquin silt loam. Because this material formed long before the first human occupation of the area, it is very unlikely to contain or to have buried archaeological resources. The overlying soils of the San Joaquin Series are younger, dating to the Late Holocene (2,000 to 150 years ago), and so are generally more sensitive for buried cultural remains.

Landscape evolution and historic and modern development can impact the visibility of the archaeological record, but research has shown that archaeological sites tend to occur in specific geo-environmental settings (e.g., near reliable water sources and on stable land surfaces) rather than randomly throughout the landscape. For example, geoarchaeological studies have found that distance to water sources (e.g., stream, lake, spring) and landform slope

(generally <18%) are two environmental variables that help accurately predict a location's potential to contain buried archaeological deposits. The topography of the terrain in the Project site is relatively flat. An unnamed that creek traverses roughly east/west approximately in the northern portion of the Project site is now a canal. The Project site has been used for grazing and a portion has been landscaped with paved roads and household communities. Therefore, the geography, geology, soils, and topography across most of the Project site suggest that the potential for the presence of intact buried deposits of cultural resources in the Project site is low.

Tribal Cultural Resources

Native American Heritage Commission

A search of the NAHC Sacred Lands File database was requested, to identify tribally sensitive properties on file in or near the Project site. On May 30, 2023, Ascent received the negative results of the SLF search (Ascent Environmental 2023).

Native American Consultation

Pursuant to AB 52 the City mailed notification letters to these tribal representatives on December 12, 2022.

- ▶ Buena Vista Rancheria of Me-Wuk Indians; Rhonda Morningstar Pope, Chairperson
- ▶ Cachil Dehe Band of Wintun Indians of the Colusa Indian Community; Clifford Mota, Tribal Preservation Liaison
- ▶ Chicken Ranch Rancheria of Me-Wuk Indians; Lloyd Mathiesen, Chairperson
- ▶ Colfax-Todds Valley Consolidated; Clyde Prout, Chairperson
- ▶ Colfax-Todds Valley Consolidated; Pamela Cubbler, Treasurer
- ▶ Guidiville Indian Rancheria; Donald Duncan, Chairperson
- ▶ Lone Band of Miwok Indians; Sara Dutschke, Chairperson
- ▶ Nashville Enterprise Miwok-Maidu-Nishinam; Cosme Valdez, Chairperson
- ▶ North Valley Yokuts Tribe; Katherin Erolinda Perez, Chairperson
- ▶ Muwekma Ohlone Indian Tribe of the SF Bay Area; Monica Arellano, Vice Chairwoman
- ▶ Shingle Springs Band of Miwok Indians; Regina Cuellar, Chairperson
- ▶ The Confederated Villages of Lisjan; Corrina Gould, Chairperson
- ▶ Tsi Akim Maidu; Don Ryberg, Chairperson
- ▶ Tsi Akim Maidu; Grayson Coney, Cultural Director
- ▶ Tule River Indian Tribe; Neil Peyron, Chairperson
- ▶ United Auburn Indian Community of the Auburn Rancheria; Gene Whitehouse, Chairperson
- ▶ Wilton Rancheria; Dahlton Brown, Director of Administration
- ▶ Wilton Rancheria; Jesus Tarango, Chairperson
- ▶ Wilton Rancheria; Steven Hutchason, THPO
- ▶ Yocha Dehe Wintun Nation; Anthony Roberts, Chairperson
- ▶ Yocha Dehe Wintun Nation; Leland Kinter, THPO

The specific details of the consultations are confidential pursuant to California law; however, a summary of events related to communication between the tribes and the Board is provided here. Venesa Kremer, Wilton Rancheria, responded on December 16, 2022, that the tribe would like to engage in consultation with the City about the Project. On December 21, 2022, Wilton Rancheria and the City had a virtual meeting in which they discussed Project specifics

and tribal involvement in the Project. On December 15, 2023 the City met with Wilton Rancheria to discuss the EIR findings and potential mitigation for tribal cultural resources. Consultation has since been concluded.

No responses from the other tribes were received as a result of this notification.

3.4.3 Impacts and Mitigation Measures

METHODOLOGY

The impact analysis for archaeological and historical resources is based on the findings and recommendations of the *Cultural Resources Technical Report for the Elk Grove Zoo Project* (Ascent Environmental 2023). The analysis is also informed by the provisions and requirements of federal, State, and local laws and regulations that apply to cultural resources.

CEQA Section 21083.2(g) defines a “unique archaeological resource” as an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets one or more of the following CRHR-related criteria: (1) it contains information needed to answer important scientific research questions and there is a demonstrable public interest in that information; (2) it has a special and particular quality, such as being the oldest of its type or the best available example of its type; or (3) it is directly associated with a scientifically recognized important precontact or historic event or person. An impact on a resource that is not unique is not a significant environmental impact under CEQA (State CEQA Guidelines Section 15064.5[c][4]). If an archaeological resource qualifies as a resource under CRHR criteria, then the resource is treated as a unique archaeological resource for the purposes of CEQA.

CEQA Section 21074 defines “tribal cultural resources” as “sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe” that are listed or determined eligible for listing in the CRHR, listed in a local register of historical resources, or otherwise determined by the lead agency to be a tribal cultural resource.

For the purposes of the impact discussion, “historical resource” is used to describe built-environment historic-period resources. Archaeological resources (both precontact and historic-period), which may qualify as “historical resources” pursuant to CEQA, are analyzed separately from built-environment historical resources.

THRESHOLDS OF SIGNIFICANCE

An impact on cultural resources would be significant if implementation of the Project would:

- ▶ cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5 of the State CEQA Guidelines;
- ▶ cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5 of the State CEQA Guidelines;
- ▶ cause a substantial adverse change in the significance of a tribal cultural resource, defined in CEQA Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is (i) listed or eligible for listing in the California Register of Historical Resources or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k), or (ii) a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth Public Resources Code Section 5024.1(c); or
- ▶ disturb any human remains, including those interred outside of dedicated cemeteries.

IMPACTS NOT DISCUSSED FURTHER

Historical Resources

As described above, no historical resources were identified on the Project site. The historic features discovered during the pedestrian survey (Kammerer Road and Well 41) were evaluated and recommended not eligible for listing in the CRHR or NRHP. As a result, none of these features are considered significant for the purposes of CEQA. In addition, the items to be removed from the Sacramento Zoo and relocated to the New Zoo—the carousel and okapi barn—are not individually eligible or contributors to the William Land Park Historic District (Mead & Hunt 2012). Therefore, Project construction and operation would have no impact on historical resources. This issue is not analyzed further.

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Impact 3.4-1: Cause a Substantial Adverse Change in the Significance of Unique Archaeological Resources

Results of the records search and pedestrian survey did not result in the identification of archaeological resources within the Project site. However, Project-related ground-disturbing activities, including off-site roadway and utility improvements, could result in discovery of or damage to yet undiscovered archaeological resources as defined in State CEQA Guidelines Section 15064.5 or CEQA Section 21083.2(g). If unanticipated archaeological resources are discovered during ground-disturbing activities, implementation of Mitigation Measure 3.4-1 would require that construction be halted and the find evaluated. This impact would be **less than significant**.

The results of the NCIC records search revealed that no precontact or historic-period archaeological sites have been previously documented within the Project site. The pedestrian survey found no anthropogenic soils (i.e., midden), aboveground features, or concentrations of shell, bone, or lithic materials that indicated the presence of a precontact indigenous archaeological deposit. In addition, no unique archaeological resources as defined in CEQA Section 21083.2(g) or archaeological resources as defined in State CEQA Guidelines Section 15064.5 were identified during the survey.

As described previously, the Project site's geologic unit is the Quaternary Riverbank Formation, which formed long before the first human occupation of the area and is generally unlikely to contain buried archaeological resources. In addition, the overlying soils are of the San Joaquin series; these soils are much younger (2,000 to 150 years ago) and are generally more sensitive for buried cultural remains. However, the Project site has been used for grazing, and a portion has been landscaped with paved roads and household communities, which can reduce the visibility of archaeological resources. Nonetheless, Project construction could encounter previously undiscovered or unrecorded archaeological sites and materials during preconstruction or construction-related ground-disturbing activities. These activities could damage or destroy previously undiscovered unique archaeological resources. Damage to or destruction of any archaeological materials, sites, or features would result in a substantial adverse change to the significance of the resource. Implementation of Mitigation Measure 3.4-1 would reduce the impact associated with archaeological resources to a **less-than-significant** level because it would require the performance of professionally accepted and legally compliant procedures for the discovery and protection of previously undocumented significant archaeological resources. These include halting work within 100 feet of the find if unanticipated archaeological resources are discovered, due to the overall size and scale of the Project and working with a qualified archaeologist to evaluate the significance of the find. This would be consistent with General Plan Policy HR-2-1.

Mitigation Measures

Mitigation Measure 3.4-1: Halt Ground Disturbance Upon Discovery of Subsurface Archaeological Features during All Ground-Disturbing Construction Activities

If any precontact or historic-era subsurface archaeological features or deposits (e.g., ceramic shard, trash scatters), including locally darkened soil ("midden"), which may conceal cultural deposits, are discovered during construction,

all ground-disturbing activity within 100 feet of the resources shall be halted, and a qualified professional archaeologist (one who meets the Secretary of the Interior's Professional Qualification Standards for archaeology) shall be retained to assess the significance of the find.

If the qualified archaeologist determines the archaeological material to be Native American in nature, the City shall contact the appropriate California Native American tribe, with the Wilton Rancheria tribe being initially contacted. A tribal representative from the Wilton Rancheria, or other appropriate California Native American tribe that is traditionally and culturally affiliated with the Project site, may make recommendations for further evaluation and treatment as necessary and provide input on the preferred treatment of the find. If the find is determined to be significant by the archaeologist or the tribal representative (i.e., because it is determined to constitute a unique archaeological resource or a tribal cultural resource, as appropriate), the archaeologist and tribal representative, as appropriate, shall develop, and the City shall implement, appropriate procedures to protect the integrity of the resource and ensure that no additional resources are affected. Procedures may include but would not necessarily be limited to processing materials for reburial, minimizing handling of cultural objects, leaving objects in place within the landscape, construction monitoring of any further activities by a tribal representative, and or returning the objects to a location within the project area where they will not be subject to future impacts. Wilton Rancheria does not consider curation of TCRs to be appropriate or respectful and requests that materials not be permanently curated, unless specifically requested by the Tribe, archival research, subsurface testing, or contiguous block unit excavation and data recovery (pursuant to a data recovery plan). No work at the discovery location shall resume until all necessary investigation and evaluation of the resource has been satisfied. This requirement shall be placed on Project improvement plans and will be verified by the City's Public Works Department.

Significance after Mitigation

Less than significant.

Impact 3.4-2: Cause a Substantial Adverse Change in the Significance of a Tribal Cultural Resource

Tribal consultation under AB 52 has not resulted in the identification of tribal cultural resources on the Project site. However, excavation activities associated with Project construction may disturb or destroy previously undiscovered significant subsurface tribal cultural resources. If these activities disturb or destroy previously undiscovered significant subsurface tribal cultural resources, implementation of Mitigation Measure 3.4-2a would require that construction be halted and the resources evaluated, Mitigation Measure 3.4-2b would require cultural awareness training, and Mitigation Measure 3.4-2c would require tribal monitoring. With implementation of these mitigation measures, this impact would be **less than significant**.

As described under "Native American Consultation," above, the City mailed notification letters to all tribes identified by the NAHC for the Project. A representative from Wilton Rancheria responded that the tribe would like to formally initiate the consultation process. The AB 52 consultation did not result in the identification of tribal cultural resources within the Project site. However, the tribe has expressed concern over the sensitivity of the area.

On May 30, 2023, negative SLF results were received from the NAHC. In addition, neither the NCIC records search nor the pedestrian survey revealed any indigenous materials within the Project site. Nevertheless, the potential for unidentified subsurface resources to be present that could qualify as a tribal cultural resource remains, and Project-related ground-disturbing activities could damage or destroy tribal cultural resources. Implementation of Mitigation Measures 3.4-2a, 3.4-2b, and 3.4-2c would reduce the impact associated with tribal cultural resources to a **less-than-significant** level by requiring that construction be halted and the resources be evaluated if ground-disturbing activities disturb or destroy previously undiscovered significant subsurface tribal cultural resources and by requiring Native American monitoring during ground disturbing activities and appropriate treatment and proper care of significant tribal cultural resources, in accordance with the wishes of the geographically and culturally affiliated tribe, in the case of a discovery. Additionally, mitigation would require cultural awareness training to provide information regarding sensitive tribal cultural resources.

Mitigation Measures

Mitigation Measure 3.4-2a: Implement Mitigation Measure 3.4-1

Mitigation Measure 3.4-2b: Implement Cultural Awareness Training

Prior to the start of any grading, utility-related excavation, and other ground disturbing phases of construction, individuals participating in work, on-site lead, foreman, City and Sacramento Zoological Society (SZS) staff members, and any other key personnel, shall receive the relevant information regarding sensitive tribal cultural resources, including applicable regulations, protocols for avoidance, and consequences of violating State laws and regulations. The Cultural Awareness Training shall describe appropriate avoidance and minimization measures for resources that have the potential to be located on the Project site and shall outline what to do and whom to contact if any potential archaeological resources or artifacts are encountered. The Cultural Awareness Training shall also underscore the requirement for confidentiality and culturally appropriate treatment of any kind of significance to Native Americans and behaviors, consistent with Native American Tribal values. Upon completion of the Worker Cultural Awareness Program individuals participating in work, on-site lead, foreman, and City and SZS staff members and any other key personnel shall sign a form that acknowledges receipt and understanding of the training. The training may be done in coordination with the Project Archaeologist. The New Zoo shall engage with the Wilton Rancheria Tribe to provide this training.

Mitigation Measure 3.4-2c: Implement Native American Monitoring

For grading, utility-related excavation, and other ground disturbing phases of construction, the New Zoo shall notify Wilton Rancheria and provide access to the Project site for a tribal monitor. The City Public Works Department shall contact the tribal representative a minimum of 7 days before beginning earthwork or other ground-disturbing activities. The tribal monitor will be invited to be present on-site during the construction phases that involve ground-disturbing activities, including tree removal, boring, excavation, drilling, and trenching.

Should the tribal monitor be present the City would request copies of complete daily monitoring logs that provide details on each day's activities, including construction activities, locations, soil, and any cultural materials identified. Should a tribal monitor not elect to participate the City's Construction Manager will monitor for potential discoveries. The on-site monitoring shall end when the site grading and excavation activities are completed or when the tribal representatives and monitor have indicated that the site has a low potential for affecting tribal cultural resources.

Significance after Mitigation

Less than significant.

Impact 3.4-3: Disturb Human Remains

Based on documentary research, no evidence suggests that any precontact or historic-era marked or unmarked human interments are present within or in the immediate vicinity of the Project site. However, ground-disturbing construction activities could uncover previously unknown human remains. With compliance with California Health and Safety Code Section 7050.5 and PRC Section 5097, this impact would be **less than significant**.

Based on documentary research, no evidence suggests that any precontact or historic-era marked or unmarked human interments are present within or in the immediate vicinity of the Project site. However, grave sites and Native American remains can be located outside of identified cemeteries or burial sites. Therefore, there is a possibility that unmarked, previously unknown Native American or other graves could be present within the Project site and could be uncovered by Project-related construction activities.

California law recognizes the need to protect Native American human burials, skeletal remains, and items associated with Native American burials from vandalism and inadvertent destruction. The procedures for the treatment of Native American human remains are contained in California Health and Safety Code Section 7050.5 and PRC Section 5097.

These statutes require that, if human remains are discovered, potentially damaging ground-disturbing activities in the area of the remains shall be halted immediately, and the appropriate county coroner shall be notified immediately. If the remains are determined by the coroner to be Native American, NAHC shall be notified within 24 hours, and the guidelines of the NAHC shall be adhered to in the treatment and disposition of the remains. Following the coroner's findings, the NAHC-designated most likely descendant and the landowner shall determine the ultimate treatment and disposition of the remains and take appropriate steps to ensure that additional human interments, if present, are not disturbed. The responsibilities for acting upon notification of a discovery of Native American human remains are identified in PRC Section 5097.94.

Compliance with California Health and Safety Code Section 7050.5 and PRC Section 5097 would provide an opportunity to avoid or minimize the disturbance of human remains and to appropriately treat any remains that are discovered. Therefore, this impact would be **less than significant**.

Mitigation Measures

No mitigation is required.

3.5 ENERGY

This section was prepared pursuant to State CEQA Guidelines Section 15126 and Appendix G of the CEQA guidelines, which require that EIRs include a discussion of the potential energy impacts of projects. The analysis considers whether the Elk Grove Zoo Project (Project) would result in inefficient, wasteful, and unnecessary consumption of energy.

During the NOP scoping period, the Sacramento Municipal Utility District (SMUD) submitted a comment letter regarding the Project's existing electrical infrastructure and the potential for future upgrades. Impacts related to electrical demand are discussed in Section 3.14, "Utilities and Service Systems." A comment was also made encouraging the use of on-site solar systems. See Chapter 2, "Project Description," for details regarding the Project's solar commitments. Impacts 3.5-1 and 3.5-2 discuss the Project's commitment to on-site solar systems.

3.5.1 Regulatory Setting

Energy conservation is embodied in many federal, State, and local statutes and policies. At the federal level, energy standards apply to numerous products (e.g., the U.S. Environmental Protection Agency's [EPA] EnergyStar™ program) and transportation (e.g., fuel efficiency standards). At the State level, Title 24 of the California Code of Regulations sets forth energy standards for buildings. Further, the State provides rebates/tax credits for installation of renewable energy systems, and offers the Flex Your Power program promotes conservation in multiple areas. At the local level, individual cities and counties establish policies in their general plans and climate action plans (CAPs) related to the energy efficiency of new development and land use planning and to the use of renewable energy sources.

FEDERAL

Energy Policy and Conservation Act and CAFE Standards

The Energy Policy and Conservation Act of 1975 established nationwide fuel economy standards to conserve oil. Pursuant to this Act, the National Highway Traffic and Safety Administration, part of the U.S. Department of Transportation (DOT), is responsible for revising existing fuel economy standards and establishing new vehicle economy standards.

The Corporate Average Fuel Economy (CAFE) program was established to determine vehicle manufacturer compliance with the government's fuel economy standards. Compliance with the CAFE standards is determined based on each manufacturer's average fuel economy for the portion of their vehicles produced for sale in the country. EPA calculates a CAFE value for each manufacturer based on the city and highway fuel economy test results and vehicle sales. The CAFE values are a weighted harmonic average of the EPA city and highway fuel economy test results. Based on information generated under the CAFE program, DOT is authorized to assess penalties for noncompliance. Under the Energy Independence and Security Act of 2007 (described below), the CAFE standards were revised for the first time in 30 years.

The CAFE Standards, which were first enacted by Congress in 1975, set fleet-wide averages that must be achieved by each automaker for its car and truck fleet. The purpose of the CAFE Standards is to reduce energy consumption by increasing the fuel economy of cars and light trucks. On April 1, 2022, Transportation Secretary Pete Buttigieg unveiled new CAFE standards for 2024–2026 model year passenger cars and light-duty trucks, requiring new vehicles sold in the US to average at least 40 miles per gallon.

Energy Policy Act of 1992 and 2005

The Energy Policy Act of 1992 (EPAAct) was passed to reduce the country's dependence on foreign petroleum and improve air quality. EPAAct includes several parts intended to build an inventory of alternative fuel vehicles (AFVs) in large, centrally-fueled fleets in metropolitan areas. EPAAct requires certain federal, state, and local government and private fleets to purchase a percentage of light-duty AFVs capable of running on alternative fuels each year. In

addition, financial incentives are also included in EPCA. Federal tax deductions are allowed for businesses and individuals to cover the incremental cost of AFVs. States are also required by the act to consider a variety of incentive programs to help promote AFVs. The Energy Policy Act of 2005 provides renewed and expanded tax credits for electricity generated by qualified energy sources, such as landfill gas; provides bond financing, tax incentives, grants, and loan guarantees for clean renewable energy and rural community electrification; and establishes a federal purchase requirement for renewable energy.

Energy Independence and Security Act of 2007

The Energy Independence and Security Act of 2007 is designed to improve vehicle fuel economy and help reduce U.S. dependence on oil. It represents a major step forward in expanding the production of renewable fuels, reducing dependence on oil, and confronting global climate change. The Energy Independence and Security Act of 2007 increases the supply of alternative fuel sources by setting a mandatory Renewable Fuel Standard requiring fuel producers to use at least 36 billion gallons of biofuel in 2022, which represents a nearly five-fold increase over current levels; and reduces U.S. demand for oil by setting a national fuel economy standard of 35 miles per gallon by 2020—an increase in fuel economy standards of 40 percent.

By addressing renewable fuels and the CAFE standards, the Energy Independence and Security Act of 2007 builds upon progress made by the Energy Policy Act of 2005 in setting out a comprehensive national energy strategy for the 21st century.

STATE

Warren-Alquist Act

The 1975 Warren-Alquist Act established the California Energy Resources Conservation and Development Commission, now known as the California Energy Commission (CEC). The Act established State policy to reduce wasteful, uneconomical, and unnecessary uses of energy by employing a range of measures. The California Public Utilities Commission (CPUC) regulates privately-owned utilities in the energy, rail, telecommunications, and water fields.

State of California Energy Action Plan

CEC is responsible for preparing the State Energy Plan, which identifies emerging trends related to energy supply, demand, conservation, public health and safety, and the maintenance of a healthy economy. The previous plan was the 2003 *Energy Action Plan (2008 update)*, which calls for the State to assist in the transformation of the transportation system to improve air quality, reduce congestion, and increase the efficient use of fuel supplies with the least environmental and energy costs. To further this policy, the plan identifies a number of strategies, including assisting public agencies and fleet operators in implementing incentive programs for zero-emission vehicles and addressing their infrastructure needs, as well as encouraging urban design that reduces vehicle miles traveled (VMT) and accommodates pedestrian and bicycle access.

The 2008 update has been supplemented by the 2019 California Energy Efficiency Action Plan, which includes three goals to drive energy efficiency: doubling energy efficiency savings by 2030, removing and reducing barriers to energy efficiency in low-income and disadvantaged communities, and reducing greenhouse gas (GHG) emissions from the buildings sector (CEC 2019).

Assembly Bill 2076: Reducing Dependence on Petroleum

Pursuant to Assembly Bill (AB) 2076 (Chapter 936, Statutes of 2000), CEC and the California Air Resources Board (CARB) prepared and adopted a joint agency report in 2003, *Reducing California's Petroleum Dependence*. Included in this report are recommendations to increase the use of alternative fuels to 20 percent of on-road transportation fuel use by 2020 and 30 percent by 2030, significantly increase the efficiency of motor vehicles, and reduce per capita VMT (CEC and CARB 2003). Further, in response to the CEC's 2003 and 2005 *Integrated Energy Policy Reports*, Governor Davis directed CEC to take the lead in developing a long-term plan to increase alternative fuel use.

A performance-based goal of AB 2076 was to reduce petroleum demand to 15 percent below 2003 demand by 2030.

Integrated Energy Policy Report

Senate Bill (SB) 1389 (Chapter 568, Statutes of 2002) required CEC to “conduct assessments and forecasts of all aspects of energy industry supply, production, transportation, delivery and distribution, demand, and prices. The Energy Commission shall use these assessments and forecasts to develop energy policies that conserve resources, protect the environment, ensure energy reliability, enhance the State’s economy, and protect public health and safety” (PRC Section 25301[a]). This work culminated in preparation of the first Integrated Energy Policy Report (IEPR).

CEC adopts an IEPR every 2 years and an update every other year. The 2022 IEPR Update Report, which is the most recent IEPR, was adopted on November 9, 2022. The 2022 IEPR Update Report provides a summary of priority energy issues currently facing the State, outlining strategies and recommendations to further the State’s goal of ensuring reliable, affordable, and environmentally responsible energy sources. Energy topics covered in the report include progress toward Statewide renewable energy targets and issues facing future renewable development; efforts to increase energy efficiency in existing and new buildings; progress by utilities in achieving energy efficiency targets and potential; improving coordination among the State’s energy agencies; streamlining power plant licensing processes; results of preliminary forecasts of electricity, natural gas, and transportation fuel supply and demand; future energy infrastructure needs; the need for research and development efforts to Statewide energy policies; and issues facing California’s nuclear power plants (CEC 2022).

Legislation Associated with Electricity Generation

The State has passed multiple pieces of legislation requiring the increasing use of renewable energy to produce electricity for consumers. California’s Renewable Portfolio Standard (RPS) Program was established in 2002 (SB 1078) with the initial requirement to generate 20 percent of their electricity from renewable by 2017, 33 percent of their electricity from renewables by 2020 (SB X1-2 of 2011), 52 percent by 2027 (SB 100 of 2018), 60 percent by 2030 (also SB 100 of 2018), and 100 percent by 2045 (also SB 100 of 2018). More detail about these regulations is provided in Section 3.7, “Greenhouse Gas Emissions and Climate Change.”

Senate Bill 350: Clean Energy and Pollution Reduction Act of 2015

The Clean Energy and Pollution Reduction Act of 2015 (SB 350) requires doubling of the energy efficiency savings in electricity and natural gas for retail customers through energy efficiency and conservation by December 31, 2030.

Assembly Bill 1007: State Alternative Fuels Plan

AB 1007 (Chapter 371, Statutes of 2005) required CEC to prepare a State plan to increase the use of alternative fuels in California. CEC prepared the State Alternative Fuels Plan (SAF Plan) in partnership with CARB and in consultation with other State, federal, and local agencies. The SAF Plan presents strategies and actions California must take to increase the use of alternative non-petroleum fuels in a manner that minimizes the costs to California and maximizes the economic benefits of in-State production. The SAF Plan assessed various alternative fuels and developed fuel portfolios to meet California’s goals to reduce petroleum consumption, increase alternative fuel use, reduce greenhouse gas (GHG) emissions, and increase in-State production of biofuels without causing a significant degradation of public health and environmental quality.

California Building Energy Efficiency Standards (Title 24, Part 6)

The energy consumption of new residential and nonresidential buildings in California is regulated by the California Energy Code. The code was established by CEC in 1978 in response to a legislative mandate to create uniform building codes to reduce California’s energy consumption and provide energy-efficiency standards for residential and nonresidential buildings. CEC updates the California Energy Code every 3 years, typically including more stringent design requirements for reduced energy consumption, which results in the generation of fewer GHG emissions. The 2022 California Energy Code went into effect on January 1, 2023. The 2022 California Energy Code advances the on-site energy generation progress started in the 2019 California Energy Code by encouraging electric heat pump technology and use, establishing electric-ready requirements when natural gas is installed, expanding solar photovoltaic (PV) system and battery storage standards, and strengthening ventilation standards to improve indoor

air quality. CEC estimates that the 2022 California Energy Code will save consumers \$1.5 billion and reduce GHGs by 10 million metric tons of carbon dioxide-equivalent over the next 30 years (CEC 2021).

California Green Building Standards (Title 24, Part 11)

The California Green Building Standards, also known as CALGreen, is a reach code (i.e., optional standards that exceed the requirements of mandatory codes) developed by CEC that provides green building standards for Statewide residential and nonresidential construction. The current version is the 2022 CALGreen Code, which took effect on January 1, 2023. As compared to the 2019 CALGreen Code, the 2022 CALGreen Code strengthened sections pertaining to electric vehicle (EV) and bicycle parking, water efficiency and conservation, and material conservation and resource efficiency, among other sections of the CALGreen Code. The CALGreen Code sets design requirements equivalent to or more stringent than those of the California Energy Code for energy efficiency, water efficiency, waste diversion, and indoor air quality. These codes are adopted by local agencies that enforce building codes and used as guidelines by State agencies for meeting the requirements of Executive Order B-18-12.

Legislation Associated with Greenhouse Gas Reduction

The State has passed legislation that aims to reduce GHG emissions. The legislation often has an added benefit of reducing energy consumption. SB 32 requires a Statewide GHG emission reduction of at least 40 percent below 1990 levels by no later than December 31, 2030. Executive Order S-3-05 sets a long-term target of reducing Statewide GHG emissions by 80 percent below 1990 levels by 2050.

SB 375 aligns regional transportation planning efforts, regional GHG emission reduction targets, and land use and housing allocation. The Advanced Clean Cars program, approved by CARB, combines the control of GHG emissions and criteria air pollutants and the increase in the number of zero-emission vehicles into a single package of standards. The program's zero-emission vehicle regulation requires battery, fuel cell, and/or plug-in hybrid electric vehicles to account for up to 15 percent of California's new vehicle sales by 2025. In August 2022, CARB adopted the ACC II program, which sets sales requirements to reach the goal of 100 percent ZEV sales in the State by 2035. Additionally, in April 2023, CARB adopted the Advanced Clean Fleets regulation, which sets a goal of achieving a fully zero-emission truck and bus fleet within the State by 2045. Implementation of the State's legislation associated with GHG reduction will have the co-benefit of reducing California's dependency on fossil fuel and making land use development and transportation systems more energy efficient.

More details about legislation associated with GHG reduction are provided in the regulatory setting of Section 3.7, "Greenhouse Gas Emissions and Climate Change."

LOCAL

City of Elk Grove General Plan

The City of Elk Grove General Plan includes policies that promote energy conservation and reduction strategies. The following policies are applicable to the Project (City of Elk Grove 2022a):

- ▶ **Policy NR-6-1:** Promote energy efficiency and conservation strategies to help residents and businesses save money and conserve valuable resources.
- ▶ **Policy NR-6-5:** Promote energy conservation measures in new development to reduce on-site emissions and seek to reduce the energy impacts from new residential and commercial projects through investigation and implementation of energy efficiency measures during all phases of design and development.
- ▶ **Policy NR-6-6:** Encourage renewable energy options that are affordable and benefit all community members.
- ▶ **Policy NR-6-7:** Encourage the use of solar energy systems in homes, commercial businesses, and City facilities as a form of renewable energy.
- ▶ **Policy SD-2-1:** Incorporate green building techniques and best management practices in the site design, construction, and renovation of all public projects.

- ▶ **Policy SD-2-2:** Support innovation and green building best management practices for all new private development.

City of Elk Grove Climate Action Plan

The City of Elk Grove Climate Action Plan: 2019 Update (CAP), adopted in February 2019 (and amended in December 2019 and December 2022) by the Elk Grove City Council, was incorporated into the most recent update to the General Plan (discussed above). The CAP includes GHG emission reduction targets, strategies, and implementation measures developed to help the City reach these targets. Reduction strategies address GHG emissions associated with transportation and land use, energy, water, waste management and recycling, agriculture, and open space. The following CAP goals are related to transportation and energy use (City of Elk Grove 2022b):

- ▶ Encourage or Require Green Building Practices in New Construction,
- ▶ Phase in Zero Net Energy Standards in New Construction,
- ▶ Solar Photovoltaics in New and Existing Residential and Commercial Development,
- ▶ Limit Vehicle Miles Traveled,
- ▶ Require Tier 4 Final Construction Equipment by 2030, and
- ▶ Require EV [electric vehicle] Charging Stations for All New Development.

The CAP is currently being updated and is anticipated to be completed in 2024.

City of Elk Grove Municipal Code

Elk Grove Municipal Code (EGMC) Chapter 16.07 provides permitting guidance for EV charging stations. EGMC Sections 16.07.200 through 16.07.500 summarize the streamlined permitting process for installation of EV charging stations including provisions pertaining to the completion of a technical review checklist that ensures that installation of an EV charging station would not result in any adverse environmental or health effects. As stated in the EGMC Section 16.07.400, "the intent of this chapter [is] to encourage the installation of electric vehicle charging stations by removing obstacles to permitting for charging stations so long as the action does not supersede the Building Official's authority to address higher priority, life-safety situations."

EGMC Section 23.58.120 requires nonresidential developments with over 200 parking spaces to have a minimum of 20 percent of the parking spaces to be EV capable and 25 percent of EV capable spaces to be EV ready parking spaces. This section also implements the requirements of Part 6 of the 2022 Title 24 California Building Code (CALGreen Code) for non-residential land uses.

3.5.2 Environmental Setting

PHYSICAL SETTING

Energy Facilities and Services in the Project Area

Electric services are provided to the City by SMUD. Natural gas is supplied to the City from Pacific Gas and Electric. See Section 3.14, "Utilities and Service Systems," for more detailed information on electrical and natural gas infrastructure specifically serving the Project area.

The proportion of SMUD-delivered electricity generated from eligible renewable energy sources is anticipated to increase over the next three decades to comply with the SB 100 goals described in Section 3.5.1, "Regulatory Setting."

Energy Types and Sources

California relies on a regional power system composed of a diverse mix of natural gas, renewable, hydroelectric, and nuclear generation resources. One-third of energy commodities consumed in California is natural gas. In 2021, approximately 38 percent of natural gas consumed in the State was used to generate electricity. Large hydroelectric

powered approximately 9 percent of electricity and renewable energy from solar, wind, small hydroelectric, geothermal, and biomass combustion totaled 34 percent (SMUD 2023). In 2021 SMUD provided its customers with 30 percent eligible renewable energy (i.e., biomass combustion, geothermal, small scale hydroelectric, solar, and wind) and 18 percent and 52 percent from large scale hydroelectric and natural gas, respectively (SMUD 2023). The contribution of in- and out-of-State power plants depends on the precipitation that occurred in the previous year, the corresponding amount of hydroelectric power that is available, and other factors.

Alternative Fuels

A variety of alternative fuels are used to reduce demand for petroleum-based fuel. The use of these fuels is encouraged through various Statewide regulations and plans (e.g., Low Carbon Fuel Standard, AB 32 Scoping Plan). Conventional gasoline and diesel may be replaced (depending on the capability of the vehicle) with many transportation fuels, including:

- ▶ biodiesel,
- ▶ electricity,
- ▶ ethanol (E-10 and E-85),
- ▶ hydrogen,
- ▶ natural gas (methane in the form of compressed and liquefied natural gas),
- ▶ propane,
- ▶ renewable diesel (including biomass-to-liquid),
- ▶ synthetic fuels, and
- ▶ gas-to-liquid and coal-to-liquid fuels.

California has a growing number of alternative fuel vehicles through the joint efforts of CEC, CARB, local air districts, federal government, transit agencies, utilities, and other public and private entities. As of August 2023, California contained over 16,000 alternative fueling stations (AFDC 2023).

ENERGY USE FOR TRANSPORTATION

In 2021, the transportation sector comprised the largest end-use sector of energy in the State totaling 37.8 percent, followed by the industrial sector totaling 23.2 percent, the residential sector at 20.0 percent, and the commercial sector at 19.0 percent (EIA 2020). On-road vehicles use about 90 percent of the petroleum consumed in California. CEC reported retail sales of 448 million and 45 million gallons of gasoline and diesel, respectively, in Sacramento County in 2021 (the most recent data available) (CEC 2023). The California Department of Transportation (Caltrans) projects that 996 million gallons of gasoline and diesel will be consumed in Sacramento County in 2030 (Caltrans 2008). On-road vehicles use about 90 percent of the petroleum consumed in California. The California Department of Transportation (Caltrans) projected 782 million gallons of gasoline and diesel were consumed in Sacramento County in 2015, an increase of approximately 88 million gallons of fuel from 2010 levels (Caltrans 2008).

ENERGY USE AND CLIMATE CHANGE

Scientists and climatologists have produced evidence that the burning of fossil fuels by vehicles, power plants, industrial facilities, residences, and commercial facilities has led to an increase of the earth's temperature. For an analysis of GHG production and the Project's impacts on climate change, refer to Section 3.7, "Greenhouse Gas Emissions and Climate Change."

3.5.3 Impacts and Mitigation Measures

METHODOLOGY

Construction- and operation-related energy consumption by the Project was measured in megawatt-hours of electricity, therms of natural gas, gallons of gasoline, and gallons of diesel fuel. Energy consumption estimates were calculated using the California Emissions Estimator Model (CalEEMod) version 2022.1.1.16 computer program. Where Project-specific information was not known, CalEEMod default values based on the Project's location were used. Project-specific information on solar energy, VMT, and water usage were provided by the Project applicant and City and used in CalEEMod.

Project construction and operations were modeled separately. To model construction emission levels, each phase was modeled separately, and total emissions and energy consumption were calculated by year. To model operational at full buildout of the New Zoo, each phase (1A, 1B, 1C, 2, 3, and 4) was combined into one CalEEMod run to calculate emissions and energy consumption of the first year of operations at full buildout.

Kimley Horn completed a traffic study that determined Project VMT, and the results were input into CalEEMod to obtain transportation energy estimates. Fuel consumption during construction was calculated using carbon dioxide equivalent (CO₂e) estimates for worker (gasoline) and off-road equipment, as well as for hauling (diesel). Refer to Appendix E for detailed assumptions and modeling results.

THRESHOLDS OF SIGNIFICANCE

An impact on energy resources would be significant if implementation of the Project would:

- ▶ result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy, or wasteful use of energy resources, during Project construction or operation or
- ▶ conflict with or obstruct a State or local plan for renewable energy or energy efficiency.

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Impact 3.5-1: Result in Wasteful, Inefficient, or Unnecessary Consumption of Energy during Project Construction or Operation

Implementation of the Project would result in the consumption of additional energy supplies during construction in the form of gasoline and diesel fuel. However, this energy expenditure would not be considered wasteful, because construction would be temporary, and standard construction practices would be implemented. Project operations would result in additional energy consumption but would be required to comply with the most recent version of the California Energy Code and the City of Elk Grove CAP. The Project would incorporate measures included in the City's CAP, including zero net energy requirements in 2030 for commercial development. The Project would include on-site photovoltaic solar systems to supply electricity to the Project site. In addition, the Project would be fully electric with on-site EV charging and bicycle infrastructure for visitors and employees. Therefore, the Project would not result in wasteful, inefficient, or unnecessary consumption of energy during Project construction or operations. This impact would be **less than significant**.

Construction-Related Energy Use

Energy use would be required to construct each phase of the proposed New Zoo from 2025 to 2042. Most of the construction-related energy consumption for the Project would be associated with off-road equipment and the transport of equipment, animals, and materials using on-road haul trucks. For example, energy would be required to transport construction equipment, waste, and excavated materials. The one-time energy expenditure required to construct development would be nonrecoverable. Additional gasoline and diesel would be consumed for worker

commute trips associated with Project construction. An estimated 19,521 gallons of gasoline (worker trips) and 679,467 gallons of diesel fuel (off-road equipment, hauling trips) may be used during Project construction. Emissions from trips associated with moving the animals are speculative at the time of this analysis, and thus those emissions were not included in this analysis. The animals housed at the New Zoo would be from either the existing Sacramento Zoo or another AZA accredited zoo. The determination of where animals at the New Zoo would arrive from would be determined closer to the opening of the New Zoo and subsequent phases. Therefore, quantifying emissions from these vehicle trips would be speculative and is not included in this analysis. (See Appendix E for a summary of construction calculations). Table 3.5-1 summarizes the anticipated construction fuel consumption for each year of construction.

The energy needs for construction would be spread throughout the Project site. The energy needs for Project construction would be temporary and would not increase energy demand in a wasteful or inefficient manner. There would be no atypical construction-related energy demand associated with the development, because construction would follow standard practices related to energy consumption. Nonrenewable energy would not be consumed in a wasteful, inefficient, or unnecessary manner when compared to other construction activity in the region. In addition, on-road gasoline and diesel fuel consumption associated with construction activity would go down every year as the vehicle fleet becomes more fuel-efficient over time.

Table 3.5-1 Construction-Related Fuel Consumption

Year	Diesel (Gallons)	Gasoline (Gallons)
2025	93,188	2,829
2026	78,574	6,196
2027	78,106	6,088
2028	40,499	1,661
2029	38,492	1,506
2030	34,858	1,241
2031	34,799	1,219
2032	22,271	1,412
2033	37,414	2,175
2034	29,072	2,006
2035	18,862	569
2036	18,731	479
2037	18,714	473
2038	18,698	469
2039	13,386	810
2040	41,136	2,859
2041	36,317	3,132
2042	26,350	2,394
Total	679,467	19,521

Note: Gasoline gallons are gallons used for on-road worker trips. Diesel gallons are gallons used by off-road equipment and for on-road worker and vendor trips.

Source: Calculations prepared by Ascent Environmental in 2023.

Operation-Related Energy Use

Table 3.5-2 summarizes the anticipated energy use by sector associated with operation of the Project. Modeling assumptions, and details can be found in Appendix E. Energy expenditure for Project operations would be typical for

an operating zoo and would include electricity for lighting, space and water heating, climate control, and landscape maintenance activities.

To ensure that no wasteful, inefficient, or unnecessary consumption of energy would occur during Project operations, the Project would be designed to be all electric. In addition, a 20-kilowatt (kW) solar array would be installed on the proposed retail building, and a 14-kW array would be installed on the proposed office building. The Project would not use natural gas or natural gas infrastructure, complying with the Title 24 Part 6 and the CAP's mission to reduce natural gas use and GHG emissions. Therefore, operational energy consumption for the Project would not be wasteful or inefficient.

Table 3.5-2 Operation-Related Building Energy Consumption (2043)

Energy Sector	Energy Consumption (MMBtu/year)
Mobile	42,800.7
Area	38.6
Energy	540.8
Water	397.1
Wastewater	3,943.2
Refrigerants	197.2
Total	48,725

Note: MMBtu/year = million British thermal units per year.

Source: Calculations prepared by Ascent Environmental in 2023.

Transportation Energy Use

The Project would require an increased amount of energy related to employees and visitors driving and taking public transportation to and from the Project site. The Project would include at least 120 bicycle parking stalls and 327 total EV parking spaces, 87 of which would be EV ready and 240 of which would be EV-capable parking spaces. As described in Kimley Horn's *Elk Grove Zoo Relocation – VMT Analysis*, at full buildout, the Project is anticipated to result in 44,211 daily, or 16,137,015 annual, VMT, a daily increase of 30,040, or annual increase of 10,964,600, VMT from baseline operations at the existing Sacramento Zoo (Kimley Horn 2023). The VMT analysis recommended that the Project coordinate with the City to implement a local transit stop on the Project site and designate carpool parking for high-occupancy vehicles to decrease the net VMT increase associated with the Project. These measures could further decrease gasoline and diesel fuel consumption. By full buildout in 2043, when passenger vehicles would be more efficient and cleaner, the VMT impact would also decrease. In addition, bicycle parking stalls and EV parking spaces consistent with EGMC Section 23.58.120 would be installed on-site. Therefore, the use of transportation-related energy during Project construction and operation would not be wasteful, inefficient, or unnecessary.

Summary

The Project would result in energy consumption from Project construction, operations on the site, and transportation. Construction energy would be a one-time energy expenditure required to construct development and would not include atypical construction-related energy demand. The Project would be fully electric and would include solar arrays for renewable energy. In addition, the Project would include EV parking spaces and bicycle infrastructure, which would reduce gasoline and diesel fuel consumption associated with new trips generated by the Project. Therefore, implementing the Project would not result in the wasteful, inefficient, or unnecessary consumption of energy. This impact would be **less than significant**.

Mitigation Measures

No mitigation is required.

Impact 3.5-2: Conflict with or Obstruct a State or Local Plan for Renewable Energy or Energy Efficiency

The Project would incorporate various design features that are similar to the GHG reduction measures included in the City's CAP, such as prohibiting on-site natural gas infrastructure, including EV charging and bicycle infrastructure, and including on-site solar photovoltaic systems. As a result, implementation of the Project would not conflict with or obstruct a State or local plan for renewable energy or energy efficiency. This impact would be **less than significant**.

The Project would be consistent with the City of Elk Grove CAP, which would result in reduced energy demand and GHG emissions. The CAP, although designed to reduce GHG emissions, also plays a role in improving energy efficiency and enhancing renewable energy resources and therefore serves as the renewable energy or energy efficiency plan applicable to the Project. Several measures in the City's CAP that would reduce energy demand and increase the City's capacity to generate renewable resources would apply to the Project:

- ▶ **BE-3. Building Stock: Nonresidential Appliances in Existing Development.** Equip City businesses to reduce operational expenses and maximize energy efficiency using energy-efficient and cost-effective indoor and outdoor appliances and equipment.
- ▶ **BE-7. Building Stock: Solar Photovoltaics in New and Existing Residential and Commercial Development.** Encourage and require installation of on-site solar photovoltaic (PV) in new single-family and low-rise multi-family developments. Promote installation of on-site PV systems in existing residential and commercial development.
- ▶ **TACM-4. Pedestrian and Bicycle Travel.** Provide for safe and convenient pedestrian and bicycle travel through implementation of the Bicycle, Pedestrian, and Trails Master Plan and increased bicycle parking standards.
- ▶ **TACM-9. EV Charging Requirements.** Adopt an electric vehicle (EV) charging station ordinance that establishes minimum EV charging standards for all new residential and commercial development. Increase the number of EV charging stations at municipal facilities throughout the City.

The Project would be consistent with CAP Measure BE-3 by eliminating on-site natural gas and using the solar array that would be installed on the site. Similarly, the Project would be consistent with CAP Measure BE-7 by promoting the future PV installations. By installing bike parking stalls, the Project would be consistent with CAP Measure TACM-4. Lastly, by installing 327 EV-capable parking spaces, the Project would be consistent with CAP Measure TACM-9.

In addition, EGMC Chapter 16.07 provides streamlined permitting for EV charging stations. Construction and operation of the EV charging stations in the Project would be entitled to use the streamlining permitting mechanisms outlined in Municipal Code Chapter 16.07. Municipal Code Section 23.58.120 requires a minimum of 20 percent of the parking spaces in nonresidential developments with more than 200 parking spaces to be EV-capable and 25 percent of the EV-capable spaces to be EV-ready parking spaces. Through installation of 327 total EV-capable spaces and 87 EV-ready spaces among the 1,600 total guest spaces and employee spaces, the Project would comply with EGMC Section 23.58.120. This section of the EGMC also implements the requirements of Part 6 of the 2022 Title 24 California Building Code (CALGreen) for nonresidential land uses, which the Project would comply with by at least installing the two PV systems. Therefore, the Project would be consistent with CALGreen. The Project would be consistent with energy reduction measures in both the CAP and the EGMC. Therefore, the Project would not conflict with or obstruct a State or local plan for renewable energy or energy efficiency. This impact would be **less than significant**.

Mitigation Measures

No mitigation is required.

3.6 GEOLOGY AND SOILS

This section describes applicable regulations and existing environmental conditions relative to geology, soils, and paleontological resources at the Project site. It also includes an analysis of environmental impacts on these resources that would result from implementation of the Project and identifies recommended mitigation measures for any significant or potentially significant impacts. The primary sources of information used for this analysis include Annex B of the Sacramento County Multi-Jurisdictional Local Hazard Mitigation Plan Update (Sacramento County 2021), the City of Elk Grove General Plan (City of Elk Grove 2022), General Plan Update EIR (City of Elk Grove 2018), the Geotechnical Investigation (Geocon Consultants, Inc. 2023), and Phase I Environmental Site Assessment and Limited Phase II Environmental Site Assessment Report (Geocon Consultants, Inc. 2022) prepared for the Project site. No comments related to geology, soils, mineral resources, and paleontological resources were received during the public scoping period for the Project.

3.6.1 Regulatory Setting

FEDERAL

National Earthquake Hazards Reduction Act

In October 1977, the U.S. Congress passed the Earthquake Hazards Reduction Act (42 United States Code Sections 7701–7706) to reduce the risks to life and property from future earthquakes in the United States. To accomplish this reduction in risk, the act established the National Earthquake Hazards Reduction Program (NEHRP). The mission of the NEHRP includes improved understanding, characterization, and prediction of hazards and vulnerabilities; improved building codes and land use practices; risk reduction through post-earthquake investigations and education; development and improvement of design and construction techniques; improved mitigation capacity; and accelerated application of research results. The NEHRP designates the Federal Emergency Management Agency as the lead agency of the program and assigns several planning, coordinating, and reporting responsibilities.

STATE

Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo Earthquake Fault Zoning Act of 1972 (Public Resources Code [PRC] Section 2621-2630) intends to reduce the risk to life and property from surface fault rupture during earthquakes by regulating construction in active fault corridors, and by prohibiting the location of most types of structures intended for human occupancy across the traces of active faults. The act defines criteria for identifying active faults, giving legal support to terms such as active and inactive, and establishes a process for reviewing building proposals in Earthquake Fault Zones. Under the Alquist-Priolo Act, faults are zoned and construction along or across these zones is strictly regulated if they are “sufficiently active” and “well-defined.” A fault is considered sufficiently active if one or more of its segments or strands shows evidence of surface displacement during Holocene time (defined for purposes of the act as within the last 11,000 years). A fault is considered well defined if its trace can be clearly identified by a trained geologist at the ground surface or in the shallow subsurface, using standard professional techniques, criteria, and judgment (Bryant and Hart 2007). Before a project can be permitted in a designated Alquist-Priolo Earthquake Fault Zone, cities and counties must require a geologic investigation to demonstrate that proposed buildings would not be constructed across active faults. The law addresses only the hazard of surface fault rupture and is not directed toward other earthquake hazards.

Seismic Hazards Mapping Act

The intention of the Seismic Hazards Mapping Act of 1990 (PRC Section 2690–2699.6) is to reduce damage resulting from earthquakes. While the Alquist-Priolo Act addresses surface fault rupture, the Seismic Hazards Mapping Act

addresses other earthquake-related hazards, including ground shaking, liquefaction, and seismically induced landslides. The act's provisions are similar in concept to those of the Alquist-Priolo Act: The State is charged with identifying and mapping areas at risk of strong ground shaking, liquefaction, landslides, and other corollary hazards, and cities and counties are required to regulate development within mapped Seismic Hazard Zones. Under the Seismic Hazards Mapping Act, permit review is the primary mechanism for local regulation of development.

California Building Code

The California Building Code (CBC) (California Code of Regulations, Title 24) is based on the International Building Code. The CBC has been modified from the International Building Code for California conditions, with more detailed and/or more stringent regulations. Specific minimum seismic safety and structural design requirements are set forth in Chapter 16 of the CBC. The CBC identifies seismic factors that must be considered in structural design. Chapter 18 of the CBC regulates the excavation of foundations and retaining walls, while Chapter 18A regulates construction on unstable soils, such as expansive soils and areas subject to liquefaction. Appendix J of the CBC regulates grading activities, including drainage and erosion control. The CBC contains a provision that provides for a preliminary soil report to be prepared to identify "...the presence of critically expansive soils or other soil problems which, if not corrected, would lead to structural defects." (CBC Chapter 18 Section 1803.1.1.1).

National Pollutant Discharge Elimination System Permit Program

As a result of the 1972 Federal Water Pollution Control Act, subsequently known as the Clean Water Act, the National Pollutant Discharge Elimination System (NPDES) permit program was established for the purpose of reducing point sources of water pollution, which include eroded sediment from construction sites and disturbed areas. NPDES permits are required for any discharges of pollutants to navigable waters of the United States, including any discharge to surface waters and lakes, rivers, streams, bays, the ocean, dry stream beds, wetlands, and storm sewers that are tributary to any surface water body. The NPDES permit program in California is administered by the State Water Resources Control Board and by the nine Regional Water Quality Control Boards (RWQCBs) that issue NPDES permits and enforce regulations within their respective regions. The following discussion includes a summary of NPDES permits applicable to the Project, as they relate to geology and soils. Section 3.9, "Hydrology and Water Quality," provides additional discussion of the NPDES permit program as it relates to water quality.

NPDES Construction General Permit

Dischargers whose projects disturb one or more acres of soil or whose projects disturb less than one acre but are part of a larger common plan of development that in total disturb one or more acres, are required to obtain coverage under the NPDES General Permit for Discharges of Storm Water Associated with Construction Activity Construction General Permit Order 2009-0009-DWQ (Construction General Permit). Construction activity subject to the Construction General Permit includes clearing, grading, and disturbances to the ground such as stockpiling, or excavation, but does not include regular maintenance activities performed to restore the original line, grade, or capacity of the facility.

The Construction General Permit requires the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP), which outlines controls designed to prevent harmful pollutants (including soil erosion) from being washed by stormwater runoff into local water bodies. For projects in the City, the SWPPP must be submitted to the Central Valley RWQCB. Examples of erosion control measures implemented at construction sites include covering disturbed areas with mulch, temporary seeding, soil stabilizers, binders, fiber rolls or blankets, temporary vegetation, and permanent seeding. Sediment control best management practices (BMPs) are a secondary means of preventing storm water contamination and include installing silt fences or placing straw wattles below slopes. All measures must be periodically inspected, maintained, and repaired to ensure that receiving water quality is protected.

NPDES Municipal Separate Storm Sewer Systems Permit and Sacramento Stormwater Quality Partnership New Development Program

In 2008, the Central Valley RWQCB reissued a NPDES Municipal Separate Storm Sewer Systems Permit (MS4 Permit) for members of the Sacramento Stormwater Quality Partnership (SSQP), which consists of the cities of Citrus Heights, Elk Grove, Folsom, Galt, Rancho Cordova, Sacramento, and the County of Sacramento (Order No. R5-2008-0142,

NPDES Permit No. CA082597). The MS4 Permit specifies requirements necessary for the permittees to reduce the discharge of pollutants in urban runoff to the maximum extent practicable and to minimize the potential for runoff from new development to contribute to downstream erosion, excessive sediment discharge, and deposition in stream channels.

To maintain compliance with the MS4 Permit, the SSQP established a New Development Program, which addresses post-construction stormwater quantity and quality from new development and re-development projects. The goal of the program is to protect local creeks and rivers by reducing the discharge of pollutants found in stormwater resulting from new developments to the maximum extent practicable and by mitigating increased flows that can cause erosion and degrade habitat. Projects subject to the New Development Program are required to comply with source control, hydromodification control, treatment control, and low impact development (LID) design standards included in the Sacramento Region Stormwater Quality Design Manual (SSQP 2021) and the SSQP Hydromodification Management Plan (SSQP 2017). Implementation of such design standards are intended, in part, to prevent any increases in peak flow and runoff duration from new development in a manner that artificially accelerates erosion and sedimentation within receiving waters.

State Laws Pertaining to Paleontological Resources

Section 5097.5 of the California Public Resources Code prohibits “knowing and willful” excavation, removal, destruction, injury, and defacement of any “vertebrate paleontological site, including fossilized footprints,” on public lands, except where the agency with jurisdiction has granted express permission. As used in this section, “public lands” means lands owned by, or under the jurisdiction of, the State, or any city, county, district, authority, or public corporation, or any agency thereof.

LOCAL

Sacramento Metropolitan Air Quality Management District Rules and Regulations

As discussed in Section 3.2, “Air Quality,” the Sacramento Metropolitan Air Quality Management District (SMAQMD) has adopted rules and regulations regarding dust control. Although these rules and regulations were adopted for the purpose of reducing air pollutant emissions in the form of fugitive dust, these rules and regulations have the added benefit of stabilizing soils at construction sites in a manner that reduces the potential for wind erosion and sedimentation. The following discussion includes a summary of SMAQMD rules applicable to the Project, as they relate to geology and soils. Section 3.2, “Air Quality,” provides additional discussion of these rules as they relate to air pollution. The following rules and regulations are applicable to the Project:

- ▶ Rule 403: Fugitive Dust. The purpose of this rule is to regulate operations that result in fugitive dust emissions into the atmosphere. Standard 301.1 requires the use of water or chemicals to control dust during construction, excavation, and grading. Standard 301.2 requires the application of asphalt, oil, water, or suitable chemicals on dirt roads, materials stockpiles, and other surfaces that can give rise to airborne dusts.
- ▶ Rule 405: Dust and Condensed Fumes. The purpose of this rule is to limit the discharge of dust and condensed fumes into the atmosphere by establishing emission rates based on process weight. This rule applies to dust-generating activities, which include shoveling, conveying, covering, bagging, and sweeping.

City of Elk Grove General Plan

The Services, Health, and Safety Element of the City of Elk Grove General Plan identifies natural safety hazards, including geologic and seismic hazards, that exist within the City’s planning area and establishes goals and policies to minimize potential risks associated with these hazards (City of Elk Grove 2018). The following policies are applicable to the Project:

- ▶ **Policy ER-3-2:** Support efforts by federal, State, and other local jurisdictions to investigate local seismic and geological hazards and support those programs that effectively mitigate these hazards.
- ▶ **Policy ER-3-2:** Seek to ensure that new structures are protected from damage caused by geologic and/or soil conditions.

City of Elk Grove Municipal Code

As set forth in Section 16.04.010 of the Elk Grove Municipal Code, the City has adopted the most recent edition of the California Building Code (CCR Title 24). The building code regulates the erection, construction, enlargement, alteration, repair, moving, removal, demolition, conversion, occupancy, equipment, wiring, plumbing, use, height, area and maintenance of all buildings and structures within the City.

Chapter 16.44, Land Grading and Erosion Control, of the Elk Grove Municipal Code was enacted for the purpose of minimizing damage to surrounding properties and public rights-of-way, degradation of the water quality of watercourses, and the disruption of natural or City-authorized drainage flows caused by the activities of clearing and grubbing; grading; filling and excavating of land; sediment and pollutant runoff from other construction-related activities; and to comply with the provisions of the City's NPDES Permit Number CA0082597. Chapter 16.44 establishes procedures and standards for controlling erosion, sedimentation, and other pollutant runoff. Section 16.44.050 requires that a grading and erosion control permit be obtained for activities that involve: (1) grading, filling, excavating, storing, or disposing 350 cubic yards or more of soil or earthy material, or (2) clearing and grubbing 1 acre or greater of land within the City. The intent of the Chapter is to minimize damage to surrounding properties and public rights-of-way, minimize degradation of water quality in watercourses, minimize disruption of natural or City-authorized drainage flows caused by construction activities, and make projects comply with the provisions of the City's NPDES Permit Number CA0082597, issued by the RWQCB. The City of Elk Grove is a co-permittee on an NPDES permit, along with Sacramento County and the Cities of Sacramento, Folsom, Galt, and Citrus Heights.

3.6.2 Environmental Setting

GEOLOGIC CONDITIONS

The Project site is within the southern portion of the Sacramento Valley, which is in the northern portion of the Great Valley geomorphic province of California. The Sacramento Valley is a broad depression bounded by the Sierra Nevada and Cascade mountain ranges to the east, the Coast Ranges to the west, and the Sacramento-San Joaquin delta to the south. The valley has been filled with a thick sequence of sediments of marine and continental origins derived from weathering of the adjacent mountain ranges resulting in a stratigraphic section of Cretaceous, Tertiary, and Quaternary deposits. The Project site is underlain by the middle member of the mid-Pleistocene Riverbank Formation, an older alluvium described as semi-consolidated, discontinuous, interbedded layers of clay, silt, sand, and gravel deposited by rivers and streams emanating from the Sierra Nevada (Geocon Consultants, Inc. 2023). No unique geologic features occur on the Project site, which consists of a fallow field that is used as rangeland for cattle.

TOPOGRAPHY AND DRAINAGE

The United States Geological Survey's Bruceville and Florin, California 7.5-minute topographic maps depict the topography of the Project site and vicinity as relatively flat-lying. The Project site is depicted at an elevation of 40 feet above mean sea level (MSL) and elevations in the vicinity of the Project site range from 30 to 40 feet above MSL (Geocon Consultants, Inc. 2022).

An on-site irrigation ditch traverses along the northern and western boundaries of the Project site. An irrigation canal, named the Shed C Channel, is located outside the northern boundary of the Project site and runs parallel to the on-site irrigation canal. A stormwater catchment basin is located east of the Project site across Lotz Parkway (Geocon Consultants, Inc. 2022).

SOILS

The Web Soil Survey, developed by the Natural Resources Conservation Service of the United States Department of Agriculture, indicates that surficial soil on and in the vicinity of the Project site is classified primarily as San Joaquin silt loam. The southern-most portion of the Project site along Kammerer Road and a small area along the eastern

boundary of the Project site is underlain with San Joaquin-Galt complex. The northern-most portion of the Project site is underlain with Galt clay (Geocon Consultants, Inc. 2023). The San Joaquin and Galt soil series consist of moderately deep and well-drained soils that formed in alluvium derived from granite and contain a relatively high percentage of clay minerals (NRCS 1999; NRCS 1997).

Geocon Consultants, Inc. performed exploratory soil borings to a maximum depth of 31.5 feet as part of the Geotechnical Investigation. The results of the investigation indicate that the upper approximately 18 inches of soil throughout the Project site has been tilled and disturbed by past agricultural activities. Alluvium was encountered beneath the tilled soil, consisting of layers of stiff to hard lean clay with varying concentrations of sand, silty clay, and dense to very dense clayey sand, silty sand, and poorly graded sand (Geocon Consultants, Inc. 2023).

GROUNDWATER

Data from the California Department of Water Resources indicates that the depth to groundwater at the Project site ranges from approximately 50 to 60 feet. Geocon Consultants, Inc. did not encounter groundwater in the exploratory borings or test pits performed to a maximum depth explored of 31.5 feet. Fluctuations in the level of groundwater may occur due to variations in rainfall, temperature, and other factors. Depth to groundwater can also vary due to localized pumping, irrigation practices, and seasonal fluctuations. Additionally, perched groundwater may develop seasonally over hardpan. Therefore, it is possible that groundwater may be higher or lower than the levels observed during the investigation (Geocon Consultants, Inc. 2023).

GEOLOGIC HAZARDS

Annex B of the Sacramento County Multi-Jurisdictional Local Hazard Mitigation Plan Update contains a hazard identification assessment for Elk Grove (Sacramento County 2021). The assessment identifies the geographic extent, likelihood of future occurrence, and potential magnitude/severity of various natural and human-caused hazards specific to the City's geographic area. Table 3.6-1 provides a summary of the geology and soils hazards in the City.

Table 3.6-1 City of Elk Grove Hazard Identification Assessment

Hazard	Geographic Extent	Likelihood of Future Occurrences	Magnitude/Severity
Earthquake	Significant	Occasional	Limited
Earthquake Liquefaction	Limited	Unlikely	Negligible
Landslides, Mudslides, and Debris Flow	Limited	Unlikely	Negligible
Subsidence	Limited	Unlikely	Negligible

Geographic Extent

Limited: Less than 10% of City's planning area

Significant: 10-50% of City's planning area

Extensive: 50-100% of City's planning area

Likelihood of Future Occurrences

Highly Likely: Near 100% chance of occurrence in next year, or happens every year.

Likely: Between 10 and 100% chance of occurrence in next year, or has a recurrence interval of 10 years or less.

Occasional: Between 1 and 10% chance of occurrence in the next year, or has a recurrence interval of 11 to 100 years.

Unlikely: Less than 1% chance of occurrence in next 100 years, or has a recurrence interval of greater than every 100 years.

Magnitude/Severity

Catastrophic: More than 50% of property severely damaged; shutdown of facilities for more than 30 days; and/or multiple deaths Critical: 25-50% of property severely damaged; shutdown of facilities for at least two weeks; and/or injuries and/or illnesses result in permanent disability

Limited: 10-25% of property severely damaged; shutdown of facilities for more than a week; and/or injuries/illnesses treatable do not result in permanent disability

Negligible: Less than 10 percent of property severely damaged, shutdown of facilities and services for less than 24 hours; and/or injuries/illnesses treatable with first aid

Source: Sacramento County 2021; Table B-6.

Subsidence

Land subsidence is the gradual settling or sinking of an area with very little horizontal motion. Subsidence can be induced by both natural and human phenomena. Natural phenomena include shifting of tectonic plates and dissolution of limestone resulting in sinkholes. Subsidence related to human activity includes pumping water, oil, and gas from underground reservoirs; collapse of underground mines; drainage of wetlands; and soil compaction.

Groundwater pumping is the primary potential cause of subsidence within the City (City of Elk Grove 2018). As indicated in Table 3.6-2, less than 10 percent of the City's geographic area is susceptible to subsidence and there is less than a 1 percent chance that subsidence would occur in the City in the next 100 years. The magnitude/severity of damage to properties from subsidence within the City is considered negligible (Sacramento County 2021). Therefore, subsidence is not anticipated to be a concern at the Project site.

Expansive Soils

Expansive soils (also known as shrink-swell soils) are soils that contain expansive clay minerals that can absorb significant amounts of water. The presence of these clay minerals makes the soil prone to large changes in volume in response to changes in water content. When an expansive soil becomes wet, water is absorbed and it increases in volume, and as the soil dries it contracts and decreases in volume. This repeated change in volume over time can produce enough force and stress on buildings, underground utilities, and other structures to damage foundations, pipes, and walls. The San Joaquin soil group, which is the main soil series underlying the Project site, has a high shrink-swell potential because this soil group generally contains a high percentage of claypan (City of Elk Grove 2018). The Geotechnical Investigation found that Project site soils have low to moderate plasticity and low to moderate expansion potential when subjected to moisture variations (Geocon Consultants, Inc. 2023). Therefore, expansive soils are a potential concern at the Project site.

Mass Wasting and Landslides

"Mass wasting" refers to the collective group of processes that characterize down slope movement of rock and unconsolidated sediment overlying bedrock. These processes include landslides, slumps, rockfalls, flows, and creeps. Many factors contribute to the potential for mass wasting, including geologic conditions as well as the drainage, slope, and vegetation of the site.

As indicated in Table 3.6-2, less than 10 percent of the City's geographic area is susceptible to landslides and there is less than a 1 percent chance that landslides would occur in the City in the next 100 years. The magnitude/severity of damage to properties from landslides within the City is considered negligible (Sacramento County 2021). The topography of the Project site and vicinity is relatively flat with no major slopes. Therefore, mass wasting and landslides are not anticipated to be a concern at the Project site.

Seismicity

Most earthquakes originate along fault lines. A fault is a fracture in the Earth's crust along which rocks on one side are displaced relative to those on the other side due to shear and compressive crustal stresses. Most faults are the result of repeated displacement that have taken place suddenly or by slow creep (Bryant and Hart 2007). The State of California has a classification system that designates faults as either active, potentially active, or inactive, depending on how recently displacement has occurred along them. Faults that show evidence of movement within the last 11,000 years (the Holocene geologic period) are considered active, and faults that have moved between 11,000 and 1.6 million years ago (comprising the later Pleistocene geologic period) are considered potentially active.

No known active faults have been identified in or adjacent to the City. The nearest faults with activity within the last 200 years are the Green Valley and Concord faults, located approximately 45 miles southwest of the Project site (CGS 2010). Seismic activity has occurred in the City originating from faults in other areas, including the San Francisco Bay and Sierra Nevada. As indicated in Table 3.6-2, up to 100 percent of the City's geographic area is susceptible to earthquakes and earthquakes are expected to occur occasionally throughout the City in the next 100 years. The magnitude/severity of damage to properties from earthquakes within the City is considered negligible because the City is located in an area where few earthquakes of substantial magnitude have historically occurred (Sacramento

County 2021). No occurrences of seismic-related ground failure have been reported in the Sacramento region due to earthquakes (Geocon Consultants, Inc. 2023).

Seismic hazards resulting from earthquakes include surface fault rupture, ground shaking, liquefaction, and lateral spreading. Each of these potential hazards is discussed below.

Surface Fault Rupture

Surface rupture is the surface expression of movement along a fault. Structures built over an active fault can be torn apart if the ground ruptures. The potential for surface rupture is based on the concepts of recency and recurrence. Surface rupture along faults is generally limited to a linear zone a few meters wide. The Alquist-Priolo Act (see the Regulatory Setting discussion, above) was created to prohibit the location of structures designed for human occupancy across, or within 50 feet of, an active fault, thereby reducing the loss of life and property from an earthquake. The Project site is not located within an Alquist-Priolo active fault zone. The nearest Alquist-Priolo active fault zones include the Cordelia and Green Valley fault zones, located over 40 miles west of the Project site (CGS 2021). Therefore, surface fault rupture is not anticipated to be a concern at the Project site.

Ground Shaking

The intensity of seismic shaking, or strong ground motion, during an earthquake is dependent on the distance and direction from the epicenter of the earthquake, the magnitude of the earthquake, and the geologic conditions of the surrounding area. Ground shaking has the potential to result in the damage or collapse of buildings and other structures.

Most of Sacramento County, including Elk Grove, experiences seismic ground shaking of relatively low intensity. While Sacramento County has historically experienced relatively little seismic activity, fault activity in neighboring regions, especially the San Francisco Bay and Sierra Nevada areas, suggests that the Project site would be affected by future ground motion originating elsewhere. The Project site is located on alluvial deposits, which tend to experience greater ground shaking intensities than areas located on hard rock (City of Elk Grove 2018). Therefore, there is the potential to experience ground shaking on the Project site. There are no reported occurrences of seismic-related ground failure in the Sacramento region due to earthquakes (Geocon Consultants, Inc. 2023).

Liquefaction and Lateral Spreading

Liquefaction is a phenomenon in which loose, saturated, granular soil deposits lose a significant portion of their shear strength because of excess pore water pressure buildup. An earthquake typically causes an increase in pore water pressure and subsequent liquefaction. These soils behave like a liquid during seismic shaking and re-solidify when shaking stops. The potential for liquefaction is highest in areas with high groundwater and loose, fine, sandy soils at depths of less than 50 feet.

In Sacramento County, the Sacramento-San Joaquin Delta and downtown Sacramento are the two areas most susceptible to liquefaction in the event of an earthquake (City of Elk Grove 2018). The potential for liquefaction to occur in the City is low because of the relatively dense and stiff soils, depth to groundwater, and anticipated low intensity ground-shaking in the event of an earthquake (City of Elk Grove 2022). As indicated in Table 3.6-2, less than 10 percent of the City's geographic area is susceptible to liquefaction and there is less than a 1 percent chance that liquefaction would occur in the City in the next 100 years. The magnitude/severity of damage to properties from liquefaction within the City is considered negligible (Sacramento County 2021). Based on the subsurface conditions encountered during the Geotechnical Investigation, and the anticipated seismic and groundwater conditions, liquefaction potential is expected to be low at the Project site during seismic events (Geocon Consultants, Inc. 2023).

Liquefaction has potential to result in lateral spreading. Lateral spreading (also known as expansion) is the horizontal movement or spreading of soil toward an "open face," such as a streambank, the open side of fill embankments, or the sides of levees. It often occurs in response to liquefaction of soils in an adjacent area. The potential for failure from lateral spreading is highest in areas where there is a high groundwater table, where there are relatively soft and recent alluvial deposits, and where creek banks are relatively high. Because of the low potential for liquefaction to occur at the Project site, the potential for lateral spreading to occur is also low.

PALEONTOLOGICAL RESOURCES

The value or importance of different fossil groups varies depending on the age and depositional environment of the rock unit that contains the fossils, their rarity, the extent to which they have already been identified and documented, and the ability to recover similar materials under more controlled conditions (such as for a research project). Marine invertebrates are generally common; the fossil record of marine invertebrates is well developed and well documented, and generally they are typically not considered a unique paleontological resource. Identified vertebrate marine and terrestrial fossils are generally considered scientifically important because they are relatively rare. Only qualified paleontologists with specific expertise in the type of fossils being evaluated can determine the scientific significance of paleontological resources.

As discussed in the "Geologic Conditions" section above, the Project site is underlain by the Riverbank formation. The Riverbank formation is known to produce vertebrate fossils dating to the late Pleistocene west of Elk Grove Florin Road in the City. The fossils recovered to date from the Riverbank Formation are typically large, late Pleistocene vertebrates, although fish, frogs, snakes, turtles, and a few plants (prune, sycamore, and willow) are known as well. The typically large, Rancholabrean vertebrates include bison, horse, camel, mammoth, ground sloth, and wolf. These types of fossils suggest a wet grassland environment interspersed with rivers, streams, ponds, and bogs. The Rancholabrean fauna and flora are well known in California, and they typically include many more species than reported from Sacramento County. As a result, Riverbank formation has a high sensitivity rating for paleontological resources (City of Elk Grove 2018).

3.6.3 Environmental Impacts and Mitigation Measures

METHODOLOGY

The examination of geology, soils, and mineral resources is based on information obtained from reviews of:

- ▶ the Project description;
- ▶ available literature, including documents published by federal, State, and local agencies, and published information dealing with geotechnical conditions on the Project site and in the vicinity;
- ▶ Annex B of the Sacramento County Multi-Jurisdictional Local Hazard Mitigation Plan Update (Sacramento County 2021);
- ▶ applicable elements from the City of Elk Grove General Plan (City of Elk Grove 2022) and General Plan Update EIR (City of Elk Grove 2018);
- ▶ the Geotechnical Investigation prepared for the Project site (Geocon Consultants, Inc. 2023); and
- ▶ the Phase I Environmental Site Assessment and Limited Phase II Environmental Site Assessment Report for the Project site (Geocon Consultants, Inc. 2022).

THRESHOLDS OF SIGNIFICANCE

An impact related to geology and soils would be significant if implementation of the Project would:

- ▶ directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving the rupture of a known earthquake fault, strong seismic ground shaking, seismic-related ground failure, including liquefaction, or landslides;
- ▶ result in substantial soil erosion or the loss of topsoil;
- ▶ be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the Project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse;

- ▶ be located on expansive soil, creating substantial direct or indirect risks to life or property;
- ▶ have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water; or
- ▶ directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

IMPACTS NOT DISCUSSED FURTHER

Septic Tanks and Alternative Waste Water Disposal Systems

The Project would not involve the installation of septic tanks or alternative wastewater systems. As described in Chapter 2, "Project Description," wastewater service would be provided to the Project by the Sacramento Area Sewer District. Flows from the Project site would be directed to the Southeast Policy Area Sewer Lift Station, located on Bilby Road just east of Bruceville Road. Therefore, implementation of the Project would not have any significant impacts related to soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems. This issue is not discussed further in this Draft EIR.

Landslides

As discussed in Section 3.6.2, "Environmental Setting," landslides are not an existing concern at the Project site because of its relatively flat topography and lack of major slopes. Therefore, implementation of the Project would not expose people or structures to substantial adverse impacts from landslides. This issue is not discussed further in this Draft EIR.

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Impact 3.6-1: Directly or Indirectly Cause Adverse Effects Related to Strong Seismic Shaking

The Project site is not susceptible to surface fault rupture, and seismic-related ground failure and soil liquefaction are not expected to be a concern on the site. However, the Project site is susceptible to ground shaking from regional fault activity. In addition, Project-related grading would result in the creation of new topographic variation that would be susceptible to failure if they are not properly reinforced. The Project would incorporate all of the recommendations in the site-specific Geotechnical Investigation prepared for the Project and standard engineering practices and specifications, which would minimize risk of adverse effects from seismic hazards. The recommendations in the Geotechnical Investigation account for the unique geotechnical factors affecting the Project site and conform to the requirements of the CBC and Elk Grove Municipal Code. Implementation of the recommendations included in the Geotechnical Investigation and standard engineering practices and specifications would be enforced through the City's development review process. Therefore, impacts related to the potential to expose people or structures to substantial adverse impacts from seismic ground-shaking or related ground failure would be **less than significant**.

The following sections describe the potential for Project implementation to expose people or structures to substantial adverse impacts from seismic hazards, including rupture of a known earthquake fault, strong seismic shaking, seismic-related ground failure, soil liquefaction, and landslides.

It is also important to note that environmental impact analyses under CEQA generally are not required to analyze the impact of existing environmental conditions on a project's future users or residents unless the proposed project might cause or risk exacerbating environmental hazards or conditions that already exist (CCR Section 15126.2[a]). In those specific instances, it is the project's impact on the environment and not the environment's impact on the project that compels an evaluation of how future residents or users may be affected by exacerbated conditions (*California Building Industry Association v. Bay Area Air Quality Management District* [2015] 62 Cal. 4th 369). Project construction and operation would not create new seismic events or exacerbate existing seismic hazards, because the Project improvements would involve limited excavation that would not alter seismic and fault conditions in the region.

Surface Fault Rupture

As discussed in Section 3.6.2, "Environmental Setting," no active faults are located on the Project site or in the vicinity. The nearest Alquist-Priolo active fault zones are the Cordelia and Green Valley Fault Zones, located more than 40 miles west of the Project site (CGS 2021). Therefore, implementation of the Project would not place new development in an active fault zone and would not expose people or structures to substantial adverse impacts from surface fault rupture. **No impact** would occur.

Strong Seismic Shaking

As discussed in Section 3.6.2, "Environmental Setting," seismic ground shaking is expected to occur at the Project site. According to the conclusions and recommendations in the Geotechnical Investigation for the Project, construction activities would be required to meet California Division of Occupational Safety and Health (Cal/OSHA) requirements to protect human life in the event of seismic-ground shaking. Specifically, protective systems would be required for temporary excavations deeper than 4 feet. Cal/OSHA also includes requirements for excavation sloping and benching, the use of trench shields, and the placement of trench spoils to prevent hazards to workers, such as cave-ins (Geocon Consultants, Inc. 2023).

In addition, seismic design of all structures would be performed in accordance with the building and construction standards in Title 16 of the Elk Grove Municipal Code, the CBC, and the American Society of Civil Engineers' (ASCE's) and Structural Engineering Institute's (SEI's) publication ASCE/SEI 7-16, entitled *Minimum Design Loads and Associated Criteria for Buildings and Other Structures*. Based on subsurface conditions, the Project site is classified as "Site Class D – Stiff Soil" and all structures would be engineered according to the seismic design parameters for this site classification identified in ASCE/SEI 7-16 (Geocon Consultants, Inc. 2023). Incorporation of seismic design criteria, in accordance with the Elk Grove Municipal Code, CBC, and ASCE/SEI 7-16, would protect human life, minimize the risk of structural failure during a seismic event, and reduce secondary effects from seismic activity. Implementation of all criteria would be enforced through the City's development review process and would be identified as conditions of Project approval. Therefore, implementation of the Project would not expose people or structures to substantial adverse impacts from seismic ground shaking. This impact would be **less than significant**.

Seismic-Related Ground Failure, Including Liquefaction

As discussed in Section 3.6.2, "Environmental Setting," soil, groundwater, and ground-shaking conditions at the Project site create a low potential for liquefaction. The site-specific Geotechnical Investigation prepared for the Project to assess seismic, geologic, and soils-related hazards confirmed a low potential for seismic-related ground failure on the Project site and indicated that specific design measures with respect to liquefaction are not necessary (Geocon Consultants, Inc. 2023).

Project construction would involve regrading the ground surface to create new slopes and topographic variation in the exhibits that would replicate natural habitats of the zoo animals. Most of the Project site would be graded with slopes of 3:1 or less; however, some areas would be graded with slopes of 1:1. For many exhibits, moats would be constructed in lieu of fences to separate zoo animals from visitors. The steepest slopes would be concentrated in the central portion of the New Zoo at the location of the future lion and wild dog exhibits.

The grading plans for the New Zoo comply with all City standards (i.e., improvement standards, construction specifications, standard drawings, and EGMC) and have been reviewed by the City's Development Engineering Division and Public Works Departments. As noted above, a site-specific Geotechnical Investigation has been prepared for the Project in accordance with CBC and Elk Grove Municipal Code requirements (Geocon Consultants, Inc. 2023). Seismic design of all structures would be performed in accordance with the building and construction standards in Title 16 of the Elk Grove Municipal Code, the CBC, and ASCE's and SEI's publication ASCE/SEI 7-16, entitled *Minimum Design Loads and Associated Criteria for Buildings and Other Structures*. Incorporation of seismic design criteria would be implemented as part of the Project to minimize the risk of structural failure during a seismic event and would reduce the secondary effects that would occur as a result of the seismic event. In addition, retaining walls would be used on the site for all moats and other slopes of 1:1 to prevent slope failures from occurring. Implementation of recommendations included in the Geotechnical Investigation and standard engineering practices and specifications would be enforced through the City's development review process and be identified as conditions of Project approval. Compliance with

recommendations in the Geotechnical Investigation and standard engineering practices and specifications would ensure that the potential effects of seismic-related ground failure related to the Project would be minimized. Therefore, implementation of the Project would not expose people or structures to substantial adverse impacts from seismic-related ground failure. This impact would be **less than significant**.

Summary

Implementation of the Project would have no impact related to surface fault rupture. The potential for seismic-related ground failure and soil liquefaction on the Project site is low. However, the Project site is susceptible to ground shaking from regional fault activity. In addition, Project-related grading would result in the creation of new slopes and topographic variation that would be susceptible to slope failure if they are not properly reinforced. The Project would implement all of the recommendations in the Geotechnical Investigation prepared for the site and would conform to the requirements of the CBC and Elk Grove Municipal Code. Implementation of these recommendations and standard engineering practices and specifications would be enforced through the City's development review process and identified as conditions of Project approval. Therefore, the potential to expose people or structures to substantial adverse impacts from seismic or geologic hazards would be **less than significant**.

Mitigation Measures

No mitigation is required beyond implementation of all recommendations from the Project-specific Geotechnical Investigation.

Impact 3.6-2: Result in Substantial Soil Erosion or the Loss of Topsoil

Project implementation has the potential to result in soil erosion. Because construction activities would disturb more than 1 acre of soil, the Project would be required to comply with a site-specific SWPPP that includes BMPs designed to control stormwater runoff and reduce erosion from the construction site. The Project would also be required to obtain and comply with a grading and erosion control permit from the City. In addition, construction activities would be subject to SMAQMD rules regarding dust control, which would reduce the potential for erosion and sedimentation. Further, the Project design would incorporate postconstruction stormwater management strategies to reduce the potential for erosion during operation. Therefore, the impact related to substantial soil erosion or the loss of topsoil would be **less than significant**.

As discussed in Section 3.6.2, "Environmental Setting," the topography of the Project site is relatively flat with no major slopes. However, Project implementation would involve substantial ground disturbance and earth-moving activities on the vacant site and would result in changes to drainage patterns that would have the potential to result in soil erosion or the loss of topsoil. The following sections describe the potential for the Project to result in substantial soil erosion or the loss of topsoil during construction and operation.

Construction

In compliance with the Clean Water Act, the Project would be required to obtain coverage under the NPDES Construction General Permit because it would disturb more than 1 acre of soil. As described in Section 3.6.1, "Regulatory Setting," the NPDES Construction General Permit requires development and implementation of a SWPPP that identifies BMPs designed to control stormwater runoff and reduce erosion and sedimentation. BMPs include, among others, the use of silt fences, sedimentation ponds, erosion control blankets, vegetative covers, and soil binders. A SWPPP identifies sediment and erosion controls for areas where permanent or postconstruction stormwater controls (e.g., bioretention ponds and swales) would be constructed.

The Project would be required to comply with Chapter 16.44, Land Grading and Erosion Control, of the Elk Grove Municipal Code. As required under Section 16.44.050, the Project would be required to obtain a grading and erosion control permit for activities that involve (1) grading, filling, excavating, storing, or disposing 350 cubic yards or more of soil or earthy material and (2) clearing and grubbing 1 acre or greater of land within the City. This permit would further ensure that the Project is implemented in accordance with NPDES requirements.

Construction activities would also be subject to SMAQMD Rules 403 and 405, governing dust control, as described in Section 3.6.1, "Regulatory Setting." Although these rules were adopted for the purpose of reducing air pollutant emissions in the form of fugitive dust, they have the added benefit of stabilizing soils at construction sites in a manner that reduces the potential for wind erosion and sedimentation. The Project would be required to incorporate dust control measures (e.g., applying water, chemicals, or other stabilizers on surfaces that can give rise to airborne dusts) during dust-generating activities at the construction site.

Because the Project would be required to comply with the Central Valley RWQCB, the Elk Grove Municipal Code, and SMAQMD requirements, which include implementation of a Project-specific SWPPP with BMPs designed to control stormwater runoff and reduce erosion and implementation of dust control measures, substantial soil erosion would not result during construction of the Project.

Operation

Wind erosion is a natural process in which soil is transported and deposited by wind. Unprotected surfaces that have large amounts of exposed, loose, dry, and bare soil are susceptible to wind erosion. Portions of the Project site would be developed with structures and pavement, including the various administration, guest services, and maintenance buildings; animal care facilities and interior exhibits; and roadways and parking lots listed in Table 2-1, "Project Summary." These structures and paved surfaces would cover areas of bare ground and would prevent the erosion of soils by wind. In addition, lawns and landscaping would be included throughout the Project site, such as along the zoo exterior, along guest pathways, and throughout the zoo exhibits, as depicted in Section 2, "Project Description." The lawns and landscaping would cover the soil surface and protect the soil from wind erosion.

As noted above, the Project would introduce new impervious surfaces and alter topographic features on the Project site. The alteration of topographic features would lead to increased erosion by creating unstable rock or soil surfaces, changing the permeability or runoff characteristics of the soil, and modifying or creating new pathways for drainage. In accordance with the requirements of SSQP's New Development Program, the Project would be required to implement source control, hydromodification control, treatment control, and LID design standards included in the Sacramento Region Stormwater Quality Design Manual (SSQP 2021) and the SSQP Hydromodification Management Plan (SSQP 2017). As described in Chapter 2, "Project Description," the Project design includes on-site hydromodifications to collect, store, and treat stormwater runoff before it is discharged into the City's storm drain infrastructure. Features would include bioretention basins, LID principles, and treatment control measures. In accordance with the design standards of the Sacramento Region Stormwater Quality Design Manual and the SSQP Hydromodification Management Plan, these features would be designed to mitigate peak flows and work in concert with the storm drainage infrastructure planned west of the site. Hydromodification features in the New Zoo would increase natural water storage and slow runoff. Implementation of these design standards would prevent any increases in peak flow and runoff duration from new development that would artificially accelerate erosion and sedimentation.

Because the Project would be required to implement design features that would reduce the potential for erosion or loss of topsoil in accordance with the NPDES MS4 permit and SSQP's New Development Program, substantial soil erosion would not result during Project operation.

Summary

Based on the above discussion, compliance with existing regulations and implementation of standards included in the Sacramento Region Stormwater Quality Design Manual would ensure that the construction and operation of the Project would reduce the potential for erosion and loss of topsoil. Therefore, the potential to result in substantial soil erosion or loss of topsoil would be **less than significant**.

Mitigation Measures

No mitigation is required beyond compliance with Central Valley RWQCB, City of Elk Grove, and SMAQMD requirements.

Impact 3.6-3: Locate Project Features on an Unstable Geologic Unit or Soils, or a Geologic Unit or Soil that Would Become Unstable as a Result of the Project, and Potentially Result in On- or -Off-Site Landslide, Lateral Spreading, Subsidence, Liquefaction, or Collapse

Lateral spreading, subsidence, liquefaction, and collapse are not anticipated on the Project site based on the site's topography and soil characteristics. Regardless, the Project would incorporate all of the recommendations in the site-specific Geotechnical Investigation prepared for the Project and standard engineering practices and specifications, which would minimize potential hazards related to unstable geologic units and soils. The Geotechnical Investigation includes recommendations that account for the unique geotechnical factors affecting the Project site and conform to the requirements of the CBC and Elk Grove Municipal Code. Implementation of the recommendations included in the Geotechnical Investigation and standard engineering practices and specifications would be enforced through the City's development review process. Therefore, the impact related to the potential for these hazards would be **less than significant**.

As discussed in Section 3.6.2, "Environmental Setting," lateral spreading, subsidence, liquefaction, and collapse are not anticipated to occur at the Project site, because of the site's soil characteristics and relatively flat topography. The site-specific Geotechnical Investigation prepared for the Project to assess seismic, geologic, and soils hazards confirmed a low potential for lateral spreading, subsidence, liquefaction, and collapse to occur on the Project site. Accordingly, the Geotechnical Investigation did not identify specific design measures with respect to lateral spreading, subsidence, liquefaction, and collapse (Geocon Consultants, Inc. 2023).

Regardless, as noted under Impact 3.6-1, all Project-specific recommendations contained in the Geotechnical Investigation would be implemented during construction and as part of Project design to minimize potential geologic and soils hazards. For example, Project construction would comply with Cal/OSHA requirements related to temporary excavations to protect human life in the event of cave-ins. In addition, new structures would be designed in conformance with applicable seismic design criteria. These recommendations account for the unique geotechnical factors affecting the Project site and minimize the potential for the Project to exacerbate geologic and soils hazards in conformance with the CBC, and ASCE/SEI 7-16, and Elk Grove Municipal Code, (Geocon Consultants, Inc. 2023). Implementation of all of the recommendations in the Geotechnical Investigation and standard engineering practices and specifications would be enforced through the City's development review process and identified as conditions of Project approval. Compliance with regulatory requirements would ensure that the potential effects of unstable geologic units or soils from Project implementation would be minimized. Therefore, the Project would not locate new development on a geologic unit or soil that is unstable, or that would become unstable as a result of the development, such that lateral spreading, subsidence, liquefaction, or collapse would result. This impact would be **less than significant**.

Mitigation Measures

No mitigation is required beyond implementation of all recommendations from the Project-specific Geotechnical Investigation.

Impact 3.6-4: Locate Project Features on Expansive Soils

Portions of the Project site are underlain with soils that have a high proportion of clay and that would be prone to expansion. The site-specific Geotechnical Investigation prepared for the Project confirmed that expansive clay soils are present on the Project site. All Project-specific recommendations contained in the Geotechnical Investigation would be implemented as part of the Project to conform to the requirements of the CBC and Elk Grove Municipal Code and minimize the risk of structural failure in areas where expansive soils are present (Geocon Consultants, Inc. 2023). Implementation of these recommendations and standard engineering practices and specifications would be enforced through the City's development review process. Therefore, the potential to create substantial direct or indirect risks to life or property from locating Project facilities on expansive soils would be **less than significant**.

As discussed in Section 3.6.2, "Environmental Setting," portions of the Project site are underlain with soils that have a high proportion of clay and that would potentially be prone to expansion. The site-specific Geotechnical Investigation was prepared for the Project to assess seismic, geologic, and soils hazards confirmed that expansive clay soils are

present on the Project site. The Geotechnical Investigation provides recommendations with respect to grading, earthwork, foundation design, and drainage to reduce risks to life or property in areas where expansive soils are present. These recommendations incorporate appropriate standard engineering practices and specifications to conform to the requirements of the CBC and Elk Grove Municipal Code. The following recommendations from the Geotechnical Investigation relevant to expansive soils would be implemented consistent with requirements of the CBC and Elk Grove Municipal Code:

- ▶ Utilizing a layer of low-expansive fill below buildings and concrete flatwork to stabilize soils and reduce caving potential;
- ▶ Periodically watering finished graded pads and subgrades to maintain moist soil conditions and prevent desiccation cracking prior to constructing foundations, slabs-on-grade, and pavement;
- ▶ Using aggregate base underlayment, thickened edges, and adequate construction and control joints to reduce distress to concrete flatwork, including moisture conditioning subgrade soils;
- ▶ Grading the site to direct surface drainage away from structures in accordance with applicable standards and directing surface drainage away from the top of slopes into swales or other controlled drainage devices;
- ▶ Ensuring that underground utilities are leak free, periodically checking utility and irrigation lines for leaks, and immediately repairing leaks;
- ▶ Avoiding the placement of landscaping planters adjacent to paved areas, using area drains to collect excess irrigation water and transmit it to drainage structures or impervious above-grade planter boxes, and constructing a cutoff wall (deepened curb) along the edge of pavement or flatwork that extends at least 4 inches into the soil subgrade below the bottom of the base material where landscaping is planned adjacent to pavement or flatwork;
- ▶ Properly constructing LID devices and lining vegetated swales and stormwater basins with impermeable liners (e.g., high-density polyethylene with a thickness of 12 mil or equivalent polyvinyl chloride liner) to prevent water infiltration into expansive soils;
- ▶ Ensuring that roof drains are directed to lined planter boxes or lined landscaped areas to prevent infiltration of water into expansive soils; and
- ▶ Utilizing drought-tolerant landscaping, drip irrigation or low-output sprinklers, automatic timers for irrigation systems, and appropriately spaced area drains to reduce the potential for irrigation water to infiltrate soils near buildings, flatwork, or pavements (Geocon Consultants, Inc. 2023).

These recommendations incorporate appropriate standard engineering practices and specifications to conform to the requirements of the CBC and Elk Grove Municipal Code. Implementation of all recommendations and standard engineering practices and specifications would be enforced through the City's development review process and identified as conditions of Project approval. Therefore, Project implementation would not create substantial risks to life or property from locating development on expansive soil. This impact would be **less than significant**.

Mitigation Measures

No mitigation is required beyond implementation of all recommendations from the Project-specific Geotechnical Investigation.

Impact 3.6-5: Directly or Indirectly Destroy a Unique Paleontological Resource or Site or Unique Geologic Feature

Project construction would include ground disturbance in previously undisturbed soils in an area with high sensitivity for paleontological resources. If previously undiscovered paleontological resources are encountered during ground-disturbing activities, damage to or destruction of a paleontological resource could occur. Implementation of Mitigation Measure 3.6-5 would reduce this impact to a **less-than-significant** level.

As discussed in Section 3.6.2, "Environmental Setting," the Project site consists of a fallow field that was historically used as rangeland for cattle and does not contain unique geologic features. The Project site is underlain by the Riverbank formation, which is considered to have a high sensitivity rating for paleontological resources (City of Elk Grove 2018). The Project would require ground disturbance to depths of up to 18 feet below mean sea level to install sewer infrastructure. It is anticipated that excavation would be limited primarily to areas of previous ground disturbance, including areas that have been disturbed from past and ongoing agricultural activities. However, Project-related excavation beyond the depth of previous agriculture-related disturbance (3 feet) has the potential to occur in areas of high paleontological sensitivity and in previously undisturbed soils. If previously undiscovered paleontological resources are encountered during ground-disturbing activities, damage to or destruction of a paleontological resource could occur. Implementing Mitigation Measure 3.6-5 (which is based on adopted Mitigation Measure 5.6.5 from the General Plan Amendments and Update of VMT Standards Subsequent EIR) would ensure that excavations are completed in a manner that preserves potential paleontological resources. With implementation of this mitigation measure, the potential for implementation of on-site improvements to directly or indirectly destroy a unique paleontological resource would be reduced to a **less-than-significant** level

Mitigation Measures

Mitigation Measure 3.6-5: Implement Procedures to Protect Paleontological Resources

Before the start of any earthmoving activities, the New Zoo shall retain a qualified scientist (e.g., geologist, biologist, paleontologist) to train all construction personnel involved with earthmoving activities, including the site superintendent, regarding the possibility of encountering fossils, the appearance and types of fossils likely to be seen during construction, and proper notification procedures to follow if fossils are encountered. Training on paleontological resources shall also be provided to all other construction workers, and a video recording of the initial training and/or written materials may be used rather than in-person training.

If any paleontological resources are discovered during grading or construction activities on the Project site, work shall be halted immediately within 50 feet of the discovery, and the City Public Works Department shall be notified immediately. The New Zoo shall retain a qualified paleontologist to evaluate the resource and prepare a recovery plan in accordance with the most current Society of Vertebrate Paleontology guidelines. The recovery plan shall include a field survey, construction monitoring, sampling and data recovery procedures, museum storage coordination for any specimen recovered, and a report of findings. The New Zoo will implement all recommendations in the recovery plan that are determined to be necessary by the City Public Works Department and possible before construction activities resume in the area where the paleontological resources were discovered.

Significance after Mitigation

Less than significant

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3.7 GREENHOUSE GAS EMISSIONS AND CLIMATE CHANGE

This section presents a summary of the current state of climate change science and greenhouse gas (GHG) emissions sources in California, a summary of applicable regulations, quantification of GHG emissions generated by the New Zoo, a discussion about their potential contribution to global climate change, and mitigation recommended as necessary. For the purposes of this analysis, GHG emissions are measured as metric tons of carbon dioxide equivalent (MTCO₂e). The atmospheric impact of a GHG is based on the global warming potential (GWP) of that gas. GWP is a measure of the heat trapping ability of one unit of a gas over a certain timeframe relative to one unit of carbon dioxide (CO₂). The GWP of CO₂ is one (IPCC 2014). Consistent with the methodology used by the California Air Resources Board (CARB) in estimating statewide GHG emissions, this analysis uses GWP values from the Fourth Assessment Report Values by the Intergovernmental Panel on Climate Change (IPCC).

Comments made during the notice of preparation scoping period that pertain to the Project's contribution to global climate change include a recommendation to procure food for the proposed restaurant from local resources and to abide by the Sacramento Metropolitan Air Quality Management District's (SMAQMD) recommendations for evaluating the significance of GHG emissions in its Guide to Air Quality Assessment in Sacramento County (CEQA Guide). These issues are considered below.

3.7.1 Regulatory Setting

FEDERAL

In *Massachusetts et al. v. Environmental Protection Agency et al.*, 549 U.S. 497 (2007), the Supreme Court of the United States (US) ruled that CO₂ is an air pollutant as defined under the federal Clean Air Act (CAA) and that the US Environmental Protection Agency (EPA) has the authority to regulate GHG emissions. In 2010, EPA started to address GHG emissions from stationary sources through its New Source Review permitting program, including operating permits for "major sources" issued under Title V of the CAA.

The National Highway Traffic Safety Administration regulates vehicle emissions through the Corporate Average Fuel Economy (CAFE) Standards. On April 1, 2022, the Secretary of Transportation unveiled new CAFE standards for 2024–2026 model year passenger cars and light-duty trucks. These new standards require new vehicles sold in the US to average at least 40 miles per gallon and apply to all states except those that enforce stricter standards.

STATE

Plans, policies, regulations, and laws established by the state agencies are generally presented in the order they were established.

Statewide GHG Emission Targets and Climate Change Scoping Plan

Reducing GHG emissions in California has been the focus of the State government for approximately two decades. GHG emission targets established by the State legislature include reducing statewide GHG emissions to 1990 levels by 2020 (AB 32 of 2006) and reducing them to 40 percent below 1990 levels by 2030 (SB 32 of 2016). Executive Order S-3-05 calls for statewide GHG emissions to be reduced to 80 percent below 1990 levels by 2050. This target was superseded by AB 1279, which codifies a goal for carbon neutrality and reduce emissions by 85 percent below 1990 levels by 2045. These targets are in line with the scientifically established levels needed in the U.S. to limit the rise in global temperature to no more than 2 degrees Celsius, the warming threshold at which major climate disruptions, such as super droughts and rising sea levels, are projected; these targets also pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius (United Nations 2015).

CARB adopted the *Final 2022 Scoping Plan for Achieving Carbon Neutrality* (2022 Scoping Plan) on December 16, 2022, which traces the State's the pathway to achieve its carbon neutrality and an 85 percent reduction in 1990

emissions goal by 2045 using a combined top-down, bottom-up approach under various scenarios. It identifies the reductions needed by each GHG emission sector (e.g., transportation [including off-road mobile source emissions], industry, electricity generation, agriculture, commercial and residential, pollutants with high global warming potential, and recycling and waste) to achieve these goals (CARB 2022a).

The state has also passed more detailed legislation addressing GHG emissions associated with transportation, electricity generation, and energy consumption, as summarized below.

Transportation-Related Standards and Regulations

As part of its Advanced Clean Cars program, CARB established more stringent GHG emission standards and fuel efficiency standards for fossil fuel-powered on-road vehicles than EPA. The program's initial goal requiring zero-emission vehicle (ZEV) regulation (i.e., battery, fuel cell, and plug-in hybrid electric vehicles [EVs]) to account for up to 15 percent of California's new vehicle sales by 2025 was superseded by Executive Order N-79-20, which directed the state to scale out the sales of internal combustion engines to 100 percent ZEV sales by 2035. The Advanced Clean Cars II Program was adopted by CARB in August 2022, and provides the regulatory framework for ensuring the sales requirement goal of Executive Order N-79-20 to ultimately reach 100 percent ZEV sales in the state by 2035.

Executive Order B-48-18, signed into law in January 2018, requires all State entities to work with the private sector to have at least 5 million ZEVs on the road by 2030, as well as 200 hydrogen-fueling stations and 250,000 EV-charging stations installed by 2025. It specifies that 10,000 of these charging stations must be direct-current fast chargers.

CARB adopted the Low Carbon Fuel Standard (LCFS) in 2007 to reduce the carbon intensity (CI) of California's transportation fuels. Low-CI fuels emit less CO₂ than other fossil fuel-based fuels such as gasoline and fossil diesel. The LCFS applies to fuels used by on-road motor vehicles and off-road vehicles, including construction equipment (Wade, pers. comm., 2017).

In addition to regulations that address tailpipe emissions and transportation fuels, the state legislature has passed regulations to address the amount of driving by on-road vehicles. Since passage of SB 375 in 2008, CARB requires metropolitan planning organizations (MPOs) to develop and adopt sustainable communities strategies (SCSs) as a component of the federally-prepared regional transportation plans (RTPs) to show reductions in GHG emissions from passenger cars and light-duty trucks in their respective regions for 2020 and 2035 (CARB 2018). These plans link land use and housing allocation to transportation planning and related mobile-source emissions.

The Sacramento Area Council of Governments (SACOG) serves as the MPO for Sacramento, Placer, El Dorado, Yuba, Sutter, and Yolo counties, excluding those lands located in the Tahoe Basin. The Project site is in Sacramento County. Under the most recent targets of SB 375 (i.e., achieve a 7-percent and 19-percent below 2005 per capita reduction in automobile emissions by 2020 and 2035, respectively), SACOG completed and adopted its most recent 2020 MTP/SCS in November 2019 (SACOG 2019). CARB's technical evaluation of the 2020 MTP/SCS confirmed that the plan is sufficient to meet the reduction targets of SB 375 (CARB 2020).

Legislation Associated with Electricity Generation

The State has passed legislation requiring the increasing use of renewables to produce electricity for consumers. California utilities are required to generate 33 percent of their electricity from renewables by 2020 (SB X1-2 of 2011); 52 percent by 2027 (SB 100 of 2018); 60 percent by 2030 (also SB 100 of 2018); and 100 percent by 2045 (also SB 100 of 2018).

Building Energy Efficiency Standards (Title 24, Part 6)

The energy consumption of new residential and nonresidential buildings in California is regulated by the California Energy Code. The code was established by California Energy Commission (CEC) in 1978 in response to a legislative mandate to create uniform building codes to reduce California's energy consumption and provide energy-efficiency standards for residential and nonresidential buildings. CEC updates the California Energy Code every 3 years, typically including more stringent design requirements for reduced energy consumption, which results in the generation of fewer GHG emissions.

The 2022 California Energy Code went into effect on January 1, 2023. The 2022 California Energy Code advances the onsite energy generation progress started in the 2019 California Energy Code by encouraging electric heat pump technology and use, establishing electric-ready requirements when natural gas is installed, expanding solar photovoltaic (PV) system and battery storage standards, and strengthening ventilation standards to improve indoor air quality. CEC estimates that the 2022 California Energy Code will save consumers \$1.5 billion and reduce GHGs by 10 million MTCO_{2e} over the next 30 years (CEC 2021).

California Green Building Standards (Title 24, Part 11)

The California Green Building Standards, also known as CALGreen, is a reach code (i.e., optional standards that exceed the requirements of mandatory codes) developed by CEC that provides green building standards for statewide residential and nonresidential construction. The current version is the 2022 CALGreen Code, which took effect on January 1, 2023. As compared to the 2019 CalGreen Code, the 2022 CalGreen Code strengthened sections pertaining to EV and bicycle parking, water efficiency and conservation, and material conservation and resource efficiency, among other sections of the CalGreen Code. The CALGreen Code sets design requirements equivalent to or more stringent than those of the California Energy Code for energy efficiency, water efficiency, waste diversion, and indoor air quality. These codes may be adopted by local agencies that enforce building codes and used as guidelines by state agencies for meeting the requirements of Executive Order B-18-12.

LOCAL

Sacramento Metropolitan Air Quality Management District

SMAQMD is the primary agency responsible for addressing air quality concerns in all of Sacramento County—its role is discussed further in Section 3.2, “Air Quality,” of this Draft EIR. SMAQMD recommends methods for analyzing project-generated GHGs in CEQA analyses and offers multiple potential GHG reduction measures for land use development projects. SMAQMD developed thresholds of significance to provide a uniform scale to measure the significance of GHG emissions from land use and stationary source projects in compliance with CEQA to align with the statewide GHG target of 40 percent below 1990 levels by 2030 with the passage of SB 32 for land use development projects (SMAQMD 2021).

SMAQMD’s newly published guidance to address GHGs was released in February 2021. SMAQMD recommends that a 1,100 MTCO_{2e} be applied as a bright-line threshold of significance for evaluating construction emissions of GHGs. SMAQMD also recommends a tiered approach to evaluating the significance of operational emissions. All projects are required to implement the following tier 1 best management practices (BMP):

- ▶ BMP 1 – Projects shall be designed and constructed without natural gas infrastructure.
- ▶ BMP 2 – Projects shall meet the current CalGreen Tier 2 standards, except all-electric vehicle capable spaces shall instead be electric vehicle ready.

Projects can be screened out by comparing their attributes to the SMAQMD’s operational screening levels table (equivalent to 1,100 MTCO_{2e}/year), including the implementation of tier 1 BMPs. If the project emissions exceed the screening level, or the project fails to implement tier 1 BMPs, projects must implement tier 2 BMP 3, which consists of reducing the project’s vehicle miles traveled (VMT) to meet the following requirements of the standards developed by the Governor’s Office of Planning and Research (OPR) pursuant to SB 743 (see Section 3.13, “Transportation,” for a summary of this bill):

- ▶ BMP 3 – Achieve the following VMT reduction targets compared to a county regional average:
 - 15 percent for residential projects,
 - 15 percent for office projects, and
 - a no net increase in VMT for retail projects.

Projects that cannot meet the tier 2 BMP 3 requirements must implement all feasible mitigation to reduce emissions.

Notably, while SMAQMD's guidance was developed in consideration of nearer-term statewide GHG reduction goals (i.e., a 40 percent reduction from 1990 statewide inventory by 2030), SMAQMD's recommended BMPs are highly reflexive of the Bay Area Air Quality Management District's (BAAQMD's) thresholds for determining significance in its 2022 CEQA Air Quality Guidelines. As stated in its Justification Report, BAAQMD's thresholds were designed to ensure that local governments do their "fair share" to contribute to the statewide goal of achieving carbon neutrality by 2045, as codified in AB 1279 (BAAQMD 2022). Moreover, SMAQMD's tier 1 and tier 2 BMPs are similar to the direction provided in Appendix D, "Local Actions," of the 2022 Scoping Plan which identifies building decarbonization, VMT reductions, and the electrification of the mobile source sector as key priority areas that local jurisdictions can target to do their "fair share" in assisting the state in meeting its long-term goal of carbon neutrality by 2045 (CARB 2022b).

Because SMAQMD's tier 1 and tier 2 BMPs would result in building decarbonization, VMT reductions, and the infrastructure to support EVs, they are considered appropriate thresholds for use in this analysis.

City of Elk Grove General Plan

The *City of Elk Grove General Plan* contains the following policies and standards related to climate change that apply to the Project (City of Elk Grove 2019a):

- ▶ **Policy NR-5-2:** Improve the health and sustainability of the community through improved regional air quality and reduction of greenhouse gas emissions that contribute to climate change.
- ▶ **Policy NR-6-1:** Promote energy efficiency and conservation strategies to help residents and businesses save money and conserve valuable resources.
- ▶ **Policy NR-6-3:** Promote innovation in energy efficiency.
- ▶ **Policy NR-6-5:** Promote energy conservation measures in new development to reduce on-site emissions and seek to reduce the energy impacts from new residential and commercial projects through investigation and implementation of energy efficiency measures during all phases of design and development.
- ▶ **Policy NR-6-6:** Encourage renewable energy options that are affordable and benefit all community members.
- ▶ **Policy NR-6-7:** Encourage the use of solar energy systems in homes, commercial businesses, and City facilities as a form of renewable energy.
- ▶ **Policy H-2-3:** Support energy-conserving programs in the production and rehabilitation of affordable housing to reduce household energy costs, improve air quality, and mitigate potential impacts of climate change in the region.
- ▶ **Policy ER-6-11:** Seek to provide the community with information relating to sustainability, climate change, and innovative development strategies.

City of Elk Grove Climate Action Plan

The *City of Elk Grove Climate Action Plan 2019 Update (CAP)*, adopted in February 2019 and amended in December 2019 and December 2022 by the City, was incorporated into the current General Plan (discussed above). The CAP includes GHG emission reduction targets, strategies, and implementation measures developed to help the City reach these targets. Reduction strategies address GHG emissions associated with transportation and land use, energy, water, waste management and recycling, agriculture, and open space. Through the deployment of measures included in the CAP, as well as reductions achieved by statewide regulatory schemes, consistent with direction from SB 32, the City would achieve a per capita emissions target of 4.1 MTCO_{2e} per year by 2030. However, based on projection within the CAP, the City would be expected to reduce per capita emissions to 3.0 MTCO_{2e} per year by 2050, which exceeds the State's 2050 reduction target of 1.4 MTCO_{2e} per year (City of Elk Grove 2019b: 4-3). As discussed in the CAP, "additional technological advances across multiple sectors would be required to reduce emission further, combined with additional regulatory actions at the State or federal levels." Further, the City "would identify new or modified GHG reduction measures that would achieve longer-term, post-2030 targets that may be set by the State or others in the future" (City of Elk Grove 2018: 5.7-37). The following GHG reduction actions would apply to the Project:

- ▶ **BE-1. Building Stock: Promote Energy Conservation.** Promote energy conservation by residents and businesses in existing structures in close coordination with other agencies and local energy providers, including the Sacramento Municipal Utility District (SMUD) and Pacific Gas and Electric (PG&E).
- ▶ **BE-4. Building Stock: Encourage or Require Green Building Practices in New Construction.** Encourage new construction projects to comply with CALGreen Tier 1 standards, including a 15 percent improvement over minimum Title 24 Part 6 Building Energy Efficiency Standards. For projects that the City determines are not exempt from CEQA (i.e., an environmental document is required) and that qualify for project-level GHG analysis streamlining under CEQA Guidelines Section 15183.5, compliance with CALGreen Tier 1 may be required as a mitigation measure, unless other measures are determined by the City to achieve equivalent GHG reductions such that the CAP remains on track to achieving the overall GHG reduction target.
- ▶ **BE-5. Building Stock: Phase in Zero Net Energy Standards in New Construction.** Phase in zero net energy (ZNE) standards for new construction, beginning in 2020 for residential projects and 2030 for commercial projects. Specific phase-in requirements and ZNE compliance standards will be supported by updates in the triennial building code updates, beginning with the 2019 update.
- ▶ **BE-7. Building Stock: Solar Photovoltaics in New and Existing Residential and Commercial Development.** Encourage and require installation of on-site solar photovoltaic (PV) in new single-family and low-rise multi-family developments. Promote installation of on-site PV systems in existing residential and commercial development.
- ▶ **BE-8. SMUD Greenergy and SolarShares Programs.** Encourage participation in SMUD's offsite renewable energy programs (i.e., Greenergy, SolarShares), which allow building renters and owners to opt into cleaner electricity sources.
- ▶ **TACM-6. Limit Vehicle Miles Traveled.** Achieve a 15 percent reduction in daily VMT compared to existing conditions (2015) for all new development in the City, consistent with state-mandated VMT reduction targets for land use and transportation projects.
- ▶ **TACM-9: EV Charging Requirements.** Adopt an electric vehicle (EV) charging station ordinance that establishes minimum EV charging standards for all new residential and commercial development. Increase the number of EV charging stations at municipal facilities throughout the City. In 2022, the City amended its municipal code to implement the requirements of Part 6 of the 2022 Title 24 California Building Code (CalGreen Code) for multi-family residential units and non-residential land uses.

The City is currently in the process of updating the existing CAP to align with long-term GHG reduction goals set forth by AB 1279. The aforementioned CAP aligns with the regulatory setting in place at the time of its adoption and includes policies capable of assisting the City in meeting the targets codified by SB 32 (40 percent reduction from 1990 emissions by 2030). The new CAP intends to include policies that will extend beyond 2030.

3.7.2 Environmental Setting

THE PHYSICAL SCIENTIFIC BASIS OF GREENHOUSE GAS EMISSIONS AND CLIMATE CHANGE

Certain gases in the earth's atmosphere, classified as GHGs, play a critical role in determining the earth's surface temperature. Solar radiation enters the atmosphere from space. A portion of the radiation is absorbed by the earth's surface, and a smaller portion of this radiation is reflected toward space. The absorbed radiation is then emitted from the earth as low-frequency infrared radiation. Most solar radiation passes through GHGs; however, infrared radiation is absorbed by these gases. As a result, radiation that otherwise would have escaped back into space is instead "trapped," resulting in a warming of the atmosphere. This phenomenon, known as the greenhouse effect, is responsible for maintaining a habitable climate on earth.

Prominent GHGs contributing to the greenhouse effect are CO₂, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. Human-caused emissions of these GHGs in excess of natural ambient concentrations are found to be responsible for intensifying the greenhouse effect and leading to a trend of unnatural warming of the earth's climate, known as global climate change or global warming. It is "extremely likely" that more than half of the observed increase in global average surface temperature from 1951 to 2010 was caused by the anthropogenic increase in GHG concentrations and other anthropogenic forcing (IPCC 2014).

Climate change is a global problem. GHGs are global pollutants, unlike criteria air pollutants and toxic air contaminants, which are pollutants of regional and local concern. Whereas most pollutants with localized air quality effects have relatively short atmospheric lifetimes (approximately 1 day), GHGs have long atmospheric lifetimes (1 year to several thousand years). GHGs persist in the atmosphere long enough to be dispersed around the globe. Although the lifetime of any GHG molecule depends on multiple variables and cannot be determined with any certainty, it is understood that more CO₂ is emitted into the atmosphere than is sequestered by ocean uptake, vegetation, and other forms of sequestration. Of the total annual human-caused CO₂ emissions, approximately 55 percent are estimated to be sequestered through ocean and land uptake every year, averaged over the last 50 years, whereas the remaining 45 percent of human-caused CO₂ emissions remain stored in the atmosphere (IPCC 2013).

The quantity of GHGs in the atmosphere responsible for climate change is not precisely known, but it is considered to be enormous. No single project alone would measurably contribute to an incremental change in the global average temperature or to global or local climates or microclimates. From the standpoint of CEQA, GHG impacts relative to global climate change are inherently cumulative.

GREENHOUSE GAS EMISSION SOURCES

Emissions of CO₂ are byproducts of fossil fuel combustion. Methane, a highly potent GHG, primarily results from off-gassing (the release of chemicals from nonmetallic substances under ambient or greater pressure conditions) and is largely associated with agricultural practices, landfills, and forest fires. Nitrous oxide is also largely attributable to agricultural practices and soil management. CO₂ sinks, or reservoirs, include vegetation and the ocean, which absorb CO₂ through sequestration and dissolution (CO₂ dissolving into the water) and are two of the most common processes for removing CO₂ from the atmosphere.

As discussed previously, GHG emissions are attributable in large part to human activities. The total GHG inventory for California in 2020 was 370 MMTCO_{2e} (CARB 2022c). This is less than the 2020 target of 431 MMTCO_{2e} (CARB 2021).

A GHG inventory for the City is provided in the City's CAP and summarized in Table 3.7-1. As shown below, on-road vehicles and residential, commercial, and industrial energy consumption constitute the greatest sources of emissions.

Table 3.7-1 City of Elk Grove's Greenhouse Gas Emissions Inventory for 2013 and Business-as-Usual Forecast Years (MTCO_{2e})

Emissions Sector	2013	2020	2030	2050
On-Road Vehicles	730,340	645,542	844,317	1,241,867
Residential Energy	231,400	257,171	310,017	413,560
Commercial/Industrial Energy	129,860	147,685	196,037	293,532
Off-Road Vehicles	93,340	102,776	123,896	165,275
Solid Waste	26,260	36,181	39,817	47,781
Wastewater	3,854	4,283	5,163	6,888
Water-Related	2,708	3,010	3,628	4,840
Agriculture	1,030	2,585	1,061	299
Total	918,790	1,199,232	1,523,936	2,174,042

Notes: Totals may not equal the sum of the numbers because of independent rounding.

MTCO_{2e} = metric tons of carbon dioxide equivalent.

Source: City of Elk Grove 2019b: Appendix A.

EFFECTS OF CLIMATE CHANGE ON THE ENVIRONMENT

According to IPCC, which was established in 1988 by the World Meteorological Organization and the United Nations Environment Programme, global average temperature will increase by 3.7 to 4.8 degrees Celsius (°C) (6.7 to 8.6 degrees Fahrenheit [°F]) by the end of the century unless additional efforts to reduce GHG emissions are made (IPCC 2014:10). According to *California's Fourth Climate Change Assessment*, with global GHGs reduced at a moderate rate California will experience average daily high temperatures that are warmer than the historic average by 2.5 °F from 2006 to 2039, by 4.4 °F from 2040 to 2069, and by 5.6 °F from 2070 to 2100; and if GHG emissions continue at current rates then California will experience average daily high temperatures that are warmer than the historic average by 2.7 °F from 2006 to 2039, by 5.8 °F from 2040 to 2069, and by 8.8 °F from 2070 to 2100 (OPR et al. 2018).

Since its previous climate change assessment in 2012, California has experienced several of the most extreme natural events in its recorded history: a severe drought from 2012–2016, an almost non-existent Sierra Nevada winter snowpack in 2014–2015, increasingly large and severe wildfires, and back-to-back years of the warmest average temperatures (OPR et al. 2018). According to California Natural Resource Agency's *Safeguarding California Plan: 2018 Update*, California experienced the driest 4-year statewide precipitation on record from 2012 through 2015; the warmest years on average in 2014, 2015, and 2016; and the smallest and second smallest Sierra snowpack on record in 2015 and 2014 (CNRA 2018). According to the National Oceanic and Atmospheric Administration and the National Aeronautics and Space Administration, 2016, 2017, and 2018 were the hottest recorded years in history (NOAA 2019). In contrast, the northern Sierra Nevada experienced one of its wettest years on record during the 2016–2017 water year (CNRA 2018). The changes in precipitation exacerbate wildfires throughout California through a cycle of high vegetative growth coupled with dry, hot periods which lowers the moisture content of fuel loads. As a result, the frequency, size, and devastation of forest fires has increased. In November 2018, the Camp Fire completely destroyed the town of Paradise in Butte County and caused 85 fatalities, becoming the state's deadliest fire in recorded history, and the largest fires in the state's history have occurred in the 2018–2020 period. Moreover, changes in the intensity of precipitation events following wildfires can also result in devastating landslides. In January 2018, following the Thomas Fire, 0.5 inch of rain fell in 5 minutes in Santa Barbara causing destructive mudslides formed from the debris and loose soil left behind by the fire. These mudslides resulted in 21 deaths.

As temperatures increase, the amount of precipitation falling as rain rather than snow also increases, which could lead to increased flooding because water that would normally be held in the snowpack of the Sierra Nevada and Cascade Range until spring would flow into the Central Valley during winter rainstorm events. This scenario would place more pressure on California's levee/flood control system (CNRA 2018). Furthermore, in the extreme scenario involving the rapid loss of the Antarctic ice sheet and the glaciers atop Greenland, the sea level along California's coastline is expected to rise 54 inches by 2100 if GHG emissions continue at current rates (OPR et al. 2018).

Temperature increases and changes to historical precipitation patterns will likely affect ecological productivity and stability. Existing habitats may migrate from climatic changes where possible, and those habitats and species that lack the ability to retreat will be severely threatened. Altered climate conditions will also facilitate the movement of invasive species to new habitats thus outcompeting native species. Altered climatic conditions dramatically endanger the survival of arthropods (e.g., insects, spiders) which could have cascading effects throughout ecosystems (Lister and Garcia 2018). Conversely, a warming climate may support the populations of other insects such as ticks and mosquitos, which transmit diseases harmful to human health such as the Zika virus, West Nile virus, and Lyme disease (European Commission Joint Research Centre 2018).

Changes in temperature, precipitation patterns, extreme weather events, wildfires, and sea-level rise have the potential to threaten transportation and energy infrastructure, crop production, forests and rangelands, and public health (CNRA 2018; OPR et al. 2018). The effects of climate change will also have an indirect adverse impact on the economy as more severe natural disasters cause expensive, physical damage to communities and the state.

Additionally, adjusting to the physical changes associated with climate change can produce mental health impacts such as depression and anxiety.

3.7.3 Environmental Impacts and Mitigation Measures

METHODOLOGY

Short-term construction-generated GHG emissions were calculated using the California Emissions Estimator Model (CalEEMod), Version 2022.1.1.14, as recommended by SMAQMD and other air districts in California (CAPCOA 2023). Modeling was based on Project-specific information (e.g., building size, area to be graded, area to be paved, energy information) where available; assumptions based on typical construction activities; and default values in CalEEMod that are based on the Project location and land use types. The land use types proposed for the Project were translated into the available land uses in CalEEMod. Construction of Phase 1 of the Project was assumed to commence in the Summer of 2025 and end in 2032. Construction of Phase 2 was assumed to begin following the completion of Phase 1 and end in 2042. Emissions from trips associated with moving animals for the New Zoo are speculative at the time of this analysis. The animals housed at the New Zoo would be from either the Sacramento Zoo or another AZA accredited zoo. The decision of where animals at the New Zoo would arrive from would be determined closer to the opening of the New Zoo and subsequent phases. Therefore, quantifying emissions from these vehicle trips would be speculative and is not included in this analysis.

Operation-related emissions of GHGs were estimated using CalEEMod for the following sources: area sources (e.g., landscape maintenance equipment), energy use (i.e., electricity consumption), water use, solid waste generated, and mobile sources. Although the Sacramento Zoo would eventually be decommissioned or repurposed, the future land use that would operate at the repurposed Sacramento Zoo is unknown at the time of this analysis; therefore, the GHG emissions that would be reduced or increased from the decommissioning or repurposing of the Sacramento Zoo were not taken into account in this analysis. The New Zoo would open and be operational after the completion of the first phase in 2029, unless there is a rolling opening in 2027, but would be fully operational at full buildout in 2043. Operation-related mobile-source GHG emissions were modeled based on the estimated level of increased VMT by employees, visitors, and vendors above baseline conditions (i.e., above what is currently occurring at the existing Sacramento-based zoo). VMT estimates were derived from data generated during Kimley-Horn's *New Zoo in Elk Grove –VMT Analysis* conducted for the Project (see Section 3.13, "Transportation"). Mobile-source emissions were calculated using CalEEMod for the net increase in VMT from the existing Sacramento Zoo for the opening of the New Zoo in 2029, as well as full buildout of the New Zoo in 2043. Indirect emissions associated with electricity and natural gas consumption were estimated using GHG emissions factors for the SMUD. The Project's level of electricity use was based on data procured by the New Zoo in consideration of the Sacramento Zoo's existing electrical load. The Project would be fully electric and the Project's expected GHG reduction achieved from the proposed 14 and 20 kilowatt (kW) array photovoltaic solar systems were estimated using the National Renewable Energy Laboratory's PVWatts Calculator. Since it is unknown at this time how or if the Sacramento Zoo would be decommissioned, emissions from area sources, energy consumption, water consumption and wastewater treatment, solid waste generation, and refrigerants were modeled as new sources instead of net increases over baseline existing conditions at the Sacramento Zoo. Therefore, the GHG estimates for these sources are inherently conservative. In accordance with SMAQMD's guidance operational GHG emissions were modeled for the earliest year where operational emissions are anticipated to commence (i.e., 2029). Additionally, operational emissions were modeled at full buildout of the New Zoo in 2043.

Detailed model assumptions and inputs for these calculations are presented in Appendix D.

THRESHOLDS OF SIGNIFICANCE

The significance criteria used to evaluate Project impacts on climate change under CEQA are based on Section 15064 of the CEQA statute and relevant portions of Appendix G of the State CEQA Guidelines, which recommend that a lead agency consider a project's consistency with relevant, adopted plans and discuss any inconsistencies with applicable regional plans, including plans to reduce GHG emissions. Implementation of the Project would result in a cumulatively considerable contribution to climate change if it would:

- ▶ generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment; or
- ▶ conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs.

With respect to GHG emissions, the CEQA Guidelines Section 15064.4(a) states that lead agencies “shall make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate” GHG emissions resulting from a project. The CEQA Guidelines note that an agency has the discretion to either quantify a project’s GHG emissions or rely on a “qualitative analysis or performance-based standards” (Section 15064.4[a]). A lead agency may use a “model or methodology” to estimate GHG emissions and has the discretion to select the model or methodology it considers “most appropriate to enable decision makers to intelligently take into account the project’s incremental contribution to climate change” (Section 15064.4[c]). The CEQA Guidelines provide that the lead agency should consider the following when determining the significance of impacts from GHG emissions on the environment (Section 15064.4[b]):

- ▶ The extent a project may increase or reduce GHG emissions as compared to the existing environmental setting.
- ▶ Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project.
- ▶ The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions.

CEQA Guidelines Appendix G is a sample Initial Study checklist that includes a number of factual inquiries related to the subject of climate change, as it does on a whole series of additional environmental topics. Notably, lead agencies are under no obligation to use these inquiries in fashioning thresholds of significance on these subjects, or indeed on any subject addressed in the checklist. (*Save Cuyama Valley v. County of Santa Barbara* (2013) 213 Cal.App.4th 1059, 1068.) Rather, with few exceptions, “CEQA grants agencies discretion to develop their own thresholds of significance.” (*Ibid.*) Even so, it is a common practice for lead agencies to take the language from the inquiries set forth in Appendix G and to use that language in fashioning thresholds. The City has done so here.

Since California’s legislative mandate to reduce total projected GHG emissions to 1990 levels by the year 2020 has been achieved, the focus is now on reducing emissions 40 percent below 1990 levels by the year 2030 (SB 32), 85 percent below 1990 levels by 2045 (AB 1279), and carbon neutrality by 2045 (AB 1279). To achieve these targets, future development must be planned and implemented in the most GHG-efficient manner possible. As noted above under the Heading, “City of Elk Grove Climate Action Plan,” in Section 3.7.1, “Regulatory Setting,” the City has a currently adopted CAP.

The City updated its CAP concurrently with the General Plan in 2019 (the 2019 CAP). The 2019 CAP is intended to carry out the 2019 General Plan goals and policies to reduce GHG emissions and address the impacts of climate change. The City’s GHG emissions inventory and forecasts were updated to reflect new activity data and both current and projected population, housing, and employment demographic information consistent with the General Plan. The 2019 CAP includes GHG emissions reduction targets of 7.6 MTCO_{2e} per capita by 2020, and 4.1 MTCO_{2e} per capita by 2030. These targets are consistent with guidance provided to local governments in the 2017 Scoping Plan on setting plan-level GHG reduction goals that are consistent with the state’s efforts to achieve the 2030 target established by SB 32. However, as noted in Section 3.5.1, “Regulatory Setting,” the CAP is currently being updated to comply with the 2022 Scoping Plan Update, recently adopted by CARB in December 2022. At the time of preparing this analysis, the new CAP has not been adopted.

Development under the Project would extend beyond 2030 (i.e., 2042). Because the 2019 CAP achieves its 2030 target, which is aligned with the, then current, 2030 target of SB 32, and has not been updated yet to demonstrate consistency with the goals of AB 1279, the existing 2019 CAP has not been used as the threshold for determining the Project’s significance in this analysis.

As discussed previously under, “Sacramento Metropolitan Air Quality Management District,” in Section 3.7.1, “Regulatory Setting,” SMAQMD recommends tier 1 and 2 BMPs to reduce operational GHG impacts from projects. These BMPs align with the direction provided in Appendix D of the 2022 Scoping Plan, which calls for building

carbonization, VMT reductions, and the electrification of the mobile source sector. As such, these are considered appropriate BMPs to assess the Project's cumulative contribution to global climate change.

Using SMAQMD's guidance, the Project would result in a cumulatively significant climate change effect if it would:

- ▶ generate construction emissions exceeding 1,100 MTCO₂e/year for any year of construction.
- ▶ generate operational emissions exceeding 1,100 MTCO₂e/year following the implementation of SMAQMD's tier 1 BMPs (i.e., the prohibition of natural gas infrastructure and meeting the current CalGreen Tier 2 Standards for EV charging)
- ▶ for projects exceeding 1,100 MTCO₂e/year following the implementation of SMAQMD's tier 1 BMPs, fail to achieve the VMT reduction targets set forth by OPR under SB 743.

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Impact 3.7-1: Project-generated GHG emissions and consistency with plans and regulations

Construction of the Project would generate 8,242 MTCO₂e over the course of the Project's 17-construction-year period (2025–2042). The Project's construction emissions would not exceed SMAQMD's 1,100 MTCO₂e/year threshold of significance for evaluating construction-related climate change impacts for each year of construction. As part of operations the Project would include EV charging spaces. However, the number proposed EV charging spaces does not meet the Tier 2 requirements of the CalGreen Code (SMAQMD's tier 1 BMP 2). While opening year emissions would not exceed SMAQMD thresholds, at full buildout Project emissions would be above SMAQMD's bright-line threshold of significance of 1,100 MTCO₂/year that triggers the need for the Project to implement SMAQMD's tier 2 BMP. With implementation of Mitigation Measures 3.7-1 and Mitigation Measures 3.13-2a and 3.13-2b the Project would be required to reduce mobile emissions associated with the Project to meet SMAQMD's thresholds. However, operational emissions would remain significant and conflict with the long-term goal of achieving carbon neutrality by 2045 as mandated by AB 1279. This impact would be **significant and unavoidable**.

Construction

Construction-related activities would generate emissions of GHGs from the operation of off-road equipment, material delivery, worker commute trips, and other miscellaneous activities. Construction activities in the modeling were assumed to occur over 17 years (2025–2042). GHG emissions from construction equipment are anticipated to become progressively less as emissions factors for off-road construction equipment improves and the availability of higher-tiered engines increases. For specific construction assumptions and modeling inputs, refer to Appendix D. Based on the modeling performed for the Project, construction of the Project would generate a total of approximately 8,242MTCO₂e over the 17-year construction period. However, Project construction emissions would not exceed SMAQMD's construction threshold of significance of 1,100 MTCO₂e per year for each year. Table 3.7-2 summarizes Project construction emissions. Construction-generated GHG emissions would be **less than significant**.

Table 3.7-2 Summary of Maximum Construction-Generated Emissions of Greenhouse Gas Emissions from the Project (2025–2042)

Construction Year	MTCO ₂ e/year
2025	976
2026	857
2027	851
2028	428
2029	406
2030	367
2031	366

Construction Year	MTCO ₂ e/year
2032	240
2033	401
2034	314
2034	198
2035	195
2036	195
2037	195
2038	144
2039	445
2040	398
2041	290
2042	976
SMAQMD threshold	1,100
Exceeds thresholds?	No

Notes: MTCO₂e = metric tons of carbon dioxide equivalent; SMAQMD = Sacramento Metropolitan Air Quality Management District.

Source: Modeling performed by Ascent Inc. in 2023.

Operation

The New Zoo would become operational in 2029 after construction of Phase 1, and be fully operational by 2043 (i.e., completion of Phases 1 through 4). Project operations would generate GHG emissions from travel to and from the New Zoo and landscaping equipment. GHGs would be indirectly emitted from electricity consumption, solid waste disposal at the landfills, water and wastewater treatment, and refrigerants. The Project would be fully electric (i.e., no natural gas). Based on the modeling prepared for the Project at opening year the Project would generate approximately 270 MTCO₂e/year. At full buildout, Project operations would generate a total of approximately 3,499 MTCO₂e/year. Mobile emissions for the Project account for the net increase in emissions as compared to mobile emissions from operation of the Sacramento Zoo. However, emissions from the area, energy, water, solid waste, and refrigerants sectors estimated for the Project conservatively do not account for the existing operations of the Sacramento Zoo.

The Project would be all electric and thus be consistent with SMAQMD's tier 1 BMP 1 (i.e., the prohibition of on-site natural gas infrastructure). The Project would include 313 EV capable spaces, comprising 20 percent of the total proposed parking spaces. Of those 313 EV capable spaces, 80 would be EVCS (20 percent of the EV capable spaces), seven EV standard accessible spaces, two EV van accessible spaces, and five EV ambulatory spaces. SMAQMD's tier 1 BMP 2 requires that projects meet the tier 2 standards of the most recent CalGreen Code. To meet the most recent 2022 CalGreen Code tier 2 requirements for EV charging spaces the Project would need to construct 729 EV capable parking spaces (i.e., 45 percent of the Project's total parking spaces) and 240 EVSE spaces (i.e., EV spaces supportive Level 2 or Direct Current Fast Chargers; 33 percent of the total EV capable spaces). Because the Project would not meet the tier 1 BMP 2 standards pertaining to the EV requirements of the CalGreen Code, the Project would be required to implement Mitigation Measure 3.7-1. Implementation of Mitigation Measure 3.7-1 would require installation of EV capable and EVSE spaces consistent with the tier 2 requirements of the CalGreen Code.

With the application of SMAQMD's tier 1 BMP 1 and failure to meet SMAQMD's tier 1 BMP 2, without implementation of Mitigation Measure 3.7-1, Project operational emissions would exceed SMAQMD's operational threshold of significance of 1,100 MTCO₂e/year in 2043. Tables 3.7-3 and 3.7-4 summarize the Project's operational emissions by sector for the opening year of the New Zoo in 2029 and at full buildout in 2043. For specific operational assumptions and modeling inputs, refer to Appendix D.

Table 3.7-3 Project-Generated Greenhouse Gas Emissions in 2029

Emissions Sector	MTCO ₂ e
Mobile Source	144
Area Sources	<1
Energy Consumption	62
Water Consumption and Wastewater Treatment	21
Solid Waste Generation	42
Refrigerants	<1
Total Operational GHG Emissions	270
SMAQMD threshold	1,100
Exceeds thresholds?	No

Notes: MTCO₂e = metric tons of carbon dioxide equivalent; SMAQMD = Sacramento Metropolitan Air Quality Management District.

Source: Modeling performed by Ascent Inc. in 2023.

Table 3.7-4 Project-Generated Greenhouse Gas Emissions in 2043

Emissions Sector	MTCO ₂ e
Mobile Source	3,126
Area Sources	3
Energy Consumption	40
Water Consumption and Wastewater Treatment	29
Solid Waste Generation	288
Refrigerants	14
Total Operational GHG Emissions	3,499
SMAQMD threshold	1,100
Exceeds thresholds?	Yes

Notes: MTCO₂e = metric tons of carbon dioxide equivalent; SMAQMD = Sacramento Metropolitan Air Quality Management District.

Source: Modeling performed by Ascent Inc. in 2023.

As shown in Table 3.7-3, Project operational emissions would not exceed SMAQMD's threshold of significance of 1,100 MTCO₂e/year following the application of SMAQMD's tier 1 BMP 1 upon opening of Phase 1 of the New Zoo in 2029. However, as shown in Table 3.7-4, Project operations would exceed SMAQMD's threshold of significance at full buildout. The Project would not meet the requirements of SMAQMD's tier 1 BMP 2. The emissions estimates summarized above are inherently conservative as the emissions associated with the area, energy, water and wastewater, solid waste, and refrigerants sectors have been considered new emissions although the existing Sacramento Zoo, which currently generates emissions from these sources, would no longer generate GHG emissions from those sectors.

As discussed above under, "Thresholds of Significance," SMAQMD recommends projects that continue to have emissions above the 1,100 MTCO₂e/year threshold demonstrate that they are reducing VMT to meet OPR's targets pursuant to SB 743. As discussed in Impact 3.13-2 in Section 3.13, "Transportation," the Project's incremental increase in VMT would exceed the City's VMT requirements resulting in a significant impact. Mitigation Measures 3.13-2a and 3.13-2b are included in Section 3.13, "Transportation" to reduce VMT. These measures would require increased vehicle occupancy, a commute reduction program, and a local transit stop to decrease vehicle trips. However, these measures would not be sufficient to reduce the Project's contribution of VMT below the VMT threshold of significance (i.e., an increase in VMT above baseline conditions).

The Project has committed to various design features that reduce the Project's contribution of GHGs above what SMAQMD recommends. For example, the Project would include 120 bicycle parking spaces, which has the potential to reduce GHG emissions from the mobile sector by as much as 4.4 percent (137.5 MTCO₂e/year), as well as two 20 and 14 kW photovoltaic solar arrays to provide on-site electricity to the Project site resulting in an annual decrease of 54 MTCO₂e/year. The Project would also introduce and operate the Animal Browse Program, which would entail gathering and processing green waste from around the City's parks and rural communities to feed the zoo animals, thus decreasing the purchasing needs of the Project to procure feed from designated agricultural sources. This would result in decreased emissions from water usage to grow crops as well as avoided potential fugitive methane production from the anaerobic decomposition of organic matter at landfills.

Notably, the Project would result in the expansion of habitat to support zoo animals compared to the existing Sacramento Zoo. This would allow the Project to support a greater number of animals that may generate fugitive methane emissions. As discussed in Section 3.7.2, methane is a GHG with a high GWP as compared to CO₂ and endures in the atmosphere for a substantially shorter duration. Ruminants (hoofed herbivorous animals with a unique digestive system comprising four stomachs) are a suborder of the Animalia kingdom that contributes the highest percentage of fugitive methane from animal digestion due to the complex nature of their digestive processes. Types of ruminants that may inhabit the Project include, but are not limited to, giraffes, African buffalo, oryx, kudu, and ibex, which would produce methane from the digestion of herbivorous compounds. However, while methane emissions from ruminants contributes significantly to global climate change, this methane is primarily emitted from human-controlled agricultural processes (i.e., cattle raised for meat and dairy products). While there would be an increase in methane emissions from Project implementation as compared to those occurring from ruminant digestion at the Sacramento Zoo, in the global context of methane production, these emissions would be negligible.

The City of Elk Grove CAP is designed to reduce GHG emissions and thus, the Project includes various project design features that are consistent with the following measures in the CAP:

- ▶ **BE-3. Building Stock: Nonresidential Appliances in Existing Development.** Equip City businesses to reduce operational expenses and maximize energy efficiency using energy-efficient and cost-effective indoor and outdoor appliances and equipment.
- ▶ **BE-7. Building Stock: Solar Photovoltaics in New and Existing Residential and Commercial Development.** Encourage and require installation of on-site solar photovoltaic (PV) in new single-family and low-rise multi-family developments. Promote installation of on-site PV systems in existing residential and commercial development.
- ▶ **BE-8. SMUD Greenergy and SolarShares Programs.** Encourage participation in SMUD's offsite renewable energy programs (i.e., Greenergy, SolarShares), which allow building renters and owners to opt into cleaner electricity sources.
- ▶ **TACM-4. Pedestrian and Bicycle Travel.** Provide for safe and convenient pedestrian and bicycle travel through implementation of the Bicycle, Pedestrian, and Trails Master Plan and increased bicycle parking standards.
- ▶ **TACM-9. EV Charging Requirements.** Adopt an electric vehicle (EV) charging station ordinance that establishes minimum EV charging standards for all new residential and commercial development. Increase the number of EV charging stations at municipal facilities throughout the City.

The Project would be consistent with CAP Measure BE-3 by eliminating on-site natural gas and using the solar array that would be installed on the site. Similarly, the Project would be consistent with CAP Measures BE-7 and BE-8 by promoting the future PV installations. Although the renewable energy would not be generated by SMUD, the Project would be consistent with BE-8 by generating renewable energy through installation of PV. By installing bike parking stalls, the Project would be consistent with CAP Measure TACM-4. Lastly, by installing 327 EV-capable parking spaces, the Project would be consistent with CAP Measure TACM-9.

Nevertheless, as shown in Table 3.7-4, the Project's emissions would continue to be above SMAQMD's 1,100 MTCO₂e/year after implementation of tier 1 BMP 1. Mitigation Measures 3.13-2a and 3.13-2b, as included in Section 3.13, "Transportation," would be required to reduce VMT, and would also reduce Project GHG emissions. As

calculated using methods in the CAPCOA Handbook, Mitigation Measures 3.13-2a and 3.13-2b could reduce emissions by a maximum of 1,322 MTCO₂e/year during the Project's first full year of operation (i.e., 2043). After creating these reductions, the Project would emit 2,177 MTCO₂e/year, which would be above SMAQMD's 1,100 MTCO₂e/year threshold of significance for operational emissions. However, the percent reductions associated with these measures, as defined by CAPCOA, are interpreted as the maximum GHG benefit and are not additive when multiple measures are applied. Therefore, there would be diminishing GHG reductions when these measures are implemented congruently (CAPCOA 2021). It cannot be assured that the Project, with mitigation, would produce emissions sufficiently low enough to not conflict with the state's long-term GHG reduction goal of carbon neutrality by 2045 established by AB 1279. The Project would not meet SMAQMD's tier 2 BMP to meet OPR's VMT reduction target. Therefore, with implementation of Mitigation Measure 3.7-1, and Mitigation Measures 3.13-2a and 3.13-2b from Section 3.13, "Transportation" impacts would remain **significant and unavoidable**. As described in Section 3.13, "Transportation," there are no other feasible measures available to reduce Project mobile emissions.

Mitigation Measures

Mitigation Measure 3.7-1a: Install EV Capable and EVSE Spaces Consistent with the Tier 2 Requirements of the 2022 CalGreen Code

The Zoo shall equip 45 percent of the Project's total parking spaces with EV capable infrastructure. Of the EV capable spaces, 33 percent shall support EVSE infrastructure with Level 2 or Direct Current Fast Chargers.

Mitigation Measure 3.7-1b: Implement Mitigation Measure 3.13-2a: Subsidize Transit for New Zoo Employees

Mitigation Measure 3.7-1bc: Implement Mitigation Measure 3.13-2b: Provide a Local Transit Stop.

Significance after Mitigation

This impact would be **significant and unavoidable**.

3.8 HAZARDS AND HAZARDOUS MATERIALS

This section includes a summary of applicable regulations that govern hazards and hazardous materials, a discussion of existing hazards and hazardous materials on the Project site, and an analysis of potential construction and operational impacts on hazards and hazardous materials caused by proposed development of the New Zoo. The evaluation of hazards and hazardous materials impacts in this section is based, in part, on review of the Phase I Environmental Site Assessment and Limited Phase II Environmental Site Assessment Report prepared for the Project site by Geocon Consultants in 2022 (Geocon Consultants 2022).

For the purpose of this document, the term “hazardous material” is used in reference to any material or waste with physical, chemical, or other characteristics that could pose a risk to human health or safety, or could result in degradation of the environment if released. Although chemicals are the most recognized type of hazardous materials, biohazardous materials are included in the following discussion. Biohazardous materials contain infectious agents (e.g., microorganisms, bacteria, molds, parasites, viruses) that normally cause, or significantly contribute to, increased human mortality. Medical waste can also be considered a hazardous waste and is generated or produced as a result of the diagnosis, treatment, or immunization of human beings or animals and the production or testing of biological materials. Cultures, blood and blood products, tissues, and body parts are all considered medical waste.

No comments related to hazards and hazardous materials were received during the public scoping period for the Project. See Appendix A for all comments received during the notice of preparation scoping period.

3.8.1 Regulatory Setting

FEDERAL

Association of Zoos and Aquariums Zoo and Aquarium All Hazards Partnership

The Zoo and Aquarium All Hazards Partnership (ZAHP) is a collaborative effort that leverages the expertise of the exotic animal industry (EAI) and the emergency management sector to provide resources for enhancing preparedness for and resiliency to all-hazards that may impact facilities caring for exotic animals and wildlife. This program aims to help facilities protect their personnel, animals, assets, and the future viability of that work.

ZAHP supports the EAI by providing reliable information, education, and outreach opportunities to address the unique needs and challenges of this community, as well as recognizing its capabilities and subject matter expertise. ZAHP is committed to building capacity for response and recovery within the EAI by working to strengthen coordination and communication with the larger response community and supporting response partners during major events. Funding support for this program is provided by the US Department of Agriculture as a cooperative agreement with the Association of Zoos and Aquariums (AZA). The AZA Safety Committee serves to address emerging safety issues facing AZA accredited zoos and aquariums and works to develop changes in best management practices and professional development/training.

Management of Hazardous Materials

Various federal laws address the proper handling, use, storage, and disposal of hazardous materials, as well as requiring measures to prevent or mitigate injury to health or the environment if such materials are accidentally released. The US Environmental Protection Agency (EPA) is the agency primarily responsible for enforcement and implementation of federal laws and regulations pertaining to hazardous materials. Applicable federal regulations pertaining to hazardous materials are primarily contained in Code of Federal Regulations (CFR) Titles 29, 40, and 49. Hazardous materials, as defined in the Code, are listed in 49 CFR 172.101. Management of hazardous materials is governed by the following laws:

- ▶ The **Toxic Substances Control Act** of 1976 (15 US Code [USC] Section 2601 et seq.) regulates the manufacturing, inventory, and disposition of industrial chemicals, including hazardous materials. Section 403 of the Toxic Substances Control Act establishes standards for lead-based paint hazards in paint, dust, and soil.
- ▶ The **Resource Conservation and Recovery Act** of 1976 (42 USC 6901 et seq.) is the law under which EPA regulates hazardous waste from the time the waste is generated until its final disposal (“cradle to grave”).
- ▶ The **Comprehensive Environmental Response, Compensation, and Liability Act** of 1980 (also called the Superfund Act or CERCLA) (42 USC 9601 et seq.) gives EPA authority to seek out parties responsible for releases of hazardous substances and ensure their cooperation in site remediation.
- ▶ The **Superfund Amendments and Reauthorization Act** (SARA) of 1986 (Public Law 99-499; USC Title 42, Chapter 116), also known as SARA Title III or the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA), imposes hazardous materials planning requirements to help protect local communities in the event of accidental release.
- ▶ The **Spill Prevention, Control, and Countermeasure (SPCC)** rule includes requirements for oil spill prevention, preparedness, and response to prevent oil discharges to navigable waters and adjoining shorelines. The rule requires specific facilities to prepare, amend, and implement SPCC Plans. The SPCC rule is part of the Oil Pollution Prevention regulation, which also includes the Facility Response Plan rule.

Transport of Hazardous Materials

The US Department of Transportation regulates transport of hazardous materials between states and is responsible for protecting the public from dangers associated with such transport. The federal hazardous materials transportation law, 49 USC 5101 et seq. (formerly the Hazardous Materials Transportation Act 49 USC 1801 et seq.) is the basic statute regulating transport of hazardous materials in the United States. There are registration requirements for individuals that offer and accept hazardous wastes, and hazardous materials must be properly classed, described, packaged, marked, and labeled. Hazardous materials transport regulations are enforced by the Federal Highway Administration, the US Coast Guard, the Federal Railroad Administration, and the Federal Aviation Administration.

Worker Safety

The federal Occupational Safety and Health Administration (OSHA) is the agency responsible for assuring worker safety in the handling and use of chemicals identified in the Occupational Safety and Health Act of 1970 (Public Law 91-596, 9 USC 651 et seq.). OSHA has adopted numerous regulations pertaining to worker safety, contained in CFR Title 29. These regulations set standards for safe workplaces and work practices, including standards relating to the handling of hazardous materials and those required for excavation and trenching. The Hazard Communication Standard (CFR Title 29, Part 1910) requires that workers be informed of the hazards associated with the materials they handle. Workers must be trained in safe handling of hazardous materials, use of emergency response equipment, and building emergency response plans and procedures. Containers must be labeled appropriately, and material safety data sheets must be available in the workplace.

Biosafety Standards

A hazardous biologic material is any potentially harmful biologic material (including infectious agents, oncogenic viruses, and recombinant DNA) or any material contaminated with a potentially harmful biologic material. This includes medical waste generated at hospitals and other medical facilities, including veterinary hospitals. The National Institutes of Health and the Centers for Disease Control and Prevention operate under the US Department of Health and Human Services and establish standards for working with biohazardous materials.

STATE

Management of Hazardous Materials

In California, both federal and State community right-to-know laws are coordinated through the Governor’s Office of Emergency Services. The federal law, SARA Title III or EPCRA, described above, encourage and support emergency planning efforts at the State and local levels and to provide local governments and the public with information about

potential chemical hazards in their communities. Because of the community right-to-know laws, information is collected from facilities that handle (e.g., produce, use, store) hazardous materials above certain quantities. The provisions of EPCRA apply to four major categories:

- ▶ emergency planning,
- ▶ emergency release notification,
- ▶ reporting of hazardous chemical storage, and
- ▶ inventory of toxic chemical releases.

The corresponding State law is Chapter 6.95 of the California Health and Safety Code (Hazardous Materials Release Response Plans and Inventory). Under this law, qualifying businesses are required to prepare a Hazardous Materials Business Plan, which would include hazardous materials and hazardous waste management procedures and emergency response procedures, including emergency spill cleanup supplies and equipment. At such time as the applicant begins to use hazardous materials at levels that reach applicable State and/or federal thresholds, the plan is submitted to the administering agency.

The California Department of Toxic Substances Control (DTSC), a division of the California Environmental Protection Agency, has primary regulatory responsibility over hazardous materials in California, working in conjunction with EPA to enforce and implement hazardous materials laws and regulations. As required by Section 65962.5 of the California Government Code, DTSC maintains a hazardous waste and substances site list for the State, known as the Cortese List. Individual regional water quality control boards (RWQCBs) are the lead agencies responsible for identifying, monitoring, and cleaning up leaking underground storage tanks (USTs).

Transport of Hazardous Materials and Hazardous Materials Emergency Response Plan

The State of California has adopted US Department of Transportation regulations for the movement of hazardous materials originating within the State and passing through the State; State regulations are contained in 26 California Code of Regulations (CCR). State agencies with primary responsibility for enforcing State regulations and responding to hazardous materials transportation emergencies are the California Highway Patrol and the California Department of Transportation (Caltrans). Together, these agencies determine container types used and license hazardous waste haulers to transport hazardous waste on public roads.

California has developed an emergency response plan to coordinate emergency services provided by federal, State, and local governments and private agencies. Response to hazardous materials incidents is one part of the plan. The plan is managed by the Governor's Office of Emergency Services, which coordinates the responses of other agencies in the Project area.

Porter-Cologne Water Quality Control Act

Through the Porter-Cologne Water Quality Act and the National Pollutant Discharge Elimination System (NPDES) program, RWQCBs have the authority to require proper management of hazardous materials during project construction. For a detailed description of the Porter-Cologne Water Quality Act, the NPDES program, and the role of the Central Valley RWQCB, see Section 3.9, "Hydrology and Water Quality."

The State Water Board adopted the Statewide NPDES General Permit in August 1999. The State requires that projects disturbing more than one acre of land during construction file a Notice of Intent with the RWQCB to be covered under this permit. Construction activities subject to the General Permit include clearing, grading, stockpiling, and excavation. Dischargers are required to eliminate or reduce non-stormwater discharges to storm sewer systems and other waters. A stormwater pollution prevention plan (SWPPP) must be developed and implemented for each site covered by the permit. The SWPPP must include best management plans (BMPs) designed to prevent construction pollutants from contacting stormwater and keep products of erosion from moving off-site into receiving waters throughout the construction and life of the project; the BMPs must address source control and, if necessary, pollutant control.

California Occupational Safety and Health Administration Worker Safety Requirements

The California Occupational Safety and Health Administration (Cal/OSHA) assumes primary responsibility for developing and enforcing workplace safety regulations within the State. Cal/OSHA standards are typically more stringent than federal OSHA regulations and are presented in Title 8 of the CCR. Cal/OSHA conducts on-site evaluations and issues notices of violation to enforce necessary improvements to health and safety practices. Cal/OSHA enforces regulations on hazard communication programs and mandates specific training and information requirements. These requirements include procedures for identifying and labeling hazardous substances, providing hazard information about hazardous substances and their handling, and preparing health and safety plans to protect workers and employees at hazardous waste sites. Employers must make material safety data sheets available to employees and document employee information and training programs.

LOCAL

Sacramento County Environmental Management Department

Sacramento County Environmental Management Department (EMD) is responsible for promoting a safe and healthy environment in Sacramento County and enforcing hazardous waste laws and regulations at a local level. As the local CUPA, Sacramento County EMD oversees the proper use, storage, and cleanup of hazardous materials; monitoring wells; removal of leaky underground storage tanks; and permits for the collection, transport, use, or disposal of refuse. Sacramento County EMD's Hazardous Materials Business Plan, which is administered throughout Sacramento County and its incorporated cities, is an element of the county's CUPA program. Businesses are required to complete a Hazardous Materials Business Plan for safe storage and use of chemicals above reportable quantities (55 gallons for liquids, 500 pounds for solids and 200 cubic feet for compressed gases).

To protect public health and the environment from potential exposure to infectious disease-causing agents, Sacramento County EMD also permits and inspects businesses generating medical waste. The Medical Waste Program ensures health and safety protection for members of the public and health care facility personnel by minimizing or eliminating exposure to biohazardous wastes containing pathogenic organisms and sharps. This is accomplished through the implementation and enforcement of medical waste regulations as they apply to the handling, storage, treatment, and disposal of biohazardous waste in Sacramento County. Sacramento County EMD is responsible for implementing the Medical Waste Management Act.

Sacramento County Evacuation Plan

The Sacramento County Evacuation Plan is developed as an annex to the Sacramento County 2008 All-Hazards Emergency Operations Plan. The purpose of this evacuation plan is to document the agreed-upon strategy for the county's response to emergencies that involve the evacuation of persons from an affected area to a safe area. This involves coordination and support for the safe and effective evacuation of the general population and for those who need additional support to evacuate. Focus areas in this evacuation plan include public alert and warning, transportation, and care and shelter.

Primary evacuation routes are established for each of the seven Sacramento County sheriff districts. These include major interstates, highways, and prime arterials in Sacramento County. Local jurisdictions will work with the county, and especially the Operations Section, Law Enforcement Branch, and the Evacuation Movement Unit, to identify and update evacuation routes and evacuation transfer points. The primary evacuation routes usually will be major interstates and other highways, and major roadways within and out of the county, unless otherwise determined by the Sacramento County Department of Transportation. During an evacuation, Sacramento County Department of Transportation traffic engineers would be able to quickly calculate traffic flow capacity and decide which of the available traffic routes should be used to move people in the correct directions. In many cases, the traffic engineers will need to reevaluate and recalculate best traffic routes based on situational data.

Sacramento County Local Hazard Mitigation Plan

The City participates in the multijurisdictional Sacramento County Local Hazard Mitigation Plan (LHMP). The 2021 LHMP Update serves to update the 2016 Federal Emergency Management Agency approved Sacramento County LHMP. The purpose of the plan is to guide hazard mitigation planning to better protect the people and property of the county from the effects of hazard events, such as flood, drought, earthquake, and severe weather. This plan also ensures that Sacramento County and participating jurisdictions, including the City, continue to be eligible for federal disaster assistance including the Federal Emergency Management Agency’s Hazard Mitigation Grant Program, Pre-Disaster Mitigation Program, and the Flood Mitigation Assistance Program. The county LHMP provides policies and programs for participating jurisdictions to implement that reduce the risk of hazards and protect public health, safety, and welfare.

City of Elk Grove Emergency Operations Plan

The City’s Emergency Operations Plan (EOP) provides a strategy for the City to coordinate and conduct emergency response (City of Elk Grove 2018b). The EOP establishes an Emergency Management Organization and assigns functions and tasks consistent with California’s Standardized Emergency Management System and the National Incident Management System. The intent of the EOP is to provide direction on how to respond to an emergency from the initial onset, through an extended response, and into the recovery process. The EOP integrates and coordinates the planning efforts of multiple jurisdictions. This plan was reviewed and approved by representatives from each City department, local special districts with emergency services responsibilities in the City, and the Sacramento Operational Area Office of Emergency Services. The content is based upon guidance approved and provided by the State of California, FEMA, and the federal Department of Homeland Security.

City of Elk Grove General Plan

The City of Elk Grove General Plan (City of Elk Grove 2022) contains the following goals and policies that are applicable to the Project:

- ▶ **Policy EM-1-1:** Seek to maintain acceptable levels of risk of injury, death, and property damage resulting from reasonably foreseeable safety hazards.
- ▶ **Policy ER-1-1:** In considering the potential impact of hazardous facilities on the public and/or adjacent or nearby properties, the City will consider the hazards posed by reasonably foreseeable events. Evaluation of such hazards will address the potential for events at facilities to create hazardous physical effects at offsite locations that could result in death, significant injury, or significant property damage. The potential hazardous physical effects of an event need not be considered if the occurrence of an event is not reasonably foreseeable as defined in Policy ER-1-2. Hazardous physical effects shall be determined in accordance with Policy ER-1-3.
- ▶ **Policy ER-1-2:** For the purpose of implementing Policy ER-1-1, the City considers an event to be “reasonably foreseeable” when the probability of the event occurring is as indicated in Table 8-1.

Table 3.8-1 Acceptable Probability of Reasonably Foreseeable Risks to Individuals by Land Use

Land Use	Risk of Death Over 365 Days of Exposure
Agricultural, Light Industrial and Industrial Uses involving continuous access and the presence of limited number of people but easy evacuation, e.g., open space, warehouses, manufacturing plants	Between 100 in one million and 10 in one million (10 ⁻⁴ to 10 ⁻⁵)
Commercial Uses involving continuous access but easy evacuation, e.g., commercial uses, offices	Between 10 in one million and 1 in one million (10 ⁻⁵ to 10 ⁻⁶)
Residential All other land uses without restriction including institutional uses, residential areas, etc.	1 in one million and less (10 ⁻⁶)

Source: City of Elk Grove 2019, Table 8-1.

- ▶ **Policy ER-1-3:** For the purpose of implementing Policy ER-1-1, use the Threshold of Exposure standards shown in Table 8-2 to determine the potential “hazardous physical effect” from either: (a) Placing a use near an existing hazardous facility which could expose the new use to hazardous physical effects, or (b) Siting a hazardous facility that could expose other nearby uses to hazardous physical effects. Reasonably foreseeable level of risk standards may be considered by the City when supported by substantial evidence.

Table 3.8-2 Policy Threshold of Exposure Criteria for Agricultural, Residential, and Nonresidential Land Uses

Land Use	Maximum Policy Threshold of Exposure			
	Overpressure	Airborne Toxic Substances	Radiant Heat	Shrapnel
Agriculture	3.4 psig ^(a)	Dose = ERPG-2 ^(b) ppm for 60 min Exposure time = 60 min	Radiant dose = 200 kJ/m ² ^(c) Exposure time = 30 sec	All uses will be located such that the possibility of injury to an unprotected person due to shrapnel released by a reasonably foreseeable event ^(d) is less than 1/10 ⁻⁶ (1/1,000,000)
Residential (all density ranges) ^(e)	1.0 psig	For example: chlorine ERPG-2 = 3 ppm	Target radiant energy = radiant dose/exposure time	
Office/Commercial	1.0 psig	Dose = 3 ppm x 60 min = 180 ppm-min Target concentration = dose/exposure time Target concentration = (180 ppm-min) / 60 min Target concentration = 3 ppm chlorine	Target radiant energy = (200 kJ/m ²) / 30 sec Target radiant energy = 6.67 kW/m ²	
Light Industrial	1.25 psig	Dose = ERPG-2 ppm for 60 min Exposure time = 30 min For example: chlorine ERPG-2 = 3 ppm Dose = 3 ppm x 60 min = 180 ppm-min Target concentration = dose/exposure time Target concentration = (180 ppm-min) / 30 min Target concentration = 6 ppm chlorine	Radiant dose = 200 kJ/m ² Exposure time = 15 sec Target radiant energy = radiant dose/exposure time Target radiant energy = (200 kJ/m ²) / 15 sec Target radiant energy = 13.34 kW/m ²	
Industrial	3.4 psig	Dose = ERPG-2 ppm for 60 min Exposure time = 15 min For example: chlorine ERPG-2 = 3 ppm Dose = 3 ppm x 60 min = 180 ppm-min Target concentration = dose/exposure time Target concentration = (180 ppm-min) / 15 min Target concentration = 12 ppm chlorine		

^a psig: pounds per square inch gauge.

^b ERPG-2: Emergency Response Planning Guidelines. The maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to one hour without experiencing or developing irreversible or other serious health effects or symptoms which could impair an individual’s ability to take protective action; ppm: parts per million.

^c kJ/m²: kilojoules per square meter (a measure of radiant heat received); kW/m²: kilowatts per square meter; 1.0 kJ/m² = 1.0 kW/ m² for 1 sec = 1 kW/(m²-sec).

^d As defined in Policy ER-1-2.

^e Includes schools, parks, libraries, and other similar public gathering places regardless of their location.

Source: City of Elk Grove 2019: Table 8-2.

- ▶ **Policy ER-1-4:** Work to identify and eliminate hazardous waste releases from both private companies and public agencies.
 - **Standard ER-1-4a:** Industries which store and process hazardous or toxic materials shall provide a buffer zone between the installation and the property boundaries sufficient to protect public safety, the adequacy of which will be determined by the City of Elk Grove.
- ▶ **Policy ER-1-5:** Storage of hazardous materials and waste shall be strictly regulated, consistent with state and federal law.

- **Standard ER-1-5a:** Future land uses that are anticipated to utilize hazardous materials or waste shall be required to provide adequate containment facilities to ensure that surface water and groundwater resources are protected from accidental releases. This shall include double-containment, levees to contain spills, and monitoring wells for underground storage tanks, as required by local, state and federal standards.
- **Standard ER-1-5.b:** Prior to site improvements for properties that are suspected or known to contain hazardous materials and sites that are listed on or identified on any hazardous material/waste database search shall require that the site and surrounding area be reviewed, tested, and remediated for potential hazardous materials in accordance with all local, state, and federal regulations.
- ▶ **Policy ER-1-7:** To the extent feasible, uses requiring substantial transport of hazardous materials should be located such that traffic is directed away from the City's residential and commercial areas.
- ▶ **Policy ER-1-8:** Support continued coordination with the California Office of Emergency Services, the California Department of Toxic Substances Control, the California Highway Patrol, the Sacramento County Department of Environmental Health Services, the Cosumnes Community Services District Fire Department, the Elk Grove Police Department, and other appropriate agencies in hazardous materials route planning and incident response.

An Elk Grove Evacuation Scenario Analysis Report was prepared as an appendix to the General Plan. The Evacuation Scenario Analysis Report evaluates three potential disaster scenarios in the City and develops recommendations for a best-practice response and evacuation plan for residents, community members, and City staff. The goal of the analysis is for the City to facilitate an evacuation plan tailored to each of the three disaster scenarios evaluated. Each scenario analysis concludes with recommendations for evacuation planning procedures tailored to vulnerable populations residing in hazard areas, as well as recommendations for establishing contra-flow lanes, where traffic lanes in one direction are temporarily converted to additional lanes in the opposite direction to accommodate a higher volume of traffic leading out of the evacuation area.

Elk Grove Municipal Code Section 23.60.030 (Hazardous Materials)

The City has developed the following standards to ensure that the use, handling, storage, and transport of hazardous materials comply with all applicable State laws (Section 65850.2 of the Government Code and HSC Section 25505 et seq.) and that appropriate information is reported to the Fire Department as the regulatory authority:

- A. Reporting Requirements. All businesses required by State law (HSC Section 6.95) to prepare hazardous materials release response plans and hazardous materials inventory statements shall, upon request, submit copies of these plans, including any revisions, to the Fire Department.
- B. Underground Storage. Underground storage of hazardous materials shall comply with all applicable requirements of state law (HSC Section 6.7 and Articles 679 and 680 of the California Fire Code, or as subsequently amended). Businesses that use underground storage tanks shall comply with the following procedures:
 1. Notify the Fire Department of any unauthorized release of hazardous materials prescribed by City, county, state and federal regulations;
 2. Notify the Fire Department and the Sacramento County Health Department of any proposed abandoning, closing or ceasing operation of an underground storage tank and actions to be taken to dispose of any hazardous materials; and
 3. Submit copies of the closure plan to the Fire Department.

3.8.2 Environmental Setting

The Project site was formerly used for agricultural purposes, and several irrigation features are still present. As noted in the Phase I Environmental Site Assessment and Limited Phase II Environmental Site Assessment Report (Geocon Consultants 2022), barbed-wire fencing is along the site boundaries and throughout the Project site. The Phase I Environmental Site Assessment noted concrete and other debris are located throughout the location of the former structures at 8663 and 8665 Kammerer Road. Powerline poles extend from the southern site boundary at 8665 Kammerer Road to the

groundwater supply well in the central-southern portion of the Site. Structures in the southeastern portion of the Project site include a dilapidated modular home and barn/cattle pen, an intact cattle pen, and a mobile home for the current site tenant. The Project site is currently used for grazing cattle from April through December.

ON-SITE HAZARDS

A physical inspection of the property and surrounding area and a database search were completed as part of the Phase I Environmental Site Assessment and Limited Phase II Environmental Site Assessment Report prepared for the Project (Geocon Consultants 2022). The Project site was walked and inspected for any evidence of surface contamination, staining, or other unusual conditions. The following materials were identified on the Project site:

- ▶ Suspect Asbestos Containing Materials (ACM)
- ▶ Suspect Lead Based Paint (LBP) and Lead Containing Material (LCM)
- ▶ Suspect Mercury Switches and Fluorescent Tubes
- ▶ Suspect PCB Light Ballasts
- ▶ Organochlorine pesticides
- ▶ On-site groundwater supply wells
- ▶ 55-gallon drum of Flora Dyme 6500 Trimer Acid without secondary containment on a degraded concrete slab

The materials found on the site were determined not to be Recognized Environmental Conditions (RECs). Per the American Society of Testing Materials (ASTM) standards, an REC is defined as the “presence or likely presence of any hazardous substances or petroleum products on a property that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, groundwater, or surface water of the property.” Lead and asbestos were not detected at concentrations exceeding contamination thresholds. Although not an REC, a 55-gallon drum of Flora Dyme 6500 Trimer Acid was without secondary containment on a degraded concrete slab in the southeastern portion of the Project site and identified as a concern (Geocon Consultants 2022). The drum of Flora Dyme 6500 has been removed from the site following completion of the Phase I Environmental Site Assessment and Limited Phase II Environmental Site Assessment Report. The historical records review did not identify any conditions of concern as it relates to hazardous materials.

In addition to the site inspection, an area/neighborhood drive by was also performed to identify whether any conditions of concern were present within one-third of a mile of the Project site, which is considered the outer radius for the Vapor Encroachment Condition (VEC) Screen Report. The area/neighborhood drive similarly did not identify any RECs. Finally, neither the State Water Resources Control Board's (SWRCB's) GeoTracker, DTSC's EnviroStor, or other databases, including the National Pipeline Mapping System, did not identify sites of known contamination on or near the Project site (SWRCB 2023; DTSC 2023; Geocon Consultants 2022).

DOCUMENTED SITES OF CONTAMINATION

Residual Agricultural Chemicals

Project site has been historically used for agricultural from at least 1937 until 2016 (Geocon Consultants 2022). Past use of agricultural chemicals such as pesticides can result in residual chemicals in the soil that can expose people to possible health risks. Certain types of agricultural chemicals used in past decades can persist in soils for years. Irrigated pasture, dry-farmed crops, and natural grasses typically require little to no applications of environmentally persistent pesticides, but cultivated irrigated row crops may have been subject to applications of restricted agricultural chemicals, which could be persistent. Orchards and orchard-cultivated soils may have been contaminated through the repeated application of agricultural chemicals to fruit or nut trees.

Suburban Propane Facility

The Suburban Propane facility located in the industrial area east of State Route 99 and north of Grant Line Road, approximately 1.6 miles northeast of the Project site, handles large quantities of hazardous materials. The Suburban Propane facility is considered one of the largest aboveground propane storage facilities in the United States. The facility receives pressurized ambient temperature liquid propane from tank trucks and railcars and stores both ambient and refrigerated liquid propane (City of Elk Grove 2022; Quest Consulting 2003). The propane is subsequently loaded onto trucks or railcars for off-site transport. The major components at the Suburban Propane facility include four 60,000-gallon pressurized, ambient temperature propane storage tanks; two 12,000,000-gallon refrigerated, low-pressure storage tanks; a propane refrigeration system; a flare; safety alarms; and tank truck and railcar loading and unloading stations. The facility is also equipped with water deluge systems, which are intended to help prevent tank trucks and railcars from failing due to excessive heat and internal pressure (City of Elk Grove 2018a).

A risk evaluation was prepared in 2003 as part of the EIR prepared for the previous General Plan. *The Review of Suburban Propane Hazards Analysis Studies and Evaluation of Accident Probabilities Report* (Quest 2003, cited in City of Elk Grove 2018a) assessed how a release of propane, either by accident or by intentional act, could affect surrounding areas in the event of a failure of one or both refrigerated storage tanks. Under the flash fire scenario, the impact extent could be out to 1.5 miles, with an accidental incident probability of one chance in 2.8 million in a year, and an intentional act probability of one chance in 2.1 million in a year. For a vapor cloud explosion, the impact extent could be out to 0.75 miles, with an accidental incident probability of one chance in 104 million in a year, and an intentional act probability of one chance in 3.2 million in a year (City of Elk Grove 2022).

The potential for an accidental or intentional event resulting in either a vapor cloud or a flash fire is not substantial since the New Zoo would be outside of the facility's impact area. Additionally, because the Suburban Propane facility is not operated by the City and the Project would not involve any changes to facility operations, the potential for a catastrophic event and its effects on surrounding land activity types would not be exacerbated by the Project and is, therefore, not subject to further analysis in this EIR.

SCHOOLS

Children are particularly susceptible to long-term effects from emissions of hazardous materials. Therefore, locations where children spend extended periods, such as schools, are sensitive to hazardous air emissions and accidental release associated with the handling of extremely hazardous materials, substances, or wastes. This risk is considered substantial where the potential release is within 0.25 mile of the school. No existing or proposed schools are within 0.25 mile of the Project site. The nearest schools and their approximate distances from the Project site are:

- Miwok Village Elementary School, approximately 0.8 mile north
- Rex and Margaret Fortune Early College High School, approximately 0.7 mile west
- Elizabeth Pinkerton Middle School, approximately 1.2 miles northwest
- Cosumnes Oaks High School, approximately 1.4 miles northwest
- Elk Grove High School, approximately 1.5 miles northeast
- Florence Markofer Elementary School, located approximately 1.4 miles northeast

AIRPORTS AND AIRSTRIPS

There are no active public airports or private airstrips within 2 miles of the Project site. The closest public airport is Franklin Field, located at 12480 Bruceville Road, approximately 5.3 miles southwest of the Project site. Franklin Field is a public use airport owned and operated by Sacramento County. It has two paved runways, one 204 feet long and the other 100 feet long. The facility does not have an air traffic control tower or personnel, and serves the general aviation community exclusively. Approximately 36,000 operations take place each year at Franklin Field, much of which are flight training activities (City of Elk Grove 2022). The Borges-Clarksburg Airport is a small, private airport

located approximately 6 miles northwest of the Project site. The Sky Way Estates Airport is a small private airport located approximately 8 miles east of the Project site.

WILDLAND FIRE HAZARDS

Although all of California is subject to some degree of wildfire hazard, specific features make certain areas more hazardous. The California Department of Forestry and Fire Protection (CAL FIRE) is required by law to map areas of significant fire hazards based on fuels, terrain, weather, and other relevant factors (Public Resources Code Sections 4201–4204 and Government Code Sections 51175–51189). Factors that increase an area's susceptibility to fire hazards include slope, vegetation type and condition, and atmospheric conditions. When development spreads into less densely populated, often hilly areas, it increases the number of people living in areas that are prone to wildfire.

The Project site is within a local responsibility area (i.e., an area under the jurisdiction of a local entity) that is not mapped by CAL FIRE as a very high fire hazard severity zone (CAL FIRE 2022). The Cosumnes Community Services District (CCSD) Fire Department is responsible for providing fire protection services to the Project site.

3.8.3 Environmental Impacts and Mitigation Measures

METHODOLOGY

The following evaluation is based on a review of documents and publicly available information about hazardous and potentially hazardous conditions in the Project area to determine the potential for Project implementation to result in an increased health or safety hazard to people or the environment. These resources include:

- ▶ available literature, including documents published by federal, State, county, and City agencies, and
- ▶ the *Phase I Environmental Site Assessment and Limited Phase II Environmental Site Assessment Report* for the Project site prepared by Geocon Consultants (Geocon Consultants 2022).

Project construction and operation were evaluated against the hazardous materials information gathered from these sources to determine whether any risks to public health and safety or other conflicts would occur.

THRESHOLDS OF SIGNIFICANCE

An impact related to hazards and hazardous materials would be significant if implementation of the Project would:

- ▶ create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;
- ▶ create a significant hazard to the public or the environment through reasonably foreseeable upset and/or accident conditions involving the release of hazardous materials into the environment;
- ▶ emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school;
- ▶ be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would create a significant hazard to the public or the environment;
- ▶ for a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, result in a safety hazard or excessive noise for people residing or working in the project area;
- ▶ impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan; or

- ▶ expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires.

ISSUES NOT DISCUSSED FURTHER

Hazardous Emissions or Hazardous Materials, Substances, or Wastes within 0.25 Mile of an Existing or Proposed School

No existing or proposed schools are located within 0.25 mile of the Project site. The nearest schools and their approximate distances from the Project site are:

- Miwok Village Elementary School, approximately 0.8 mile north
- Rex and Margaret Fortune Early College High School, approximately 0.7 mile west
- Elizabeth Pinkerton Middle School, approximately 1.2 miles northwest
- Cosumnes Oaks High School, approximately 1.4 miles northwest
- Elk Grove High School, approximately 1.5 miles northeast
- Florence Markofer Elementary School, located approximately 1.4 miles northeast

The Project does not involve the development of any uses that would emit or involve the handling of acutely hazardous materials, substances, or wastes. Project-related construction activities would involve the routine transport, use, and disposal of hazardous materials typically used in construction and handled in accordance with established regulations. Therefore, implementing the proposed New Zoo would not result in hazardous materials being located within 0.25 mile of existing or proposed schools. This impact is not discussed further.

Hazards Related to Proximity to Existing Sites of Known Contamination

Neither SWRCB's GeoTracker nor DTSC's EnviroStor database identified sites of known contamination on or near the Project site (SWRCB 2023; DTSC 2023). In addition, the Project site was not identified in any other databases searched as part of the Phase I ESA prepared for the proposed Project. The Phase I ESA and Limited Phase II ESA do not identify any RECs on the Project site or in the surrounding area (Geocon Consultants 2022).

The Project site was previously used for agriculture and soil samples were conducted for organochlorine pesticide concentrations including dieldrin, chlordane, DDT, and endrin. Soil samples indicated that organochlorine pesticide concentrations detected on the Project site did not exceed their respective reporting limits. The highest concentrations of organochlorine pesticide concentrations were detected in discrete soil samples collected from the perimeter of the former transmission tower and former structure on the site (Geocon Consultants 2022). Similarly, the site was sampled for the following metals related to prior agricultural use: barium, chromium, cobalt, copper, nickel, vanadium, zinc, silver, and molybdenum. Although all of the metals were detected in soils samples the concentration range for each metal was far below the health-based screening levels (Geocon Consultants 2022). The Project site is not included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5.

Therefore, there is no potential to create a significant hazard to the public or the environment by developing the Project on the site. This impact is not discussed further.

Safety Hazard or Excessive Noise Related to Proximity to an Airport

No active airports are located within 2 miles of the Project site. The closest public airport is Franklin Field, approximately 5.3 miles southwest of the Project site. The Borges-Clarksburg Airport, a small private airport, is located approximately 6 miles northwest of the Project site, and the Sky Way Estates Airport, another small private airport, is located approximately 8 miles east of the Project site. Therefore, developing the New Zoo on the Project site would not result in a safety hazard or excessive noise for people residing on or working near the Project site. This issue is not discussed further.

Loss, Injury, or Death from Wildland Fire

The Project site is within a Local Responsibility Area, where fire protection is provided by the CCSD. In the event of a nearby fire, CCSD would respond to the incident. (See Section 3.12, "Public Services," for further discussion of the CCSD Fire Department facilities and response times.) CAL FIRE has not designated the area as a very high fire hazard severity zone, which is defined as an area prone to intense, damaging wildfires. New construction is subject to the California Fire Code, which includes safety measures to minimize the threat of fire.

Title 24 of the CCR sets forth the minimum development standards for emergency access, fuel modification, setback, signage, and water supply, which help prevent damage to structures or people by reducing wildfire hazards. Construction and operation of the Project and implementation of the off-site improvements would not increase the potential for wildland fire on or near the Project site, and there would be no impact associated with exposing people, animals, or structures to wildland fire. Therefore, this impact is not discussed further.

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Impact 3.8-1: Create a Risk to Human Health and the Environment Resulting from the Routine Use, Transport, Storage, and Disposal of Hazardous Materials or the Accidental Release of Hazardous Materials

The Project would be subject to federal, State, and local regulations related to the use, transport, storage, and disposal of hazardous materials. Additionally, the New Zoo would operate in accordance with AZA accreditation standards to protect the safety of the animals, zookeepers, and visitors. This impact would be **less than significant**.

Construction

Construction activities associated with development of the New Zoo would involve the use of hazardous materials, such as fuels (e.g., gasoline and diesel), oils and lubricants, paints and paint thinners, glues, cleaners, and possibly pesticides and herbicides. The severity of potential effects associated with these materials varies with the activity conducted and with the concentration and type of hazardous material present. Generally, incidents involving construction-related hazardous materials are small fuel and oil spills that would have a negligible impact on public health. The use and handling of hazardous materials during construction activities would occur in accordance with applicable federal, State, and local laws.

As stated previously, the Project site is not identified as a hazardous materials site on any list maintained by the California Environmental Protection Agency pursuant to Government Code Section 65962.5, and it does not contain any contaminated soils. The 55-gallon drum of Flora Dyme 65001 Trimer Acid was located on the site. Since completion of the Phase I Environmental Site Assessment the drum has been properly removed from the site in accordance with applicable regulations regarding the handling and disposal of hazardous wastes. Therefore, the Flora Dyme 65001 Trimer Acid would not pose a risk for construction workers on the site.

Construction activities associated with the off-site improvements would involve the routine storage, transport, and handling of hazardous materials. These improvements would be subject to the same requirements as those described above for on-site development. Sacramento Municipal Utility District would conduct any electrical upgrades and connections in a manner consistent with federal and State regulations. Any hazardous waste generated during construction (e.g., diesel fuel, oil, solvents) would be disposed of or recycled off-site in accordance with all applicable laws pertaining to the handling and disposal of hazardous waste.

Trucks transporting hazardous materials use many of the same freeways, arterials, and local streets as other traffic, which creates a risk of accidents and associated release of hazardous materials for other drivers and for people along these routes. Although the transport of hazardous materials may result in accidental spills, leaks, toxic releases, fire, or explosion, the US Department of Transportation Office of Hazardous Materials Safety prescribes regulations for the safe transportation of hazardous materials, as described in Title 49 of the CFR, that specify packaging and labeling requirements for hazardous materials. The standard accident and hazardous materials recovery training and

procedures are enforced by the State and followed by private State-licensed, -certified, and -bonded transportation companies and contractors.

Project construction could result in an increase in hazardous materials used, stored, and transported in the City. However, risks to human health and the environment would be minimized through implementation of applicable federal, State, and local regulations, the intent of which is to minimize risks to human health and the environment. Hazardous material encountered during construction activities would be disposed of in compliance with all pertinent regulations for the handling of such waste. Therefore, impacts related to the use, transportation, and disposal of hazardous waste during construction would be **less than significant**.

Operation

After it is operational, the New Zoo would not be expected to transport, use, store, or dispose of substantial amounts of hazardous materials, with the exception of common commercial-grade hazardous materials, such as cleaners and paint, as well as hazardous materials associated with the veterinary hospital. Operation of the proposed Project would include routine cleaning and maintenance procedures using chemicals, such as cleaners, paints, solvents, and vehicle fuels. In addition, the New Zoo would use potentially hazardous materials (e.g., pesticides, herbicides) for landscaping and cleaning purposes. Potentially hazardous materials that would be used and stored on-site would be typical of those found at zoos and aquariums (e.g., paints, fuels/lubricants, cleaning solvents, adhesives, sealers, and pesticides/herbicides) and would adhere to State and local handling and disposal requirements.

The New Zoo's care quarters buildings would house the veterinarian facilities for daily and preventive medical procedures on the animal residents. As a result, the facilities would contain typical veterinarian equipment and medical materials, such as less than 5-gallon containers of formaldehyde, xylenes, ethyl alcohol, and corrosives in fire closets, as well as cylinders of compressed oxygen and nitrogen. Operational impacts related to veterinarian facilities are not considered significant, because the types and amounts of potentially hazardous materials used and stored are not considered significant in use (McKim, pers. comm., 2023). As noted above in Section 3.8.1, "Regulatory Setting," Sacramento County EMD ensures that the Medical Waste Program provides health and safety protection for members of the public and health care facility personnel by minimizing or eliminating exposure to biohazardous wastes containing pathogenic organisms and sharps of human beings and animals. This is accomplished through the implementation and enforcement of medical waste regulations as they apply to the handling, storage, treatment, and disposal of biohazardous waste in Sacramento County. Users of such materials are also required to follow manufacturer instructions and dispose of excess solutions and empty containers properly.

In addition, the New Zoo would maintain operational procedures pursuant to AZA accreditation standards and related policies to protect the safety of the animals, zookeepers, and visitors. One of the related standards that apply to AZA-accredited zoos and aquariums relates to safety. Facilities must be properly maintained, infrastructure must be sound, proper practices must be in place, staff must be aware and trained, and a culture of safety must be inherent throughout the institution. To maintain an AZA accreditation, the New Zoo must have an occupational health and safety program based on hazard identification and risk assessment. The nature of the program would depend on animal species, potential hazards, facility design, and workplace activities. When operational, the New Zoo would continue to comply with existing safety standards and procedures to mitigate and reduce safety hazards related to the housing and care of zoo animals (AZA 2023).

AZA accredited institutions are differentiated as exemplary facilities through the vigorous and voluntary commitment to shared high standards, achieving measurable goals, and continually pursuing outcomes that benefit animals, visitors, and communities. These standards include assuring excellence in animal care and welfare, conservation, education, and research. Accredited institutions house, display, present, and interpret all animals in their care in a manner that is respectful to the animal and that inspires appreciation for wildlife and nature, while prioritizing animal and human health and safety. Animals are housed and cared for in a manner that meets their social, physical, behavioral, and nutritional needs, with considerations for lifelong care (AZA 2023).

All hazardous materials used on-site would be subject to applicable regulations and documentation related to the handling, use, and disposal of such materials consistent with all appropriate federal, State, and local regulations and standards to protect public health and safety. Although future operations at the New Zoo would not be expected to

transport, use, store, or dispose of substantial amounts of hazardous materials, implementation of standard good housekeeping measures, BMPs, site maintenance and security precautions, as well as compliance with standards and regulations, would ensure that potential impacts related to hazardous materials during operation would **less than significant**.

Summary

Project construction and operation would involve the use of materials that could create a hazard if they are released into the environment. Use, transport, and disposal of materials in compliance with established regulations would effectively address hazards associated with the use of these materials. This impact would be **less than significant**.

Mitigation Measures

No mitigation is required.

Impact 3.8-2: Interfere with an Adopted Emergency Response Plan or Emergency Evacuation Plan

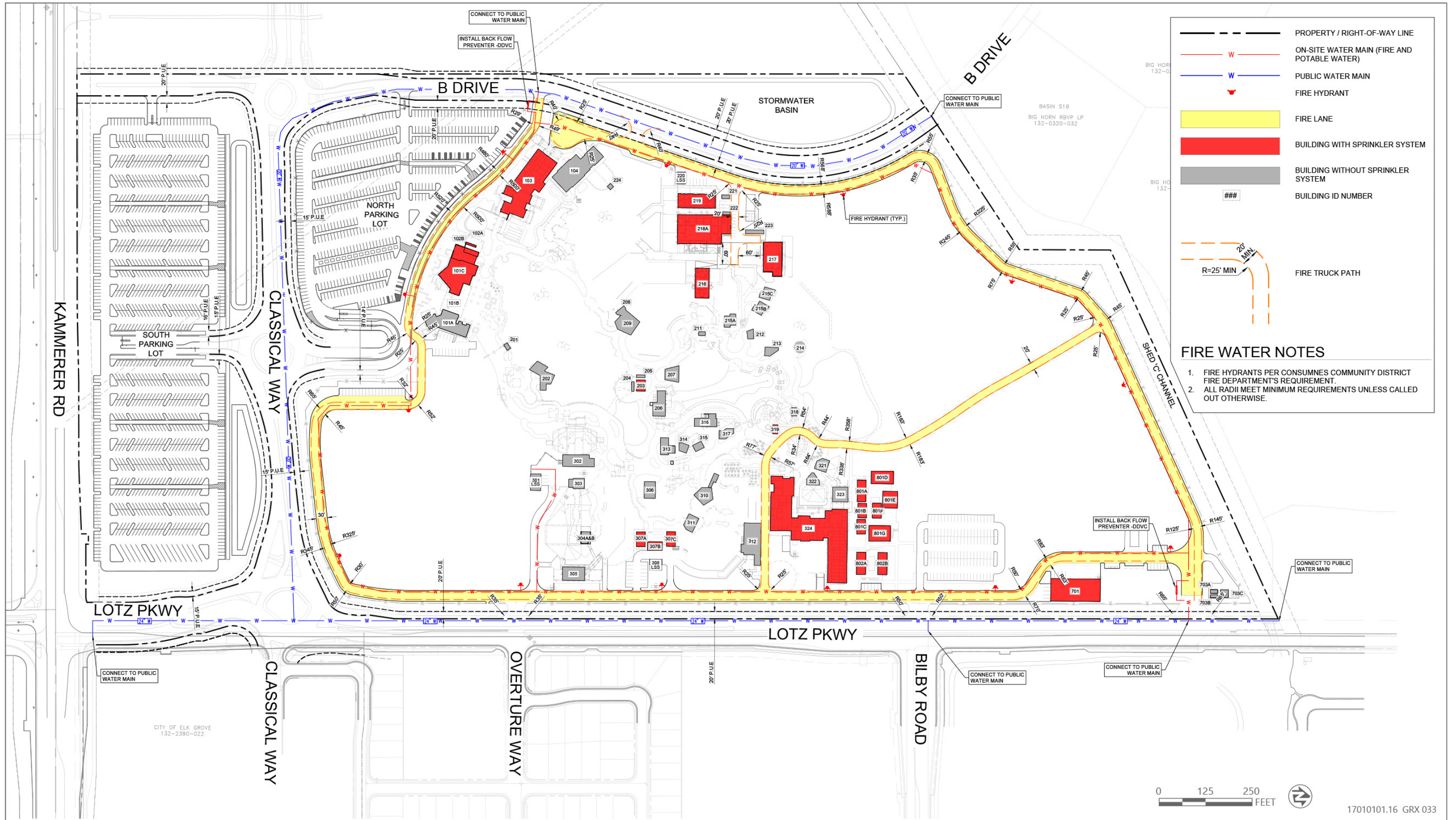
Implementing the Project would not impair the implementation of an emergency response or evacuation plan, such as the Sacramento County LHMP or the City's EOP. This impact would be **less than significant**.

Elk Grove participates in the multijurisdictional Sacramento County LHMP. The purpose of the plan is to guide hazard mitigation planning to better protect the people and property of the county from the effects of hazardous events. The Sacramento LHMP includes policies and programs for participating jurisdictions to implement that reduce the risk of hazards and protect public health, safety, and welfare. The City's EOP provides a strategy for the City to coordinate and conduct emergency response. The intent of the EOP is to provide direction on how to respond to an emergency from the onset, through an extended response, and into the recovery process.

The Sacramento County Evacuation Plan identifies major interstates, highways, and major roadways as key evacuation routes. The plan indicates that specific evacuation routes would be established for individual situations based on the geographical location and magnitude of the emergency, as well as the time of day and day of the week. During an evacuation, Sacramento County Department of Transportation staff would calculate traffic flow capacity and decide which of the available traffic routes should be used to move people in the correct directions. The emergency evacuation plan identifies Interstate 5 as a key evacuation route, but the plan is adaptable to specific situations and will be updated in response to changes in growth patterns and development. The Project would be consistent with the Sacramento County Evacuation Plan and would not be constructed in a way that would interfere with implementation of emergency response as part of the Plan.

As discussed above the Elk Grove General Plan includes an Evacuation Scenario Analysis Report as an appendix. The Project would comply with emergency management protocols detailed in the Evacuation Scenario Analysis Report and coordinate with relevant agencies to ensure the seamless implementation of evacuation routes, utilizing the contra-flow lanes as necessary to enhance traffic flow and expedite the safe evacuation of residents in the event of any of the identified disaster scenarios.

The Project site is not located in a designated hazard area or a residential area with limited access (General Plan Figure 8-3). In the event of an emergency, the New Zoo would implement a robust evacuation system to ensure the safety of all visitors and staff. The facility would be equipped with eight vehicle gate exit areas strategically distributed throughout the premises, enabling the efficient evacuation of attendees by vehicle. Of these three gates would be specifically for emergency entry and exit. Six pedestrian gates are situated around the perimeter, offering multiple accessible routes for attendees to exit the facility swiftly and securely during evacuation procedures. Figure 3.8-1 illustrates a comprehensive fire plan map of the proposed Project area, providing a visual representation of the strategic measures and designated zones aimed at mitigating fire risks and ensuring effective emergency response strategies.



Source: SHR studios and Kimley Horn 2023.

Figure 3.8-1 Fire Plan Map

In addition, all animal enclosures would be constructed in compliance with current AZA structural engineering and design standards to include safety measures, such as safety entrances and emergency lighting. AZA accreditation standards and related policies would require the New Zoo to have written procedures for emergency response for fire, as well as three other categories of emergency: injury of visitors or staff; an animal escape; and environmental emergencies specific to the zoo's region, such as earthquakes. The standards require that the facility conduct a minimum of four annual live-action emergency drills related to the following topics; fire, human injury to visitor or staff, animal escape, and environmental emergency related to the region, such as severe storm. Staff at accredited zoos must run through at least one live-action emergency drill—a preplanned simulation—each year for each category of emergency in accordance with the AZA standards. In addition, AZA actively works to develop and provide guidance on various issues in safety and security through two initiatives, the ZAHP and the AZA Safety Committee, as described above in Section 3.8.1, "Regulatory Setting." As an accredited facility, the Project would be designed to permit access by emergency service providers during operation, as well as in the case of an emergency evacuation (AZA 2023). These procedures would provide for the safety of animals, staff, and visitors.

Construction activities may result in temporary lane closures along Kammerer Road and Lotz Parkway associated with off-site improvements, increased truck traffic, and other roadway effects that may impede emergency vehicles, temporarily increasing response times and impeding existing services. Construction activities do not, however, have the potential to substantially hinder emergency response activities or physically interfere with established evacuation routes. Section 12 of the City's Standard Construction Specifications (Construction Area Traffic Control) identifies specific actions that must be implemented for traffic control to ensure safety for motorists and workers. These requirements must be stated in the general notes on Project improvement plans, which would be confirmed by City staff during plan review (City of Elk Grove 2022). Emergency access impacts related to Project construction activities are further discussed in Section 3.13, "Transportation."

The potential for construction activities or development to impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan would be **less than significant**.

Mitigation Measures

No mitigation is required.

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3.9 HYDROLOGY AND WATER QUALITY

This section identifies the regulatory context and policies related to hydrology and water quality, describes the existing hydrologic conditions at the Project site, and evaluates potential hydrology and receiving water-quality impacts of the proposed New Zoo Project. Potential effects on the capacity of City of Sacramento water-supply, sewer/wastewater, and drainage/stormwater facilities are addressed in Section 3.15, "Utilities and Service Systems."

Scoping comments received regarding regulatory setting and permitting requirements in response to the notice of preparation (NOP) stated that the EIR should address potential Project impacts on Hydrology and Water Quality. These issues are addressed in the impacts analysis below. See Appendix A for all NOP comments received.

3.9.1 Regulatory Setting

FEDERAL

Clean Water Act

The US Environmental Protection Agency (EPA) is the lead federal agency responsible for water quality management. The Clean Water Act (CWA) is the primary federal law that governs and authorizes water quality control activities by EPA as well as the states. Various elements of the CWA address water quality. These are discussed below.

CWA Water Quality Criteria/Standards

Pursuant to federal law, EPA has published water quality regulations under Title 40 of the Code of Federal Regulations (CFR). Section 303 of the CWA requires states to adopt water quality standards for all surface waters of the United States. As defined by the act, water quality standards consist of designated beneficial uses of the water body in question and criteria that protect the designated uses. Section 304(a) requires EPA to publish advisory water quality criteria that accurately reflect the latest scientific knowledge on the kind and extent of all effects on health and welfare that may be expected from the presence of pollutants in water. Where multiple uses exist, water quality standards must protect the most sensitive use. As described in the discussion of State regulations below, the State Water Resources Control Board (State Water Board) and its nine regional water quality control boards (RWQCBs) have designated authority in California to identify beneficial uses and adopt applicable water quality objectives.

CWA Section 303(d) Impaired Waters List

Under Section 303(d) of the CWA, states are required to develop lists of water bodies that do not attain water quality objectives after implementation of required levels of treatment by point source dischargers (municipalities and industries). Section 303(d) requires that the State develop a total maximum daily load (TMDL) for each of the listed pollutants. The TMDL is the amount of the pollutant that the water body can receive and still comply with water quality objectives. The TMDL is also a plan to reduce loading of a specific pollutant from various sources to achieve compliance with water quality objectives. In California, implementation of TMDLs is achieved through water quality control plans, known as Basin Plans, of the State RWQCBs. See "State" section, below.

National Pollutant Discharge Elimination System

The National Pollutant Discharge Elimination System (NPDES) permit program was established in the CWA to regulate municipal and industrial discharges to surface waters of the United States. NPDES permit regulations have been established for broad categories of discharges including point source waste discharges and nonpoint source stormwater runoff. Each NPDES permit identifies limits on allowable concentrations and mass emissions of pollutants contained in the discharge. Sections 401 and 402 of the CWA contain general requirements regarding NPDES permits.

"Nonpoint source" pollution originates over a wide area rather than from a definable point. Nonpoint source pollution often enters receiving water in the form of surface runoff and is not conveyed by way of pipelines or discrete conveyances. Two types of nonpoint source discharges are controlled by the NPDES program: discharges

caused by general construction activities and the general quality of stormwater in municipal stormwater systems. The goal of the NPDES nonpoint source regulations is to improve the quality of stormwater discharged to receiving waters to the maximum extent practicable. The RWQCBs in California are responsible for implementing the NPDES permit system (see the "State" section, below).

National Flood Insurance Act

The Federal Emergency Management Agency (FEMA) is tasked with responding to, planning for, recovering from and mitigating against disasters. The Federal Insurance and Mitigation Administration within FEMA is responsible for administering the National Flood Insurance Program (NFIP) and administering programs that aid with mitigating future damages from natural hazards.

FEMA prepares Flood Insurance Rate Maps (FIRMs) that delineate the regulatory floodplain to assist local governments with the land use planning and floodplain management decisions needed to meet the requirements of NFIP. Floodplains are divided into flood hazard areas, which are areas designated per their potential for flooding, as delineated on FIRMs. Special Flood Hazard Areas are the areas identified as having a 1-percent chance of flooding in each year (otherwise known as the 100-year flood). In general, the NFIP mandates that development is not to proceed within the regulatory 100-year floodplain if the development is expected to increase flood elevation by 1 foot or more.

STATE

California Porter-Cologne Water Quality Control Act

California's primary statute governing water quality and water pollution issues with respect to both surface waters and groundwater is the Porter-Cologne Water Quality Control Act of 1970 (Porter-Cologne Act). The Porter-Cologne Act grants the State Water Board and each of the nine RWQCBs power to protect water quality, and is the primary vehicle for implementation of California's responsibilities under the Clean Water Act. The applicable RWQCB for the Project is the Central Valley RWQCB. The State Water Board and the Central Valley RWQCB have the authority and responsibility to adopt plans and policies, regulate discharges to surface and groundwater, regulate waste disposal sites, and require cleanup of discharges of hazardous materials and other pollutants. The Porter-Cologne Act also establishes reporting requirements for unintended discharges of any hazardous substances, sewage, or oil or petroleum products.

Under the Porter-Cologne Act, each RWQCB must formulate and adopt a water quality control plan (known as a "Basin Plan") for its region. The Basin Plan for the Central Valley Region includes a comprehensive list of waterbodies within the region and detailed language about the components of applicable Water Quality Objectives (WQOs). The Basin Plan recognizes natural water quality, existing and potential beneficial uses, and water quality problems associated with human activities throughout the Sacramento and San Joaquin River Basins. Through the Basin Plan, the Central Valley RWQCB executes its regulatory authority to enforce the implementation of TMDLs, and to ensure compliance with surface WQOs. The Basin Plan includes both narrative, and numerical WQOs designed to provide protection for all designated and potential beneficial uses in all its principal streams and tributaries. Applicable beneficial uses include municipal and domestic water supply, irrigation, non-contact and contact water recreation, groundwater recharge, fresh water replenishment, hydroelectric power generation, and preservation and enhancement of wildlife, fish, and other aquatic resources.

The Central Valley RWQCB also administers the adoption of waste discharge requirements (WDRs), manages groundwater quality, and adopts projects within its boundaries under the NPDES General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities (General Permit).

NPDES Construction General Permit for Stormwater Discharges Associated with Construction Activity

The State Water Board adopted the statewide NPDES General Permit in August 1999. The State requires that projects disturbing more than 1 acre of land during construction file a Notice of Intent with the RWQCB to be covered under

this permit. Construction activities subject to the General Permit include clearing, grading, stockpiling, and excavation. Dischargers are required to eliminate or reduce non stormwater discharges to storm sewer systems and other waters. A stormwater pollution prevention plan (SWPPP) must be developed and implemented for each site covered by the permit. The SWPPP must include best management plans (BMPs) designed to prevent construction pollutants from contacting stormwater and keep products of erosion from moving off-site into receiving waters throughout the construction and life of the project; the BMPs must address source control and, if necessary, pollutant control.

NPDES Stormwater Permit for Discharges from Small Municipal Separate Storm Sewer Systems

The Municipal Stormwater Permitting Program regulates stormwater discharges from municipal separate storm sewer systems (MS4s). Stormwater is runoff from rain or snow melt that runs off surfaces such as rooftops, paved streets, highways or parking lots and can carry with it pollutants such as oil, pesticides, herbicides, sediment, trash, bacteria and metals. The runoff can then drain directly into a local stream, lake or bay. Often, the runoff drains into storm drains which eventually drain untreated into a local waterbody.

The City is an MS4 co-permittee with the cities of Citrus Heights, Folsom, Galt, Rancho Cordova, and Sacramento and the County of Sacramento. NPDES permit terms are 5 years. The current regionwide permit (Order No. R5-2016-0040), adopted by the Central Valley RWQCB in June 2016, allows each permittee to discharge urban runoff from MS4s in its respective municipal jurisdiction, and it requires Phase I MS4 permittees to enroll under the regionwide permit as their current individual permits expire. Regional MS4 permit activities are managed jointly by the Sacramento Stormwater Quality Partnership, which consists of the seven jurisdictions covered by the permit.

Under the permit, each permittee is also responsible for ensuring that stormwater quality management plans are developed and implemented that meet the discharge requirements of the permit. Under the 2016 permit, measures should be included in the stormwater quality management plan that demonstrate how new development would incorporate low-impact development (LID) design in projects. The new permit also includes requirements for addressing TMDLs. The City Department of Public Works is responsible for ensuring that its specific MS4 permit (Order No. R5-2016-0040-005) requirements are implemented. Compliance with the MS4 permit is regulated through Chapter 15.12 of the City of Elk Grove Municipal Code (EGMC).

California Water Code

The California Water Code is enforced by the California Department of Water Resources (DWR). The mission of DWR is "to manage the water resources of California in cooperation with other agencies, to benefit the State's people, and to protect, restore, and enhance the natural and human environments." DWR is responsible for promoting California's general welfare by ensuring beneficial water use and development Statewide.

Groundwater Management

Groundwater Management is outlined in the California Water Code, Division 6, Part 2.75, Chapters 1-5, Sections 10750 through 10755.4. The Groundwater Management Act was first introduced in 1992 as AB 3030, and has since been modified by SB 1938 in 2002, AB 359 in 2011, and the Sustainable Groundwater Management Act (SB 1168, SB 1319, and AB 1739) in 2014. The intent of the Acts is to encourage local agencies to work cooperatively to manage groundwater resources within their jurisdictions and to provide a methodology for developing a Groundwater Management Plan.

The Sustainable Groundwater Management Act of 2014 (SGMA) became law on January 1, 2015, and applies to all groundwater basins in the State (Water Code Section 10720.3). By enacting the SGMA, the legislature intended to provide local agencies with the authority and the technical and financial assistance necessary to sustainably manage groundwater within their jurisdiction (Water Code Section 10720.1).

Pursuant to the SGMA, any local agency that has water supply, water management or land use responsibilities within a groundwater basin may elect to be a "groundwater sustainability agency" for that basin (Water Code Section 10723). The Groundwater Sustainability Agencies that consists of the Sacramento Central Groundwater Authority (SCGA), Omochumne-Hartnell Water District (OHWD), Sloughhouse Resource Conservation District, North Delta GSAs, Reclamation District 551 (RD 551), and Sacramento County adopted the 2021 South American Subbasin

Groundwater Sustainability Plan (SASb GSP) in compliance with SGMA. The SASb GSP identifies that the long-term average annual sustainable groundwater yield of the South American Subbasin is 235,000 acre-feet per year (afy). Project and management actions that would contribute to the achievement of the sustainability goal of the SASb GSP include the following:

- ▶ existing projects that include diversification of water supplies (Freeport Regional Water Project, Vineyard Surface Water Treatment Plant, and conjunctive use improvements) and
- ▶ near-term planned projects that include the Sacramento Regional County Sanitation District Harvest Water project, OHWD Groundwater Recharge Project, Regional Conjunctive Use Program, and Sacramento Area Flood Control Agency Flood-MAR. (Northern Delta Groundwater Sustainability Agency et al. 2021: 4-1 to 4-22).

Central Valley Flood Protection Act

The Central Valley Flood Protection Act of 2008 establishes the 200-year flood event as the minimum level of protection for urban and urbanizing areas. As part of the State's FloodSAFE program, those urban and urbanizing areas protected by flood control project levees must receive protection from the 200-year flood event level by 2025. The DWR and Central Valley Flood Protection Board (CVFPB) collaborated with local governments and planning agencies to prepare the 2012 Central Valley Flood Protection Plan (CVFPP) (DWR 2012), which the CVFPB adopted on June 29, 2012. The objective of the 2012 CVFPP is to create a system-wide approach to flood management and protection improvements for the Central Valley and San Joaquin Valley. The Central Valley Flood Protection Act calls for updates to the CVFPP every 5-years. At the time of preparation of this Draft EIR, the Project site falls under the jurisdiction of the 2022 CVFPP Update.

State Plan of Flood Control

Section 9110(f) of the California Water Code defines the SPFC as follows, "'State Plan of Flood Control' means the State and federal flood control works, lands, programs, plans, policies, conditions, and mode of maintenance and operations of the Sacramento River Flood Control Project described in Section 8350, and of flood control projects in the Sacramento River and San Joaquin River watersheds authorized pursuant to Article 2 (commencing with Section 12648) of Chapter 2 of Part 6 of Division 6 for which the board or the department has provided the assurances of nonfederal cooperation to the United States, and those facilities identified in Section 8361."

The SPFC encompasses a wide network of facilities, which range from major structures such as levees, drainage pumping plants, drop structures, dams and reservoirs, and major channel improvements, to minor components such as stream gauges, pipes, and bridges.

LOCAL

Sacramento Central Groundwater Authority

SCGA manages groundwater in the Central Basin portion of the South American Subbasin. SCGA was formed in 2006 through a joint powers agreement signed by the Cities of Elk Grove, Folsom, Rancho Cordova, and Sacramento and Sacramento County. Among its many purposes, SCGA is responsible for managing the use of groundwater in the Central Basin to ensure long-term sustainable yield and for facilitating a conjunctive use program. The framework for maintaining groundwater resources in the Central Basin is the Sacramento County Water Agency (SCWA) Groundwater Management Plan, which includes specific goals, objectives, and an action plan to manage the basin. The plan also prescribes a well protection program to protect existing private domestic well and agricultural well owners from declining groundwater levels resulting from increased groundwater pumping attributable to new development in the basin (SCWA 2016).

The SGMA also authorizes a groundwater management agency in a basin compliant with the California Statewide Groundwater Elevation Monitoring program to prepare an "Alternative" to a groundwater sustainability plan. SCGA submitted an Alternative Submittal document to DWR, but the document was not approved because, among other deficiencies, DWR was unable to verify that groundwater yield thresholds established by SCWA would prevent

adverse effects on groundwater (DWR 2019). SCGA adopted the SASb Groundwater Sustainability Plan (GSP) to the DWR on December 8, 2021.

Water Forum Agreement

The Water Forum is made up of a diverse group of businesses, agricultural leaders, environmentalists, citizen groups, water managers, and local governments from Sacramento, Placer, and El Dorado Counties. These stakeholders came together in 2000 to form an agreement for water management with the goals of providing a reliable and safe water supply for the region's economic health through 2030 and preserving the fishery, wildlife, recreation, and aesthetic values of the lower American River (Sacramento Suburban Water District 2003). The Water Forum Agreement was formalized through a Memorandum of Understanding whereby all signatories agreed to carry out the actions specified for them. SCGA relied on the negotiated volume of groundwater production referred to in the Water Forum Agreement as the basis for the groundwater yield thresholds described in the Alternative Submittal discussed above.

City of Elk Grove General Plan

The *City of Elk Grove General Plan* (City of Elk Grove 2019a) contains the following policies related to hydrology and water quality:

- ▶ **Policy NR-3-1:** Ensure that the quality of water resources (e.g., groundwater, surface water) is protected to the extent possible.
- ▶ **Policy NR-3-2:** Integrate sustainable stormwater management techniques in site design to reduce stormwater and control erosion.
- ▶ **Policy NR-3-3:** Implement the City's NPDES permit through the review and approval of development project and other activities regulated by the permit.
- ▶ **Policy NR-3-5:** Continue to coordinate with public and private water users, including users of private wells, to maintain and implement a comprehensive groundwater management plan.
- ▶ **Policy NR-3-6:** Support and coordinate with the efforts of the Sacramento Central Groundwater Authority in the development, adoption and ongoing implementation of the Groundwater Sustainability Plan for the South American Subbasin.
- ▶ **Policy ER-2-2:** Require that all new projects not result in new or increased flooding impacts on adjoining parcels or on upstream and downstream areas.
- ▶ **Policy ER-2-10:** Work with regional, county, and State agencies to develop mechanisms to finance the design and construction of flood management and drainage facilities to achieve an urban level of flood protection in affected areas.
- ▶ **Policy ER-2-17:** Require all new urban development projects to incorporate runoff control measures to minimize peak flows of runoff and/or assist in financing or otherwise implementing comprehensive drainage plans.
- ▶ **Policy ER-2-18:** Drainage facilities should be properly maintained to ensure their proper operation during storms.
- ▶ **Policy ER-6-8:** Continue to participate in the Sacramento Stormwater Quality Partnership to educate and inform the public about urban runoff pollution, work with industries and businesses to encourage pollution prevention, require construction activities to reduce erosion and pollution, and require developing projects to include pollution controls that will continue to operate after construction is complete.
- ▶ **Policy LU-5-12:** Integrate sustainable stormwater management techniques in site design to reduce stormwater runoff and control erosion.

City of Elk Grove Storm Drainage Master Plan

The City's comprehensive Storm Drain Master Plan identifies drainage concepts for upgrading the existing storm drainage and flood control collection system. It identifies and analyzes existing drainage deficiencies throughout the City, provides a range of drainage concepts for the construction of future facilities required to serve the City at

buildout of the existing General Plan, and establishes criteria for selecting and prioritizing projects. The Storm Drain Master Plan may also be used for the development of a capital drainage financing program (City of Elk Grove 2011).

City of Elk Grove Municipal Code

Municipal Code Chapter 15.12: Stormwater Management and Discharge Control

EGMC Chapter 15.12 provides authority to the City for inspection and enforcement related to control of illegal and industrial discharges to the City storm drainage system and local receiving waters. It also addresses the requirement for BMPs and regulations to reduce pollutants in the City's stormwater.

Municipal Code Chapter 16.44: Land Grading and Erosion Control

EGMC Chapter 16.44 establishes administrative procedures, standards for review and implementation, and enforcement procedures for controlling erosion, sedimentation, other pollutant runoff, and the disruption of existing drainage and related environmental damage to ensure compliance with the City's NPDES permit. The chapter requires, before grading activities begin, that a detailed set of plans be developed that include measures to minimize erosion, sediment, and dust created by development activities.

3.9.2 Environmental Setting

HYDROLOGY AND DRAINAGE

Regional Hydrology

The Project site is located in the southern end of the Sacramento Valley, approximately 30 miles northeast of the confluence of the San Joaquin and Sacramento Rivers. The Sacramento and San Joaquin Valleys make up the Great Valley geomorphic province of California, bounded by the Sierra Nevada to the east and the Coast Ranges to the west. The two rivers join in the Sacramento–San Joaquin Delta (the Delta), a massive complex of wetlands, marshes, and channels, and enter the Pacific Ocean at the San Francisco Bay.

The Sacramento River is the largest river and watershed system in California. Its watershed covers about 27,000 square miles and carries about 31 percent of the State's total surface water runoff. Its watershed covers 27,000 square miles and carries 31 percent of the State's total surface water runoff. Primary tributaries include the Pit, Feather, and American Rivers (SRWP 2010). The mouth of the Sacramento River is at Suisun Bay near Antioch, where it combines with the San Joaquin River. Following winter rains and Sierra snowmelt, the Sacramento River and its tributaries would historically rise and inundate their broad floodplains. This dynamic system deposited rich alluvial soil, changing the river's course, and creating oxbow lakes and backwater, clearing debris and streambeds, and supporting miles of wetlands and riparian forest (USFWS 2007).

Development began in the lower portions of the Sacramento River watershed in the mid-1800s to take advantage of the proximity of two large rivers and fertile soils. Reclamation districts began to form in the early 1900s to construct canal and levee systems as a means for controlling or preventing natural flood events in the low-lying areas adjacent to the river (City of Elk Grove 2018). However, the river channel and levees could not contain the floodwaters from larger storm events. In 1917, after the massive floods of 1907 and 1909, the State of California developed the Sacramento River Flood Control Project. This project is a system of weirs (lowered and armored sections of levees design to be overtopped by high flows) that release floodwaters into a bypass system when flows exceed the downstream capacity of the river channel.

Local Hydrology

Aquatic resources on the Project site consist of an agricultural irrigation canal and smaller irrigation ditches used to water the onsite pastures. The Shed C channel runs adjacent to the northern border of the Project site. The closest local significant waterway is the Cosumnes River and adjacent flood plain over 2 miles east of the Project site, on the

eastern border of the Elk Grove City limits. The river is part of the larger San Joaquin River watershed. The Cosumnes River is one of the last free-flowing, undammed rivers on the western slope of the Sierra Nevada.

Stormwater Drainage

Urban runoff is created by stormwater draining from impervious surfaces in developed areas. As stormwater flows from individual sites, it is traditionally collected in curb and gutter drainage systems and directed to larger storm drains that eventually drain to surface waters. Urban runoff within the City is conveyed through a storm drainage and flood control collection system that includes nearly 400 miles of underground piping and 60 miles of natural and constructed channels (City of Elk Grove 2018). The City owns and operates these facilities and channels, including pump stations, levees, detention basins, and other flood control features.

The Project site is located within the Shed C drainage area (Kimley Horn 2023). Storm water from the Project site flows into the Shed C channel, which extends from near the Project site approximately 6 miles west to the Beach Stone Lakes National Wildlife Refuge and, eventually, to the Sacramento River delta. In 2014, a Storm Water Drainage Master Plan was prepared and approved for the Project site and surrounding development area (the Southeast Policy Area Drainage Master Plan) (City of Elk Grove 2011).

Flood Conditions

Flooding affects portions of Elk Grove. The 100-year floodplain zone estimates inundation areas based on a flood that has a 1 percent chance of occurring in any given year. 100-year flood zones within the City limits of Elk Grove include areas along Laguna Creek in the northwest and north-central portion of the City, and along the Cosumnes River to the southeast, primarily outside of City limits, but still within the City's General Plan Area. Flood risk is intensified in the lower stream reaches by high tides occurring in the Delta at the same time as strong offshore winds during heavy rainfall. The Project site is classified as Flood Zone X and is considered an area of minimal flood hazard (City of Elk Grove 2018). The closest flood zone to the Project site is located southeast and surrounds the Cosumnes River in unincorporated Sacramento County. The Project site lies outside of any dam or levee inundation zones (City of Elk Grove 2018).

Groundwater Hydrology

The Central Valley of California contains the largest basin-fill aquifer system in the State. From north to south, the aquifer system is divided into the Sacramento Valley, Sacramento–San Joaquin Delta, and San Joaquin Valley subregions. The City of Elk Grove is situated within the Sacramento Valley Groundwater Basin, South American Subbasin. Within the larger South American Subbasin, there are three groundwater basins—North, Central, and South—in Sacramento County. The Project site is located within the Central Basin, which includes the City of Elk Grove and areas of Sacramento County and the City of Sacramento (City of Elk Grove 2018). Groundwater in the Central Basin generally occurs in a shallow aquifer zone (Modesto Formation) or in an underlying deeper aquifer zone (Mehrtens Formation). Groundwater in the shallow aquifer is generally located between 20 and 100 feet below the ground surface (bgs) depending on where and when the measurement is taken and extends to approximately 200–300 feet bgs (SCWA 2006). Water quality in this zone is considered to be good with the exception of high arsenic detections in a few locations. The deep aquifer is separated from the shallow aquifer by a discontinuous clay layer that partially isolates the two water sources. There is some potential for movement of groundwater between the two aquifers, usually the result of heavy groundwater pumping. The base of the potable water portion of the deep aquifer averages approximately 1,400 feet bgs. Water in this aquifer typically has higher concentrations of total dissolved solids, iron, and manganese (SCWA 2006).

Older municipal wells and all domestic wells have been constructed in the shallow aquifer zone to avoid treatment. However, the policies and practices of SCWA in the Central Basin have led to the construction of larger municipal wells that target the Mehrten Formation where higher production rates can be achieved and less impact on private domestic wells would occur. This policy has in turn led to California Department of Health Services (now the California Department of Health Care Services) requiring treatment of all municipal wells to meet primary and secondary drinking water quality standards (SCWA 2006).

Intensive use of groundwater over the past 60 years has resulted in a general lowering of groundwater elevations centered near Elk Grove. This localized lowering of the groundwater table is called a cone of depression. The Elk Grove cone of depression was first identified in the *Central Sacramento County Groundwater Management Plan* (SCWA 2006). The 2018 SGMA annual report found a substantial reduction in the size and extent of the cone of depression, which is attributed to active management of the basin and reductions in groundwater extraction (SGMA 2019).

Groundwater Management

The SCWA manages water supplies in Sacramento County, and boundaries of the SCWA are identical to the county boundaries. Water supplies consist of surface water, groundwater, recycled water, and purchased water. As authorized by the Sacramento County Water Agency Act in 1952, the agency may contract with the federal government and the State of California with respect to the purchase, sale, and acquisition of water. The service area is divided into eight systems, the largest of which are the Mather Sunrise and Laguna Vineyard systems. The City, within City limits, is in the Laguna Vineyard system (SCWA 2006).

SCWA has a remediated groundwater supply of 8,900 afy in accordance with the terms and conditions in the agreement entitled "Agreement between Sacramento County, SCWA, and Aerojet-General Corporation with Respect to Transfer of GET Water" dated May 18, 2010. This remediated groundwater supply is diverted by SCWA from the Sacramento River at Freeport along with SCWA's surface water supplies (SCWA 2010).

WATER QUALITY

Surface Water Quality

Section 303(d) of the federal Clean Water Act establishes the total maximum daily load (TMDL) process, which requires states to identify waters whose water quality is "impaired" (affected by the presence of pollutants or contaminants), and to establish a TMDL or the maximum quantity of a particular contaminant that a water body can assimilate without experiencing adverse effects on the waterbody's identified beneficial uses. The 303(d) list, approved by the EPA, identifies these impaired water bodies. According to the most recent 303(d) list, Elder, Elk Grove, and Morrison creeks are designated as impaired water bodies for various pesticides and sediment toxicity, resulting from urban runoff, agriculture, and unknown sources. The segment of the Sacramento River west of the City is listed for diazinon and mercury. The Delta waterways (northern portions), which are the downstream receiving waters for the Sacramento River, are designated as impaired water bodies. The upper Cosumnes River (above Michigan Bar) is listed for invasive species from an unknown source, and Deer Creek in Sacramento County is listed for iron from an unknown source (State Water Board 2010).

The Project site is in an urban watershed isolated by levees that drain to South Stone Lake, the Sacramento River, and the Delta. Water quality in the portions of the Sacramento River and the northern Delta waterways has been affected by historical gold mining activities along tributaries, agricultural runoff, and discharges of industrial and urban waste. In recent decades, treatment of wastewater and management of urban stormwater have improved greatly (SRWP 2010). Industrial dischargers and municipalities now provide at least secondary treatment of wastewater, and many cities have implemented urban stormwater programs to reduce the effects of urban runoff on adjacent waterways (SRWP 2010).

In 1990, the Central Valley RWQCB identified the Delta as impaired by mercury because levels of mercury in fish posed a risk of human and wildlife consumers. Mercury in the Delta comes from historic mining activities; naturally occurring mercury in soils; and atmospheric deposition from the burning of coal, natural gas, and petroleum (EPA 2015). Methylmercury is the most hazardous form of mercury in the environment and can cause neurological symptoms and developmental concerns for children exposed in utero. It also can cause reduced reproductive success in wildlife. Because mercury is absorbed from food sources and accumulates in the tissues of organisms as they age (referred to as bioaccumulation), mercury concentrations increase in higher levels of the food chain.

Around the time when it identified the issue with mercury, the Central Valley RWQCB also found that north Delta waterways were contaminated with high levels of organophosphate agricultural pesticides (particularly diazinon and chlorpyrifos). To address this issue, limitations were placed on the concentration of these pesticides allowed in

discharges. Over the past 25 years, this has resulted in changes in agricultural practices so that levels of organophosphate pesticides meet WQOs in most samples (Central Valley RWQCB 2014).

Delta waters contain high levels of organic carbon and nutrients. The nutrients stimulate algal growth, which causes taste and odor concerns for use of the water in domestic supply. The nutrients also cause excessive growth of water weeds (such as water hyacinth) that interfere with recreational use of Delta waters for boating and swimming. The growth of these weeds can also plug screens on irrigation canals and drip irrigation systems when Delta waters are used for agricultural purposes (Lee and Jones-Lee 2004).

Water quality in North and South Stone Lakes is affected by drainage that originates in urban and agricultural areas and empties into the lakes and surrounding wetlands (USFWS 2007). Baseline water quality data collected between 1997 and 2000 found high levels of selenium in both North and South Stone Lakes. Temperature, pH, dissolved oxygen, and conductivity were within normal levels; however, approximately half of the samples had elevated levels of copper and one-quarter of the samples had high levels of lead. Nearly all sites had concentrations of pesticide diazinon above recommended chronic criteria (USFWS 2007).

Groundwater Quality

Groundwater quality can be affected by many things, but the chief controls on the characteristics of groundwater quality are the source and chemical composition of recharge water, properties of the host sediment, and history of discharge or leakage of pollutants. The groundwater quality in the South American Subbasin is generally good, although iron and manganese are common and there are some occurrences of arsenic and nitrate. Groundwater in the upper aquifer system is of higher quality than that found in the lower aquifer system, although there are some occurrences of arsenic (which is known to occur naturally in aquifer sediments) and nitrate. Water from the upper aquifer generally does not require treatment other than disinfection for public drinking water systems unless high arsenic or nitrate values are encountered (SCWA 2016). The lower aquifer system contains higher concentrations of iron, manganese, and total dissolved solids (TDS), and wells that pump from the lower aquifer often require treatment for iron and manganese. Most of the SCWA's Zone 40 wells have iron and manganese treatment facilities. Principal groundwater contaminant plumes within the South American Subbasin emanate from source areas including Mather Field, Aerojet, Boeing, the former Army Depot, and various landfills. The presence of these contaminant plumes has impacted some existing municipal wells. Significant remediation efforts/programs by federal, State, and local government agencies are in progress to clean up the contaminated groundwater and confine the contaminant plumes from further spreading. There are ongoing discussions and negotiations between purveyors and parties responsible for the cleanup to keep the remediated groundwater in the South American Subbasin and put it to beneficial use (SCWA 2016).

3.9.3 Impacts and Mitigation Measures

METHODOLOGY

Evaluation of potential hydrologic and water quality impacts is based on a review of documents and studies that address water resources in the vicinity of the Project site. Information obtained from these sources was reviewed and summarized to describe existing conditions and to identify potential environmental effects, based on the thresholds of significance presented below. The conclusions presented in this analysis assume that the Project would comply with relevant federal, State, and local laws, ordinances, and regulations.

THRESHOLDS OF SIGNIFICANCE

An impact on hydrology or water quality would be significant if implementation of the Project would:

- ▶ violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality;

- ▶ substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the Project may impede sustainable groundwater management of the basin;
- ▶ substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner that would:
 - result in substantial erosion or siltation on- or off-site;
 - result in flooding on-site or off-site as a result of substantially increasing the rate or amount of surface runoff;
 - create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or
 - impede or redirect flood flows;
- ▶ in flood hazard, tsunami, or seiche zones, risk release of pollutants due to Project inundation; or
- ▶ conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

ISSUES NOT DISCUSSED FURTHER

Inundation

In the event of dam failure, Folsom Dam and Sly Park Dam have the potential to cause flooding in parts of the City and unincorporated Sacramento County. The Project site and off-site improvements lie outside, and are not adjacent to, the 100-, 200-, and 500-year floodplain. The US Army Corps of Engineers is completing improvements to the Folsom Dam spillway on the American River to help reduce downstream flood risk. Flooding from Sly Park Dam would generally follow the Cosumnes River and would affect only a small area located southeast of the Project site in unincorporated Sacramento County. The potential for flooding from failure of either Folsom Dam or Sly Park Dam would not be exacerbated by the Project (City of Elk Grove 2018: 5.9-27). Therefore, this issue as it relates to flooding related to dam failure is not discussed further.

Seiche, Tsunami, and Mudflow

The Project site is not located in a seiche, tsunami, or mudflow zone. Therefore, this issue is not discussed further.

Localized Flooding Risk Related to Changes in Site Drainage

The Project site is not located in or near an area of flood risk. Therefore, this issue is not discussed further.

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Impact 3.9-1: Violate Any Water Quality Standards or Waste Discharge Requirements or Substantially Degrade Surface Water or Groundwater Quality during Construction Activities

Project site construction activities and off-site improvements would involve ground-disturbing and excavation activities that would expose soils to wind and water erosion and potentially transport pollutants to surface water bodies, particularly during storm events. In addition, accidental spills of construction-related fuels, oils, hydraulic fluid, and other hazardous substances could contaminate stormwater flows, resulting in the potential degradation of surface water quality downstream of the disturbance area. The potential for erosion and transport of sediment and pollutants would be addressed through compliance with EGMC Chapter 16.44, which requires all projects to implement erosion control measures to minimize erosion, sediment, dust, and other pollutant runoff created by improvement activities. In addition, any project that disturbs more than 1 acre of soil would be required to obtain coverage under the Construction General NPDES permit, including completion of a SWPPP. With compliance with these existing regulations, impacts to surface and groundwater quality would be **less than significant**.

Development of the Project site would require multiple phases of construction activities that involve vegetation removal, grading, excavation, temporary stockpiling of soils, infrastructure installation, and building construction. Off-site improvements for the Project that include improvements to roadways, sewer infrastructure, electrical and telecommunication infrastructure, and storm drainage would involve similar construction activities. Construction could expose soils to wind and water erosion and potentially allow transport of pollutants to surface water bodies, particularly during storm events. Furthermore, accidental spills of construction-related fuels, oils, hydraulic fluid, and other hazardous substances could contaminate stormwater flows, resulting in the potential degradation of surface water quality downstream of the disturbance area. Construction activities have the potential to adversely affect the nearby surface water quality of the Shed C Channel. As discussed below, the groundwater level on the Project site is below the proposed depth of excavation, and construction activities would not affect groundwater.

Ground Disturbance

During construction, water quality would be protected through compliance with the discrete permits and stormwater management requirements consistent with all federal, State, and local laws applicable at the time. Improvement plans provided to the City before authorization of each construction phase would be required to conform to provisions of EGMC Chapter 16.44 (Land Grading and Erosion Control) and Chapter 15.12 (Drainage Control). In addition, because development phases of the Project would disturb more than 1 acre of soil, each construction phase would be subject to the Statewide Construction General NPDES Permit from the Central Valley RWQCB.

Compliance with these requirements would require preparation of a SWPPP prior to the start of Project construction. The Project SWPPP is not feasible to prepare at this time because more detailed plans for the Project would be needed to inform the SWPPP. A SWPPP has two major objectives: (1) to help identify the sources of sediment and other pollutants that affect the quality of stormwater discharges and (2) to describe and ensure the implementation of BMPs to reduce or eliminate sediment and other pollutants in stormwater and non-stormwater discharges. The SWPPP would be prepared by a qualified SWPPP practitioner and/or a qualified SWPPP developer and would identify water quality controls consistent with the Central Valley RWQCB requirements and would ensure that runoff quality meets WQOs. The SWPPP would describe the site controls, erosion and sediment controls, means of waste disposal, implementation of approved local plans, control of postconstruction sediment and erosion control measures, and management controls unrelated to stormwater. The BMPs identified in the SWPPP would be implemented during all site development activities. The SWPPP would have the following required elements:

- ▶ Temporary BMPs would be identified to prevent the transport of earthen materials and other construction waste materials from disturbed land areas, stockpiles, and staging areas during periods of precipitation or runoff. BMPs could include, but not limited to, using filter fences, fiber rolls, erosion control blankets, mulch (such as wood chips), temporary drainage swales, settling basins, and other erosion-control methods.
- ▶ Temporary BMPs would be identified to prevent the tracking of earthen materials and other waste materials from the Project site to off-site locations. BMPs could include, but not limited to, using stabilized points of entry/exit for construction vehicles/equipment and designated vehicle/equipment rinse stations, and sweeping.
- ▶ Temporary BMPs would be identified to prevent wind erosion of earthen materials and other waste materials from the Project site. BMPs could include, but not limited to, routine application of water to disturbed land areas and covering of stockpiles with plastic or fabric sheeting.
- ▶ A spill prevention and containment plan would be prepared and implemented. Project contractors would be responsible for storing on-site materials and implementing temporary BMPs capable of capturing and containing pollutants from fueling operations, fuel storage areas, and other areas used for the storage of hydrocarbon-based materials. This would include, but not limited to, maintaining materials on-site (such as oil-absorbent booms and sheets) for the cleanup of accidental spills, using drip pans beneath construction equipment, training site workers in spill response measures, immediately cleaning up spilled materials in accordance with directives from the Central Valley RWQCB, and properly disposing of waste materials at an approved off-site location that is licensed to receive such wastes.

- ▶ Temporary BMPs would be identified to capture and contain pollutants generated by concrete construction, including, but not limited to, using lined containment for rinse water to collect runoff from the washing of concrete delivery trucks and equipment.
- ▶ Protective fencing would be used to prevent damage to trees and other vegetation that would remain after construction, including, but not limited to, tree protection fencing and individual tree protection, such as wood slats strapped along the circumference of tree trunks.
- ▶ Temporary BMPs would be identified to contain and remove drilling spoils generated by construction of bridge foundations and abutments.
- ▶ Daily inspection and maintenance of temporary BMPs would be required. The prime contractor would be required to maintain a daily log of temporary construction BMP inspections and keep the log on-site during Project construction for review by the Central Valley RWQCB.
- ▶ Tree removal activities, including the dropping of trees, would be confined to the construction limit boundaries.
- ▶ Construction boundary fencing would be required to limit disturbance and prevent access to areas not under active construction.
- ▶ Postconstruction BMPs and the BMP maintenance schedule would be identified. Postconstruction BMPs must address water quality, channel protection, overbank flood protection, and extreme flood protection.
- ▶ Disturbed areas would be revegetated with approved native seed mixes.

The SWPPP described above would be submitted to the City and the Central Valley RWQCB in conjunction with submission of the improvement and grading plans and NPDES permit coverage. City staff would review the SWPPP against the requirements of the EGMC. During construction, City staff would conduct regular inspections of the site to verify that effective stormwater BMPs are implemented and maintained.

Dewatering

Groundwater levels on the Project site range from approximately 50 to 60 feet (Geocon Consultants 2023) The Project would require excavation approximately 18 feet below surface elevation for proposed utility improvements. Dewatering (removal of groundwater from an excavation) would not be required for construction, because the depth of excavation would not reach the depth of groundwater on the Project site. Construction activities would not adversely affect groundwater below proposed construction.

Summary

Construction activities for Project implementation would result in ground disturbance but would not require dewatering for proposed excavation. With proper implementation, the water quality protections built into NPDES and City permitting would reduce the potential for construction activities to adversely affect water quality. Therefore, impacts to surface and groundwater quality would be **less than significant**.

Mitigation Measures

No mitigation is required.

Impact 3.9-2: Violate Any Water Quality Standards or Waste Discharge Requirements or Substantially Degrade Surface Water or Groundwater Quality from Polluted Stormwater Runoff

Development can increase the rate of runoff and eliminate storage and infiltration that would naturally occur along drainage paths. Runoff from developed areas can carry pollutants and sediment, which can be potentially harmful to downstream receiving waters. Implementation of the Project would increase the total amount of impervious surfaces in the Project site through the construction of walkways, buildings, roadways, and parking lots. However, the Project would implement LID measures, including directing stormwater into a bioretention basin west of the Project site, to prevent the contamination of stormwater and allow the infiltration of most of the stormwater on-site. All pollution control measures would be designed in accordance with the Sacramento Region Stormwater Quality Design Manual and enforced through the City permitting process. Therefore, impacts from polluted stormwater runoff would be **less than significant**.

The amount of stormwater runoff generated from an area is affected by development through conversion of vegetated or other pervious surfaces to impervious surfaces and by the development of drainage systems that connect these impervious surfaces to streams or other water bodies. In this way, development can increase the rate of runoff and eliminate storage and infiltration that would naturally occur along drainage paths. As water runs off the land surface, it collects and carries materials and sediment, which can be potentially harmful to downstream receiving waters. The Project would include water features for animal exhibits. These exhibits would be designed to ensure that animal waste from these features would not affect groundwater quality. Although the runoff from rooftops and similar impervious surfaces would be relatively free of contaminants, the runoff generated by the new roads, walkways, and parking lots on the Project site would contain sediment, crushed road abrasives, nutrients, organic compounds, trash and debris, oil and grease, fluids from accidents and spills, landscape care products, and metals. Runoff from animal waste as part of adding exhibits to the site would also contain contaminants. These contaminants could affect the quality of surface waters if stormwater runoff is not captured and allowed to infiltrate the soil. In addition, runoff from impervious surfaces can become concentrated, causing erosion and increased sediment transport.

In compliance with the City's MS4 permit and EGMC Chapter 15.12, the City requires projects within the permit boundary to implement LID practices and BMPs to control stormwater runoff and protect water quality. LID uses site design and stormwater management to maintain the site's predevelopment runoff rates and volumes. The goal of LID is to mimic a site's predevelopment hydrology by using design techniques that filter, store, detain, and allow the infiltration and evaporation of runoff close to the source of rainfall. LID practices and standards are described in the 2018 Sacramento Region Stormwater Quality Design Manual.

Project features would be designed to capture stormwater runoff and allow the infiltration of water through the site. Stormwater design features and stormwater flow for the Project were analyzed as part of the Hydrology Study and Stormwater Quality Management Plan prepared for the Project (Kimley Horn 2023). The Stormwater Quality Management Plan identifies several potential methods for processing stormwater runoff for the New Zoo. Proposed methods would include bioretention basins, compost-amended soil, landscaping, storm drain markings and signs, a vegetated swale, and proprietary devices. Project loading areas would be designed to minimize the chance of surface spills and leaks and keep any spilled or leaked materials out of the storm drain system. Project waste management areas would be designed to prevent pollutants from waste and recycling from entering the storm drain system. Proposed stormwater control methods included in the Stormwater Quality Management Plan are designed to positively affect local and regional water quality while also allowing water to percolate and recharge local aquifers.

In 2014, a Storm Water Drainage Master Plan was prepared and approved for the Project site and surrounding development area (the Southeast Policy Area Drainage Master Plan). This plan calls for improvements to the Shed C channel and the construction of a detention basin to serve the Project site and surrounding development. As of 2023, the channel improvements were being completed by development north of the Project site. The City is preparing updates to the Southeast Policy Area Storm Water Drainage Master Plan. to reflect the detention basin site proposed by the Project. The updated Master Plan is required prior to approval of the Project grading permit. Refinements to the Master Plan would relocate the detention basin planned west of the site approximately 400 feet west of the original planned location to the west side of B Drive. The relocated stormwater detention basin being completed as

part of updates to the Storm Water Drainage Master Plan and would ultimately serve the Project and be operational prior to completion of the Project. Stormwater from the Project site would be directed to the detention basins through drainage pipes within the Project site and adjacent roadways. The basin would serve as both a detention basin and hydromodification facility and flows would exit the basin into the Shed C Channel. As discussed in Section 3.3, "Biological Resources," the Shed C permit would be updated as an amendment to the Southeast Policy Area for a revised basin location to serve the Project.

The LID measures and water flow to a detention basin west of the site would prevent the contamination of stormwater and allow the infiltration of most of the stormwater from the site. All pollution control measures would be designed in accordance with the Sacramento Region Stormwater Quality Design Manual and enforced through the City permitting process. Therefore, impacts to surface and groundwater quality would be **less than significant**.

Mitigation Measures

No mitigation is required.

Impact 3.9-3: Substantially Decrease Groundwater Supplies or Interfere Substantially with Groundwater Recharge Such That the Project May Impede Sustainable Groundwater Management or Conflict with Implementation of a Groundwater Management Plan

Implementation of the Project would slightly increase the total extent of impervious area at the site and could reduce recharge of shallow groundwater systems, but this reduction would be mitigated by following landscaping and drainage requirements. Although implementing the Project would increase water demand relative to existing conditions, this change represents a small percentage of the service volume for the Laguna Vineyard service area and would not substantially decrease groundwater supplies or impede sustainable groundwater management. The Project would not conflict with or obstruct implementation of a groundwater management plan and this impact would be **less than significant**.

Impervious surfaces can intercept rainwater and inhibit infiltration that would recharge local groundwater systems. Over time, this can lead to declines in aquifer levels. This effect is especially pronounced in urban areas, where stormwater runoff from large and continuous impervious areas is collected and routed away from the site through the storm drain system. The total amount of impervious surfaces would increase as a result of Project implementation through the construction of buildings, walkways, parking, and roadway modifications, and this increase could lead to a reduced amount of water infiltrating the soil and recharging the local groundwater basin. Although implementing the Project would result in an increased area of impervious surfaces on the site, landscaping and drainage requirements included as part of the Project would ensure that stormwater runoff is allowed to infiltrate the soil and recharge the aquifer. As addressed in the discussion of Impact 3.9-2, above, the Project includes implementation of LID measures, and water would flow to the detention basin west of the site. These features would prevent the contamination of stormwater and allow infiltration of most of the stormwater from the site.

Groundwater supply can also be affected by water demand if the water supplier relies on groundwater sources. As described in Section 3.9.2, "Environmental Setting," the Project site is served by SCGA through the Laguna Vineyard water system. SCWA, as a member of the SCGA, participates in the implementation of a Groundwater Management Plan that was developed to maintain a safe and sustainable groundwater resource in the Central Basin. Subbasin operations from 2005 through 2018 have not exceeded yield limits established in the Water Forum Agreement (SCWA 2019). Although SCGA must conduct further study to confirm whether the Water Forum Agreement yield limit is sufficient to protect groundwater resources from overdraft (DWR 2019), the limit and the work of Water Forum members over the past two decades have prevented significant overdraft of the groundwater basin. SCWA has adopted policies consistent with the terms of the Water Forum Agreement to maintain long-term water supply (SCWA 2023). The policies include specific action items to develop additional surface water quality supply and treatment facilities to provide water during wet years, development of groundwater facilities to provide groundwater during dry years, banking of groundwater during wet years, development of water reclamation facilities to meet non-potable demands, and development of a financial plan to implement these action items.

Water for the Project would be provided by SCWA's conjunctive use program, which is a coordinated approach to manage surface water and groundwater supplies (SCWA 2023). The conjunctive use program for SCWA includes the use of groundwater, surface water, remediated water, and recycled water supplies.

The SASb GSP identifies the long-term average annual sustainable yield of groundwater to be 235,000 AFY, currently, the Project site is undeveloped; therefore, the Project would increase the total water demand by 240 AFY, including system losses (SCWA 2023) While the Project may increase groundwater use beyond what was evaluated in the General Plan EIR, However, as analyzed in the WSA, it is unlikely that the water demand would exceed the long-term average annual sustainable yield when factoring total water demand (3,505 AFY) and SCWA's anticipated groundwater use of 56,000 AFY in 2035, 2040, and 2045 under dry year conditions (SWCA 2023). In addition, water service providers for the Project, Laguna Vinyard, would participate and/or implement projects and management actions that have been identified in the GSP to the achievement of groundwater sustainability.

The South American Subbasin is considered a high-priority basin, however, it is not critically over drafted or adjudicated (SCWA 2019). In addition, according to the Water Supply Assessment prepared for the Project, SCWA has a water supply sufficient to serve the Project without pumping additional groundwater (SCWA 2023). See Section 3.14, "Utilities and Service Systems," for additional discussion of Project water supply and demand.

As described above, implementation of the Project would result in an increase in impervious surface area at the site. However, Project design features would allow water to infiltrate the soil and recharge the groundwater basin. Although implementing the Project would increase water demand at the site relative to existing conditions, there is sufficient water available for the Project without relying on groundwater. Implementing the Project would not substantially decrease groundwater supplies or result in conflicts with the SASb GSP or groundwater management plan. This impact would be **less than significant**.

Mitigation Measures

No mitigation is required.

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3.10 LAND USE AND PLANNING

This land use analysis evaluates consistency of the New Zoo Project with applicable land use plans and policies. The physical environmental effects associated with the Project, many of which pertain to issues of land use compatibility (e.g., noise, aesthetics, air quality), are evaluated in other sections of Chapter 3 of this Draft EIR.

One comment related to land use was received in response to the notice of preparation, which was related to zoning of the site and access from Kammerer Road. This is discussed in the analysis below, as well as in Section 3.13, "Transportation." See Appendix A for all notice of preparation comments received.

3.10.1 Regulatory Setting

FEDERAL

No federal plans, policies, regulations, or laws related to land use are applicable to the Project.

STATE

California Building Code

The California Building Code (CBC) (CCR Title 24) is based on the International Building Code, but it reflects California conditions and has more detailed or more stringent regulations than the International Building Code. Specific minimum seismic safety and structural design requirements are set forth in Chapter 16 of the CBC. The CBC identifies seismic factors that must be considered in structural design. Chapter 18 of the CBC regulates the excavation of foundations and retaining walls, and Chapter 18A regulates construction on unstable soils, such as expansive soils and areas subject to liquefaction. Appendix J of the CBC regulates grading activities, including drainage and erosion control.

LOCAL

2020 Sacramento Area Council of Governments Metropolitan Transportation Plan/Sustainable Communities Strategy

The Sacramento Area Council of Governments (SACOG) is designated by the federal government as the Metropolitan Planning Organization for the Sacramento region, which requires SACOG to maintain a regional transportation plan that must be updated every 4 years in coordination with each local government. Placer and El Dorado Counties are different in this arrangement in that each county has its own State designation as a Regional Transportation Planning Agency responsible for developing its own transportation plan. SACOG is the Regional Transportation Planning Agency for Sacramento, Sutter, Yolo, and Yuba Counties. SACOG works in coordination with the Placer County Transportation Planning Agency and the El Dorado County Transportation Commission to ensure consistency between these two county-specific plans and the broader regionwide plan.

The Metropolitan Transportation Plan/Sustainable Communities Strategy (MTP/SCS) is required to be a 20-year multimodal transportation plan that is financially feasible, achieves health standards for clean air, and addresses Statewide climate goals. The MTP/SCS land use forecast identifies the general location of different types of land uses, residential densities, employment intensities, and natural resource areas.

The Project area is located within the City's Southeast Planning Area of the Developing Communities type identified in the 2020 MTP/SCS. The 2020 MTP/SCS forecasts about 4,040 new housing units and 18,640 new employees in the Developing Communities Type in the City's Southeast Planning Area (SACOG 2019).

City of Elk Grove General Plan

The *City of Elk Grove General Plan* was adopted in 2019 and consisted of a comprehensive update of the previous General Plan. Subsequent amendments occurred in 2020, 2021, and 2023, including adoption of the Livable Employment Area Community Plan in December 2023. The General Plan goals, policies, and standards are based on the General Plan Vision Statement and supporting principles. The General Plan contains the following policies and actions related to land use that apply to the Project. These policies are contained in Chapter 4, "Urban and Rural Development" (City of Elk Grove 2021a).

- ▶ **Policy LU-1-2:** Foster development patterns that will achieve a complete community in Elk Grove, particularly with respect to increasing jobs and economic development and increasing the City's jobs-to-employed resident ratio while recognizing the importance of housing and a resident workforce.
- ▶ **Policy LU-1-8:** Seek to designate sufficient land in all employment generating categories to provide opportunities for Elk Grove's working population and jobs in categories matching resident's employment level.
- ▶ **Policy LU-5-1:** Ensure that new development reflects the City's desire to create a high-quality, attractive, functional, and efficient built environment.
- ▶ **Policy LU-5-2:** Provide and implement regulations that encourage high-quality signage, ensure that businesses and organizations can effectively communicate through sign displays, promote wayfinding, achieve visually vibrant streetscapes, and control excessive visual clutter.
- ▶ **Policy LU-5-8:** Require developers to provide pedestrian amenities, such as trees, lighting, recycling and refuse containers, seating, awnings, and/or art, in pedestrian areas along project frontages. Where appropriate, install pedestrian amenities in public rights-of-way.
- ▶ **Policy LU-5-9:** Emphasize placemaking design principles in new development projects.
 - **Standard LU-5-9a:** Prioritize the pedestrian by implementing the following measures:
 - Minimize parking areas and curb cuts along commercial street frontages.
 - Encourage a vertical and horizontal mix of land uses.
 - Provide urban plazas and gathering spaces in commercial and multifamily development.
 - Provide pedestrian amenities such as lighting, landscaping, and benches.
- ▶ **Policy LU-6-9:** Support potential changes to the South Pointe Policy Area that incorporate retail, office, and light industrial/flex land uses along Kammerer Road.
- ▶ **Policy ED-2-1:** Continue to improve Elk Grove's jobs/housing ratio by expanding local employment opportunities, with an emphasis on attracting jobs in sectors and industries that are well matched for the skills of the local workforce.
- ▶ **Policy ED-2-2:** Maximize the use of nonresidential land for employment-generating and revenue-generating uses.
- ▶ **Policy NR-1-9:** Encourage development clustering where it would facilitate on-site protection of woodlands, grasslands, wetlands, stream corridors, scenic areas, or other appropriate features such as active agricultural uses and historic or cultural resources under the following conditions and requirements. Except as otherwise provided, clustering shall not be allowed in the Sheldon Rural Area.
 - Urban infrastructure capacity is available for urban use. If clustering is allowed in the Rural Area, those properties shall be exempt from providing urban water and sewer connections in accordance with the policies of the Sheldon/Rural Area Community Plan (see Chapter 9).
 - On-site resource protection is appropriate and consistent with other General Plan policies.
 - The architecture and scale of development are appropriate for and consistent with the intended character of the area.

- Development rights for the open space area are permanently dedicated and appropriate long-term management is provided for by a public agency or another appropriate entity.

The Project site is located in the Livable Employment Area (LEA) Community Plan as denoted by Figure 4-1, Potential Activity and Infill Areas in Elk Grove, in the General Plan (City of Elk Grove 2019). The following General Plan land use designation is applicable to the Project site:

- ▶ **Parks and Open Space (P/O).** Parks and Open Space uses include public and private parks, public plazas, trails, paseos, and similar features that provide off-street connectivity, and similar spaces not included in the Resource Management and Conservation designation. Lands designated as Parks and Open Space are oriented toward active uses, rather than passive open space uses, which are included in the Resource Management and Conservation designation. This designation may also include commercial recreation facilities principally oriented toward outdoor use.

Livable Employment Area Community Plan Area

The LEA Community Plan covers a 1,150-acre area that would provide a walkable urban area in the City with a variety of mobility options and neighborhood streets. The LEA Community Plan would be organized with three transects (sub-urban zone, general urban zone, and urban center zone) and around four centers. Each center would have higher densities with the areas between the centers having relatively lower intensities. The character of each center would be defined by the assemblage of diverse and dense land uses and public features such as plazas, parks, gathering spaces, and access to public transit. New development would be designed with a street grid and all new thoroughfares would have a complete street design to allow pedestrian and bicycle infrastructure.

This LEA Community Plan identifies the Project site as a potential site for the proposed development of the New Zoo. If the proposed relocation of the zoo to the City does not move forward, the site would be developed consistent to its Parks and Open Space P/OS land use designation as included in the LEA Community Plan. The following policies related to the LEA Community Plan Area are contained in the General Plan:

- ▶ **Policy LU-3-3:** Transect-based land uses in Activity Districts shall implement the provisions of the Livable Employment Area Community Plan as provided in Chapter 9 and the provisions of the corresponding zoning designations.
- ▶ **Policy MOB-5-2:** Advocate for the City's preferred fixed transit alignment for light rail (or bus rapid transit) from north of the city through the Livable Employment Area and ensure proposed projects are complementary to such an alignment.
- ▶ **Policy LEA 2-1:** Implement the recommended organization and structure of neighborhood areas and mixed-use centers in relation to Kammerer Road and Promenade Parkway and the existing and proposed street network development patterns as shown in Figures LEA-1, LEA-2, LEA-3, and LEA-4.
- ▶ **Policy LEA-2-2:** Within the Livable Employment Area, established new zoning regulations that implement the Transect concept through a new Special Planning Area. The Special Planning Area shall be formatted as Form-Based Code, calibrated to the applicable transect zones to ensure that building form and placement, as well as the design of streets and public spaces support evolution of walkable, thriving, public realm.
- ▶ **Policy LEA 2-3:** Identify the locations and characteristics of the four centers, including application of the Transect, proposed land use and circulation patterns, public space, and building forms.
- ▶ **Policy LEA 2-4:**
 - Center 1 is to be the most urban of all the centers, a high concentration of retail centers and offices as well as higher density residential development. Buildings will range from two to seven stories, though additional height may be allowed.
 - Center 2 is to be considered the gateway to the Plan Area and contain the terminus station of the light rail line. Development shall include urban in style while providing a transition to the existing single family neighborhood to the north.
 - Center 3 is to take advantage of the adjacent Sky River Casino and embrace surrounding development.

- Center 4 has important streets connecting to it, including to State Route 99. This center will also have adjacent expansion opportunities

City of Elk Grove Municipal Code

The Elk Grove Municipal Code (EGMC) provides regulations imposed by the City on development and business activities in the City. Title 23 of the EGMC (Zoning Code) contains development standards and permit requirements that address building mass and setbacks (Chapter 23.29), landscaping (Chapter 23.54), lighting (Chapter 23.56), and signage (Chapter 23.62 and Section 23.16.027).

Chapter 23.29: Development Standards

The open space zoning district is applied to lands owned by public and private entities that have been reserved for open space uses such as landscape corridors, habitat mitigation, wetlands, wildlife habitat and corridors, lakes, trails, golf courses, cemeteries, and similar uses. Some quasi-public uses such as recreation centers, nature centers, public golf courses, and joint use facilities may be permitted with approval of a conditional use permit. Private nonprofit and for-profit projects may only be considered when proposed uses are located in conjunction with a public park or other open space area that serves the general public by keeping the open space area open to the public.

Section 23.16.100: Special Planning Areas

The purpose of the special planning area (SPA) district is to designate areas for unique and imaginative planning standards and regulations not provided through the application of standard zoning districts. Allowed uses and development standards within the SPA are those uses and standards listed uses in the adopted SPA. The enabling legislation granting authority to prepare, process, adopt and implement a SPA is defined by Title 23, Chapter 16, (23.16.100) of the EGMC (Title 23, Zoning). The intent of the SPA is to allow flexibility from the development standards and existing zoning. The Project site is identified in the LEA Community Plan Area and proposes a Zoological Park SPA.

3.10.2 Environmental Setting

PROJECT SITE

The Project site is located on approximately 100 acres of vacant land at the northwest intersection of Kammerer Road and Lotz Parkway in the south-central portion of the City of Elk Grove. The Project site is within the Livable Employment Area Community Plan with a land use designation of Parks and Open Space (P/O). Kammerer Road bordered the site to the south and Lotz Parkway borders the site to the east. Adjacent property beyond Kammerer Road and to the west and north of the Project site is agricultural land and/or rangeland. Adjacent property beyond Lotz Parkway east of the Project site was recently developed for single-family residential land uses and continues to be developed.

The vacant site currently serves as a fallow field and supports cattle grazing from April to December. The Project site was formerly used for agricultural purposes, and several irrigation features are still present. Powerline poles extend from the southern site boundary at 8665 Kammerer Road to the groundwater supply well in the central-southern portion of the Project site. Structures in the southeastern portion of the Project site include a dilapidated modular home and barn/cattle pen, an intact cattle pen, and a mobile home for the current site tenant.

A description of the visual character of the Project site and the surrounding area is provided in Section 3.1, "Aesthetics."

SURROUNDING LAND USES

The Project vicinity has a low-density suburban and agricultural character, given the presence of scattered single family residential development and wide expanses of agricultural fields. Land uses surrounding the proposed Project site include agricultural uses to the west and south, single family residential to the east along Lots Parkway. Vacant land to the north is currently under residential construction. Adjacent property beyond Kammerer Road and to the west and

north of the Project site is agricultural land and/or rangeland. Adjacent property beyond Lotz Parkway east of the Project site was recently developed for single-family residential land uses and continues to be developed for residential development. A manmade canal, Shed C Channel, is along the northern boundary of the Project site. Although the area is currently dominated by agriculture the Sky River Casino is located east of the Project site at the intersection of SR 99 and Kammerer Road on Promenade Parkway.

3.10.3 Impacts and Mitigation Measures

METHODOLOGY

Evaluation of potential land use impacts is based on a review of the planning documents pertaining to the Project area, including the City General Plan, LEA Community Plan, and EGMC Title 23 (Zoning). The analysis discusses whether the Project would be consistent with applicable land use plans and policies that were adopted for the purpose of avoiding or mitigating an environmental effect. Land use policies pertain to the type, location, and physical form of new development. For this analysis, policies “adopted for the purpose of avoiding or mitigating an environmental effect” are considered those that, if implemented and adhered to, would avoid or mitigate physical impacts on the environment. For each potential impact, the analysis compares the impact to the thresholds of significance listed below and determines the impact’s level of significance under CEQA. The reader is referred to the other sections of this EIR for evaluations of Project consistency with City and State policies and regulations related to environmental issue areas beyond land use.

THRESHOLDS OF SIGNIFICANCE

A land use impact would be significant if implementation of the New Zoo Project would:

- ▶ physically divide an established community or
- ▶ cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.

ISSUES NOT DISCUSSED FURTHER

Physically Divide an Established Community

The Project would result in construction of the New Zoo on a vacant site and would not physically divide an established community. Similarly, off-site improvements would within the City right-of-way on surrounding roadways and would include utility upgrades in the applicable rights-of-way. The Project would not divide an established community and this issue is not discussed further.

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Impact 3.10-1: Cause a Significant Environmental Impact Because of a Conflict with any Land Use Plan, Policy, or Regulation Adopted for the Purpose of Avoiding or Mitigating an Environmental Effect

The Project would establish an SPA intended to implement the New Zoo consistent with the policy provisions of the General Plan and LEA Community Plan. Implementation of the Project would be consistent with the EGMC and the SACOG 2020 MTP/SCS. With implementation of mitigation measures throughout this EIR the impact would be reduced to **less than significant**.

As discussed in Chapter 2, “Project Description,” the Project involves development of a New Zoo in Elk Grove that includes a zoological park, SPA for the New Zoo, off-site infrastructure improvements, and an animal browse

program. The New Zoo would include various facilities and buildings to be developed in several phases. The proposed Zoological Park Special SPA would apply to approximately 100 acres at the northwest corner of Kammerer Road and Lotz Parkway. The area would extend from Kammerer Road on the south to the Shed C Channel on the north, and generally from Lotz Parkway on the east to a future road (B Street) approximately 1,500 feet to the west. The proposed SPA would establish the land use and regulatory framework for development of the New Zoo. The SPA would be intended to implement the goals and policies of the General Plan and the LEA Community Plan.

The proposed SPA for the New Zoo would provide land use and development standards for the Project, such as standards for lighting, landscaping, building height, and signage. Where the SPA does not specify requirements, the Citywide zoning regulations would govern development of the Project. The proposed LEA Overlay District would serve as an overlay, or alternative designation, allowing for additional development opportunities by allowing the uses and development type provided in the LEA SPA. The SPA would be adopted as part of the City's zoning regulations (Title 23 of the EGMC) and function as a special district under Chapter 23.40 of the Zoning Code. Therefore, implementation of the SPA would ensure that the Project would be developed consistent with City standards.

The development of the proposed zoological park would be allowed upon the issuance of a conditional use permit. Components and features of a zoological park include the keeping of animals and insects, veterinary care, educational activities, food and beverage service (inclusive of alcohol service, including limited on-site brewing of beer), retail sales, administrative offices, caretaker's quarters, greenhouses/gardens/nurseries, and warehousing and storage of goods and materials for on-site use. Other components and features include overnight accommodations (including hotel/motel and patron/guest camping) and special events and programs where the facilities are either provided as a special ticketed event or available for rent. With the adoption of the SPA, the Project would be consistent with the definition of a zoological park.

In addition to provisions in the SPA, the Project would be consistent with the following General Plan policies and EGMC requirements, which provide environmental mitigation with the application of mitigation measures identified in other sections of this EIR:

- ▶ High-quality, attractive, functional, and efficient development and signage are required (General Plan Policies LU-5-1, LU-5-2, and LU-5-4; Standard LU-5-4a; Policies LU-5-5, LU-5-6, LU-5-7, LU-5-8, and LU-5-9; Standard LU-5-9[a]; Zoning Code Chapters 23.29, 23.54, and 23.62; Section 23.16.027; Design Guidelines 1, 2, 3, 17, 20, 21, 22, 23, 25, 26, 29, 63, and 65 of Chapter 5A; and Design Guidelines 1, 2, 3, 4, 5, 6, 7, 8, 10, 14, and 27 of Chapter 5B). The reader is referred to the discussion of Impact 3.1-1 in Section 3.1, "Aesthetics," for a detailed analysis.
- ▶ New development must be integrated with surrounding areas (General Plan Policy LU-5-4; Standard LU-5-4a; Zoning Code Chapters 23.29 and 23.54; and Chapter 5 of the Design Guidelines for non-residential developments). The reader is referred to the discussion of Impact 3.1-1 in Section 3.1, "Aesthetics," for a detailed analysis.
- ▶ Utilities must be concealed (General Plan Policy LU-5-3, Standard LU-5-3a, and Design Guideline 36 of Chapter 5A). The reader is referred to the discussion of Impact 3.1-1 in Section 3.1, "Aesthetics," for a detailed analysis.
- ▶ Lighting must follow the requirements of Zoning Code Chapter 25.56. The reader is referred to the discussion of Impact 3.1-2 in Section 3.1, "Aesthetics," for a detailed analysis.
- ▶ Mitigation Measure 3.2-1 would address construction-related air pollutant emissions consistent with General Plan Policy NR-4-8. The reader is referred to the discussion of Impact 3.2-1 in Section 3.2, "Air Quality," for a detailed analysis.
- ▶ Mitigation Measure 3.4-1 would address archaeological resource protection consistent with General Plan Policy HR-2-1. The reader is referred to the discussion of Impact 3.4-1 in Section 3.4, "Archaeological, Historical, and Tribal Cultural Resources," for a detailed analysis.
- ▶ The Project would not result in any wasteful or inefficient uses of energy and would be consistent with General Plan Policies NR-6-1, NR-6-6, and NR-6-7; and the City Climate Action Plan. The reader is referred to the discussion of Impact 3.5-1 and 3.5-2 in Section 3.5, "Energy," for a detailed analysis.

- ▶ Project emissions would be above SMAQMD's bright-line threshold of significance of 1,100 MTCO₂/year that triggers the need for the Project to implement SMAQMD's tier 2 best management practices. The Project would be consistent with General Plan Policy TACM-3 through development of transportation reduction measures and with TACM-9 by installing electric vehicle chargers (Mitigation Measure 3.7-1). The reader is referred to the discussion of Impact 3.7-1 in Section 3.7, "Greenhouse Gas Emissions and Climate Change," for a detailed analysis.
- ▶ Project-related hazardous materials would be handled in accordance with California Occupational Safety and Health Administration regulations and consistent with General Plan Policies EM-1-1, ER-1-1, ER-1-2, ER-1-5, and ER-1-7. The Sacramento County Environmental Management Department would monitor the proper use, storage, and transport of potentially hazardous materials. Materials storage would follow appropriate regulations for labeling and secondary containment. The reader is referred to the discussion of Impact 3.8-2 in Section 3.8, "Hazards and Hazardous Materials," for a detailed analysis.
- ▶ Project water quality control measures are consistent with General Plan Policies NR-3-2, NR-3-3, and LU-5-12 and Municipal Code Chapter 15.12. The reader is referred to the discussion of Impact 3.9-2 in Section 3.9, "Hydrology and Water Quality," for a detailed analysis.
- ▶ Implementation of Mitigation Measure 3.11-5 would ensure that Project operational noise would not exceed City General Plan and Municipal Code noise standards. The reader is referred to the discussions of Impact 3.11-5 in Section 3.11, "Noise," for a detailed analysis.
- ▶ Implementation of Mitigation Measures 3.13-2a and 3.13-2b would ensure that vehicle travel generated by the Project is reduced as feasible consistent with General Plan Policy MOB-1-1 and with the requirements of Assembly Bill 900. The reader is referred to Impact 3.13-2 in Section 3.13, "Transportation."

Because the Project was not yet proposed when the previous MTP/SCS was written, it was not listed as a proposed future project in the City. However, the MTP/SCS includes employment projections that show an overall increase in employment in Elk Grove. The Project site is included in an area designated as a Developing Community Type. The 2020 MTP/SCS forecasts approximately 4,040 new housing units and 18,640 new employees in the Developing Communities Type in the City's Southeast Planning Area, which included the Project site at the time of adoption of the 2020 MTP/SCS (SACOG 2019). In comparison to the 2020 MTP/SCS, the Project would account for less than 1 percent of total new employees (up to approximately 200 employees) in the Developing Community Type in Elk Grove by 2040. No new housing units are proposed as part of the Project. Therefore, the Project is consistent with the land use assumptions for the Developing Community Type in the 2020 MTP/SCS.

The Project would include an SPA to implement the goals and policies of the General Plan and would be consistent with City General Plan policies that address environmental effects and the EGMC regulations, as well as the SACOG 2020 MTP/SCS. Therefore, this impact would be **less than significant**.

Mitigation Measures

No additional mitigation is required beyond compliance with Mitigation Measures 3.2-1, Mitigation Measure 3.4-1, Mitigation Measure 3.7-1, Mitigation Measure 3.11-5, and Mitigation Measures 3.13-2a and 3.13-2b.

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3.11 NOISE AND VIBRATION

This section includes a summary of applicable regulations related to noise and vibration, a description of ambient-noise conditions, and an analysis of potential short-term construction and long-term operational-source noise impacts associated with the New Zoo at Elk Grove.

Scoping comments received regarding noise and vibration in response to the notice of preparation (NOP) stated that the EIR should address noise from humans and animals at nearby residents. These issues are addressed in the impacts analysis below. See Appendix A for all NOP comments received.

Before discussing the regulatory and environmental setting, the following definitions of commonly used noise terms throughout this section are provided.

- ▶ **Equivalent Continuous Sound Level (L_{eq}):** L_{eq} represents an average of the sound energy occurring over a specified period. In effect, L_{eq} is the steady-state sound level containing the same acoustical energy as the time-varying sound level that occurs during the same period (California Department of Transportation [Caltrans] 2013:2-48). For instance, the 1-hour equivalent sound level, also referred to as the hourly L_{eq} , is the energy average of sound levels occurring during a 1-hour period and is the basis for noise abatement criteria used by Caltrans and Federal Transit Administration (FTA) (Caltrans 2013:2-47; FTA 2018: Table 3-1).
- ▶ **Maximum Sound Level (L_{max}):** L_{max} is the highest instantaneous sound level measured during a specified period (Caltrans 2013:2-48; FTA 2018: Table 3-1).
- ▶ **Day-Night Level (L_{dn}):** L_{dn} is the energy average of A-weighted sound levels occurring over a 24-hour period, with a 10-dB "penalty" applied to sound levels occurring during nighttime hours between 10 p.m. and 7 a.m. (Caltrans 2013:2-48; FTA 2018:Table 3-1).
- ▶ **Community Noise Equivalent Level (CNEL):** CNEL is the energy average of the A-weighted sound levels occurring over a 24-hour period, with a 10-dB penalty applied to sound levels occurring during the nighttime hours between 10 p.m. and 7 a.m. and a 5-dB penalty applied to the sound levels occurring during evening hours between 7 p.m. and 10 p.m. (Caltrans 2013:2-48).
- ▶ **Vibration Decibels (VdB):** VdB is the vibration velocity level in decibel scale (FTA 2018:Table 5-1).
- ▶ **Peak Particle Velocity (PPV):** PPV is the peak signal value of an oscillating vibration waveform. Usually expressed in inches/second (in/sec) (FTA 2018:Table 5-1).

3.11.1 Regulatory Setting

FEDERAL

U.S. Environmental Protection Agency Office of Noise Abatement and Control

The U.S. Environmental Protection Agency (EPA) Office of Noise Abatement and Control was originally established to coordinate Federal noise control activities. In 1981, EPA administrators determined that subjective issues such as noise would be better addressed at more local levels of government. Consequently, in 1982 responsibilities for regulating noise control policies were transferred to state and local governments. However, documents and research completed by the EPA Office of Noise Abatement and Control continue to provide value in the analysis of noise effects.

Federal Transit Administration

To address the human response to ground vibration, the Federal Transit Administration (FTA) has set forth guidelines for maximum-acceptable vibration criteria for different types of land uses. These guidelines are presented in Table 3.11-1.

Table 3.11-1 Ground-Borne Vibration (GBV) Impact Criteria for General Assessment

Land Use Category	GBV Impact Levels (VdB re 1 micro-inch/second)		
	Frequent Events ¹	Occasional Events ²	Infrequent Events ³
<i>Category 1:</i> Buildings where vibration would interfere with interior operations.	65 ⁴	65 ⁴	65 ⁴
<i>Category 2:</i> Residences and buildings where people normally sleep.	72	75	80
<i>Category 3:</i> Institutional land uses with primarily daytime uses.	75	78	83

Notes: VdB = vibration decibels referenced to 1 μ inch/second and based on the root mean square (RMS) velocity amplitude.

¹ "Frequent Events" is defined as more than 70 vibration events of the same source per day.

² "Occasional Events" is defined as between 30 and 70 vibration events of the same source per day.

³ "Infrequent Events" is defined as fewer than 30 vibration events of the same source per day.

⁴ This criterion is based on levels that are acceptable for most moderately sensitive equipment such as optical microscopes. Vibration-sensitive manufacturing or research would require detailed evaluation to define acceptable vibration levels.

Source: FTA 2018.

STATE

California Building Code Sound Transmission Standards

Noise within habitable units that is attributable to external sources is regulated by the California Building Standards codified in the California Code of Regulations, Title 24, Part 2, Section 1207. These standards are enforceable at the time of construction or during occupancy and apply to habitable units with common interior walls, partitions, and ceilings or those adjacent to public areas, such as halls, corridors, stairways, and service areas. Under these standards, the interior noise levels attributable to exterior sources shall not exceed 45 decibels (dB) in any habitable room. The noise metrics used to measure these levels can be day-night average sound level (L_{dn}) or CNEL, consistent with the local general plan. An acoustical analysis documenting compliance with the interior sound level standards shall be prepared for structures containing habitable rooms. Under Public Resources Code Section 25402.1(g), all cities and counties in the State are required to enforce the adopted California Building Code, including these standards for noise in interior environments.

California Department of Transportation

In 2013, Caltrans published the Transportation and Construction Vibration Manual (Caltrans 2013). The manual provides general guidance on vibration issues associated with construction and operation of projects in relation to human perception and structural damage. Table 3.11-2 presents recommendations for levels of vibration that could result in damage to structures exposed to continuous vibration.

Table 3.11-2 Caltrans Recommendations Regarding Levels of Vibration Exposure

PPV (in/sec)	Effect on Buildings
0.4-0.6	Architectural damage and possible minor structural damage
0.2	Risk of architectural damage to normal dwelling houses
0.1	Virtually no risk of architectural damage to normal buildings
0.08	Recommended upper limit of vibration to which ruins and ancient monuments should be subjected
0.006-0.019	Vibration unlikely to cause damage of any type

Notes: PPV= Peak Particle Velocity; in/sec = inches per second

Source: Caltrans 2020.

LOCAL

City of Elk Grove General Plan

Chapter 8 of the *City of Elk Grove General Plan* (City of Elk Grove 2019) includes noise policies that are applicable to the Project:

- ▶ **Policy N-1-1:** New development of the uses listed in Table 8-3 [presented as Table 3.11-3 of this EIR] shall conform with the noise levels contained in the table. All indoor and outdoor areas shall be located, constructed, and/or shielded from noise sources in order to achieve compliance with the City's noise standards.
- ▶ **Policy N-1-2:** Where noise mitigation measures are required to achieve the standards of Tables 8-3 and 8-4 [presented as Tables 3.11-3 and 3.11-4, respectively, in this EIR], the emphasis of such measures shall be placed upon site planning and project design. The use of noise barriers shall be considered a means of achieving the noise standards only after all other practical design-related noise mitigation measures, including the use of distance from noise sources, have been integrated into the project.
- ▶ **Policy N-1-4:** Protect noise-sensitive land uses, identified in Table 8-3 [presented as Table 3.11-3 in this EIR], from noise impacts.
- ▶ **Policy N-2-1:** Noise created by new proposed non-transportation noise sources shall be mitigated so as not to exceed the noise level standards of Table 8-4 [presented as Table 3.11-4 in this EIR], as measured immediately within the property line of lands designated for noise-sensitive uses.
- ▶ **Policy N-2-2:** The following criteria shall be used as CEQA significance thresholds for transportation and stationary noise sources:
 - Where existing ambient noise levels are less than 60 dB L_{dn} at the outdoor activity areas of noise-sensitive uses, a +5 dB L_{dn} increase in noise levels shall be considered significant; and
 - Where existing ambient noise levels range between 60 and 65 dB L_{dn} at the outdoor activity areas of noise-sensitive uses, a +3 dB L_{dn} increase in noise levels shall be considered significant; and
 - Where existing ambient noise levels are greater than 65 dB L_{dn} at the outdoor activity areas of noise-sensitive uses, a +1.5 dB L_{dn} increase in noise levels shall be considered significant. Public roadway improvements to alleviate traffic congestion and safety hazards shall utilize FHWA [Federal Highway Administration] noise standards to allow a reasonable dollar threshold per dwelling to be used in the evaluation and abatement of impacts.
 - The standards outlined in Table 8-4 [presented as Table 3.11-4 in this EIR] shall not apply to public projects to alleviate traffic congestion and safety hazards.
- ▶ **Policy N-2-4:** Where sound walls or noise barriers are constructed, strongly encourage and consider requiring a combination of berms and walls to reduce the apparent height of the wall and produce a more aesthetically appealing streetscape.

Table 3.11-3 Maximum Allowable Noise Exposure, Transportation Noise Sources

Land Use	Outdoor Activity Areas ^{a, b} L _{dn}	Interior Spaces	
		L _{dn}	L _{eq} ^c
Residential	60 ^{d, g}	45	-
Residential subject to noise from railroad tracks, aircraft overflights, or similar noise sources which produce clearly identifiable, discrete noise events (the passing of a single train, as opposed to relatively steady noise sources as roadways)	60 ^{d, g}	40 ^f	-
Transient Lodging	60 ^{e, g}	45	-
Hospitals, Nursing Homes	60 ^{d, g}	45	-
Theaters, Auditoriums, Music Halls	-	-	35
Churches, Meeting Halls	60 ^{d, g}	-	40
Office Buildings	-	-	45
Schools, Libraries, Museums	-	-	45

^a Where the location of outdoor activity areas is unknown, the exterior noise level standards shall be applied to the property line of the receiving land use. Where it is not practical to mitigate exterior noise levels at patios or balconies of apartment complexes, a common area such as a pool or recreation area may be designated as the outdoor activity area.

^b Transportation projects subject to California Department of Transportation review or approval shall comply with the Federal Highway Administration noise standards for evaluation and abatement of noise impacts.

^c As determined for a typical worst-case hour during periods of use.

^d Where it is not possible to reduce noise in outdoor activity areas to 60 dB L_{dn} or less using a practical application of the best available noise reduction measures, an exterior noise level of up to 65 dB L_{dn} may be allowed provided that available exterior noise level reduction measures have been implemented and interior noise levels are in compliance with this table.

^e In the case of hotel/motel facilities or other transient lodging, outdoor activity areas such as pool areas may not be included in the project design. In these cases, only the interior noise level criterion will apply.

^f The intent of this noise standard is to provide increased protection against sleep disturbance for residences located near railroad tracks.

^g In cases where the existing ambient noise level exceeds 60 dB, the maximum allowable project-related permanent increase in ambient noise levels shall be 3 dB L_{dn}.

Source: City of Elk Grove 2019:8-57.

Table 3.11-4 Noise Level Performance Standards for New Projects Affected by or Including Nontransportation Noise Sources*

Performance Standards for Stationary Sources	Noise Level Descriptor	Daytime (7 a.m. to 10 p.m.)	Nighttime (10 p.m. to 7 a.m.)
Performance Standards for Typical Stationary Noise Sources ^a	Hourly L _{eq} , dB	55 ^{c, d}	45 ^{c, d}
Performance Standards for Stationary Noise Sources Which Are Tonal, Impulsive, Repetitive, or Consist Primarily of Speech or Music ^b	Hourly L _{eq} , dB	50 ^{c, d}	40 ^{c, d}

* Applies to noise-sensitive land uses only.

^a These standards will apply generally to noise sources that are not tonal, impulsive, or repetitive in nature. Typical noise sources in this category would include HVAC systems, cooling towers, fans, and blowers.

^b These standards apply to noises which are tonal in nature, impulsive, repetitive, or which consist primarily of speech or music (e.g., humming sounds, outdoor speaker systems). Typical noise sources in this category include pile drivers, drive-through speaker boxes, punch presses, steam valves, and transformer stations. HVAC/pool equipment are exempt from these standards.

^c These noise levels do not apply to residential units established in conjunction with industrial or commercial uses (e.g., caretaker dwelling). HVAC/pool equipment are exempt from these standards.

^d The City may impose noise level standards which are more or less restrictive based upon determination of existing low or high ambient noise levels.

Source: City of Elk Grove 2019:8-58.

City of Elk Grove Municipal Code

Chapter 6.32 of the Elk Grove Municipal Code (EGMC) addresses noise generation in the City. Section 6.32.080 of the EGMC contains exterior noise standards for sensitive receivers, outlined in Table 6.32-1 [presented as Table 3.11-5 in this EIR]. The metric of these standards is L_{eq} because they are identical to the noise level performance standards included in the General Plan presented in Table 3.11-4.

Table 3.11-5 Exterior Noise Standards for Sensitive Receivers¹

	7:00 am to 10:00 pm	10:00 pm to 7:00 am
Stationary noise sources, generally	55 dB	45 dB
Stationary noise sources which are tonal, impulsive, repetitive, or consist primarily of speech or music	50 dB	40 dB

Source: Section 6.32.080 of the Elk Grove Municipal Code.

¹ Sensitive receivers are defined as receiving premises used for residential purposes and for nonresidential purposes that are sensitive to noise, including, but not limited to, residential dwellings, schools, hospitals, hotels, and community care facilities.

In the case that the measured ambient noise level exceeds the noise levels identified in Table 6.32-1 of the EGMC (presented as Table 3.11-5 in this EIR), a maximum increase of 5-dBA is allowed where the ambient noise level is above that shown in the table but less than 60 dB. Where the ambient noise level is between sixty (60) dB and sixty-five (65) dB, inclusive, a maximum increase of three (3) dB above the ambient noise level is allowed. Finally, where the ambient noise level is greater than sixty-five (65) dB, a maximum increase of one and one-half (1.5) dB above the ambient noise level is allowed.

Section 6.32.100 of the EGMC provides the several exemptions to all noise regulations specified within Chapter 6.32.100 of the Code. Relevant to the Project, the exemption includes:

- ▶ activities conducted on parks, public playgrounds and school grounds, provided such parks, playgrounds and school grounds are owned and operated by a public entity or private school;
- ▶ any mechanical device, apparatus or equipment related to or connected with emergency activities or emergency work; the exemption does not include permanently installed emergency generators;
- ▶ noise sources associated with construction, repair, remodeling, demolition, paving, or grading of any real property, provided said activities only occur between the hours of 7:00 a.m. and 7:00 p.m. when located in close proximity to residential uses. Noise associated with these activities not located in close proximity to residential uses may occur between the hours of 6:00 a.m. and 8:00 p.m. However, when an unforeseen or unavoidable condition occurs during a construction project and the nature of the project necessitates that work in process be continued until a specific phase is completed, the contractor or owner shall be allowed to continue work after 7:00 p.m. and to operate machinery and equipment necessary until completion of the specific work in progress can be brought to conclusion under conditions which will not jeopardize inspection acceptance or create undue financial hardships for the contractor or owner;
- ▶ all transportation, flood control, and utility company maintenance and construction operation at any time on public rights-of-way, and those situations that may occur on private property deemed necessary to serve the best interest of the public and to protect the public's health and well-being, including debris and limb removal, removal of damaged poles and vehicles, removal of downed wires, repairing traffic signals, repair of water hydrants and mains, gas lines, oil lines, and sewers, restoring electrical service, street sweeping, unplugging sewers, vacuuming catch basins, etc. The regular testing of motorized equipment and pumps shall not be exempt;
- ▶ noise sources associated with the authorized collection of solid waste (e.g., refuse and garbage); and

Section 6.32.110 of the EGMC pertains to the operation of machinery, equipment, fans, and air conditioning.

- ▶ Except as otherwise provided, it is unlawful for any person to operate any mechanical equipment, pump, fan, air conditioning apparatus, stationary pumps, stationary cooling towers, stationary compressors, similar mechanical

devices, or any combination thereof in any manner so as to create any noise which would cause the maximum noise level to exceed a maximum limit of fifty-five (55) dBA.

Section 6.32.140 of the EGMC prohibits the following activities which are relevant to the Project:

- ▶ operating or causing the operation of tools or equipment on private property used in alteration, construction, demolition, drilling or repair work daily between the hours of 7:00 p.m. and 7:00 a.m. when located in close proximity to residential uses, or between the hours of 8:00 p.m. and 6:00 a.m. when not located in close proximity to residential uses, so that the sound creates a noise disturbance across a residential property line, except for emergency work of public service utilities. However, when an unforeseen or unavoidable condition occurs during a construction project and the nature of the project necessitates that work in process be continued until a specific phase is completed, the contractor or owner shall be allowed to continue work after 8:00 p.m. and to operate machinery and equipment necessary until completion of the specific work in progress can be brought to conclusion under conditions which will not jeopardize inspection acceptance or create undue financial hardships for the contractor or owner.
- ▶ loading, unloading, opening, closing or other handling of boxes, crates, containers, building materials, garbage cans, or similar objects on private property between the hours of 10:00 p.m. and 7:00 a.m. in a manner to cause a noise disturbance.

City of Elk Grove Construction Specifications Manual

The Elk Grove Construction Specifications Manual (City of Elk Grove 2022) includes the following standards that are applicable to the Project:

- ▶ **Section 7-8.01: Allowable Times and Hours of Work.** Unless otherwise noted in the Special Provisions or approved by the City, no work shall be done between the hours of 6 p.m. and 7 a.m., or on Saturdays, Sundays, or legal holidays.
- ▶ **Section 7-8.02: Off-Period Work.** A written request to work between 6 p.m. and 7 a.m. or on Saturdays, Sundays, or legal holidays, or to close a lane of traffic during peak hours must be submitted at least two (2) Working Days in advance of the intended work. The City will evaluate the Contractor's request to determine if there is a benefit to the City, a nuisance or a hazard to the public, the project, or the area surrounding the site, and if the Contractor should pay any City overtime costs related to the off-period work. The City may place conditions on any approval of off-period work based on this analysis.
- ▶ **Section 7-8.03: Emergency Repairs.** Work done at night, on Saturdays, Sundays, or legal holidays will be exempt for emergency repairs that pose a danger to the public or jeopardizes the integrity of the work.
- ▶ **Section 10-6: Noise Control.** The Contractor shall comply with all local noise control and noise level rules, regulations, and ordinances that apply to the Work. The Special Provisions may contain specific or additional requirements. Internal combustion engines used for any purpose on the Work must be equipped with a muffler recommended by the manufacturer.

3.11.2 Environmental Setting

ACOUSTIC FUNDAMENTALS

Before discussing the noise setting for the Project, background information about sound, noise, vibration, and common noise descriptors is needed to provide context and a better understanding of the technical terms referenced throughout this section.

Sound, Noise, and Acoustics

Sound can be described as the mechanical energy of a vibrating object transmitted by pressure waves through a liquid or gaseous medium (e.g., air) to a human ear. Noise is defined as loud, unexpected, annoying, or unwanted sound.

In the science of acoustics, the fundamental model consists of a sound (or noise) source, a receiver, and the propagation path between the two. The loudness of the noise source and obstructions or atmospheric factors affecting the propagation path to the receiver determines the sound level and characteristics of the noise perceived by the receiver. The field of acoustics deals primarily with the propagation and control of sound.

Frequency

Continuous sound can be described by frequency (pitch) and amplitude (loudness). A low-frequency sound is perceived as low in pitch. Frequency is expressed in terms of cycles per second, or hertz (Hz) (e.g., a frequency of 250 cycles per second is referred to as 250 Hz). High frequencies are sometimes more conveniently expressed in kilohertz, or thousands of hertz. The audible frequency range for humans is generally between 20 Hz and 20,000 Hz.

Sound Pressure Levels and Decibels

The amplitude of pressure waves generated by a sound source determines the loudness of that source. Sound pressure amplitude is measured in micro-Pascals (mPa). One mPa is approximately one hundred billionth (0.0000000001) of normal atmospheric pressure. Sound pressure amplitudes for different kinds of noise environments can range from less than 100 to 100,000,000 mPa. Because of this large range of values, sound is rarely expressed in terms of mPa. Instead, a logarithmic scale is used to describe sound pressure level (SPL) in terms of decibels (dB).

Addition of Decibels

Because decibels are logarithmic units, SPLs cannot be added or subtracted through ordinary arithmetic. Under the decibel scale, a doubling of sound energy corresponds to a 3-dB increase. In other words, when two identical sources are each producing sound of the same loudness at the same time, the resulting sound level at a given distance would be 3 dB higher than if only one of the sound sources was producing sound under the same conditions. For example, if one idling truck generates an SPL of 70 dB, two trucks idling simultaneously would not produce 140 dB; rather, they would combine to produce 73 dB. Under the decibel scale, three sources of equal loudness together produce a sound level approximately 5 dB louder than one source.

A-Weighted Decibels

The decibel scale alone does not adequately characterize how humans perceive noise. The dominant frequencies of a sound have a substantial effect on the human response to that sound. Although the intensity (energy per unit area) of the sound is a purely physical quantity, the loudness or human response is determined by the characteristics of the human ear.

Human hearing is limited in the range of audible frequencies as well as in the way it perceives the SPL in that range. In general, people are most sensitive to the frequency range of 1,000–8,000 Hz and perceive sounds within this range better than sounds of the same amplitude with frequencies outside of this range. To approximate the response of the human ear, sound levels of individual frequency bands are weighted, depending on the human sensitivity to those frequencies. Then, an “A-weighted” sound level (expressed in units of A-weighted decibels) can be computed based on this information.

The A-weighting network approximates the frequency response of the average young ear when listening to most ordinary sounds. When people make judgments of the relative loudness or annoyance of a sound, their judgment correlates well with the A-scale sound levels of those sounds. Thus, noise levels are typically reported in terms of A-weighted decibels. All sound levels discussed in this section are expressed in A-weighted decibels. Table 3.11-6 describes typical A-weighted noise levels for various noise sources.

Table 3.11-6 Typical A-Weighted Noise Levels

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	— 110 —	Rock band
Jet fly-over at 1,000 feet	— 100 —	
Gas lawn mower at 3 feet	— 90 —	
Diesel truck at 50 feet at 50 miles per hour	— 80 —	Food blender at 3 feet, Garbage disposal at 3 feet
Noisy urban area, daytime, Gas lawn mower at 100 feet	— 70 —	Vacuum cleaner at 10 feet, Normal speech at 3 feet
Commercial area, Heavy traffic at 300 feet	— 60 —	
Quiet urban daytime	— 50 —	Large business office, Dishwasher next room
Quiet urban nighttime	— 40 —	Theater, large conference room (background)
Quiet suburban nighttime	— 30 —	Library, Bedroom at night
Quiet rural nighttime	— 20 —	
	— 10 —	Broadcast/recording studio
Lowest threshold of human hearing	— 0 —	Lowest threshold of human hearing

Source: Caltrans 2013: Table 2-5.

Human Response to Changes in Noise Levels

The doubling of sound energy results in a 3-dB increase in the sound level. However, given a sound level change measured with precise instrumentation, the subjective human perception of a doubling of loudness will usually be different from what is measured.

Under controlled conditions in an acoustical laboratory, the trained, healthy human ear can discern 1-dB changes in sound levels when exposed to steady, single-frequency (“pure-tone”) signals in the mid-frequency (1,000–8,000 Hz) range. In general, the healthy human ear is most sensitive to sounds between 1,000 and 5,000 Hz and perceives both higher and lower frequency sounds of the same magnitude with less intensity (Caltrans 2013b:2-18). In typical noisy environments, changes in noise of 1–2 dB are generally not perceptible. However, it is widely accepted that people can begin to detect sound level increases of 3 dB in typical noisy environments. Further, a 5-dB increase is generally perceived as a distinctly noticeable increase, and a 10-dB increase is generally perceived as a doubling of loudness (Caltrans 2013b:2-10). Therefore, a doubling of sound energy (e.g., doubling the volume of traffic on a highway) that would result in a 3-dB increase in sound would generally be perceived as barely detectable.

Vibration

Vibration is the periodic oscillation of a medium or object with respect to a given reference point. Sources of vibration include natural phenomena (e.g., earthquakes, volcanic eruptions, sea waves, landslides) and those introduced by human activity (e.g., explosions, machinery, traffic, trains, construction equipment). Vibration sources may be continuous, (e.g., operating factory machinery) or transient in nature (e.g., explosions). Vibration levels can be depicted in terms of amplitude and frequency, relative to displacement, velocity, or acceleration.

Vibration amplitudes are commonly expressed in peak particle velocity (PPV) or root-mean-square (RMS) vibration velocity. PPV and RMS vibration velocity are normally described in inches per second (in/sec) or in millimeters per second. PPV is defined as the maximum instantaneous positive or negative peak of a vibration signal. PPV is typically used in the monitoring of transient and impact vibration and has been found to correlate well to the stresses experienced by buildings (FTA 2018: 110, Caltrans 2013: 6).

Although PPV is appropriate for evaluating the potential for building damage, it is not always suitable for evaluating human response. It takes some time for the human body to respond to vibration signals. In a sense, the human body responds to average vibration amplitude. The RMS of a signal is the average of the squared amplitude of the signal, typically calculated over a 1-second period. As with airborne sound, the RMS velocity is often expressed in decibel

notation as vibration decibels (VdB), which serves to compress the range of numbers required to describe vibration (FTA 2018: 7-4; Caltrans 2020: 7). This is based on a reference value of 1 micro inch per second.

The typical background vibration-velocity level in residential areas is approximately 50 VdB. Ground vibration is normally perceptible to humans at approximately 65 VdB. For most people, a vibration-velocity level of 75 VdB is the approximate dividing line between barely perceptible and distinctly perceptible levels (FTA 2018: 7-8; Caltrans 2020: 27).

Typical outdoor sources of perceptible ground vibration are construction equipment, steel-wheeled trains, and traffic on rough roads. If a roadway is smooth, the ground vibration is rarely perceptible. The range of interest is from approximately 50 VdB, which is the typical background vibration-velocity level, to 100 VdB, which is the general threshold where minor damage can occur to fragile buildings. Construction activities can generate sufficient ground vibrations to pose a risk to nearby structures. Constant or transient vibrations can weaken structures, crack facades, and disturb occupants (FTA 2018: 7-5).

Vibrations generated by construction activity can be transient, random, or continuous. Transient construction vibrations are generated by blasting, impact pile driving, and wrecking balls. Continuous vibrations are generated by vibratory pile drivers, large pumps, and compressors. Random vibration can result from jackhammers, pavement breakers, and heavy construction equipment.

Table 3.11-7 summarizes the general human response to different ground vibration-velocity levels.

Table 3.11-7 Human Response to Different Levels of Ground Noise and Vibration

Vibration-Velocity Level	Human Reaction
65 VdB	Approximate threshold of perception.
75 VdB	Approximate dividing line between barely perceptible and distinctly perceptible. Many people find that transportation-related vibration at this level is unacceptable.
85 VdB	Vibration acceptable only if there are an infrequent number of events per day.

Notes: VdB = vibration decibels referenced to 1 μ inch/second and based on the root mean square (RMS) velocity amplitude.

Source: FTA 2018:7-8.

Sound Propagation

When sound propagates over a distance, it changes in level and frequency content. The manner in which a noise level decreases with distance depends on the following factors:

Geometric Spreading

Sound from a localized source (i.e., a point source) propagates uniformly outward in a spherical pattern. The sound level attenuates (or decreases) at a rate of 6 dB for each doubling of distance from a point source. Roads and highways consist of several localized noise sources on a defined path and hence can be treated as a line source, which approximates the effect of several point sources, thus propagating at a slower rate in comparison to a point source. Noise from a line source propagates outward in a cylindrical pattern, often referred to as cylindrical spreading. Sound levels attenuate at a rate of 3 dB for each doubling of distance from a line source.

Ground Absorption

The propagation path of noise from a source to a receiver is usually very close to the ground. Noise attenuation from ground absorption and reflective-wave canceling provides additional attenuation associated with geometric spreading. Traditionally, this additional attenuation has also been expressed in terms of attenuation per doubling of distance. This approximation is usually sufficiently accurate for distances of less than 200 feet. For acoustically hard sites (i.e., sites with a reflective surface between the source and the receiver, such as a parking lot or body of water), no excess ground attenuation is assumed. For acoustically absorptive or soft sites (i.e., those sites with an absorptive ground surface between the source and the receiver, such as soft dirt, grass, or scattered bushes and trees), additional ground-attenuation value of 1.5 dB per doubling of distance is normally assumed. When added to the attenuate rate associated with cylindrical spreading, the additional ground attenuation results in an overall drop-off

rate of 4.5 dB per doubling of distance. This would hold true for point sources, resulting in an overall drop-off rate of up to 7.5 dB per doubling of distance.

Atmospheric Effects

Receivers located downwind from a source can be exposed to increased noise levels relative to calm conditions, whereas locations upwind can have lowered noise levels, as wind can carry sound. Sound levels can be increased over large distances (e.g., more than 500 feet) from the source because of atmospheric temperature inversion (i.e., increasing temperature with elevation). Other factors such as air temperature, humidity, and turbulence can also affect sound attenuation.

Shielding by Natural or Human-Made Features

A large object or barrier in the path between a noise source and a receiver attenuate noise levels at the receiver. The amount of attenuation provided by shielding depends on the size of the object and the frequency content of the noise source. Natural terrain features (e.g., hills and dense woods) and human-made features (e.g., buildings and walls) can substantially reduce noise levels. A barrier that breaks the line of sight between a source and a receiver will typically result in at least 5 dB of noise reduction (Caltrans 2013: 2-41; FTA 2018: 42). Barriers higher than the line of sight provide increased noise reduction (FTA 2018: 2-12). Vegetation between the source and receiver is rarely effective in reducing noise because it does not create a solid barrier unless there are multiple rows of vegetation (FTA 2018: 15, 104, 106).

EXISTING NOISE ENVIRONMENT

Existing Noise- and Vibration-Sensitive Land Uses

Noise-sensitive land uses are generally considered to include those uses where noise exposure could result in health-related risks to individuals, as well as places where quiet is an essential element of their intended purpose. Residential uses are of primary concern because of the potential for increased and prolonged exposure of individuals to both interior and exterior noise levels, and because these land uses are places of rest and sleep for City residents. Additionally, the City of Elk Grove defines sensitive receivers as "receiving premises used for residential purposes and for nonresidential purposes that are sensitive to noise, including, but not limited to, residential dwellings, schools, hospitals, hotels, and community care facilities as those uses are defined in [EGMC] Title 23 (Zoning)." Additional land uses such as parks, historic sites, cemeteries, and recreation areas are also considered sensitive to increases in exterior noise levels. Schools, churches, hotels, libraries, and other places where low interior noise levels are essential are also considered noise-sensitive land uses. The City includes many of these types of noise-sensitive land uses including residential, hotel/motel, parks and recreational facilities, religious institutions, and schools (City of Elk Grove 2019). These land uses are given priority in assessing and addressing noise exposure given the noise-sensitive nature of the land uses and activities occurring in these locations.

The noise-sensitive receivers nearest to the Project site are single-family residences located east of the Project site along the eastern side of Lotz Parkway. An approximately 8-foot concrete masonry wall parallels Lotz Parkway along the single-family residences and blocks the line of site for the residential units. The next nearest sensitive receivers are single-family residences located across Lotz Parkway northeast of the Project site's northern boundary. The parcels north of the Project site across Shed C channel are currently being developed with single-family residential uses. This analysis conservatively analyzes noise levels at the single-family residences east of the site across Lotz Parkway to determine the greatest noise impacts. Noise levels at nearby sensitive receivers further from the site would experience noise levels below those included in this analysis.

Existing Noise Sources and Ambient Levels

Noise measurements were taken on the Project site to characterize the existing ambient noise environment. Noise measurements were also taken at the existing Sacramento Zoo to characterize noise from zoo operations. A Larson Davis LxT precision integrating sound level meter was used for the ambient noise level measurement surveys. The meter was calibrated before use with a Larson Davis Laboratories Model CAL200 acoustical calibrator to ensure

measurement accuracy. The measurement equipment meets all pertinent specifications of the American National Standards Institute.

Noise Measurements at the Sacramento Zoo included four short-term measurements that were conducted on June 2 and June 15, 2023, and a long-term (24-hour continuous) ambient noise level measurement was conducted on June 2, 2023. The locations of the monitoring sites are shown in Figure 3.11-1 and measurement results are summarized in Table 3.11-8 as measurement numbers 1 through 4. Daytime noise levels at the Sacramento Zoo range from approximately 62 to 80 dBA L_{eq} . Noise measurement short-term (ST) ST-1 was taken near the entrance of the Sacramento Zoo, noise measurement ST-2 was taken near the parrot exhibit, noise measurement ST-3 was taken near the Kampala Café, and noise measurement ST-4 was taken at the northern portion of the Sacramento Zoo to capture event noise. As recorded during the long-term measurement at the Sacramento Zoo ambient noise is approximately 57 dBA CNEL. The long-term measurement was taken near the lion exhibit to capture nighttime noise from lions roaring, which was determined to be the loudest nighttime noise source at the Sacramento Zoo.

Noise measurements on the Project site included four short term and one long term measurement conducted on July 13, 2023. The locations of the monitoring sites are shown in Figure 3.11-2 and measurement results are summarized in Table 3.11-8 as measurement numbers 5 through 8. Daytime noise levels on the Project site range from approximately 48 to 62 dBA L_{eq} . As recorded during the long-term measurement on the site ambient noise is approximately 71 dBA CNEL.

Table 3.11-8 Summary of Existing Ambient Noise Measurements

Location ¹	Date and Time	A-Weighted Sound Level (dB)		
		L_{eq}	L_{max}	L_{min}
Sacramento Zoo				
ST-1	June 2, 2023, 9:35 a.m. to 9:50 a.m.	62.4	72.9	55.0
ST-2	June 2, 2023, 9:55 a.m. to 10:11 a.m.	77.8	93.8	55.6
ST-3	June 2, 2023, 10:26 a.m. to 10:41 a.m.	66.4	78.7	56.9
ST-4	June 15, 2023, 5:46 p.m. to 6:08 p.m.	80.3	91.9	55.7
LT-1	June 2, 2023/10:00 a.m. to June 3, 2023/10:00 a.m.	57.4 ²	87.0	40.5
Project Site³				
ST-5	July 13, 2023, 9:09 a.m. to 9:31 a.m.	61.3	78.2	36.2
ST-6	July 13, 2023, 10:29 a.m. to 10:51 a.m.	61.4	77.6	37.2
ST-7	July 13, 2023, 11:04 a.m. to 11:29 a.m.	61.9	79.7	42.2
ST-8	July 13, 2023, 11:56 a.m. to 12:15 p.m.	47.8	62.3	40.9
LT-2	July 13, 2023/10:10 a.m. to July 14, 2023/10:10 a.m.	71.3 ²	96.9	31.9

1 Refer to Figures 3.11-1 and 3.11-2 for ambient noise level measurement locations; ST = short-term measurement; LT = long-term measurement

2 Noise level represents CNEL

3 Construction was occurring periodically on Kyler Road north of the Project site during noise measurements.

Source: Data collected by Ascent Environmental in 2023.



Source: adapted by Ascent in 2023.

Figure 3.11-1 Sacramento Zoo Noise Measurement Locations



Source: adapted by Ascent in 2023.

Figure 3.11-2 Project Site Noise Measurement Locations

3.11.3 Impacts and Mitigation Measures

METHODOLOGY

Construction Noise and Vibration

To assess potential short-term (construction-related) noise and vibration impacts, sensitive receivers and their relative exposure were identified. Project-generated construction source noise and vibration levels were determined based on methodologies, reference emission levels, and usage factors from FTA's *Guide on Transit Noise and Vibration Impact Assessment* methodology (FTA 2018) and FHWA's *Roadway Construction Noise Model User's Guide* (FHWA 2006). Reference levels for noise and vibration emissions for specific equipment or activity types are well documented and the usage thereof common practice in the field of acoustics.

Operational Noise and Vibration

Non-transportation Noise

With respect to non-transportation (i.e., stationary) noise sources associated with Project implementation, long-term (operation-related) impacts were assessed using reconnaissance data, reference noise emission levels, measured noise levels for activities and equipment associated with Project operation (e.g., heating, ventilation, and air conditioning [HVAC] units, delivery docks), and standard attenuation rates and modeling techniques. Animal noise impacts were assessed using reference noise levels measured near animal enclosures at the Sacramento Zoo, as shown in Table 3.11-8 and Figure 3.11-1.

Transportation Noise

To assess potential long-term (operational) noise impacts from Project-generated increases in traffic, noise levels were calculated based on methods and formulas from the FHWA roadway noise prediction model using California vehicle reference noise emission factors (FHWA 2006). The analysis is based on the reference noise emission levels for automobiles, medium trucks, and heavy trucks, with consideration given to vehicle volume, vehicle speed, roadway configuration, distance to the receiver, and ground attenuation factors. Truck use and vehicle speeds on area roadways were estimated from field observations and the Project-specific traffic report (Appendix H). Modeling does not account for any natural or human-made shielding (e.g., the presence of walls or buildings) or reflection off building surfaces and thus represents a conservative estimation of traffic noise.

Increases in traffic noise levels attributable to the Project were analyzed using roadway traffic data (i.e., baseline), as well as Plus Project roadway traffic data provided in the Project traffic study. New vehicle trips generated by the Project were added to traffic volumes modeled as part of the Project to analyze the roadway traffic noise level increases on roadways that would be affected by the Project. Projected traffic noise level increases were then compared to the City's transportation noise standards (see Section 3.11.1) to identify whether any standards were exceeded and whether any new or substantially more severe impacts would result from the Project.

THRESHOLDS OF SIGNIFICANCE

For projects undertaken by the City of Elk Grove, City noise standards are reasonable and appropriate thresholds for determination of significance under CEQA. Therefore, a noise impact would be significant if implementation of the Project would result in any of the following:

- ▶ construction noise levels that exceed an adopted local or other applicable noise standard or a substantial temporary increase in noise that has the potential to cause an adverse effect to a sensitive receiver; based on the City's adopted municipal code, this criterion is applied in the following manner:
 - construction-generated noise occurring during non-exempt nighttime hours from 7:00 p.m. to 7:00 a.m., Monday through Saturday, as defined in the City's Municipal Code;
 - an increase by 5 dBA or more over existing ambient noise levels (FTA 2018); and

- construction-generated noise that would exceed 90 dBA L_{eq} for residential receivers for daytime construction as established by FTA (2018);
- ▶ construction-generated or operational vibration levels exceeding Caltrans's recommended standards (2013) with respect to the prevention of structural building damage (0.2 PPV in/sec) or FTA's human response (80 VdB) at nearby vibration-sensitive land uses (FTA 2018);
- ▶ long-term traffic-generated noise levels exceeding the outdoor and interior noise standards for transportation noise sources as specified in Table 3.11-3;
- ▶ long-term noise levels generated by stationary or area sources that exceed City standards of 55 dBA L_{eq} during daytime hours from 7:00 a.m. to 10:00 p.m. and 45 dBA L_{eq} during nighttime hours from 10:00 p.m. to 7:00 a.m. for fixed noise sources, shown in Table 3.11-5, at existing noise-sensitive land uses;
- ▶ for a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, expose people residing or working in the project area to excessive noise levels; or
- ▶ for a project within the vicinity of a private airstrip, expose people residing or working in the project area to excessive noise levels.

IMPACTS NOT DISCUSSED FURTHER

Airport Noise

The Franklin Field, Sacramento Executive, and Sacramento International Airport noise contours do not extend into the City of Elk Grove, and noise generation from Borges-Clarksburg Airport and Sky Way Estates Airport within the City of Elk Grove is minimal (City of Elk Grove 2019). The Borges-Clarksburg Airport is a small private airport located approximately 6 miles northwest of the Project site. The Sky Way Estates Airport is a small private airport located approximately 8 miles east of the Project site. Therefore, Implementing the Project would not result in the exposure of people to excessive noise levels associated with airport activity. The issue of noise levels associated with airport activity is not discussed further.

Operational Vibration

As described in Chapter 2, "Project Description," implementing the Project would result in operation of a zoological park and associated support and operational, retail, and guest services facilities on the Project site. No vibratory sources are associated with operation of the zoological park. Operational vibration impacts are not discussed further.

Off-Site Improvements

Operation of the off-site improvements would not result in a long-term change in noise level that differs from existing conditions, because the off-site improvements would not result in an increase in vehicle trips or introduce new stationary noise sources. The only potential noise impact would be construction-generated noise, which is discussed under Impact 3.11-1. Operational noise impacts from off-site improvements are not discussed further.

Sacramento Zoo Closure

With completion of Phase 1 of the New Zoo, zoo operation at the Sacramento Zoo would cease. Noise from loading and unloading to support animal care facilities and restaurants would no longer occur at the Sacramento Zoo. Traffic noise surrounding the Sacramento Zoo would similarly decrease as trips would be redistributed to the New Zoo site. See the discussion of Impact 3.11-3 for an assessment of traffic noise at the New Zoo. Noise would occur at the Sacramento Zoo from removal of the animals and facilities, such as the Okapi barn, that would be transported to the New Zoo. These noise sources would be short-term and are anticipated to be similar in operational noise levels existing at the Sacramento Zoo from maintenance and animal transfers. Noise impacts from the Sacramento Zoo closure are not discussed further.

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Impact 3.11-1: Create Substantial Temporary (Construction) Noise

Hourly noise levels during construction activities would be as loud as 79 dBA L_{eq} and 82 dBA L_{max} at nearby residential land uses. Based on available existing noise level data for the Project site, hourly noise levels closest to the nearest sensitive receivers are approximately 61 dBA L_{eq} . Considering that noise levels at this location could reach as high as 76 dBA L_{eq} (i.e., as much as 15 dBA over existing levels), construction noise would constitute a substantial increase (perceived more than doubling of the existing noise levels) for an extended period. The requirements listed in Mitigation Measure 3.11-1 would decrease exposure of sensitive receivers to construction-generated noise and reduce the impact to **less than significant**.

The Project would include the construction of a new zoo on the Project site in four phases. Construction of Phase 1 would be initiated in fall 2025 and be completed in late 2028. However, the New Zoo may have a rolling opening with some areas open to the public while the remainder of Phase 1 is being constructed. This analysis conservatively assumes 36 months of Project construction. Operational noise impacts from the opening of the New Zoo are discussed under Impact 3.11-4. Construction of Phases 2–4 would occur in the future as funding allows. Consistent with the hour limits established by Sections 6.32.100.F and 6.32.140.A of the EGMC, construction activities would occur between the hours of 7:00 a.m. and 7:00 p.m., Monday through Saturday. Construction activities would be prohibited on Sundays and legal holidays.

The types of heavy equipment used during Project construction for all phases would include dozers, backhoes, excavators, scrapers, cranes, concrete trucks, generators, compressors, and haul trucks. Construction activity would not involve pile driving or blasting. Reference noise levels of heavy equipment likely to be used in demolition and construction activities are summarized in Table 3.11-9.

Table 3.11-9 Noise Emission Levels from Construction Equipment

Equipment Type	Typical Noise Level (L_{eq} dBA) at 50 feet
Backhoe	80
Concrete Mixer	85
Concrete Pump	82
Compactor	82
Crane/Lift, Mobile	83
Dozer	85
Dump Truck	84
Excavator	85
Flat Bed Truck	84
Loader	80
Generator	82
Grader	85
Paver	85
Roller	85
Pickup Trucks	54
Scraper	85
Tractor	84

Notes: dBA = A-weighted decibels; L_{max} = maximum instantaneous noise levels.

Assumes all equipment is fitted with a properly maintained and operational noise control device, per manufacturer specifications. Noise levels listed are manufacture-specified noise levels for each piece of heavy construction equipment.

Source: FTA 2018: 176.

Construction noise can be characterized based on the type of activity and associated equipment needed and, in this analysis, is evaluated by considering noise levels associated with the likely combination of construction equipment required for each phase of Project construction. The combined noise levels generated by construction activity would fluctuate depending on the type, number, and duration of use of vehicles and equipment. The effects of construction noise largely depend on the type of construction activities occurring on any given day; the noise levels generated by those activities; distances to noise-sensitive receivers; the presence of any noise-attenuating features, such as topography, vegetation, and existing structures; and existing ambient noise levels.

The noise-sensitive receivers nearest to the Project site are single-family residences located on the eastern side of Lotz Parkway. Because construction activity would occur throughout the Project site over the anticipated construction period, the levels of noise exposure at individual receivers would vary substantially throughout different phases of construction depending on the type of construction activity and the distance from the construction activity to each receiver. Table 3.11-10 summarizes the noise exposure levels at these residences from different construction activities during Phases 1–4 of the New Zoo. Detailed calculations are provided in Appendix H.

Table 3.11-10 Construction Noise Estimates

Construction Phase	Construction Equipment	Modeled Noise Level (dBA L_{eq}) at Nearest Receiver ¹	Modeled Noise Level (dBA L_{max}) at Nearest Receiver
Phase 1²		Nearest Receiver 150 feet	Nearest Receiver 150 feet
Demolition	Rubber-tired dozers, excavators, concrete saw	77.0	80.8
Site Preparation (utilities, grading)	Rubber-tired dozers, backhoes	75.0	79.0
Grading	Grader, excavators, backhoes, scrapers, rubber-tired dozer	77.1	81.1
Building Construction	Forklifts, generator, crane, welder, backhoes	72.3	77.1
Architectural Coating	Air compressor	67.4	70.5
Paving	Pavers, paving equipment, rollers	78.5	82.4
Phase 2		Nearest Receiver 230 feet	Nearest Receiver 230 feet
Site Preparation (utilities, grading)	Rubber-tired dozers, backhoes	71.1	75.0
Grading	Grader, excavator, backhoes, rubber-tired dozer	71.8	75.8
Building Construction	Crane, forklifts, generator, welder, backhoes	70.7	75.4
Architectural Coating	backhoe, cement and mortar mixers, paver, paving equipment, rollers	63.7	66.7
Paving	air compressor	74.8	78.7
Phase 3		Nearest Receiver 515 feet	Nearest Receiver 515 feet
Demolition	Backhoes, rubber-tired dozer, concrete saw	63.4	67.2
Site Preparation (utilities, grading)	Grader, backhoe	62.0	65.9
Grading	Grader, rubber-tired dozer, backhoe	63.4	67.3
Building Construction	Crane, forklifts, backhoes	63.0	68.5
Architectural Coating	Air compressor	56.7	59.7

Construction Phase	Construction Equipment	Modeled Noise Level (dBA L_{eq}) at Nearest Receiver ¹	Modeled Noise Level (dBA L_{max}) at Nearest Receiver
Paving	Backhoe, cement mixers, paver, roller	67.8	71.7
Phase 4		Nearest Receiver 560 feet	Nearest Receiver 560 feet
Site Preparation (utilities, grading)	Rubber-tired dozers, backhoes	63.3	67.3
Grading	Grader, excavator, backhoes, rubber-tired dozer	64.1	68.0
Building Construction	Forklifts, generator, crane, welder, backhoe	62.9	67.7
Architectural Coating	Air compressor	56.0	59.0
Paving	Pavers, paving equipment, rollers	67.0	71.0

Notes: dBA = A-weighted decibels; L_{eq} = hourly-average noise level; L_{max} = maximum instantaneous noise levels.

¹ Nearest sensitive receivers are single-family residences along Lotz Parkway east of the Project site.

² Equipment list for Phase 1 represents equipment from Phase 1A, which would be closest to the nearest receivers along Lotz Parkway.

Source: Modeled by Ascent Environmental in 2023. Refer to Appendix G.

As shown in Table 3.11-10, noise from construction would expose residences along Lotz Parkway to noise levels as high as 79 dBA L_{eq} and 82 dBA L_{max} . However, there is an 8-foot-tall concrete masonry wall along Lotz Parkway that blocks the line of sight between the residences and construction on the Project site. A barrier that breaks the line of sight between a source and a receiver will typically reduce noise levels by at least 5 dBA (Caltrans 2013: 2-41; FTA 2018: 42). Therefore, exterior construction noise levels for residences along Lotz Parkway would be as high as 74 dBA L_{eq} and 77 dBA L_{max} .

Consistent with the EGMC and Construction Specifications Manual, Project construction would occur Monday through Saturday from 7:00 a.m. to 7:00 p.m. Although Section 6.32.100 of the EGMC provides an exemption for construction-generated noise provided that construction occurs between 7:00 a.m. and 7:00 p.m., the City has not adopted construction-related numerical noise limits. FTA has established noise criteria for the purpose of conducting construction noise assessments, which includes 90 dBA L_{eq} for residential receivers for daytime construction. Based on the modeling conducted, this level would not be exceeded at nearby sensitive land uses during any phase of construction. However, in addition to maximum noise exposure, the duration of noise exposure and the perceived increase in noise over existing ambient levels are important when considering impacts from construction noise. Regarding duration of noise exposure, FTA evaluates long-term construction noise impacts using a 30-day average noise standard, and other jurisdictions (e.g., City of San Jose) have identified an extended period of construction as a 12-month period. Project construction is anticipated to occur over 36 months, which would be considered an extended period to be exposed to increased noise levels. Further, based on available existing noise conditions on the Project site, the daytime hourly noise levels on the Project site near sensitive receivers along Lotz Parkway would be approximately 61 dBA L_{eq} (Table 3.11-8). Considering that noise levels at this location could reach as high as 74 dBA L_{eq} (i.e., 13 dBA over existing daytime lowest levels, which would be perceived as a more than doubling of the existing noise levels), construction noise would result in a substantial increase (i.e., 5 dBA) for an extended period. Therefore, Mitigation Measure 3.11-1 would be required to reduce construction noise levels by at least 8 dBA. Implementing Mitigation Measure 3.11-1 would reduce noise by locating equipment as far away from receivers as possible; requiring the proper use of available noise-reduction equipment, including alternatively powered equipment, exhaust mufflers, engine shrouds, and equipment enclosures; and requiring designation of a disturbance coordinator for any construction noise complaints. Implementation of these noise-reduction features can reduce construction noise levels by approximately 10 dBA, or more (NCHRP 1999, EPA 1971). With mitigation, construction-generated noise levels would be substantially reduced. Construction noise levels would exceed ambient levels by up to 3 dBA, which is not considered a perceivable increase in noise. This impact would be reduced to **less than significant**.

Construction Noise Impacts on Zoo Animals

Construction of Phase 1A of the Project would not affect animals housed at the New Zoo, because there would not be any animals on the site until the completion of Phase 1. Construction noise during Phases 1B, 1C, 2, 3, and 4, however, has the potential to disrupt animals housed at the New Zoo. Additionally, should Phase 1A be opened on a rolling basis, animals brought in for initial occupancy would be subjected to construction noises while the remainder of Phase 1A is completed. Construction noise can impact animals wellbeing. The New Zoo would follow Association of Zoo and Aquariums (AZA) standards and United States Department of Agriculture (USDA) Guidelines for animal noise exposure in accordance with the Animal Welfare Act. The AZA standards and USDA Guidelines provide guidance for planning for, monitoring, and mitigating noise impacts to animals. Methods include but are not limited to: acclimating sensitive/impacted animals to diverse sounds and stimuli; temporarily relocating animals within the zoo; temporarily relocating animals to another zoo facility; and implementing construction barriers that reduce the noise impact to animals. Because the New Zoo would be AZA accredited zookeepers and animal caretakers at the New Zoo would be trained in how to monitor animals' welfare and would implement measures appropriate for each species. This would ensure animal safety and well-being in accordance with the Animal Welfare Act and AZA standards. During construction, measures to protect animals would be implemented as needed by the zookeepers. Because noise sensitivity varies by animal species, accommodations for specific animals would be developed before construction of Phases 2–4. If construction noise impacts on animals cannot be avoided, the New Zoo, as an AZA-accredited zoo, would be part of a large consortium of accredited zoos that could provide temporary alternative accommodations for animals during construction if necessary. Compliance with the Animal Welfare Act and AZA standards would ensure that there would be no adverse effects on animals at the New Zoo during construction of Phases 2–4. The construction noise impact on zoo animals would be **less than significant**.

Mitigation Measures

Mitigation Measure 3.11-1: Implement Measures to Reduce Exposure of Noise-Sensitive Receivers to Construction-Generated Noise

To minimize noise levels generated by construction activities, the New Zoo shall require its construction contractors to comply with the following measures during construction to reduce construction noise by at least 8 dBA:

- ▶ All construction equipment and material staging areas shall be set back as far as possible from nearby off-site noise-sensitive receivers, including but not limited to the residences along Lotz Parkway and Overture Way.
- ▶ All construction equipment shall be properly maintained and equipped with noise-reduction intake and exhaust mufflers and engine shrouds, in accordance with manufacturer specifications. Equipment engine shrouds shall be closed during equipment operation.
- ▶ Construction equipment with back-up alarms shall be equipped with either audible self-adjusting backup alarms or alarms that sound only when an object is detected. Self-adjusting backup alarms shall automatically adjust to 5 dBA louder than the surrounding background levels. All non-self-adjusting backup alarms shall be set to the lowest setting required to be audible above the surrounding noise levels.
- ▶ The construction contractor shall use noise-reducing operation measures, techniques, and equipment that reduce construction noise by at least 8 dBA. This requirement shall be enforced through its inclusion on all construction bid specifications for construction contractors hired to work on the Project site. The bid specifications shall require that construction contractors provide an equipment inventory list for all equipment within the fleet with engines greater than 50 horsepower. The list will identify (at a minimum), make, model, and horsepower of equipment; operating noise levels at 50 feet; available noise control devices that are installed on each piece of equipment; and associated noise reduction from the installed technology. Control devices shall include, but shall not be limited to, high-efficiency mufflers; acoustic dampening; protected internal noise absorption layers; enclosures; and electric motors. In addition, the contractor shall specify how proposed alternative construction procedures would be employed to reduce noise at sensitive receivers compared to other more traditional methods. Examples include, but are not limited to, welding instead of riveting, mixing concrete off-site instead of on-site, and using a thermal lance instead of drive motors and bits. In all cases, the

requirement is that the best commercially available noise-reducing technology and noise-reducing alternative construction method shall be used, provided that there are no safety concerns, engineering limits, or environmental constraints preventing it from being used. If a unique circumstance does exist that prevents a quieter alternative construction method from being used, the contractor shall provide evidence to support its proposal. The noise reduction elements of construction shall be approved by the City.

- ▶ Combine noisy operations (e.g., riveting, cutting, hammering) to occur in the same period (e.g., day or construction phase), such that the overall duration of these activities is reduced to the extent practical. When the noisiest operations are performed together within the same period, the overall duration that excessive noise would occur is reduced, minimizing the disturbing effects of exposure to prolonged increased noise levels.
- ▶ The contractor shall designate a disturbance coordinator and post that person's telephone number conspicuously around the publicly accessible portions of the construction site and provide it to nearby residences. A minimum of one sign shall be posted for every 1,000 feet of public frontage, or a minimum of six postings. The disturbance coordinator shall receive all public complaints and be responsible for determining the cause of the complaint and implementing any possible measures to alleviate the problem.
- ▶ When construction activities would occur within 400 feet of existing residential land uses (i.e., the distance at which noise levels of 66 dBA L_{eq} are achieved), the following measures shall be implemented:
 - Use noise-reducing enclosures and techniques around stationary noise-generating equipment (e.g., concrete mixers, generators, compressors).
 - Install temporary noise curtains as close as possible to the boundary of the construction site within the direct line of sight path of the nearby sensitive receptor(s). The noise curtains will consist of durable, flexible composite material featuring a noise barrier layer bounded to sound-absorptive material on one side.
 - Retain a qualified noise specialist to develop a noise monitoring plan, and conduct noise monitoring to ensure that noise reduction measures are achieving the necessary reductions such that levels at the receiving land uses do not exceed 5 dBA over existing levels.

Significance after Mitigation

Impacts would be **less than significant**.

Impact 3.11-2: Create Substantial Temporary (Construction) Vibration Levels

The use of heavy-duty construction equipment can generate levels of vibration that could result in disturbance to nearby sensitive residential land uses or structural damage. Based on modeling conducted, vibration levels for a vibratory roller at the structure nearest to the Project site, approximately 50 feet from where the use of construction equipment could occur, would be 87 VdB and 0.098 PPV in/sec. Construction vibration would occur during daytime hours, when people are less likely to be disturbed. Therefore, the potential for disturbance to nearby receivers is low. In addition, the Caltrans criterion of 0.2 PPV in/sec would not be exceeded at the nearest structure. This impact would be **less than significant**.

Construction activities generate varying degrees of temporary ground vibration, depending on the specific construction equipment used and activities involved. Ground vibration generated by construction equipment spreads through the ground and diminishes in magnitude with increases in distance. The effects of ground vibration may be imperceptible at the lowest levels, result in low rumbling sounds and detectable vibrations at moderate levels, and, at high levels, cause annoyance, sleep disturbance, or damage to nearby structures.

Pile driving and blasting are the types of construction activities that typically generate the highest vibration levels and, therefore, are of greatest concern when evaluating construction-related vibration impacts. However, pile driving and blasting would not occur during Project construction. Table 3.11-11 presents vibration levels for typical pieces of equipment that would be used during Project construction.

Table 3.11-11 Vibration Reference Levels for Construction Equipment

Equipment	PPV at 25 ft, in/sec	Approximate VdB at 25 ft
Vibratory roller	0.210	94
Large bulldozer	0.089	87
Loaded truck	0.076	86
Small bulldozer	0.003	58

Notes: ft = feet; in/sec = inches per second; PPV = peak particle velocity; VdB = vibration decibels.

Source: FTA 2018: 184.

Based on reference vibration levels for typical construction equipment (Table 3.11-11), the piece of equipment that could generate the greatest level of ground vibration would be a vibratory roller during paving, which generates ground vibration levels of 0.210 in/sec PPV and 94 VdB at 25 feet (FTA 2018: 184). Adjusting the reference vibration levels for a vibratory roller to the structures nearest to the Project site, single-family residences located 50 feet from the Project site boundary, construction vibration levels would be as high as 87 VdB and 0.098 PPV in/sec. Considering FTA's criterion of 80 VdB for places where people sleep, vibration levels could exceed the recommended levels and cause annoyance or sleep disturbance. However, as required by the City of Elk Grove Construction Specifications Manual and Section 6.32.100 of the EGMC, construction activities would occur Monday through Friday during daytime hours. Construction would not occur during times of day when people are more sensitive to disturbance. Although vibration may be perceptible at nearby receivers because it would occur during the daytime hours when existing ambient noise levels are higher, higher ambient noise levels can mask vibration noise, thereby reducing the potential to result in intolerable levels (Caltrans 2020). Regarding the potential for structural damage, based on the modeling conducted, vibration levels at the nearest existing residential structure would be 0.098 PPV in/sec and below the Caltrans threshold for structural building damage of 0.2 PPV in/sec (for nonengineered timber and masonry buildings). Therefore, there would be a low potential for structural damage. This impact would be **less than significant**.

Mitigation Measures

No mitigation is required.

Impact 3.11-3: Create Long-Term (Operational) Traffic-Generated Noise

Project-generated weekday and weekend traffic would not expose residential land uses to transportation noise standards included in General Plan Policy N-2-2. Therefore, this impact would be **less than significant**.

Project-generated vehicle trips generated by employees and visitors would result in an increase in average daily traffic volumes and associated increases in traffic noise levels along local roadway segments used to travel to and from the Project site. To analyze the impact of Project-generated transportation noise sources, traffic noise levels under existing, existing plus Phase 1 buildout, cumulative, and cumulative plus full buildout conditions were modeled for the most affected local roadway segments. Traffic noise from full future buildout of the New Zoo is also analyzed in Chapter 4, "Cumulative Impacts." For further detail about the parameters used to model traffic noise levels, refer to Appendix H.

Table 3.11-12 summarizes the weekday and weekend modeled traffic noise levels at adjacent land uses for each roadway segment under existing and existing plus Phase 1 buildout conditions. Additionally, Table 3.11-12 shows the incremental increase in noise levels under Phase 1 buildout relative to existing conditions.

Table 3.11-12 Summary of Modeled Traffic Noise Levels – Phase 1

Roadway Segment	L _{dn} at Nearest Residential Land Use (Exterior, dBA) ^{1,2}		Incremental Increase (dBA)
	Existing Conditions	Existing Plus Phase 1 Buildout	Existing Plus Phase 1 Buildout
Weekday Noise Levels			
Lotz Parkway, north of Classical Way	55.6	63.0	7.4
Kammerer Road, west of Lotz Parkway	68.5	70.8	2.3
Kammerer Road, Lotz Parkway to Lent Ranch Parkway	68.6	71.2	2.6
Kammerer Road, Lent Ranch Parkway to Promenade Parkway	68.6	71.6	3
Kammerer Road, Promenade Parkway to SR 99 southbound ramps	72.7	74.4	1.7
Weekend Noise Levels			
Lotz Parkway, north of Classical Way	55.5	63.0	7.5
Kammerer Road, west of Lotz Parkway	68.3	70.6	2.3
Kammerer Road, Lotz Parkway to Lent Ranch Parkway	68.5	71.6	3.1
Kammerer Road, Lent Ranch Parkway to Promenade Parkway	68.4	71.9	3.5
Kammerer Road, Promenade Parkway to SR 99 southbound ramps	72.6	74.5	1.9

Notes: dB = decibel; L_{dn} = day-night level.

- 1 Noise levels do not account for attenuation provided by existing structures that would block the line of sight between the modeled roadway segment and adjacent land uses. Refer to Appendix H for all traffic noise modeling input data and output results.
- 2 Modeled traffic noise levels for Kammerer Road are shown at the distance to the roadway centerline and are presented for disclosure purposes only. There are no existing sensitive receivers along Kammerer Road near the Project site. Parcels around Kammerer Road, however, are zoned for residential or mixed-use development, which allows for the future development of residences along this roadway segment.

Source: Noise levels modeled by Ascent Environmental in 2023.

The City has a noise standard of 60 dBA L_{dn} that applies to the outdoor activity areas of residential land uses, as shown in Table 3.11-3. As shown in Table 3.11-12, residences along Lotz Parkway would experience noise levels of 63 dBA L_{dn} during the weekdays and weekends, which exceeds the City's exterior noise standards of 60 dBA L_{dn} for residential land uses, during operation of Phase 1 of the New Zoo. However, an 8-foot-tall concrete masonry wall along Lotz Parkway blocks the line of sight between the residences and the roadway. A barrier that breaks the line of sight between a source and a receiver will typically reduce noise by at least 5 dBA (Caltrans 2013b: 2-41; FTA 2018: 42). Therefore, exterior noise levels along Lotz Parkway for existing plus Phase 1 of the New Zoo conditions would be reduced to 58 dBA L_{dn}, which is below the City's 60 dBA L_{dn} threshold. Additionally, given that typical residential construction provides an exterior-to-interior attenuation of at least 24 dB (EPA 1978: 11), interior noise levels would be 39 dBA L_{dn}, which is below the City's interior noise standard of 45 dBA L_{dn}. Although, Project generated traffic noise would exceed existing noise levels along Lotz Parkway by 7.4 dBA residences along Lotz Parkway would experience traffic noise levels at 58 dBA L_{dn} due to noise attenuation from the concrete masonry wall along Lotz Parkway. Traffic noise of 58 dBA L_{dn} would exceed existing noise levels by approximately 4 dBA. Therefore, the Project would be consistent with General Plan Policy N-2-2, designed to protect public health, that permits a 5 dBA increase in traffic noise when existing noise levels are less than 60 L_{dn}. Therefore, Project-generated traffic noise levels along Lotz Parkway would remain below the City's exterior and interior noise thresholds for sensitive land uses and would be consistent with City General Plan policies.

To evaluate future (2050) traffic noise conditions Table 3.11-13 summarizes the weekday and weekend modeled traffic noise levels at adjacent land uses for each roadway segment under existing and full buildout conditions. Additionally, Table 3.11-13 shows the incremental increase in noise levels under full buildout relative to existing conditions.

Table 3.11-13 Summary of Modeled Traffic Noise Levels – Full Buildout

Roadway Segment	L _{dn} at Nearest Residential Land Use (Exterior, dBA) ^{1,2}			Incremental Increase (dBA)		
	Existing Conditions	Cumulative	Cumulative Plus Full Buildout	Applicable Incremental Noise Standard (dB)	Cumulative Increase	Full Buildout Increase over Cumulative
Weekday Noise Levels						
Lotz Parkway, north of Classical Way	55.6	70.2	70.3	5	14.7	0.1
Kammerer Road, west of Lotz Parkway	68.5	75.6	75.6	1.5	7.1	0
Kammerer Road, Lotz Parkway to Lent Ranch Parkway	68.6	75.8	75.9	1.5	7.3	0.1
Kammerer Road, Lent Ranch Parkway to Promenade Parkway	68.6	76.7	76.8	1.5	8.2	0.1
Kammerer Road, Promenade Parkway to SR 99 southbound ramps	72.7	78.0	78.0	1.5	5.3	0
Weekend Noise Levels						
Lotz Parkway, north of Classical Way	55.5	70.1	70.2	5	14.7	0.1
Kammerer Road, west of Lotz Parkway	68.3	75.4	75.4	1.5	7.1	0
Kammerer Road, Lotz Parkway to Lent Ranch Parkway	68.5	75.6	75.9	1.5	7.4	0.3
Kammerer Road, Lent Ranch Parkway to Promenade Parkway	68.4	76.6	76.8	1.5	8.4	0.2
Kammerer Road, Promenade Parkway to SR 99 southbound ramps	72.6	77.8	77.9	1.5	5.3	0.1

Notes: dB = decibel; L_{dn} = day-night level.

- 1 Noise levels do not account for attenuation provided by existing structures that would block the line of sight between the modeled roadway segment and adjacent land uses. Refer to Appendix H for all traffic noise modeling input data and output results.
- 2 Modeled traffic noise levels along Kammerer Road include the distance to the roadway centerline and are presented for disclosure purposes only. Traffic noise levels along this roadway segment are not subject to any of the incremental noise increase standards established by General Plan Policy N-2-2 because, under existing conditions, there are no residential land uses along this roadway segment. Parcels along Kammerer Road near the Project site, however, are zoned for residential and mixed-use development, which allows for the future development of residential units. If multi-family residential units are developed on this parcel then, pursuant to General Plan Policies N-1 and N-2, the design of this development should comply with the exterior and interior noise standards in Table 3.11-3 (i.e., 60 dB L_{dn} at outdoor activity areas and an interior noise standard of 40 dB L_{dn}). Design measures to comply with these noise standards may include, but are not limited to, including a sound barrier along the road, setting back outdoor activity areas from the road, placing buildings between the road and outdoor activity areas to act as a noise barrier, and/or including more noise insulation to protect interior noise levels.

Source: Noise levels modeled by Ascent Environmental in 2023.

As shown in Table 3.11-13 the Project would result in an increase in transportation related noise for residents along Lotz Parkway during weekdays and weekends. However, the Project's contribution to increased noise levels would be 0.1 dBA. Therefore, the Project would be consistent with General Plan Policy N-2-2 that permits a 5 dBA increase in traffic noise when existing noise levels are greater than 60 L_{dn}. Therefore, under cumulative conditions the Project would be consistent with General Plan Policy N-2-2, designed to protect public health.

As the Project would contribute 0.1 dBA under cumulative conditions noise levels at residences along Lotz Parkway would be exposed to exterior noise levels of 58.1 dBA L_{dn} and interior noise level of 39.1 dBA L_{dn}, which is below the City's 60 dBA L_{dn} and 40 dBA L_{dn} standards for exterior and interior land uses. Therefore, Project-generated traffic noise levels along Lotz Parkway would remain below the City's exterior and interior noise thresholds for sensitive land uses and would be consistent with City General Plan policies.

There are no existing residential receivers or other sensitive receivers along Kammerer Road near the Project site. Therefore, increased traffic on Kammerer Road from buildout of Phase 1 and full buildout of the New Zoo would not exceed the City's noise standards for sensitive land uses.

Project-generated traffic would not result in an exceedance of the City's exterior noise standard of 60 dBA L_{dn} or interior noise standard of 45 dBA L_{dn} for residential land uses and would be consistent with General Plan Policy N-2-2 related to transportation noise. This impact would be **less than significant**.

Mitigation Measures

No mitigation is required.

Impact 3.11-4: Create a Substantial Increase in Operational On-Site Activities

The Project would involve the long-term operation of new noise sources and new noise-generating activities on the Project site that may expose off-site noise-sensitive receivers to excessive noise levels. New operational noise sources would include animals, mechanical equipment that is part of the buildings' HVAC systems, activity at the proposed parking lots, truck delivery activity, outdoor cafes, and backup generators. Noise from zoo operations would not exceed applicable noise standards. This impact would be **less than significant**.

The New Zoo would open for operation in early 2029 (or as early as 2027 with a rolling opening). However, the Project may have a rolling opening with some areas of the site open as construction of Phase 1 continues. Pursuant to the *California Building Association v. Bay Area Air Quality Management District* an EIR is not required to evaluate the Project's impacts on its future residents (i.e., visitors). As assessment of construction noise impacts on visitors is not included herein. The analysis below conservatively assumes operational noise impacts from full buildout of the New Zoo. Operational noise from a rolling opening would be less than described for full buildout below.

Noise sources associated with the New Zoo include animals, mechanical equipment, parking lot activity (e.g., opening and closing of vehicle doors, people talking), delivery truck activity, outdoor cafés, and backup generators. Noise levels associated with these noise sources are discussed separately, below.

Animals

The New Zoo would add animals to the Project site that may be audible at nearby sensitive receivers. During a visit to the Sacramento Zoo on June 2, 2023, Ascent staff conducted noise measurements to capture noise from the active animals at the zoo. The loudest animals at the Sacramento Zoo were the birds housed in the aviary. Based on 24-hour noise measurements conducted at the Sacramento Zoo and information provided by Zoo staff none of the animals housed at the New Zoo would create substantial nighttime noise (McKim, pers. comm., 2023). Therefore, this analysis focuses on daytime animal noise.

As shown in Table 3.11-8, noise from the aviary was measured at 77.8 dBA L_{eq} at 5 feet. The existing sensitive receivers nearest to the animal exhibits are residences along Lotz Parkway, which would be 250 feet east of the gelada exhibit, as shown in Figure 2-4 in Chapter 2, "Project Description." As the gelada are no louder than the aviary, single-family residences along Lotz Parkway would experience noise levels of approximately 44 dBA L_{eq} at 250 feet from the animals at the New Zoo. Assuming a 5-dBA reduction from the existing wall along the east side of Lotz Parkway, animal noise would attenuate to 39 dBA L_{eq} at the residences along Lotz Parkway. Therefore, noise levels at nearby residences would not exceed the City's daytime noise standard of 55 dBA L_{eq} for sensitive land uses. Therefore, this impact would be **less than significant**.

Mechanical Equipment

New facilities developed as part of the Project would include mechanical building equipment as part of the HVAC systems at the New Zoo. Proposed HVAC equipment would include a high-efficiency heat pump HVAC system installed on the roof of buildings. However, the specific locations of new HVAC units on new buildings were not known when this EIR was prepared. HVAC equipment can generate noise levels as high as 70 dBA L_{eq} at 3 feet (Carrier 2022). Without any intervening barriers, HVAC unit-generated noise levels would attenuate to the City's daytime standard of 55 dBA L_{eq} at a distance of 20 feet and the City's nighttime standard of 45 dBA L_{eq} at a distance

of 5 feet. There are no sensitive receivers, including the single-family residences along Lotz Parkway, located within 20 feet from buildings that may contain HVAC units. Therefore, sensitive receivers would not be exposed to noise levels exceeding City daytime or nighttime noise standards.

Noise from mechanical equipment would be further reduced through Project design features including HVAC screening and attenuation from proposed structures on the Project site. This impact would be **less than significant**.

Parking Lot Activity

Buildout of the New Zoo would include two guest parking lots: the North Lot and the South Lot. These two lots would be located north and south of Classical Way (see Figure 2-3 in Chapter 2, "Project Description") and would together include approximately 1,600 parking stalls. An employee parking lot would be constructed across Lotz Parkway at the intersection of Lotz Parkway and Overture Way. A masonry wall exists along the southern edge of the employee lot, and the north, east, and west edges would be fenced with an open view fencing.

The use of parking lots generates various noise sources, including vehicular traffic-related noise, car doors closing/slamming, people talking, and car alarms and radios going off. Noise levels associated with parking lots tend to increase as hourly or daily vehicular traffic increases; thus, larger parking facilities typically generate more noise than smaller ones. Further, as with any noise source, the closer the source to the receiver, the more audible the source is, and if the noise occurs during the sensitive times of the day, when background levels are lower, noise can be more audible and potentially disruptive to nearby receivers.

According to guidance from the FTA, noise generated by activity at surface parking lots located adjacent to off-site sensitive receivers varies depending on the range of vehicle turnover, ranging from 44 to 53 dBA L_{eq} at 50 feet (FTA 2018). Conservatively assuming parking lot noise would be 53 dBA L_{eq} at 50 feet, parking lot noise at the sensitive receivers nearest to the visitor lots, single-family residences along Lotz Parkway approximately 800 feet northwest of the Project site, would be approximately 30 dBA L_{eq} . This is below the City's daytime and nighttime noise standards for sensitive receivers of 55 dBA L_{eq} and 45 dBA L_{eq} , respectively. Additionally, as shown in Table 3.11-8, existing noise levels along Lotz Parkway are approximately 61 dBA L_{eq} . Therefore, parking lot noise would not be perceptible at the sensitive receivers nearest to the visitor lots.

The proposed employee parking lot would be located approximately 50 feet south of existing single-family residences at the northeast corner of Lotz Parkway and Overture Way. Depending on vehicle turnover, parking lot noise at these residences would range from 44 to 53 dBA L_{eq} at 50 feet (FTA 2018). Parking lot noise of 53 dBA L_{eq} is below the City's exterior daytime noise standard of 55 dBA L_{eq} . Although parking lot noise would exceed the City's nighttime noise standard of 45 dBA L_{eq} , employee parking noise is not anticipated during nighttime hours (10:00 p.m. to 7:00 a.m.), because employees would not be coming and going from the lot during nighttime hours. Therefore, the impact associated with parking lot noise would be **less than significant**.

Truck Activity

Operation of the New Zoo would require delivery of food for both humans and animals, waste pickup several times a week, and other shipments to support the New Zoo. Designated service and loading areas have been designed to support the New Zoo. As shown in Figure 2-10 (see Chapter 2, "Project Description"), Gate 1 would be the entrance gate for Zoo operation deliveries. The service area adjacent to the Giraffe Lodge, Gate 10, would be designated for human food deliveries. The service road around the site would allow delivery trucks to access other designated loading areas in the New Zoo, including the hay storage area at the northeast corner of the site and the service corridor adjacent to the nutrition center and Gelada Café.

Noise originating in delivery areas is usually short term and associated with truck-related activities, such as vehicle idling, engine revving, and the release of air brakes on heavy trucks. Based on a noise measurement conducted by Ascent on April 20, 2023, at the loading and unloading dock at an Anheuser-Busch facility, noise from delivery truck activity can be as loud as 59 dBA L_{eq} at 100 feet (Ascent Environmental 2023).

The off-site noise-sensitive receivers closest to on-site delivery truck activity would be the single-family residences located on Lotz Parkway approximately 450 feet from the hay storage delivery area. Delivery truck-generated noise would be 46 dBA L_{eq} at 450 feet. Therefore, delivery truck noise would not exceed the City's exterior daytime noise

standards of 55 dBA L_{eq} . Although delivery truck noise would exceed the City's nighttime noise standard of 45 dBA L_{eq} , the Project would be consistent with Section 6.32.140 of the EGMC, which prohibits loading and unloading activity between the hours of 10:00 p.m. and 7:00 a.m. The noise impact related to delivery truck activity would be **less than significant**.

Outdoor Dining

The New Zoo would include two outdoor dining areas and a beer garden that would be operational during daytime hours. The Giraffe Lodge would be located on the southwest portion of the site, and the Gelada Café would be located in the middle of the site near Lotz Parkway (see Figure 2-3 in Chapter 2, "Project Description"). The beer garden would be located in the center of the site and would be sized to serve fewer visitors than the other two cafes. Therefore, this analysis focuses on noise from the Giraffe Lodge and Gelada Café as they would be the main sources of dining noise on the site. Noise sources from outdoor dining generally include people having conversations and eating. Based on a noise measurement conducted by Ascent on June 2, 2023, at the Sacramento Zoo outside the Kampala Café, sounds from outdoor dining are as loud as 66.4 dBA L_{eq} . No existing sensitive receivers would be located near the Giraffe Lodge. The existing sensitive receivers closest to the Gelada Café would be the single-family residences located along Lotz Parkway approximately 450 feet southeast of the Gelada Café. At a distance of 450 feet, outdoor dining noise would be as loud as approximately 46 dBA L_{eq} . Therefore, noise levels at nearby residences would not exceed the City's daytime noise standard of 55 dBA L_{eq} for sensitive land uses. Cafes at the New Zoo would not be operational during nighttime hours and would not emit nighttime noise. The noise impact related to outdoor dining would be **less than significant**.

Backup Generators

Backup generators may be used to supply necessary power to vital systems at the New Zoo. Backup generators would be battery operated to support the animal care center and server room in the entry plaza in the case of a power outage. Generator noise can range from about 50 dB to around 100 dB depending on the energy source and model for the generator with noise coming from the inverters (Electric Generators Direct 2023). Solar- and battery-powered generators are the quietest types of generators because they do not have an internal combustion engine. Conservatively assuming a noise level of 60 dBA at 32.8 feet (10 meters), generator noise levels would attenuate to the City's daytime standard of 55 dBA L_{eq} at a distance of 60 feet and the City's nighttime standard of 45 dBA L_{eq} at a distance of 175 feet (City of Inglewood 2020). No sensitive receivers would be located within 175 feet of the proposed server room. The sensitive receivers nearest to the animal care center would be single-family residences on Lotz Parkway located approximately 250 feet southeast. Therefore, noise levels from backup generators would not exceed the City's daytime or nighttime noise standards for sensitive land uses. The impact related to backup generator noise would be **less than significant**.

Mitigation Measures

No mitigation is required.

Impact 3.11-5: Create a Substantial Increase in Special Event Noise Levels

Noise from special events, such as private parties and weddings, would not exceed City noise standards at nearby sensitive receivers. However, amplification noise from the nighttime safari would expose off-site residential land uses to noise exceeding City standards. Implementation of Mitigation Measures 3.11-5 would reduce this impact to a **less-than-significant** level.

Special Events

The Project would include special events, such as private parties, weddings, and educational events. The proposed Project plans include an event lawn near the Giraffe Lodge where events may occur. Special events at the New Zoo may include amplified sound. Based on sound measurement levels collected at an outdoor event at the Sacramento Zoo that used amplified sound, it is anticipated that events on the Project site would generate sound levels of 80.3 dBA L_{eq} and 91.9 dBA L_{max} at 50 feet (see Table 3.11-8). The proposed event space would be located approximately 1,500 feet southwest of the nearest sensitive receivers: single-family residences along Lotz Parkway. At a distance of

1,500 feet, it is anticipated that noise from events would generate sound levels of approximately 51 dBA L_{eq} and 62 dBA L_{max} . A barrier that breaks the line of sight between a source and a receiver will typically reduce noise levels by at least 5 dBA (Caltrans 2013: 2-41; FTA 2018: 42). Assuming a 5-dBA reduction from the existing wall along the east side of Lotz Parkway and north side of Overture Way, event noise would attenuate to 46 dBA L_{eq} at the residences along Lotz Parkway. Therefore, noise levels at nearby residences would not exceed the City's daytime noise standard of 50 dBA L_{eq} for stationary noise sources that consist primarily of speech or music. Additional attenuation would be provided by new buildings constructed on the site as part of the New Zoo. Additionally, the New Zoo would adhere to AZA standards, and amplification would face away from animals at the zoo. Zoo staff would ensure that amplification would not be at a volume that would not be disruptive to nearby animals by applying monitoring, procedures, and practices to reduce noise impacts on animals. This impact would be **less than significant**.

Nighttime Safari Noise

Visitors at the New Zoo would have the opportunity to participate in a nighttime safari. The nighttime safari experience would involve visitors following a designated route around the New Zoo, as shown in Figure 2-17, in Chapter 2, "Project Description." The general hours of the New Zoo would be from 9:00 a.m. to 9:00 p.m. with guests leaving by 10:00 p.m. However, during certain seasons or for events the New Zoo may be open later and nighttime safari noise could occur after 10:00 p.m.

The nighttime safari would include amplification along the proposed route. Amplified noise during nighttime hours would consider animals asleep at the New Zoo and adhere to AZA animal care standards concerning zoo noise. However, amplified sound could be as loud as 80.3 dBA L_{eq} at 50 feet (see Table 3.11-8). The sensitive receiver nearest to the proposed nighttime safari route, single-family residences on Lotz Parkway, would be approximately 500 feet east. At a distance of 500 feet, amplified noise would be as loud as 60 dBA L_{eq} . A barrier that breaks the line of sight between a source and a receiver will typically reduce noise levels by at least 5 dBA (Caltrans 2013: 2-41; FTA 2018: 42). Assuming a 5-dBA reduction from the existing wall along the east side of Lotz Parkway and north side of Overture Way, nighttime safari noise would attenuate to 55 dBA L_{eq} at the residences along Lotz Parkway. Therefore, nighttime safari noise would exceed the City's nighttime (10:00 p.m. to 7:00 a.m.) noise standard of 40 dBA L_{eq} for sources that consist primarily of speech or music. Noise from amplified sound can be controlled by limiting the allowable volume level from equipment. Implementation of Mitigation Measure 3.11-5 would require use of amplification that does not exceed 65 dBA L_{eq} at 50 feet from the nighttime safari route. Limiting amplified noise to 65 dBA L_{eq} at 50 feet would reduce noise levels to 45 dBA L_{eq} at the nearest receivers 500 feet from the safari route. Accounting for attenuation from the existing wall along the east side of Lotz Parkway and north side of Overture Way, nighttime safari noise would attenuate to 40 dBA L_{eq} at the residences along Lotz Parkway. This impact would be **less than significant**.

Mitigation Measures

Mitigation Measure 3.11-5: Restrict Noise Levels from Amplification Devices

Exterior amplified noise from the nighttime safari shall be limited to a maximum sound level of 65 dBA L_{eq} at approximately 50 feet from the nighttime safari route boundaries by adjusting amplification equipment accordingly. The New Zoo staff/nighttime safari event coordinator shall ensure that sound equipment is calibrated annually. Sound testing of the amplification equipment shall occur annually. Two sound level measurements shall be conducted at 50 feet from the amplification equipment. The sound level meter used for the sound level measurements should meet a minimum Type 2 compliance and be fitted with the manufacturer's windscreen and calibrated before use. Noise measurement readings shall be used to ensure that 65 dBA L_{eq} at 50 feet is not exceeded.

Significance after Mitigation

Less than significant.

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3.12 PUBLIC SERVICES

This section provides an overview of existing public services in the City and evaluates the potential for implementation of the New Zoo Project to affect availability, service level, and/or capacity of public services, including fire-protection services, police-protection services, parks and recreation, and public schools, and, if such an effect is determined to occur, whether new or expanded facilities would be required that could result in a potentially significant impact to the environment. Other publicly provided utility services, such as water and wastewater treatment, stormwater management, solid waste management, electricity, and natural-gas services, are addressed in Section 3.14, "Utilities and Service Systems."

A single comment regarding public services was received in response to the NOP. The comment was from an individual regarding the need to enhance existing public services through thoughtful engineering design and construction techniques to adequately provide services within the site's rural setting. This issue is addressed in Section 3.14, "Utilities and Service Systems."

3.12.1 Regulatory Setting

FEDERAL

Uniform Fire Code

The Uniform Fire Code includes specialized technical fire and life safety regulations that apply to the construction and maintenance of buildings and land uses. The Uniform Fire Code addresses fire department access, fire hydrants, automatic sprinkler systems, fire alarm systems, fire and explosion hazards safety, hazardous materials storage and use, provisions intended to protect and assist fire responders, industrial processes, and many other general and specialized fire-safety requirements for new and existing buildings.

Code of Federal Regulations

Under 29 Code of Federal Regulations (CFR) 1910.38, when required by an Occupational Safety and Health Administration standard, an employer must have an Emergency Action Plan in writing, kept in the workplace, and available to employees for review. Minimum elements of an Emergency Action Plan include the following procedures: reporting a fire or other emergency; emergency evacuation, including type of evacuation and exit route assignments; employees who remain to operate critical plant operations before they evacuate; accounting for all employees after evacuation; and employees performing rescue or medical duties.

Under 29 CFR 1910.39, an employer must have a Fire Prevention Plan. The Fire Prevention Plan must be in writing, be kept in the workplace, and be made available to employees for review. Under 29 CFR 1910.155, Subpart L, Fire Protection, employers are required to place and keep in proper working order, fire safety equipment within facilities.

STATE

California Occupational Safety and Health Administration

In accordance with the California Code of Regulations, Title 8, Section 1270, "Fire Prevention," and Section 6773, "Fire Protection and Fire Fighting Equipment," the California Occupational Safety and Health Administration has established minimum standards for fire suppression and emergency medical services. The standards include guidelines on the handling of highly combustible materials, fire hose sizing requirements, restrictions on the use of compressed air, access roads, and the testing, maintenance, and use of all firefighting and emergency medical equipment.

Uniform Fire Code

The 2022 Uniform Fire Code (Fire Code) (California Code of Regulations, Title 24, Part 9), effective January 1, 2023, contains regulations relating to construction, maintenance, and use of buildings. Topics addressed in the Fire Code include fire department access, fire hydrants, automatic sprinkler systems, fire alarm systems, fire and explosion hazards safety, hazardous materials storage and use, provisions intended to protect and assist fire responders, industrial processes, and many other general and specialized fire-safety requirements for new and existing buildings and the surrounding premises. The Fire Code also contains specialized technical regulations related to fire and life safety.

California Health and Safety Code

State fire regulations are set forth in Sections 13000 et seq. of the California Health and Safety Code, which includes regulations for building standards (as set forth in the California Building Code), fire protection and notification systems, fire protection devices such as extinguishers, smoke alarms, high-rise building and childcare facility standards, and fire-suppression training.

Leroy F. Greene School Facilities Act

The Leroy F. Greene School Facilities Act (Chapter 407, Statutes of 1998) places limitations on cities and counties with respect to mitigation requirements for school facilities. It permits school districts to levy fees, based on justification studies, for the purposes of funding construction of school facilities, subject to established limits. The act further states that payment of these fees by a development project is considered adequate to reduce impacts of that project on schools to a less-than-significant level for the purposes of CEQA review and compliance.

School districts that can establish a need by completing an annually updated fee justification study are authorized to collect school impact fees on new residential and commercial/industrial development in accordance with Education Code Section 17620 and Government Code Section 65995. The development school impact fees are intended to provide the local school district's 50 percent share of the cost of new school construction.

The Elk Grove Unified School District (EGUSD) has established school mitigation fees for residential development at \$7.04 per square foot and \$0.78 per square foot for commercial/industrial development (EGUSD 2023a).

Quimby Act

The goal of the 1975 Quimby Act (California Government Code Section 66477) was to require developers to help mitigate the impacts of property improvements by requiring them to set aside land, donate conservation easements, or pay fees for park improvements. The Quimby Act gave authority for passage of land dedication ordinances only to cities and counties, thus requiring special districts to work with cities and/or counties to receive parkland dedication and/or in-lieu fees. The fees must be paid and land conveyed directly to the local public agencies that provide parks and recreation services community-wide. Revenues generated through the Quimby Act cannot be used for the operation and maintenance of park facilities.

Originally, the Quimby Act was designed to ensure "adequate" open space acreage in jurisdictions adopting Quimby Act standards (e.g., 3 to 5 acres per 1,000 residents). In some California communities, the acreage fee was very high where property values were high, and many local governments did not differentiate on their Quimby fees between infill projects and greenbelt developments. In 1982, the Quimby Act was substantially amended via AB 1600. The amendments further defined acceptable uses of or restrictions on Quimby funds, provided acreage/population standards and formulas for determining the exaction, and indicated that the exactions must be closely tied (nexus) to a project's impacts as identified through traffic studies required by CEQA. AB 1600 requires agencies to clearly show a reasonable relationship between the public need for the recreation facility or parkland and the type of development project on which the fee is imposed. Cities or counties with a high ratio of parkland to inhabitants can set a standard of 5 acres per 1,000 residents for new development; those with a lower ratio can only require the provision of up to 3 acres of parkland per 1,000 residents. The calculation of this parkland-to-population ratio is based on a comparison of the population count of the last federal census to the amount of city- or county-owned parkland.

LOCAL

City of Elk Grove General Plan

The City General Plan (City of Elk Grove 2022; Chapter 8) contains the following policies relevant to public services and the Project:

- ▶ **Policy ER-4-1:** Cooperate with the Cosumnes Community Services District (CCSD) Fire Department to reduce fire hazards, assist in fire suppression, and promote fire safety in Elk Grove.
- ▶ **Policy ER-4-2:** Work with the [Cosumnes Community Services District (CCSD)] to develop a fire prevention plan that lists major fire hazards, proper handling and storage procedures for hazardous materials, potential ignition sources and their control, and the type of fire protection equipment necessary to control each major hazard.
- ▶ **Policy SAF-1-2:** Encourage the use of Crime Prevention Through Environmental Design (CPTED) principles in the design of projects and buildings, as well as parks and trails.
- ▶ **Policy SAF-1-3:** Coordinate with the CCSD Fire Department to ensure that new station siting and resources are available to serve local needs.
- ▶ **Policy SAF-1-4:** Expand emergency response services as needed due to community growth.
- ▶ **Policy IFP-1-7:** New development shall fund its fair share portion of impacts to all public facilities and infrastructure as provided for in State law.
- ▶ **Policy IFP-1-8:** Infrastructure improvements must be financed and/or constructed concurrent with or prior to completion of new development.
- ▶ **Policy IFP-1-10:** Except when prohibited by state law, the City will endeavor to ensure that sufficient capacity in all public services and facilities will be available on time to maintain desired service levels and avoid capacity shortages, traffic congestion, or other negative effects on safety and quality of life.

City of Elk Grove Municipal Code

Chapter 17.04: California Fire Code

The City adopted the 2019 California Fire Code with some local amendments as set forth in Section 17.04.010. Section 17.04.020 designates the chief of the CCSD Fire Department or authorized designee the authority to enforce this chapter of the EGMC.

Parks and Recreation Master Plan

The Parks and Recreation Master Plan is a joint document prepared and approved by the CCSD and the City. The Master Plan was developed to guide both agencies in providing parks and recreation opportunities for residents in the City and in the CCSD boundaries. The Master Plan establishes a clear direction for the CCSD's core services and responsibilities, defines service priorities and capital investments, and outlines the manner in which the parks and recreation facilities and program services will be funded and delivered (CCSD Parks and Recreation Department 2018).

3.12.2 Environmental Setting

FIRE PROTECTION

The CCSD Fire Department provides fire prevention, fire protection, and emergency medical and rescue services to the City, including the Project site; the City of Galt; and surrounding southern Sacramento County communities. The department's service area covers more than 157 square miles and a population of more than 207,000 persons. The CCSD has 180 personnel in its Operations Division and operates out of eight fire stations and three facilities (CCSD Fire Department 2023a). In 2021, the CCSD responded to 22,936 incidents, a 12.9 percent increase from 2020 (Gomez, pers. comm., 2022). The CCSD operates fire stations at the following locations (CCSD Fire Department 2023b):

- ▶ Fire Station 45, 229 5th Street, central Galt
- ▶ Fire Station 46, 1050 Walnut Avenue, northeast Galt
- ▶ Fire Station 71, 8760 Elk Grove Boulevard
- ▶ Fire Station 72, 10035 Atkins Drive
- ▶ Fire Station 73, 9607 Bond Road
- ▶ Fire Station 74, 6501 Laguna Park Drive
- ▶ Fire Station 75, 2300 Maritime Drive
- ▶ Fire Station 76, 8545 Sheldon Road
- ▶ Fire Station 77, 83500 Poppy Ridge Road (Under Construction)

In addition, two new fire stations are planned: (1) Station 78, to be located along the southern boundary of the City limits near Promenade Parkway and Kammerer Road; and (2) Station 79 to be located within the Eastern Elk Grove Community Plan Area near Grant Line Road along Bradshaw Road. Station 71 is the closest existing station to the Project site, located approximately 1.8 miles north. However, proposed Station 77, located approximately one mile northwest of the Project site, is currently under construction and would be operational prior to the opening of the proposed New Zoo.

LAW ENFORCEMENT

California Highway Patrol

The California Highway Patrol Valley Division provides services to the south Sacramento region from the division's South Sacramento office located at 6 Massie Court, Sacramento, approximately 6.5 miles northeast of the Project site. The office patrols sections of Interstate 5, State Route 99, US Highway 50, and Business 80, as well as 500 miles of unincorporated county roadways. In addition, the office provides programs such as child restraint seat checks, smart start classes, and age well drive smart classes to keep residents safe on highways and roadways (CHP 2023).

Elk Grove Police Department

Police protection services are provided by the Elk Grove Police Department (EGPD) for areas within the City. EGPD is headquartered at 8400 Laguna Palms Way. EGPD is divided into four divisions: the Operations Division, the Investigations Division, the Administrative Services Division, and the Support Services Division. The Operations Division (Patrol) is responsible for responding to calls for services and is made up of eight patrol teams, canine officers, school resource officers, and the crisis response team (EGPD 2023).

The EGPD has an authorized strength of 153 sworn officers and 115 civilian employees. The Police Department responds to approximately 85,000 calls for service each year. Note that calls for service and staffing related to animal services have been excluded from this analysis (EGPD 2023).

EGPD's officer-to-resident population ratio standard is 0.81 sworn police officers per 1,000 residents, and EGPD's response time goal is 5 minutes for Priority 1 calls, which are emergency calls that require immediate assistance from police to prevent serious injury, death, and/or to arrest a violent felon. In 2022, EGPD's actual response time was 5.4 minutes for Priority 1 calls, with 48 percent of calls for service under 5 minutes (Jacobson, pers. comm., 2023).

SCHOOLS

EGUSD provides educational services, including elementary, middle, and high schools, to the City. EGUSD operates 43 elementary schools, nine middle schools, nine high schools, three continuation schools, one K-12 independent study program, one charter school, one virtual online K-8 program and one special education school. In addition, the

EGUSD offers preschool programs, an adult education program and a career training center for adults (EGUSD 2023b; California Department of Education 2023).

To identify school needs, EGUSD has developed a comprehensive districtwide Facilities Master Plan (FMP). The FMP is the blueprint for investments in the educational infrastructure. The FMP indicates that during the 2015-16 school year, there were a total of 63,232 students enrolled. The total number of students projected to be enrolled in EGUSD in 2025-26 is 76,859. This represents a projected increase of 13,600 students. Based on the projected District-wide increase of 13,600 students through 2025, the FMP forecasts the need for ten to twelve new schools through 2025, of which eight to ten are elementary schools with one middle school and one high school (EGUSD 2016).

LIBRARIES

The Sacramento Public Library system serves the Elk Grove community and provides services at the Elk Grove Library, located at 8900 Elk Grove Boulevard, approximately 2 miles northeast of the Project site, and at the Franklin Community Library, located at 10055 Franklin High Road, approximately 3 miles northwest of the site. The Elk Grove Library, which was established in 1908 and relocated to the current location in 2008, provides study and meeting rooms, book collections, and public computers. The Elk Grove Library will be relocated in 2025 to an existing building at the corner of Elk Grove Boulevard and Waterman Road, approximately 1 mile east of its existing site. The Franklin Community Library was opened in 2002 at Franklin High School. The facility, jointly managed by EGUSD and the Sacramento Public Library, provides book collections and public computers to EGUSD and the community (Sacramento Public Library 2022).

PARKS AND RECREATION

The CCSD Parks and Recreation Department provides park and recreational services to the City and maintains more than 101 parks that, together, encompass more than 1,000 acres of parks, corridors, creeks, and trails in the Elk Grove community. According to *Plan for Play: Parks, Recreation and Facilities Master Plan*, approximately 5.26 acres of parkland were available per 1,000 population in 2017, and planned parklands would result in a park acreage standard of less than 5 acres per 1,000 population. The master plan concluded that community needs included visitor experiences (restrooms, shade, gathering places), off-street trails, major facilities (multipurpose recreation centers and aquatic centers), sports fields, and park facilities (CCSD Parks and Recreation Department 2018). According to the City's Capital Improvement Plan, an additional 30 parks are proposed for development (CCSD Parks and Recreation Department 2022).

The City and CCSD have entered into a Memorandum of Understanding (MOU) concerning the development of park and recreation facilities in the City. The MOU addresses funding, programming, construction, ownership, and maintenance of park and recreational facilities in the geographic limits of the City. The most recent MOU was approved through Resolution 2019-214 (City of Elk Grove 2019).

3.12.3 Impacts and Mitigation Measures

METHODOLOGY

Evaluation of potential public service impacts is based on applicable City standards and policies and a review of documents pertaining to the Project, including the *City of Elk Grove General Plan* and *Plan for Play: Parks, Recreation and Facilities Master Plan*; consultation with appropriate public service providers, such as CCSD Fire Department and EGPD; and review of aerial photographs of the Project area and surroundings. Impacts on public services that would result from implementing the Project were identified by comparing existing service capacity and facilities against future demand associated with Project implementation.

THRESHOLDS OF SIGNIFICANCE

A public services impact would be significant if implementation of the Project would:

- ▶ result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:
 - fire,
 - police protection,
 - schools,
 - parks, and
 - other public facilities.

ISSUES NOT DISCUSSED FURTHER

The Project does not include a residential component and would not accommodate additional population in the City. It is anticipated that both employees and construction workers who would support the Project may come from within the Sacramento region and would not require any relocations. The Sacramento Zoo employs approximately 100 people. The New Zoo would require 150–300 employees at full buildout. Therefore, the Project is estimated to create approximately 50–200 new jobs that would be filled by residents in the region.

Schools

The Project is not expected to induce population growth and would not directly increase school enrollment in the City or the surrounding area. Furthermore, because implementing the Project would not result in student population growth, the Project would not affect performance objectives for schools and would not require the construction or expansion of educational facilities. This issue is not discussed further.

Parks

As discussed above, implementing the Project would not result in population growth. Therefore, the Project would not affect existing parks such that adverse physical impacts would result, and no additional parks would be needed or constructed as a result of implementing this Project. Further, no public parks exist on the Project site or in the immediate vicinity; therefore, none would be affected by the Project. Moreover, the Project would create additional recreation and entertainment opportunities in the region. This issue is not discussed further.

Libraries and Other Public Facilities

As discussed above, implementing the Project would not result in population growth. Therefore, the Project would not affect performance objectives for libraries or other public facilities, and no additional facilities would be needed or constructed as a result of implementing the Project. Further, no public libraries exist on the Project site or in the immediate vicinity; therefore, none would be affected by the Project. This issue is not discussed further.

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Impact 3.12-1: Result in Substantial Adverse Physical Construction-Related Impacts Associated with the Provision or the Need for New or Physically Altered Fire Facilities, to Maintain Acceptable Service Ratios and Response Times

Implementing the Project would result in the construction and operation of new structures, including a zoological park with various facilities and buildings, parking areas, and off-site infrastructure improvements. The CCSD Fire Department has adequate facilities and staff to provide fire protection services for the New Zoo. Construction or expansion of fire protection facilities would not be required to service the Project. The impact related to fire facilities would be **less than significant**.

The Project involves construction of the New Zoo, along with several parking facilities and off-site infrastructure improvements, such as roadway improvements, new pedestrian and bicycle facilities, and the Animal Browse Program. The Project site is located in a semirural/suburban area of Elk Grove in the CCSD Fire Department's service area and would not require any changes to the department's service area boundary. Therefore, the location of the Project would not directly affect CCSD Fire Department response times. In addition, the Project would be designed to comply with current building and fire codes (Office of Statewide Health Planning and Development and Federal Aviation Administration standards) and include appropriate fire safety measures and equipment, such as fire hydrants and sprinkler systems, smoke detectors, and fire extinguishers. Adequate access and egress for emergency vehicles would be provided on the Project site. Six vehicle gates would be located along the southern and northwestern perimeters of the Project site, as illustrated in Figure 2-15 in Chapter 2, "Project Description." Furthermore, a truck route for deliveries and distribution proposed along the inside perimeter of the site also would provide access for emergency vehicles throughout the New Zoo. Section 6.13.03 of the City Standard Construction Specifications would require that construction include construction traffic controls and allow uninterrupted passage of emergency vehicles.

Implementing the Project would not result in direct population growth. However, the Project would result in an average annual attendance of between 1.1 and 1.6 million visitors upon Project completion. The proposed Project also would include the hiring of approximately 50–200 new employees, for a total of 150–300 employees at the New Zoo. As a result, implementation of the Project would increase the number of persons in the Project area at any given time compared to existing conditions. Project implementation consequently has the potential to result in increases in the frequency of incidents with commensurate increases in demand for fire protection and emergency medical services from CCSD Fire Department.

CCSD Fire Department is constructing Fire Station 77, which will be located 1 mile northeast of the Project site. Fire Station 77 is being constructed to provide fire support facilities for anticipated growth in southern Elk Grove, which includes development of the New Zoo. Because Fire Station 77 would be located close to the Project site, emergency response times to the site would be improved. In addition, Fire Station 77 would provide additional fire support services in southern Elk Grove, relieving response demand on other nearby fire stations.

Fire Station 77, located immediately north of the Project site along Poppy Ridge Road would service the New Zoo. The fire station will be operational prior to opening of the New Zoo (scheduled opening is spring 2024) and would contain equipment and firefighters to maintain existing service ratios. As part of the plan check requirement the City is coordinating directly with CCSD Fire Department to ensure all fire protection measures are met prior to operation of the New Zoo. Currently, Station 71 is closest to the Project site, located approximately 1.8 miles north, and includes two fire engines, an ambulance, and a water tender that would serve the Project site prior to opening of Station 77 (CCSD Fire Department 2023c). The Project is exempt from the Elk Grove Fire Fee (EGMC Chapter 16.85).

In accordance with CCSD Fire Department requirements the New Zoo would include three entrance points specifically for emergency access to allow fire protection vehicles to enter the site. The perimeter road would be designed for fire access with enough space for vehicle turnaround as shown in Figure 3.8-1 in Section 3.8, "Hazards and Hazardous Materials."

In summary, CCSD's current facilities, along with operation of Fire Station 77, and Project design features, would be adequate to address fire protection. Construction or expansion of fire facilities that may result in physical environmental impacts would not be required. Therefore, this impact would be **less than significant**.

Mitigation Measures

No mitigation is required.

Impact 3.12-2: Result in Substantial Adverse Physical Construction-Related Impacts Associated with the Provision or the Need for New or Physically Altered Police Facilities, to Maintain Acceptable Service Ratios and Response Times

Implementation of the Project would result in an increased demand for law enforcement services. Because the Project would include private on-site security services, it would require minimal local police support. On-site security would reduce the need for local police support, maintaining acceptable service ratios and response times without the need for additional police facilities. Therefore, the impact related to police facilities would be **less than significant**.

Construction

Construction sites can be vulnerable to theft when they are left unattended; therefore, incidents on-site have the potential to increase demand for police services. During construction of Phase 1, construction areas would include security cameras at storage areas and would be fenced and screened to prevent access and avoid potential construction-related safety hazards. Nighttime lighting would be provided, and access would be controlled to deter theft.

Construction of Phases 2–4 would occur after the New Zoo is open to the public. Construction areas associated with these subsequent phases would be fenced off from the open portions of the zoo, and proper signage would be posted, to prevent pedestrian and visitor access. Existing zoo security personnel, including additional new hires, would provide continuous patrol of the Project site during subsequent construction phases to help ensure that visitors remain outside the construction zone. The use of these on-site security staff would minimize the need for EGPD services.

As discussed in Section 3.13, "Transportation," EGPD and Public Works would be required to sign off on any traffic control plans for the New Zoo, including construction-related traffic control plans if necessary. EGPD and Public Works approval of construction traffic control plans would ensure the presence of emergency response routing and emergency access during construction.

The construction area of each Project phase would be fenced for safety and security. Construction during Phases 2–4 would be subject to periodic patrol by security personnel employed by the New Zoo. Therefore, thefts or other issues that would require EGPD support would likely be avoided or minimized during Project construction. Any temporary road closures during construction would also require approval by EGPD to maintain access to the site. Section 6.13.03 of the City Standard Construction Specifications would require that construction include construction traffic controls and allow uninterrupted passage of emergency vehicles. Therefore, the impact on law enforcement services during construction would be **less than significant**.

Operation

During operation, security at the New Zoo would be provided by an on-site security team that would assume policing and first-aid responsibilities, with additional support from the off-site EGPD when required. Security personnel employed by the New Zoo would make up a portion of the anticipated 300 staff. Security staffing at the New Zoo would vary depending on the time of day. Security staffing would be higher during daytime hours when the New Zoo would be open to the public, with additional staffing during peak attendance days, such as summer weekends. Security personnel would be on the site during nighttime hours to patrol the New Zoo and be available for any incidents involving overnight guests and staff that may occur. However, the number of nighttime security personnel would be fewer than during the daytime opening hours.

The New Zoo would be designed for safety to reduce the need for EGPD services. Access to the New Zoo would be controlled by security fencing around the perimeter of the site. Pursuant to USDA and AZA standards, all facilities would be enclosed by a minimum 8-foot-high perimeter fence. Site access would be limited to locked gates or the ticketed entrance. Furthermore, the New Zoo would provide nighttime lighting, including security lighting, back-of-house lighting, and lighting along the perimeter ring road, thereby reducing nighttime theft or other incidents that would require police involvement. As part of the plan check requirement the City is coordinating directly with EGPD to ensure all security and protection measures are met prior to operation.

The New Zoo would be developed in phases over several years. As each phase of the New Zoo is constructed and visitation increases, demand for law enforcement services also would increase. It is anticipated at full buildout the New Zoo there would be 4 to 8 private security personnel on the site during opening hours and 2 to 4 when the New Zoo is closed. For evening or special events additional private security staff would be added as needed. Therefore, the number of security personnel employed by the New Zoo would increase over time as the demand for services increases. The increase of security personnel on the site as future phases are developed would continue to reduce the need for EGPD response to the site. Therefore, the Project would not result in an increase in EGPD response times or require expansion of EGPD facilities. The impact on law enforcement services during operation would be **less than significant**.

Summary

The Project site would be fenced for security during construction and operation reducing theft or incidents and the need for police protection services. The New Zoo would be served by an on-site security team that would assume policing and first-aid responsibilities, further reducing the need for additional support from EGPD. Impacts to police protection services would be **less than significant**.

Mitigation Measures

No mitigation is required.

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3.13 TRANSPORTATION

This section describes the applicable federal, State, and local transportation regulations and policies; discusses the existing roadway network and transportation facilities in the vicinity of the Project site; and analyzes the potential impacts from implementation of the Project on transportation. Mitigation measures that would reduce impacts, where applicable, are also discussed. The analysis within this section is based on the analysis and findings of the *Local Access, Safety, and Circulation Study* (Circulation Study) and the *Vehicle Miles Traveled Analysis Memorandum* (VMT Memo) prepared for the Project (Kimley-Horn 2023a and Kimley-Horn 2023b, respectively). These studies evaluate the effects of the Project based on the City CEQA significance thresholds contained within the City of Elk Grove General Plan and Transportation Analysis Guidelines. The Circulation Study and VMT Memo are included as Appendix G of this EIR and incorporated herein.

Pursuant to Senate Bill (SB) 743, Public Resources Code (PRC) Section 21099, and California Code of Regulations (CCR) Section 15064.3(a), generally, vehicle miles traveled (VMT) is the most appropriate measure of transportation impacts and a project's effect on automobile delay shall no longer constitute a significant impact under CEQA. Therefore, the transportation analysis herein evaluates impacts using VMT and does not include level of service (LOS) analysis. Although not addressed in this EIR, the analysis of traffic operations (i.e., intersection and freeway LOS analysis) for the Project was conducted by Kimley-Horn and is included in the Circulation Study (Kimley-Horn 2023a) and is provided in Appendix G.

Comments received regarding transportation in response to the notice of preparation (NOP) included requests for a transportation analysis; enhanced transportation services and active transportation amenities; additional Class I bike trails; and complete streets policy and design implementation. Because a project's effects on automobile delay no longer constitute a significant impact under CEQA, comments related to automobile delay (e.g., LOS, congestion) are not addressed in this EIR. All other comments are addressed in the analysis below. See Appendix A for all NOP comments received.

3.13.1 Regulatory Setting

FEDERAL

Federal Highway Administration

The Federal Highway Administration (FHWA), an agency of the U.S. Department of Transportation, provides stewardship over the construction and preservation of the nation's highways, bridges, and tunnels. FHWA also conducts research and provides technical assistance to State and local agencies to improve safety, mobility, and livability and to encourage innovation in these areas. FHWA also provides regulation and guidance related to work zone safety, mobility, and temporary traffic control device implementation.

STATE

California Department of Transportation

The California Department of Transportation (Caltrans) is the State agency responsible for the design, construction, maintenance, and operation of the California State Highway System, as well as the segments of the Interstate Highway System that lie within California. Caltrans District 3 is responsible for the operation and maintenance of State Route (SR) 99 in the vicinity of the Project site. Caltrans requires a transportation permit for any transport of heavy construction equipment or materials that necessitates the use of oversized vehicles on State highways.

The Caltrans Transportation Impact Study Guide (TISG) was prepared to provide guidance to Caltrans Districts, lead agencies, tribal governments, developers, and consultants regarding Caltrans review of a land use project or plan's transportation analysis using a VMT metric. This guidance is not binding on public agencies, and it is intended to be a

reference and informational document. The TISG replaces the Guide for the Preparation of Traffic Impact Studies and is for use with local land use projects, not for transportation projects on the State Highway System (Caltrans 2020).

Senate Bill 743

Senate Bill 743, passed in 2013, required the Governor's Office of Planning and Research (OPR) to develop new State CEQA guidelines that address traffic metrics under CEQA. As stated in the legislation, upon adoption of the new guidelines, "automobile delay, as described solely by level of service or similar measures of vehicular capacity or traffic congestion shall not be considered a significant impact on the environment pursuant to this division, except in locations specifically identified in the guidelines, if any."

OPR published its proposal for the comprehensive updates to the State CEQA Guidelines in November 2017 which included proposed updates related to analyzing transportation impacts pursuant to Senate Bill 743. These updates indicated that VMT would be the primary metric used to identify transportation impacts. In December of 2018, OPR published the most recent version of the *Technical Advisory on Evaluating Transportation Impacts in CEQA* (OPR 2018) that provides guidance for VMT analysis.

In December of 2018, OPR and the State Natural Resources Agency submitted the updated CEQA Guidelines to the Office of Administrative Law for final approval to implement SB 743. The Office of Administrative Law subsequently approved the updated State CEQA Guidelines and, as of July 1, 2020, implementation of CCR Section 15064.3 of the updated State CEQA Guidelines applies Statewide.

REGIONAL

Metropolitan Transportation Plan/Sustainable Communities Strategy

The Sacramento Area Council of Governments (SACOG) is responsible for preparing and updating the Metropolitan Transportation Plan/Sustainable Communities Strategy (MTP/SCS) and the corresponding Metropolitan Transportation Improvement Program (MTIP) for the six-county Sacramento region. In response to this requirement, SACOG completed the 2020 MTP/SCS. The purpose of the 2020 MTP/SCS is to establish regional access and identify mobility goals; identify present and future transportation needs, deficiencies, and constraints within the transportation system; analyze potential solutions; estimate available funding; and propose investments (SACOG 2019). On November 18, 2019, the SACOG Board of Directors adopted the 2020 update to the MTP/SCS. The next update to the MTP/SCS is scheduled for 2025 and is in process.

The Congestion Management Process (CMP) and MTP/SCS are developed as a single integrated document. As part of the MTP/SCS, SACOG's CMP addresses the six-county Sacramento region and the transportation network therein. The CMP focuses on travel corridors with significant congestion and critical access and mobility needs to identify projects and strategies that meet CMP objectives. Transportation projects are nominated by local agencies and analyzed against community priorities identified through public outreach, as well as technical performance and financial constraints.

Metropolitan Transportation Improvement Program

SACOG, the federally designated metropolitan planning organization for the region, prepares and adopts the MTIP approximately every 2 years. The MTIP is a short-term listing of surface transportation projects that receive federal funds, are subject to a federally required action, or are regionally significant. SACOG adopted the 2023-2026 MTIP in September 2022. The 2023-2026 MTIP covers 4 years of programming: federal fiscal years 2023-2026. The project listing in the MTIP provides a detailed description for each individual project in the 2023-2026 MTIP, including those in Sacramento County and the City of Elk Grove.

Regional Bicycle, Pedestrian and Trails Master Plan

SACOG approved the *Regional Bicycle, Pedestrian, and Trails Master Plan* in April 2015 (SACOG 2015). It envisions a complete transportation system that supports healthy living and active communities where bicycling and walking are viable and popular travel choices in a comprehensive, safe, and convenient network. The *Regional Bicycle, Pedestrian, and Trails Master Plan* is intended to guide the long-term decisions for the Bicycle and Pedestrian Funding Program. The projects included in this plan are regionally significant projects that require at least partial regional funding. This plan is not fiscally constrained, so it contains at least 20 years' worth of projects.

Sacramento Region Trail Network Action Plan

SACOG adopted the *Sacramento Region Trail Network Action Plan* in July 2022 (SACOG 2022). It establishes a vision for walking, biking, and rolling throughout the region by planning for a network of trails that reaches key destinations and closes existing gaps. The *Sacramento Region Trail Network Action Plan* establishes the baseline environment, identifies a proposed network of facilities, and sets forth goals for the trail network.

LOCAL

City of Elk Grove General Plan

The most recent updates to the City's General Plan were adopted in September 2023. The Mobility chapter of the General Plan contains policies designed to further the City's mobility strategy. The Mobility chapter incorporates and expands the City's complete streets policies; supports key implementation tools, such as the *Bicycle, Pedestrian, and Trails Master Plan*, and *Transportation Analysis Guidelines*, and the *Climate Action Plan*; and identifies measures to support alternative transportation investments, as well as transit-friendly and active transportation-friendly development (City of Elk Grove 2023a). As detailed above, a project's effect on automobile delay is no longer a consideration when identifying a significant impact under CEQA. Therefore, City General Plan policies related to intersection and roadway performance are not included in this EIR.

The following policies and standards related to transportation are relevant to the CEQA analysis of the Project. It should be noted that the Project would include a new Special Planning Area (SPA) referred to as Zoological Park SPA.

- ▶ **Policy MOB-1-1:** Achieve State-mandated reductions in VMT by requiring land use and transportation projects to comply with the following metrics and limits. These metrics and limits shall be used as thresholds of significance in evaluating projects subject to CEQA.

Projects that do not achieve the daily VMT limits outlined below shall be subject to all feasible mitigation measures necessary to reduce the VMT for, or induced by, the project to the applicable limits. If the VMT for or induced by the project cannot be reduced consistent with the performance metrics outlined below, the City may consider approval of the project, subject to a statement of overriding considerations and mitigation of transportation impacts to the extent feasible, provided some other stated form of public objective including specific economic, legal, social, technological, or other considerations is achieved by the project.

- a) **New Development** – Any new land use plans, amendments to such plans, and other discretionary development proposals (referred to as "development projects") are required to demonstrate a 15 percent reduction in VMT from existing (2020) conditions. To demonstrate this reduction, conformance with the following land use and cumulative VMT limits is required:
 - i. **Land Use** – Development projects shall demonstrate that the VMT produced by the project at buildout is equal to or less than the VMT limit of the project's General Plan land use designation, as shown in Table 6-1 [presented as Table 3.13-1 in this EIR].

Table 3.13-1 Vehicle Miles Traveled by Land Use Designation

Land Use Designation	VMT Limit (Daily Per Service Population)
Commercial and Employment Land Use Designations	
Community Commercial (CC)	29.4
Regional Commercial (RC)	29.4
Employment Center (EC)	19.3
Light Industrial/Flex (LI/FX)	24.2
Light Industrial (LI)	24.2
Heavy Industrial (HI)	23.4
Mixed Land Use Designations	
Village Center Mixed Use (VCMU)	18.6
Residential Mixed Use (RMU)	19.7
Transect Based-Land Use Designations	
General Neighborhood Residential (T3-R)	21.2
Neighborhood Center Low (T3)	20.0
Neighborhood Center Medium (T4)	21.1
Neighborhood Center High (T5)	17.0
Public/Quasi Public and Open Space Land Use Designations	
Parks and Open Space (P/OS)	NA ¹
Resource Management and Conservation (RMC)	NA ¹
Public Services (PS)	19.3
Residential Land Use Designations	
Rural Residential (RR)	25.0
Estate Residential (ER)	22.2
Low Density Residential (LDR)	20.2
Medium Density Residential (MDR)	19.6
High Density Residential (HDR)	18.6
Other Land Use Designations	
Agriculture (AG)	25.2
Study Areas	NA ²
Tribal Trust Lands	NA ³

Note: VMT = vehicles miles traveled. VMT limit is 85% of average base year VMT per service population for parcels with land use designations.

VMT limit is average buildout VMT per service population for parcels with land use designations.

¹ These land use designations are not anticipated to produce substantial VMT, because they have no residents and few to no employees. These land use designations therefore have no limit and are exempt from analysis.

² Lands within the Study Areas shall be analyzed based upon their ultimate land use designation, not the interim "Study Area" designation.

³ Tribal Trust Lands are exempt from VMT analysis as they are not subject to City policy.

Source: City of Elk Grove 2023a.

- ii. **Cumulative for Development Projects in the Existing City** – Development projects within the existing (2020) City limits shall demonstrate that cumulative VMT within the City for a future project would be equal to or less than the established Citywide cumulative limit of 8,039,802 VMT (total daily VMT).

- iii. **Cumulative for Development Projects in Study Areas** – Development projects located in Study Areas shall demonstrate that cumulative VMT within the applicable Study Area would be equal to or less than the established limit shown in Table 6-2 [presented as Table 3.13-2 in this EIR].

Table 3.13-2 Study Area Total Vehicle Miles Traveled Daily Limits

Study Area	VMT Limit (Total VMT at Buildout)
City	8,039,802
North Study Area	27,132
East Study Area	574,028
South Study Area	1,769,671
West Study Area	751,049

Note: Total VMT refers to VMT based on all trips that have one end in a specific location. This is calculated using model origin – destination trip matrix. Fully accounts for entire trip length within SACOG region.

Source: City of Elk Grove 2023a.

- ▶ **Policy MOB-1-2:** Consider all transportation modes and the overall mobility of these modes when evaluating transportation design and potential impacts during circulation planning.
- ▶ **Policy MOB-1-3:** Strive to implement the roadway performance targets (RPT) for operations of roadway segments and intersections, while balancing the effectiveness of design requirements to achieve the targets with the character of the surrounding area as well as the cost to complete the improvement and ongoing maintenance obligations. The Transportation Network Diagram reflects the implementation of the RPT policy at a macro level; the City will consider the specific design of individual segments and intersections in light of this policy and the guidance in the Transportation Network Diagram.

To facilitate this analysis, the City shall use the following guidelines or targets. Deviations from these metrics may be approved by the approving authority (e.g., Zoning Administrator, Planning Commission, City Council).

a) **Vehicular Design Considerations:** The following targets apply to vehicular mobility:

- i. **Intersection Performance** – Generally, and except as otherwise determined by the approving authority or as provided in this General Plan, the City will seek to achieve, to the extent feasible and desired, the peak-hour delay targets identified in [General Plan] Table 6-3.
- ii. **Roadway Performance** – Generally, and except as otherwise determined by the approving authority or as provided in this General Plan, the City will seek to achieve, to the extent feasible and desired, the average daily traffic design targets identified in [General Plan] Table 6-4.
- iii. **Pedestrian and Bicycle Performance** – The City will seek the lowest stress scores possible for pedestrian and bicycle performance after considering factors including design limitations and financial implications.

- ▶ **Policy MOB-3-1:** Implement a balanced transportation system using a layered network approach to building complete streets that ensure the safety and mobility of all users, including pedestrians, cyclists, motorists, children, seniors, and people with disabilities.
- ▶ **Policy MOB-3-2:** Support strategies that reduce reliance on single-occupancy private vehicles and promote the viability of alternative modes of transport.
 - a) **Standard MOB-3-2.a:** Review new development to install conduits for future installation of electric vehicle charging equipment.
- ▶ **Policy MOB-3-3:** Whenever capital improvements that alter street design are being performed within the public right-of-way, retrofit the right-of-way to enhance multimodal access to the most practical extent possible.
- ▶ **Policy MOB-3-4:** As new roads are constructed, assess how the needs of all users can be integrated into the street design based on the local context and functional classification.

- ▶ **Policy MOB-3-5:** Strive to balance needs for personal travel, goods movement, parking, social activities, business activities, and ease of maintenance when planning, operating, maintaining, and expanding the roadway network.
- ▶ **Policy MOB-3-6:** Execute complete streets design in accordance with neighborhood context and consistent with specific guidance in community or area plans, as applicable.
- ▶ **Policy MOB-3-7:** Develop a complete and connected network of sidewalks, crossings, paths, and bike lanes that are convenient and attractive, with a variety of routes in pedestrian-oriented areas.
- ▶ **Policy MOB-3-10:** Design and plan roadways such that the safety of the most vulnerable user is considered first using best practices and industry design standards.
- ▶ **Policy MOB-3-11:** Consider the safety of schoolchildren as a priority over vehicular movement on all streets within the context of the surrounding area, regardless of street classifications. Efforts shall specifically include tightening corner-turning radii to reduce vehicle speeds at intersections, reducing pedestrian crossing distances, calming motorist traffic speeds near pedestrian crossings, and installing at-grade pedestrian crossings to increase pedestrian visibility.
- ▶ **Policy MOB-3-12:** Provide for safe and convenient paths and crossings along major streets within the context of the surrounding area, taking into account the needs of the disabled, youth, and the elderly.
- ▶ **Policy MOB-3-13:** Continue to design streets and approve development applications in a manner that reduces high traffic flows and parking demand in residential neighborhoods.
- ▶ **Policy MOB-4-1:** Ensure that community and area plans, specific plans, and development projects promote context-sensitive pedestrian and bicycle movement via direct, safe, and pleasant routes that connect destinations inside and outside the plan or project area. This may include convenient pedestrian and bicycle connections to public transportation.
- ▶ **Policy MOB-4-2:** Provide on-site facilities and amenities for active transportation users at public facilities, including bicycle parking and/or storage and shaded seating areas.
- ▶ **Policy MOB-4-3:** Prioritize infrastructure improvements that benefit bicycle and pedestrian safety and convenience over vehicle efficiency improvements within and near community facilities, activity centers, and other pedestrian-oriented areas.
- ▶ **Policy MOB-4-5:** Encourage employers to offer incentives to reduce the use of vehicles for commuting to work and increase commuting by active transportation modes. Incentives may include a cash allowance in lieu of a parking space and on-site facilities and amenities for employees such as bicycle storage, shower rooms, lockers, trees, and shaded seating areas.
- ▶ **Policy MOB-5-6:** The City shall work to incorporate transit facilities into new private development and City project designs including incorporation of transit infrastructure (e.g. electricity and fiber-optic cable), alignments for transit route extensions, new station locations, bus stops, and transit patron waiting area amenities (e.g. benches and real-time traveler information screens).
- ▶ **Policy MOB-5-7:** Provide the appropriate level of transit service in all areas of Elk Grove, through fixed-route service in urban areas, and complementary demand response service in rural areas, so that transit-dependent residents are not cut off from community services, events, and activities.
- ▶ **Policy MOB-5-13:** Consider the implementation of traffic signal priority, queue jumps, and exclusive transit lanes to reduce transit passenger delay and improve transit speed, reliability and operating efficiency.
- ▶ **Policy MOB-7-1:** Prioritize roadway improvements that result in appropriate capacity and multiuser facilities on major arterials consistent with the Transportation Network Diagram
 - a) **Standard MOB-7-1.a:** Generally, new roadway construction or road widening shall be completed to the ultimate width as provided in this General Plan and shall also provide required bicycle and pedestrian improvements and paths. However, phased improvements may be allowed based upon the timing of

development and facility demand as determined by the City Engineer or as otherwise provided in this General Plan or an applicable specific plan or other area plan. Regardless, all roadways, pedestrian facilities, and bike routes or bikeways shall be constructed in logical and complete segments, connected from intersection to intersection, to provide safe and adequate access.

- ▶ **Policy MOB-7-4:** Require new development projects to provide funding or to construct roadway/intersection improvements to implement the City's Transportation Network Diagram. The payment of adopted roadway development or similar fees, including the City Roadway Fee Program and the voluntary I-5 Subregional Fee, shall be considered compliant with the requirements of this policy with regard to those facilities included in the fee program, provided the City finds that the fee adequately funds required roadway and intersection improvements. If payment of adopted fees is used to achieve compliance with this policy, the City may also require the payment of additional fees if necessary to cover the fair share cost of facilities not included in the fee program.
- ▶ **Policy NR-4-4:** Promote pedestrian/bicycle access and circulation to encourage residents to use alternative modes of transportation in order to minimize direct and indirect emissions of air contaminants.
- ▶ **Policy NR-4-5:** Emphasize demand management strategies that seek to reduce single-occupant vehicle use in order to achieve State and federal air quality plan objectives.
- ▶ **Policy SAF-1-6:** Require adequate emergency access for new development projects.
- ▶ **Policy SEPA-1-1:** Develop an efficient roadway network across the Plan Area. Major roadways shall continue the street network established by adjacent developments. Local roads should extend the established roadway pattern to the extent feasible.
- ▶ **Policy SEPA-1-2:** Establish protocols for the timing and phasing of roadway improvements that reflect the level of development that is occurring.
 - a) **Standard SEPA-1-2.d:** All roadways, pedestrian facilities, and bike routes or bikeways shall be constructed in logical and complete segments, connecting from intersection to intersection, to provide safe and adequate access with each phase of development as conditioned with the approval of tentative maps.

Livable Employment Community Plan

The intent of development within the Livable Employment Community Plan (LEA) Community Plan Area would be to provide a walkable urban area in the City with a variety of mobility options and neighborhood streets. The LEA Special Planning Area (the LEA Form Based Code) includes requirements related to transportation such as the number of bicycle parking stalls for various land uses and activities, as well as required street sections, which include a variety of pedestrian, bicycle, and vehicular improvements.

City of Elk Grove Transportation Analysis Guidelines

The City of Elk Grove *Transportation Analysis Guidelines* (City of Elk Grove 2023b) establish the protocol for transportation analysis studies and reports based on the current state-of-the-practice in transportation planning and engineering. As detailed above, a project's effect on automobile delay is no longer a consideration when identifying a significant impact under CEQA. Therefore, the portions of the *Transportation Analysis Guidelines* not directly applicable to CEQA are not included in this EIR.

The *Transportation Analysis Guidelines* include guidance for transportation analysis as it pertains to the City General Plan VMT policy significance thresholds (i.e., General Plan Policy MOB-1-1) for CEQA analysis of future projects. The *Transportation Analysis Guidelines* include guidance and requirements for VMT analysis of development projects, including project screening, analysis methodology, significance criteria, impact assessment, and mitigation strategies. The *Transportation Analysis Guidelines* also include guidelines and requirements for multimodal (bicycle, pedestrian, and transit) transportation analysis, hazards related to design, on-site circulation, and construction.

The *Transportation Analysis Guidelines* and City General Plan specify total daily VMT and VMT per service population as the basis for VMT analysis. The following describes these two VMT metrics and their intended use, which implement the policies of the General Plan cited above:

- ▶ **VMT per service population:** Includes the sum of all VMT produced by individual land uses in a project, divided by the sum of total residents living in the project. The VMT per service population metric is used to assess a project against specific land use VMT limits.
- ▶ **Total daily VMT:** Includes the sum of all daily VMT produced by all uses within the City and the applicable Study Area.

The *Transportation Analysis Guidelines* include a VMT Screening Map that identifies areas in the City that are exempt from further VMT analysis. These include sites that have been pre-screened through citywide VMT analysis. Pre-screened areas are shown in white and have been determined to result in 15 percent or below the average service population VMT established for that land use designation if built to the specifications of the Land Use Plan. The *Transportation Analysis Guidelines* also include VMT screening criteria for land use projects. The screening criteria indicates a project is exempt if it is:

- ▶ A project located within ½ mile of an existing major transit stop or an existing stop along a high-quality transit corridor.
- ▶ For projects located within ½ mile of an existing major transit stop, the presumption of less than significant impact would not apply if project-specific or location-specific information indicates that the project will still generate significant levels of VMT. For example, the presumption might not be appropriate if the project:
 - Has a floor area ratio of less than 0.75.
 - Includes substantially more parking for use by residents, customers, or employees of the project than required by the City such that it discourages transit use by making it too convenient to drive.
- ▶ A residential project of <10 dwelling units;
- ▶ A commercial, office, or industrial project of <50,000 square feet;
- ▶ A mixed-use project containing <10 dwelling units and <50,000 square feet of commercial, office, or industrial space;
- ▶ A project that is high density low-income housing on a high-density housing site as designated in the Housing Element (City of Elk Grove 2023b).

Additional details related to the VMT calculation process are included in Appendix E of the *City of Elk Grove Transportation Analysis Guidelines*. The Project does not meet any of the City's VMT screening criteria and requires a VMT analysis.

City of Elk Grove Municipal Code

Chapter 12 of the Elk Grove Municipal Code (EGMC) provides regulations related to street improvements and construction. Chapter 16 provides regulations related to Fire Prevention including the City's adoption of the 2022 California Fire Code. Chapter 22 includes design and improvement standards including those related to roadway network design, and Chapter 23 provides regulations related to bicycle parking design and development standards.

City of Elk Grove Bicycle, Pedestrian, and Trails Master Plan

In May 2021, the City Council adopted the *Bicycle, Pedestrian, and Trails Master Plan* (BPTMP) (City of Elk Grove 2021b). The BPTMP updates the 2014 plan to establish a long-term vision for improving walking, bicycling, and equestrian uses in Elk Grove and identify a short-term action plan of implementable projects, programs, and policies. The BPTMP provides a strategy to develop citywide walking, bicycling, and equestrian networks that provide access between residential neighborhoods, schools, transit, and jobs (City of Elk Grove 2021b). These network improvements are combined with a menu of options for recommended education, encouragement, and evaluation programs to

provide a holistic approach to improving active transportation in Elk Grove. Additionally, the BPTMP identifies a plan to implement these projects and programs through prioritization and phasing to ensure implementation is manageable and achievable.

City of Elk Grove Climate Action Plan

The *City of Elk Grove Climate Action Plan 2019 Update* (CAP) was adopted in February 2019 by the City and was incorporated into the current General Plan. Subsequently, the CAP was updated in December 2019. The CAP includes greenhouse gas emission reduction targets, strategies, and implementation measures developed to help the City reach these targets. The following policies and standards related to transportation are relevant to the CEQA analysis of the Project (City of Elk Grove 2019a).

- ▶ **Measure TACM-3 (Intercity Transportation Demand Management)** focuses on the implementation of transportation demand measure (TDM) strategies to reduce the use of single-occupancy vehicle trips, with a target of achieving a 15-percent reduction in local commute traffic.
- ▶ **Measure TACM-4 (Pedestrian and Bicycle Travel)** focuses on the implementation of the Bicycle, Pedestrian, and Trails Master Plan and increased bicycle parking standards, with a target to integrate pedestrian-oriented design and bicycle parking in new development.
- ▶ **Measure TACM-7 (Traffic Calming Measures)** focuses on increasing the number of streets and intersections that have traffic calming measures, with a target of achieving 25 percent of streets and 25 percent of intersections including traffic calming measures by 2030.

City of Elk Grove Transportation Demand Management Plan Guidelines

To aid the development of transportation demand management (TDM) plans, the City developed the TDM Plan Guidelines (City of Elk Grove 2019b). As detailed in the TDM Plan Guidelines, new nonresidential and mixed-use projects with greater than 50,000 square feet of nonresidential use may be required to develop TDM Plans that promote the use of alternative transportation modes and reduce single-occupancy vehicle trips by employees.

These guidelines identify TDM measures by category that include marketing and promotion, bike facilities, transit benefits, commuter benefits, and parking facilities. The TDM Plan Guidelines outline the requirements for each TDM plan and identify the following for each TDM measure:

- ▶ **Measure Requirements** – describes the transportation amenity being provided, the amount/frequency of the amenity, and the property owner’s responsibilities. Each TDM measure is assigned a point value between 1 and 5. The higher the value, the more effective the measure is at reducing vehicle travel.
- ▶ **Compliance Requirements** – identifies the required actions and obligations of the applicant or property owners for compliance with the TDM measure during the development review phase of a project.
- ▶ **TDM Plan Annual Progress Report** – identifies the annual reporting requirement for the property owners’ TDM coordinator, which includes the number of employees participating in the plan (i.e., by measure) and the commute mode share of employees, along with other performance measures that demonstrate performance.

City of Elk Grove Standard Construction Specifications

The City of Elk Grove Standard Construction Specifications (amended May 17, 2022) provide direction, provisions, and requirements for construction projects in the City of Elk Grove. Section 6 describes Legal Relations and Responsibilities, and Section 12 of the Standard Construction Specifications provides requirements for Construction Area Traffic Control.

City of Elk Grove Improvement Standards

The City of Elk Grove Improvement Standards provide guidance and design standards primarily for the purpose of helping land developers with their subdivision projects. The City of Elk Grove Improvement Standards (amended May 17, 2022) require a five-foot bike lane on minor arterials and an eight-foot sidewalk with new development along minor arterial roadways.

3.13.2 Environmental Setting

This section describes the existing environmental setting, which is the baseline scenario upon which Project-specific impacts are evaluated. The environmental setting for transportation includes baseline descriptions for roadway, bicycle, pedestrian, and transit facilities.

ROADWAY SYSTEM

The roadway network serving the City consists of the following roadway classifications:

- ▶ **Principal arterials:** Principal arterials provide limited access on high-speed roads with a limited number of driveways and intersections. Principal arterials also allow bicycles, and pedestrians may be permitted in limited locations. Principal arterials are generally designed for longer trips at the county or regional level.
- ▶ **Major arterials:** Major arterials provide controlled access for all transportation modes to enter and leave the urban area. In addition, significant intra-area travel, such as between residential areas and commercial or business areas, should be served by this system. Major arterials can include sidewalks for pedestrian connections, linking land uses to transit. They may have street parking or bike lanes. Arterials range in size from two to eight lanes. Major arterials in the rural area are subject to the separate Rural Roads Improvement Standards and may have separate pedestrian pathways, but no sidewalks.
- ▶ **Minor arterials/collectors:** Minor arterials/collectors are two-lane roadways providing access to all transportation modes, with a focus on local access. Pedestrian connections link land uses to local destinations and transit. The right-of-way associated with arterials/collectors may feature medians, parking lanes, and bike lanes. Arterials/collectors in the rural area are subject to the separate Rural Roads Improvement Standards and may have separate pedestrian and multiuse pathways, but no sidewalks, and may have reduced speed requirements. This classification also includes primary and secondary residential streets.
- ▶ **Local roads:** Local roads provide direct access to most properties and provide access to the higher roadway classifications described above. They are generally designed to discourage through traffic. Local roads are typically two lanes and are designed for low vehicle speeds. In the urban area of the City, they include pedestrian sidewalks. In rural areas, there are no sidewalks (City of Elk Grove 2021b).

Access to the Project site is provided by the following key roadways:

- ▶ **SR 99** is a north-south freeway that traverses California and connects Tehama County in the north and Kern County to the south. Near the Grant Line Road interchange, east of the Project site, SR 99 is a six-lane freeway and transitions to four-lanes.
- ▶ **Kammerer Road** is an east-west bi-directional principal arterial that extends from SR 99 to Bruceville Road. Grant Line Road becomes Kammerer Road approximately 0.25 miles after the Grant Line Road/SR 99 interchange. Kammerer Road has six lanes between SR 99 and Lent Ranch Parkway and narrows to a two-lane facility to the west. There are Class II bicycle facilities along the eastern end of Kammerer Road between Promenade Parkway and Lotz Parkway. Sidewalks are also present along approximately 0.75 miles of the northern side of Kammerer Road between Promenade Parkway and Lotz Parkway.
- ▶ **Promenade Parkway** is a northeast-southwest bi-directional six-lane major collector located east of the Project site. Promenade Parkway intersects Kyler Road, Bilby Road, and Kammerer Road. There are sidewalks and Class II bicycle lanes present along both sides of the parkway.
- ▶ **Classical Way** is an east-west bi-directional two-lane local road within the Sterling Meadows subdivision to the east of the Project. Classical Way intersects Lotz Parkway at its western end. As part of the Project, Classical Way would be extended west as a four-lane facility to the future planned B Drive. There are currently no pedestrian or bicycle facilities present.

- ▶ **Lotz Parkway** is a planned arterial roadway that parallels SR 99 from the Elk Grove Automall south to Kammerer Road. Lotz parkway currently exists as an undivided bi-directional two-lane roadway and is planned to expand in stages to a four-lane facility. Lotz Parkway will intersect Kammerer Road at its southern end. There is a sidewalk along the eastern side of the road, and there are no bicycle facilities present.
- ▶ **Kyler Road** is an east-west bi-directional two-lane local road located east of the Project site. Kyler Road intersects with Lotz Parkway which would provide direct access to the Project site. There are sidewalks along each side of the road, and no bicycle facilities are present.
- ▶ **Bilby Road** is an east-west bi-directional four-lane local road located east of the Project site. The western end of Bilby Road intersects with Lotz Parkway which would provide direct access to the Project site. There are sidewalks and Class II bike lanes along each side of the road.
- ▶ **Upbeat Way** is a northwest-east bi-directional two-lane local road located east of the Project site. Upbeat Way intersects with Philharmonic Way to the west and Allegra Drive to the east. There is a sidewalk present on the northern side of the street, and there are no bicycle facilities.
- ▶ **Allegra Drive** is a north-south bi-directional two-lane local road located east of the Project site. Allegra Drive intersects with Upbeat Way and Bilby Road. There is a sidewalk present on the eastern side of the street, and no bicycle facilities are present.
- ▶ **Philharmonic Way** is a north-south bi-directional two-lane local road located east of the Project site. Philharmonic Way intersects with Kyler Road to the north and Upbeat Way to the south. There are sidewalks along each side of the street, and no bicycle facilities are present.

TRANSIT SYSTEM

Prior to July 2021, transit services within the City consisted of the City e-tran fixed-route bus system, operated under contract to the City by Sacramento Regional Transit (SacRT). However, in July 2021, the ownership and operation of the system was transferred (annexed) to Regional Transit, who operates the system in parallel with their mainline regional transit services elsewhere in Sacramento County. SacRT provides fixed-route local and commuter services and maintenance operations for Elk Grove. SacRT also operates a paratransit service called e-van within Elk Grove City limits that addresses federal Americans with Disabilities Act (ADA) requirements for fixed-route service and primarily serves ADA-eligible passengers.

The nearest bus stop to the Project site, which serves the E110 local route, is located near the Kyler Road/Promenade Parkway intersection, approximately 0.45 miles east of the Project site. Local Route E110 provides northbound service from southeast Elk Grove to Cosumnes River College and operates between the hours of approximately 6:15 a.m. and 9:30 p.m. The southbound service from Consumnes River College to southeast Elk Grove operates from approximately 6:45 a.m. and 10:00 p.m. Buses run on approximately 30-minute headways for the majority of the span of service. Hourly service is provided on Saturdays from approximately 7:00 a.m. to 6:00 p.m. Local Route E110 does not operate on Sundays or major holidays.

BICYCLE AND PEDESTRIAN SYSTEM

The bicycle network serving the City consists of the following bicycle facility classifications as described in the BPTMP:

- ▶ **Class I Shared Use Paths:** Class I shared use paths are paved trails completely separate from the street. They allow two-way travel by people walking and bicycling and are considered the most comfortable facilities for children and inexperienced bicyclists as there are few potential conflicts with people driving.
- ▶ **Class II Bicycle Lanes:** Class II bicycle lanes are striped preferential lanes in the roadway for one-way bicycle travel. Some bicycle lanes include a striped buffer on one or both sides of the lane to increase separation from the traffic lane or from parked cars, where people may open doors into the bicycle lane.

- **Class II Bicycle Lanes with Green-Colored Pavement:** Striped lanes for bicyclists that includes green-colored pavement, either as a corridor treatment along the length of a bike lane or in conflict areas.
- **Class II Buffered Bicycle Lanes:** Bicycle lanes that includes a striped “buffer” area either between the bicycle lane and travel lane or between the bicycle lanes and parked cars.
- ▶ **Class III Bicycle Routes:** Class III bicycle routes are signed routes where people bicycling share a travel lane or shoulder with people driving. Because they are shared facilities, bicycle routes are typically appropriate only on quiet, low-speed streets with relatively low traffic volumes.

Some bicycle routes include shared lane markings or “sharrows” that recommend proper bicycle positioning in the center of the travel lane and alert drivers that bicyclists may be present. Others include more robust traffic calming features to promote safety and comfort for people bicycling and are known as “bicycle boulevards.”
- ▶ **Class IV Separated Bikeways:** Class IV separated bikeways are on-street bicycle facilities that are physically separated from motor vehicle traffic by a vertical element or barrier such as a curb, bollards, or vehicle parking aisle. They can allow for one- or two-way travel on one or both sides of the roadway.

As of 2021, the City’s pedestrian and bicycle network consisted of 961.6 miles of sidewalks, 35.2 miles of Class I shared use paths, 91.6 miles of Class II bicycle lanes, 11.2 miles of Class III bicycle routes, and 0.5 miles of Class IV Separated bikeways (City of Elk Grove 2021b: 14, 18). Sidewalks are present throughout the residential subdivisions to the east of the Project site. There are no bicycle or pedestrian facilities along the undeveloped parcel frontages adjacent to Kammerer Road or Lotz Parkway. The City of Elk Grove BPTMP proposes Class II buffered bicycle lanes and Class I multi-use paths along Kammerer Road, south of the Project site. Additionally, the City of Elk Grove Improvement Standards require a five-foot bike lane on arterial roads.

3.13.3 Environmental Impacts and Mitigation Measures

This section describes the analysis techniques, assumptions, and results used to identify potential significant impacts of the Project on the transportation system. Transportation impacts are described and assessed, and mitigation measures are recommended for impacts identified as significant or potentially significant.

METHODOLOGY

The following methodologies were used to evaluate impacts of the Project.

Conflicts with City Circulation System Programs and Policies

The analysis compares consistency of Project transportation operations with City programs and policies set forth in the City General Plan and CAP that address the roadway system and vehicle trip reductions. As detailed above, a project’s effect on automobile delay is no longer a consideration when identifying a significant impact under CEQA; thus, consistency with City General Plan policies related to intersection and roadway performance are not included here. However, the Circulation Study is included as Appendix G and addresses the Project’s impact on intersection and roadway performance and the associated consistency with City General Plan Policy MOB-1-3. The Circulation Study recommends the following contribution as a result of the traffic analysis it conducted:

- ▶ As defined by the City, the Project contributes to additional deficiency at the intersection of Kammerer Road and Promenade Parkway during the Cumulative (2050) scenario, which includes full Project buildout. As the Project is not deemed to create this deficiency (instead it is attributed to robust development south of Kammerer Road anticipated in the future TDM), no improvement or modification is required at this time.

Bicycle and Pedestrian Analysis

The bicycle and pedestrian analysis evaluates whether the Project disrupts existing or planned bicycle or pedestrian facilities or conflicts with adopted City non-auto plans, guidelines, policies, or standards.

Transit Analysis

The transit analysis evaluates whether the Project disrupts existing or planned transit facilities and services or conflicts with adopted City nonauto plans, guidelines, policies, or standards.

VMT Analysis

The City uses VMT per service population and total daily VMT as the basis for VMT analysis. The two VMT metrics and their intended application to project-level VMT analysis are described in Section 3.13.1, "Regulatory Setting."

The City aims to achieve a reduction in VMT and has developed a VMT analysis process for land use projects as described in the following four steps:

- ▶ **Step 1 (Project Type)** – Determine if the project is ministerial or discretionary or if the project is exempt from VMT analysis. Because of the type and operating characteristics of the Project, it exceeds the exemption limits. The Project is not exempt from VMT analysis.
- ▶ **Step 2 (Project Location)** – Determine if VMT analysis is necessary based on project location and determine the project's VMT limit by land use designation. The Project site is not located in a low-VMT area and is not eligible for prescreening based on project location.
- ▶ **Step 3 (Analyze Project VMT)** – Determine the project's VMT and compare it to the VMT limit by land use designation (from Step 2) to determine if VMT mitigation is necessary.
- ▶ **Step 4 (Project VMT Limit Compliance)** – Identify VMT reduction mitigation measures and the significance of VMT impacts with mitigation.

This analysis is based on the VMT Memo prepared by Kimley-Horn (Appendix G). Pursuant to Section 2 of the City's *Transportation Analysis Guidelines*, the Project requires a transportation analysis because of its unique land uses and operating characteristics. Additionally, the Project does not meet the City's VMT screening criteria. Therefore, a VMT analysis for the Project was calculated to determine the Project's VMT impacts.

The City's VMT thresholds were developed using the City's version of SACOG's SACSIM19 model, EGSIM20 (City of Elk Grove model). Because of the unique nature of the Project, the City of Elk Grove model does not include an analogous land use category that can reasonably represent the Project's trip generation and trip distribution characteristics. Additionally, the *Transportation Analysis Guidelines* and General Plan do not provide specific guidance on the use of an alternative VMT methodology that does not include the use of the Elk Grove model. Therefore, an off-model methodology was used to estimate Project VMT and threshold criterion. Consistent with the OPR guidance (OPR 2018), Project VMT was analyzed using a net change significance criterion comparing the regional VMT under existing conditions (operation of the Sacramento Zoo) to Project conditions (operation of the New Zoo). A significant impact would occur if the Project would result in a net increase in regional VMT when compared to the existing baseline.

The methodology and significance criterion used to evaluate the Project VMT are consistent with the methods described in Table 10, "VMT Methods," and Table 11, "VMT Metrics" (City of Elk Grove 2023b) of the *Transportation Analysis Guidelines* in that the analysis:

- ▶ forecasts VMT based on all the trips that have one end in the Project location,
- ▶ calculates trips based on the product of number of trips and their respective trip length,
- ▶ includes all Project trip types both external and internal to the City,
- ▶ provides a full accounting of trip length,
- ▶ reports total daily VMT for the purpose of assessing the Project against a total limit, and
- ▶ analyzes the short-term VMT impacts expected when the Project opens (Kimley-Horn 2023b: 2).

Average daily trip length, number of trips, and VMT for the Project were calculated by:

- ▶ developing a distribution of the share of an existing representative sample of annual zoo visitors and the distance from their home zip code to the Sacramento Zoo, calculated in 5-mile increments;
- ▶ redistributing existing zoo visitors to new home zip codes based on the 5-mile increment distribution and New Zoo Project location in Elk Grove;
- ▶ determining the driving distance between the new home zip code and the Project site for each patron and employee within the redistributed representative sample using TransCAD shortest path algorithms and directly proportioning visitors assigned to each zip code within each 5-mile bin based on the inverse distance from the visitors'/employees' new zip code to the Project location;
- ▶ using Sacramento Zoo trip length and annual visitor data to develop a relationship to predict the number of times a zoo patron would visit based on the distance they live from the zoo and using this regression equation to assign the number of zoo visits to each patron from the redistributed representative annual sample;
- ▶ scaling the total number of the estimated visits from the redistributed representative population to represent the average daily visits to the New Zoo holding the total number of annual visitors constant between the Sacramento Zoo and Project conditions;
- ▶ calculating the weighted average trip length of the visitors and employees; and
- ▶ multiplying twice the average trip length by the average daily visits to determine total daily VMT.

The difference in total daily VMT between existing conditions (operation of the existing Zoo in Land Park) and Project conditions (New Zoo in Elk Grove), under Phase 1 (opening year) and future phases (full buildout) was used to assess any impacts caused by the Project. See Appendix G for the detailed VMT methodology.

Transportation Hazards and Emergency Access Analysis

This analysis evaluates whether the Project operations could create transportation hazards or inadequate emergency access from Project site design. This analysis is based on the Circulation Study (Appendix G).

THRESHOLDS OF SIGNIFICANCE

The significance criteria used to evaluate Project impacts on transportation under CEQA are based on Appendix G of the State CEQA Guidelines, as well as thresholds of significance adopted in the City General Plan and the *Transportation Analysis Guidelines*. The following significance criteria were used to identify Project-specific impacts on the transportation and circulation system for the Project.

Bicycle and Pedestrian Facilities

An impact on bicycle and pedestrian facilities would be significant if implementation of the Project would:

- ▶ disrupt existing or planned bicycle facilities or conflict with adopted City nonauto plans, guidelines, policies, or standards;
- ▶ add trips to an existing transportation facility or service (e.g., bike path) that does not meet current design standards;
- ▶ degrade the Bicycle Streetscore LTS ("Bicycle LTS" [level of traffic stress] refers to the comfort associated with operating bicycles along roadways or the mental ease people experience while riding on them. Bicycle LTS criteria establish a "weakest link" approach because roadways are classified based on their segments with the highest LTS, assuming that only those bicyclists who are comfortable riding under the higher stress would travel on that road.);
- ▶ fail to provide accessible and safe pedestrian connections between buildings and to adjacent streets and facilities;
- ▶ disrupt existing or planned pedestrian facilities or conflict with adopted City nonauto plans, guidelines, policies, or standards;

- ▶ add trips to an existing transportation facility or service (e.g., bike path or sidewalk) that does not meet current design standards; or
- ▶ degrade the Pedestrian Streetscore LTS (“Pedestrian LTS” refers to the pedestrian comfort associated with a roadway or intersection).

Transit Facilities

An impact on transit facilities would be significant if implementation of the Project would:

- ▶ create demand for public transit services above the crush load capacity that is provided or planned or
- ▶ disrupt existing or planned transit facilities and services or conflict with adopted City non-auto plans, guidelines, policies, or standards.

VMT

An impact on VMT would be significant if implementation of the Project would:

- ▶ result in a net increase in total VMT under Phase 1 or future phase scenarios, as detailed in the “Methodology” section.

Transportation Hazards Related to a Geometric Design Feature or Incompatible Uses

An impact on transportation hazards related to a geometric design feature would be significant if implementation of the Project would:

- ▶ result in designs for on-site circulation, access, and parking areas that fail to meet City or industry standard design guidelines or
- ▶ fail to provide adequate accessibility for heavy vehicles on-site.

Emergency Access

An impact on emergency access would be significant if implementation of the Project would:

- ▶ result in inadequate emergency access.

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Impact 3.13-1: Result in Impacts on Bicycle, Pedestrian, and Transit Facilities and City Policies

The Project includes the implementation of off-site bicycle and pedestrian facilities along the Project frontage on Road B, on Lotz Parkway, and along the northern perimeter of the Project site consistent with the City of Elk Grove General Plan, BPTMP, and Improvement Standards. The Project would be designed to accommodate future transit service extensions. Additionally, the Project would not permanently alter the physical transportation network external to the Project site such that the bus stops serving these routes would be adversely affected. The impact on bicycle, pedestrian, and transit facilities would be **less than significant**.

Bicycle and Pedestrian Facilities

Various pedestrian and bicycle facilities would be constructed as part of the Project. The New Zoo would include several pedestrian paths to facilitate internal Project site circulation, including navigation through the parking areas. Designated pedestrian paths through and designated access points to the New Zoo would allow for efficient pedestrian circulation on the Project site. Additionally, the Project would include off-site pedestrian improvements. A new Class I bicycle and pedestrian trail would be located along the west side of Lotz Parkway from Shed C channel to Classical Way and then would follow Classical Way to the entrance of the New Zoo (see Figure 2-20, “Proposed Bicycle and Pedestrian Facilities”). Construction of these pedestrian pathways would allow pedestrian access to and throughout the Project site consistent with City standards.

The Project would provide multiple points of access. However, the main point of entry for guests visiting the New Zoo would be from Classical Way. Additional access to the Project site for employees would be provided by Kammerer Road, Lotz Parkway, and a new roadway, referred to as B Drive (see Figure 2-15, "New Zoo Perimeter Gates"). There are Class II bicycle facilities along the eastern end of Kammerer Road between Promenade Parkway and Lotz Parkway and along Bilby Road east of the Project site. Additionally, there is a Class I shared use path located on the eastern side of Lotz Parkway (Kimley-Horn 2023a: 40). These existing pathways would provide access to the Project site.

No bicycle or pedestrian facilities are present along the undeveloped parcel frontages adjacent to Kammerer Road or Lotz Parkway. However, as detailed in Chapter 2, "Project Description," the Project would include the implementation of a Class IV separated bikeway, as well as a separate pedestrian sidewalk along the east side of B Drive from the Shed C Channel to the New Zoo entrance. A Class I shared use path would be constructed along the west side of Lotz Parkway from Shed C channel to Classical Way and then would follow Classical Way to the entrance of the New Zoo. The proposed bicycle facilities would increase access to the site (see Figure 2-20, "Proposed Bicycle and Pedestrian Facilities"). Bicycle facility improvements would conform to applicable design standards in the BPTMP and City Improvement Standards, in compliance with the City Improved Standards Policy 4-18 (City of Elk Grove 2022a: 36). Additionally, consistent with the City General Plan Policies MOB-3-3 and MOB-4-2, Climate Action Plan Measure TACM-4, and Section 23.58.100 of the EGMC, the Project would provide 120 bicycle parking stalls and two bicycle parking areas on the site. These improvements would further promote bicycle access to the Project site.

The BPTMP proposes the construction of a Class I shared use path and a Class II buffered bicycle lane along the segment of Kammerer Road that extends from the SR 99 interchange to Bruceville Road (City of Elk Grove 2021b: Figure 12). The Project does not propose development of bicycle facilities along the Project site frontage of Kammerer Road; however, the 34-mile Capital SouthEast Connector Project is in progress and would provide a regional bicycle and pedestrian connection via Kammerer Road (City of Elk Grove 2021b). The Capital SouthEast Connector Project includes a bidirectional Class I shared use path along the northern extent of Kammerer Road and Class II bicycle lanes in both directions, consistent with the BPTMP (Caltrans 2023: 138). The Project would provide additional pedestrian and bicycle access to the site, and future development of pedestrian and bicycle facilities near the site is anticipated as part of the Capital SouthEast Connector Project. Therefore, the Project would not conflict with the planned bicycle facilities or adopted City active transportation plans, guidelines, policies, or standards.

Transit Service

SacRT operates Bus Route 110, which has stops approximately 0.45 mile east of the Project site. The Project would not permanently alter the physical transportation network external to the Project site such that the bus stops serving Route 110 would be adversely affected. Additionally, a light rail extension to the Project site has been conceptualized as part of previous City initiatives, although the connections would likely not be part of the transit network at the time of the New Zoo opening (Kimley-Horn 2023a: 40).

The design of the main entrance curb to the New Zoo could potentially facilitate the extension of public transit services to the Project site in the future by reserving sufficient right of way for bus access and pick up/drop off of passengers (Kimley-Horn 2023a: 41). The Project's general hours of operations are expected to be 9:00 a.m. to 9:00 p.m. The Project could increase demand for transit ridership during opening hours of the New Zoo. However, the uses associated with the New Zoo would not add a substantial number of riders during peak commute times when transit has higher ridership. Therefore, the SacRT bus system has sufficient capacity to accommodate the additional riders anticipated to be generated by the Project. Furthermore, according to the OPR *Technical Advisory on Evaluating Transportation Impacts in CEQA*, "when evaluating impacts to multimodal transportation networks, lead agencies generally should not treat the addition of new transit users as an adverse impact" (OPR 2018: 19).

Therefore, the Project would not create demand for public transit services above the crush load capacity of the transit system; would not disrupt existing or planned transit facilities and services; and would not conflict with adopted City transit plans, guidelines, policies, or standards.

Summary

The Project includes the construction of bicycle and pedestrian facilities along the Project frontage consistent with the City General Plan, BPTMP, and Improvement Standards. Additionally, the Project would not adversely affect any

existing or planned bicycle facilities or transit stops in the vicinity of the Project site, and it involves the implementation of a transit center along Kammerer Road south of the Project site. The impact on bicycle, pedestrian, and transit facilities would be **less than significant**.

Mitigation Measures

No mitigation is required.

Impact 3.13-2: Result in an Exceedance of City of Elk Grove General Plan VMT Thresholds

Full buildout of the Project would result in an estimated net increase of 30,040 daily VMT when compared to VMT from the existing Sacramento Zoo in Land Park. The net increase in VMT would result in a significant impact as it could conflict with the Citywide cumulative limit of 8,039,802 VMT under General Plan Policy MOB-1-1.

Implementation of Mitigation Measures 3.13-2a and 3.13-2b would require the New Zoo to subsidize employee transit and provide a local transit stop. However, implementation of these mitigation measures would not reduce the total daily VMT to below VMT from the existing Sacramento Zoo. Therefore, the Project's impact to VMT with would be **significant and unavoidable**.

Upon opening of the New Zoo, the exiting Sacramento Zoo would close, and animals would be transported to the New Zoo while others would be transported to other Association of Zoos and Aquariums (AZA) accredited zoos. CEQA Guidelines Section 15064.3(b) identifies four criteria for analyzing the transportation impacts of a project. Relevant to calculating trips is Section 15064.3, subdivision (a), which states, "For the purposes of this section, 'vehicle miles traveled' refers to the amount and distance of automobile travel attributable to a project." Here, the term "automobile" refers to on-road passenger vehicles, specifically cars and light trucks (OPR 2018). Heavy-duty truck VMT could be included for modeling convenience and ease of calculation (for example, where models or data provide combined auto and heavy truck VMT), but need not be. Therefore, larger on-road vehicles that would be used for the transport of animals and do not fall within the categories of cars and light trucks do not need to be considered in calculations of trips or VMT. Even so, these types of trips would be intermittent and infrequent nature and would only occur once as the animals are transferred from the existing Sacramento Zoo upon its closure. Additionally, the number of new operational vehicle trips and trip lengths associated with animal transport cannot be precisely predicted at this time nor are they expected to substantially contribute to the Project's overall operational VMT.

Furthermore, SB 743's intention is to better promote Statewide policies that combat climate change by reducing greenhouse gas emissions and particulates; encourage infill development and a diversity of land uses instead of sprawl; and promote multi-modal transportation networks by reducing the time and cost for projects that allow California residents to drive less. Thus, for the reasons stated above, and because trips and VMT associated with the transport of animals between the Sacramento Zoo and the New Zoo or other AZA-accredited zoos does not meet the overall purpose of SB 743 which intends to reduce driving from passenger vehicles, it is not evaluated herein.

Average daily visitor, average daily employee, and total daily VMT for full buildout of the Project are shown in Table 3.13-3. As the New Zoo expands, employment would increase from approximately 150 employees to a total of 300 employees at full buildout. The addition of employees would result in an increase in daily employee VMT of 3,866. Additionally, it can be assumed that a proportional increase in attendance would follow during future phases and that daily visitor VMT would increase by 26,174 as compared to VMT to the existing Sacramento Zoo in Land Park.

Table 3.13-3 Existing Zoo and Project Future Phases Daily VMT

Scenario	Daily Visitor VMT	Daily Employee VMT	Total Daily VMT
Existing Sacramento Zoo	10,686	3,485	14,171
New Zoo Full Buildout	36,860	7,351	44,211
Expected Increase in Net VMT	26,174	3,866	30,040

Note: VMT = vehicle miles traveled

Source: Kimley-Horn 2023b.

As shown in Table 3.13-3, the estimated net increase of total daily VMT resulting from implementation of future phases would be 30,040VMT, or a 212-percent increase of net total daily VMT as compared to VMT from the Sacramento Zoo (existing conditions). As described in the “Methodology” section, an increase in VMT over existing conditions would result in a potential impact and could conflict with the Citywide cumulative limit of 8,039,802 VMT under General Plan Policy MOB-1-1. The Project would be required to implement Mitigation Measures 3.13-2a and 3.13-2b to reduce Project VMT. However, required mitigation would not be sufficient to reduce net daily VMT below existing conditions. The Project would result in an increase of net daily VMT with implementation of Mitigation Measures 3.13-2a and 3.13-2b, and the impact would be **significant and unavoidable**.

Mitigation Measures

Mitigation Measure 3.13-2a: Subsidize Transit for New Zoo Employees

The New Zoo shall provide a subsidized or discounted transit program to provide free transit passes (or reimburse for transit passes) for employees when requested by the employee.

Mitigation Measure 3.13-2b: Provide a Local Transit Stop:

The New Zoo, in coordination with the City and SacRT, shall construct a bus stop within the immediate vicinity of the Project site, allowing the extension of SacRT bus services to the Project. The Project applicant shall coordinate with SacRT to ensure that the transit stop is located and designed in accordance with applicable design and safety standards. The applicant shall coordinate with SacRT on the implementation of the service extension.

Significance after Mitigation

Table 3.13-4 presents the most recent (2021) California Air Pollution Control Officers Association (CAPCOA) *Handbook for Analyzing GHG Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity* (Handbook) measures for reducing greenhouse gas emissions within the transportation sector. Most of the measures quantified in the CAPCOA Handbook aim to reduce VMT and encourage mode shifts from single-occupancy vehicles to shared (e.g., transit) or active modes of transportation (e.g., bicycle) (CAPCOA 2021). As shown in Table 3.13-4, all transportation measures that are applicable or feasible given the implementation scale, nature of the Project, and/or limited jurisdictional authority of the Project applicant to implement are required and included as mitigation measures.

Table 3.13-4 Transportation Sector Measures to Reduce VMT

	VMT Reduction Measure	Maximum Potential VMT Reduction	Feasible/Applicable to the Project?	Notes
T-1	Increase Residential Density	30% from project VMT	NA	The Project does not include residential uses.
T-2	Increase Job Density	30% from project VMT	NA	This measure is a communitywide strategy and is not applicable.
T-3	Provide Transit-Oriented Development	31% from project VMT	NA	The Project is not a residential or office project.
T-4	Integrate Affordable and Below Market Rate Housing	28.6% from project/site multifamily residential VMT	NA	The Project does not include residential uses.
T-5	Implement Commute Trip Reduction Program (Voluntary)	4% from project/site employee commute VMT	Yes	See Mitigation Measure 3.13-2a.
T-6	Implement Commute Trip Reduction Program (Mandatory Implementation and Monitoring)	26% from project/site employee commute VMT	No	The Project’s number of employees (i.e., up to 300 employees, including seasonal) too small for implementation. ¹
T-7	Implement Commute Trip Reduction Marketing	4% from project/site employee commute VMT	No	The Project’s number of employees (i.e., up to 300 employees, including seasonal) too small for implementation. ¹

	VMT Reduction Measure	Maximum Potential VMT Reduction	Feasible/Applicable to the Project?	Notes
T-8	Provide Ridesharing Program	8% from project/site employee commute VMT	No	The Project's number of employees (i.e., up to 300 employees, including seasonal) too small for implementation. ¹
T-9	Implement Subsidized or Discounted Transit Program	5.5% from employee/resident	Yes	See Mitigation Measure 3.13-2a.
T-10	Provide End-of-Trip Bicycle Facilities	4.4% from project/site employee commute VMT	Yes	End-of-Trip bicycle facilities would be provided as part of the Project. See Chapter 2, "Project Description."
T-11	Provide Employer-Sponsored Vanpool	20.4% from project/site employee commute VMT	No	The Project's number of employees (i.e., up to 300 employees, including seasonal) too small for implementation. ¹
T-12	Price Workplace Parking	20% from project/site employee commute VMT	No	The Project's number of employees (i.e., up to 300 employees, including seasonal) too small for implementation. ¹
T-13	Implement Employee Parking Cash-Out	12% from project/site employee commute VMT	No	The Project's number of employees (i.e., up to 300 employees, including seasonal) too small for implementation. ¹
T-14	Provide Electric Vehicle Charging Infrastructure	—	NA	This measure does not affect VMT.
T-15	Limit Residential Parking Supply	13.7% from residences' VMT	NA	The Project does not include residential uses.
T-16	Unbundle Residential Parking Costs from Property Cost	15.7% from project VMT	NA	The Project does not include residential uses.
T-17	Improve Street Connectivity	30% from vehicle travel in the plan/community	Yes	The Project would include improvements to Lotz Parkway, Kammerer Road, and Classical Drive, improving street connectivity. See Chapter 2, "Project Description."
T-18	Provide Pedestrian Network Improvement	6.4% from vehicle travel in the plan/community	Yes	Pedestrian facility improvements would be provided as part of the Project. See Chapter 2, "Project Description."
T-19-A	Construct or Improve Bike Facility	0.8% VMT from vehicles on parallel roadways	Yes	Bicycle facility improvements would be provided as part of the Project. See Chapter 2, "Project Description."
T-19-B	Construct or Improve Bike Boulevard	0.2% from vehicles on roadway	Yes	Bicycle facility improvements would be provided as part of the Project. See Chapter 2, "Project Description."
T-20	Expand Bikeway Network	0.5% from vehicles on roadway	Yes	Bicycle facility improvements would be provided as part of the Project. See Chapter 2, "Project Description."
T-21-A	Implement Conventional Carshare Program	0.15% from vehicle travel in the plan/community	No	This is a plan/communitywide strategy and is not feasible.
T-21-B	Implement Electric Carshare Program	VMT reduction not quantified—see CAPCOA handbook	No	This is a plan/communitywide strategy and is not feasible.
T-22-A	Implement Pedal (Non-Electric) Bikeshare Program	0.2% from vehicle travel in the plan/community	No	This is a plan/communitywide strategy and is not feasible.

	VMT Reduction Measure	Maximum Potential VMT Reduction	Feasible/Applicable to the Project?	Notes
T-22-B	Implement Electric Bikeshare Program	0.06% from vehicle travel in the plan/community	No	This is a plan/communitywide strategy and is not feasible.
T-22-C	Implement Scootershare Program	0.07% from vehicle travel in the plan/community	No	This is a plan/communitywide strategy and is not feasible.
T-23	Provide Community-Based Travel Planning	2.3% from vehicle travel in the plan/community	No	The Project does not include residential uses. This measure applies to residences.
T-24	Implement Market Price Public Parking (On-Street)	30% from vehicle travel in the plan/community	No	This is a plan/communitywide strategy and is not feasible.
T-25	Extend Transit Network Coverage or Hours	4.6% from vehicle travel in the plan/community	No	The City does not have jurisdiction over the operation of transit service.
T-26	Increase Transit Service Frequency	11.3% from vehicle travel in the plan/community	No	The City does not have jurisdiction over the operation of transit service.
T-27	Implement Transit-Supportive Roadway Treatments	0.6% from vehicle travel in the plan/community	Yes	A transit center would be provided as part of the Project. See Chapter 2, "Project Description." See Mitigation Measure 3.13-2b.
T-28	Provide Bus Rapid Transit	13.8% from vehicle travel in the plan/community	No	The City does not have jurisdiction over the operation of transit service.
T-29	Reduce Transit Fares	1.2% from vehicle travel in the plan/community	No	The City does not have jurisdiction over the operation of transit service.
T-30	Use Cleaner-Fuel Vehicles	—	No	This measure does not affect VMT.
T-31 ²	Increase Vehicle Occupancy of Visitors	11.6% from vehicle travel to the site	No	This measure does not have a feasible method for enforcement.

Notes: NA = not applicable; VMT = vehicle miles traveled

¹ These commute reduction measures would not be feasible for the Project due to the number of employees proposed for the New Zoo, geographic distribution of employee residences, and employee schedules. The 300 employees for the New Zoo would reside throughout the Sacramento region and would not be concentrated in a single area that would be advantageous for carpooling or other similar measures. Employee schedules would not be conducive to commute reduction measures because employees have varied work schedules depending on their role at the New Zoo. For example, some employees would have an earlier morning shift, others would have a mid-day shift, and some would work overnight at the site.

² Although not a CAPCPA measure T-31 is included in to show infeasibility of increasing vehicle occupancy to reduce VMT. This measure would require either preferred parking for carpooling or, in the event of a paid-parking system, a free or reduced rate for carpooling. This measure would not be feasible as it would either require some form of documentation to verify that passengers in a vehicle were from multiple households (which would not be possible in the case of a vehicle with one parent chaperone and children from multiple households) or would impact a revenue opportunity to support construction of the Project.

Source: CAPCOA 2021.

A description of the individual effects of each mitigation measure's impact on VMT reduction is provided below. Although the information on the potential reduction in VMT from each measure is provided, it should be noted that the VMT-reducing benefits of implementing each measure are considered the maximum VMT benefit and are not additive when multiple measures are applied. There may be diminishing returns when certain measures are implemented together to reduce VMT. For each measure applied, it is likely that a lesser effect would be observed (CAPCOA 2021: 36). VMT reduction measures listed in Table 3.13-4 that are included as part of the Project design have been incorporated into the Project daily VMT.

- **Mitigation Measure 3.13-2a: Subsidize Transit for New Zoo Employees for New Zoo Employees:** The implementation of subsidized or discounted transit would result in an estimated up to 5.5-percent employee VMT reduction. Reducing the out-of-pocket costs for choosing transit improves the competitiveness of transit against driving, increasing the total number of transit trips and decreasing vehicle trips. This decrease in vehicle trips results in reduced VMT.

- ▶ **Mitigation Measure 3.13-2b: Provide a Local Transit Stop:** The implementation of a bus stop, in combination with incentives to travel to the Project site by transit, such as a reduced cost to use transit, would potentially reduce the number of vehicle trips to and from the Project site. A 10-percent nonauto mode split would result in a 7.6-percent reduction in Project VMT, which would reduce the identified significant impact to less than significant under opening year conditions but would not reduce the Project VMT impact under the full buildout scenario (Kimley-Horn 2023b: 6).

The implementation of Mitigation Measures 3.13-2a and 3.13-2b would reduce average daily visitor VMT and employee VMT, which would reduce the total daily VMT generated by the Project. However, there is no additional feasible mitigation available to reduce net Project VMT by 162 percent to below existing VMT conditions from the existing Sacramento Zoo. Although the addition of a local transit stop within the immediate vicinity of the Project site, in combination with reduced transit fares, could result in an additional 6-percent reduction in Project VMT, it cannot be guaranteed that maximum reductions of VMT would be reached with implementation of the mitigation. Therefore, even with the implementation of Mitigation Measures 3.13-2a and 3.13-2b, the impact on VMT would be **significant and unavoidable**.

Impact 3.13-3: Substantially Increase Hazards Due to a Geometric Design Feature or Incompatible Uses

The Project would involve the construction and operation of a zoological park and associated off-site roadway and circulation improvements. It would be subject to, and constructed in accordance with, applicable roadway design and safety guidelines. Because the Project could increase safety hazards related to increased queueing and vehicular activity during the Project's opening month, implementation of Mitigation Measure 3.13-3 would require the Project applicant to develop and implement a traffic management plan to address increased queueing anticipated during the New Zoo's opening month and special events and to optimize safe and efficient travel for pedestrians, bicyclists, and vehicles. Implementation of this mitigation measure would reduce this impact to **less than significant**.

Construction

The effects of Project construction as they relate to transportation safety hazards would be temporary. Project construction activities are expected to occur in phases over approximately the next 20 years. Construction of Phase 1 is anticipated to begin in summer 2025 and last approximately 36 months. As described in Chapter 2, "Project Description," Project construction would generally occur 5–6 days per week Monday through Saturday from 7:00 a.m. to 7:00 p.m. to comply with Sections 6.32.100.E and 6.32.140.A of the EGMC. Therefore, during this time, construction activities, such as the implementation of off-site roadway improvements and the movement of heavy vehicles in the vicinity of the Project site, could result in increased transportation hazards.

The Project would include the construction of a new two-lane street, referred to as B Drive, that would extend south from the Souza Dairy project across Shed C toward Kammerer Road. The Project would also involve several intersection improvements along Lotz Parkway, including the conversion of the intersection of Lotz Parkway and Classical Way to a roundabout, the construction of an intersection and signal at Lotz Parkway and Overture Drive to add the service driveway into the Project site, modification of the intersection and signal at Lotz Parkway and Bilby Road, and modification of Lotz Parkway to add an unprotected left-turn movement into the Project site just south of the Shed C crossing. The Project would also include partial improvements at the intersection of B Drive and Kammerer Road, allowing for right-turn access to and from Kammerer Road. Intersection improvements and modifications during Project construction would have the potential to increase hazards related to the movement of construction equipment and/or potential lane closures, which could result in conflicts between vehicles and alternative modes of transportation.

Although there is potential for increased transportation safety concerns during Project construction, intersection and driveway improvements would comply with applicable City of Elk Grove Standard Construction Specifications (2022) and Improvement Standards. Additionally, the Project would be required to meet all City requirements related to construction activities, including provisions set forth in the City Standard Construction Specifications. Section 6-13, "Public Safety and Traffic Control," of the Standard Construction Specifications identifies policies and safety standards

that are the responsibility of the Project contractor, including maintaining emergency access, safe movement of construction equipment entering and leaving the Project site, and traffic controls and signage during construction. Implementation of these construction practices would ensure safe movement of automobiles and pedestrians during construction, reducing traffic construction hazards. Additionally, Section 6-14.02 of the Standard Construction Specifications, "Traffic Control Plans," requires contractors to develop and submit a traffic control plan to the City for review before the start of Project construction to demonstrate that appropriate traffic control measures would be used for vehicles, bicyclists, and pedestrians affected by construction (City of Elk Grove 2022b: 55). Therefore, the Project is not anticipated to substantially increase hazards during construction activities. This impact would be **less than significant**.

Operations

Access to the Project site would be provided from Kammerer Road, Lotz Parkway, Classical Way, and B Drive. The main point of entry for guests would be provided from both Classical Way and B Drive. Employee access to the Project site would be provided via Lotz Parkway.

All roadway and access improvements associated with development of the Project would be subject to, and constructed in accordance with, applicable City and industry standard roadway design and safety guidelines. Additionally, all intersections and driveways along existing and proposed roadways would be required to provide adequate sight distance in accordance with City Improvement Standards Section 4-8. Furthermore, the Project would be subject to City review processes, which would ensure that the Project design would comply with all applicable design standards related to transportation safety. Any off-site improvements associated with the Project would be subject to review by City staff and required to meet all applicable roadway design standards.

The Project is anticipated to result in peak visitation during the opening month and large events. Modest amounts of queuing are anticipated during these times. Spillback beyond the provided queuing storage during opening weekend and opening month is anticipated and may increase safety hazards for guests navigating in and around the Project site (Kimley-Horn 2023a: 36). Queueing impacts are anticipated to include spillback from the main entrance gates onto Classical Way and from Classical Way through the adjacent Lotz Parkway intersections (Kimley-Horn 2023a: 38). Queueing that extends into surrounding intersections would disrupt pedestrian, bicycle, and vehicular movement and potentially increase conflicts between vehicles, bicyclists, and pedestrians. Additionally, drivers may use nearby residential streets for parking and alternative circulation routes, increasing the opportunity for transportation conflicts in the neighborhoods surrounding the Project site. Mitigation Measure 3-13.3 would require preparation and implementation of a traffic management plan for the opening month and special events to facilitate vehicular navigation in the vicinity of the Project site and optimize safe and efficient circulation for pedestrians, bicyclists, and vehicles. The City would review the traffic management plans to ensure that safe movement is maintained for all modes of transportation during the opening month and special events. This impact would be **less than significant**.

Summary

The Project would be required to follow all City and industrywide safety standards and regulations related to construction activities, including those specified in the City of Elk Grove Standard Construction Specifications Manual. Additionally, the Project contractor would be required to prepare a traffic control plan that would be approved by the City before construction to reduce transportation-related hazards during construction. Project design would be required to meet local design standards, and Project plans would be subject to review by City staff to ensure that the applicable design standards and regulations are met to minimize transportation hazards during operations. Although the Project would be designed to meet City standards, the Project could result in substantial queuing in the vicinity of the Project site during the opening month and large events. Substantial queuing during these events could disrupt bicycle, pedestrian, and vehicular movement, increasing the potential for safety hazards. Mitigation Measure 3.13-3 would require preparation and implementation of traffic management plans to reduce transportation hazards during events. This impact would be **less than significant**.

Mitigation Measures

Mitigation Measure 3.13-3: Prepare and Implement Traffic Management Plans for the Opening Month and Special Events

The New Zoo shall be responsible for preparing a traffic management plan (TMP) and providing it to the City for approval by the Public Works Director (or their designee) before opening day/weekend or other special events occurring at the New Zoo that may result in queuing spillover. The TMP shall include specific interventions for traffic conditions associated with the New Zoo opening and any other special events determined to warrant a TMP. The New Zoo shall be responsible for implementing the interventions to which the Public Works Director has agreed. All traffic controls shall be installed in accordance with the California Manual on Uniform Traffic Control Devices and applicable City regulations. At a minimum, the TMP shall include the following strategies:

- ▶ Flaggers shall be provided to control traffic when necessary or requested by the City in compliance with Section 6-13.06 of the City's Standard Construction Specifications 2022 or latest equivalent (City of Elk Grove 2022b: 52).
- ▶ Changeable Message Signs shall display one or more alternating messages along likely patron access routes to broadcast up-to-date information regarding desired routing. The signs shall be in place no less than 72 hours before the date of the event or 5 business days in advance of a detour and shall remain in place for the duration of the event in compliance with Section 12-3.02 of the City's Standard Construction Specifications 2022 or latest equivalent (City of Elk Grove 2022b: 103).
- ▶ Wayfinding strategies, including permanent and temporary signs, shall be implemented to provide directions on access to the New Zoo for pedestrians, bicyclists, and vehicles.
- ▶ Emergency access shall be maintained at all times, and emergency apparatus routes during the opening month and special events shall be reviewed by the City's emergency service department for approval.

Significance after Mitigation

Less than significant.

Impact 3.13-4: Result in Inadequate Emergency Access

The Project would be required to meet standards and regulations identified in the 2022 California Fire Code as adopted by the City of Elk Grove, including provisions related to maintaining emergency access during construction and operations. Additionally, the Project design would be subject to review by City emergency services and responsible agencies, ensuring that the Project would be designed to meet all applicable emergency access design standards. Implementation of Mitigation Measure 3.13-3 to address substantial queuing during the opening month and special events would reduce this impact to **less than significant**.

Construction

As discussed for Impact 3.13-3, pursuant to Section 6-14.02 of the EGMC, the Project contractor would be required to submit a traffic control plan to the City that demonstrates safe traffic handling for all modes of transportation during construction activities. Additionally, the contractor would be required to follow all safety protocols during construction as detailed in the City of Elk Grove Standard Construction Specifications. This would include Section 6-13.03, which states that uninterrupted passage of emergency vehicles through the work zone shall be provided regardless of the controlled traffic conditions in place at the time (City of Elk Grove 2022b: 51). Therefore, the Project is not anticipated to result in inadequate emergency access during construction.

Operations

The Project site would have six vehicle gates for entry into the New Zoo facilities. Gate 1, located along Lotz Parkway at the northeast corner of the Project site, would serve as an emergency entrance/exit. Additionally, the proposed drive aisle around the perimeter of the New Zoo, which would be used for deliveries and distribution (see Figure 2-16), would allow emergency vehicles further access to the site. As detailed in the discussion of Impact 3.13-3, the Project would be designed in accordance with City design standards established in the Improvement Standards

Manual. Additionally, the Project would be required to comply with the 2022 California Fire Code as adopted by reference in the EGMC, Section 17.04.010. Appendix D of the 2022 California Fire Code provides additional requirements for fire apparatus access roads, including minimum dimensions to allow for adequate access and turning radii for emergency vehicles accessing the Project site during operations. Additionally, the Project would be subject to review by the City's emergency services and responsible agencies, ensuring that the Project is equipped to provide adequate access for emergency responders. Furthermore, Mitigation Measure 3.13-3, detailed above, would require the development and implementation of a TMP related to increased queuing anticipated during the New Zoo's opening month and special events. The TMP would require that sufficient emergency access be provided at all times and be approved by the City. Therefore, implementing the Project would not result in inadequate emergency access during operations.

Summary

The Project would include a designated emergency entrance/exit and would be required to follow all State and City standards and regulations to ensure that any potential impacts on emergency vehicles are minimized during construction and maintained during operations. Additionally, Mitigation Measure 3.13-3 would require that emergency access be provided during the New Zoo's opening month and during special events, when increased queuing is anticipated. Therefore, implementing the Project would not result in inadequate emergency access, and the impact would be **less than significant**.

Mitigation Measures

Mitigation Measure 3.13-4

Implement Mitigation Measure 3.13-3 - Prepare and Implement Traffic Management Plans for the Opening Month and Special Events.

Significance after Mitigation

Less than significant.

3.14 UTILITIES AND SERVICE SYSTEMS

This section evaluates the availability of existing utility and infrastructure systems (water, wastewater, stormwater, solid waste, electricity, natural gas, and telecommunications) to serve the New Zoo Project and the impact of the Project on these systems. The analysis is based on documents obtained from the City of Elk Grove and the Sacramento Regional County Sanitation District (Regional San), Sacramento Area Sewer District (SacSewer), Sacramento County Water Agency (SCWA), a water supply assessment (WSA) (Appendix I), representatives from the City, and Sacramento Municipal Utility District (SMUD).

The Sacramento Metropolitan Utility District (SMUD) submitted a comment in response to the notice of preparation (NOP), requesting to be involved in discussing potential issues related to transmission and distribution line easements, utility line routing, electrical load needs and requirements, energy efficiency, climate change, and the potential need to relocate SMUD infrastructure around the Project area. As noted in this EIR, SMUD currently provides electricity to the Project site from existing underground 12-kilovolt (kV) facilities that would remain and are connected to SMUD's existing underground 12-kV facilities along Kammerer Road and Lotz Parkway. The City would include SMUD in future discussion regarding transmission and distribution line easements for the Project. Impacts related to utilities and energy efficiency impacts are discussed in the impact analysis below and in Section 3.5, "Energy." Project impacts related to greenhouse gas emissions are included in Section 3.7, "Greenhouse Gas Emissions and Climate Change."

3.14.1 Regulatory Setting

DOMESTIC WATER

Federal

Safe Drinking Water Act

As mandated by the Safe Drinking Water Act (Public Law 93-523), passed in 1974, the U.S. Environmental Protection Agency (EPA) regulates contaminants of concern to domestic water supply. Such contaminants are defined as those that pose a public health threat or alter the aesthetic acceptability of the water. These types of contaminants are regulated by EPA's primary and secondary maximum contaminant levels (MCLs). MCLs and the process for setting these standards are reviewed every 3 years. Amendments to the Safe Drinking Water Act enacted in 1986 established an accelerated schedule for setting drinking water MCLs. EPA has delegated responsibility for California's drinking water program to the State Water Resources Control Board Division of Drinking Water (SWRCB-DDW). SWRCB-DDW is accountable to EPA for program implementation and for adoption of standards and regulations that are at least as stringent as those developed by EPA.

State

Urban Water Management Plan

In 1983, the California Legislature enacted the Urban Water Management Planning Act (UWMPA) (California Water Code Sections 10610–10656). The UWMPA states that every urban water supplier that provides water to 3,000 or more customers, or that provides more than 3,000 acre-feet (af) of water annually, should make every effort to ensure the appropriate level of reliability in its water service sufficient to meet the needs of its various categories of customers during normal, dry, and multiple dry years. This effort includes the adoption of an urban water management plan (UWMP) by every urban water supplier and an update of the plan every 5 years on or before December 31 of every year ending in a five or zero. The UWMPA has been amended several times since 1983, with the most recent amendment occurring with SB 318 in 2004. With the passage of SB 610 in 2001, additional information is required to be included as part of an urban water management plan if groundwater is identified as a source of water available to

the supplier. An urban water supplier is required to include in the plan a description of all water supply projects and programs that may be undertaken to meet total projected water use. The UWMPA and SB 610 are interrelated; the UWMP is typically relied upon to meet the requirements of SB 610.

The California Water Code

Division 6, Part 2.10 (1995) of the California Water Code (Water Code) requires coordination between land use lead agencies and public water purveyors. The purpose of this coordination is to ensure that prudent water supply planning has been conducted and that planned water supplies are adequate to meet both existing demands and demands of planned development.

Water Code Sections 10910–10915 (inclusive) require land use lead agencies to (1) identify the responsible public water purveyor for a proposed development project and (2) request a water supply assessment (WSA) from the responsible purveyor. The objective of a WSA is to demonstrate the sufficiency of a purveyor's water supplies to satisfy the water demands of a proposed development project while still meeting the current and projected water demands of existing customers. Water Code Sections 10910–10915 delineate specific information that must be included in a WSA.

California Safe Drinking Water Act

The SWRCB-DDW is responsible for implementing the federal Safe Drinking Water Act (SDWA) and its updates, as well as California statutes and regulations related to drinking water. State primary and secondary drinking water standards are promulgated in California Code of Regulations (CCR) Title 22, Sections 64431–64501.

The California Safe Drinking Water Act was passed in 1976 to build on and strengthen the federal SDWA. The act authorized the California Department of Health Services to protect the public from contaminants in drinking water by establishing maximum contaminant levels that are at least as stringent as those developed by EPA, as required by the federal SDWA.

Local

Sacramento County Water Agency

SCWA encompasses seven water service areas and provides retail water service to approximately 59,000 residential and commercial customers in Sacramento County. SCWA also wholesales water to Elk Grove Water District and works with neighboring water suppliers and land use agencies to ensure long-term water system reliability (SCWA 2021). SCWA's service area boundary and seven service areas include the following: Metro Air Park, Northgate 880, Arden Park Vista, Southwest Tract, Zone 40, Hood Water Maintenance District (Hood), and East Walnut Grove (Walnut Grove). Within Zone 40 there are further subdivisions into the North Service Area (NSA), Central Service Area (CSA), and South Service Area (SSA) (SCWA 2021).

Planning activities are generally determined by growth decisions made by local land use authorities (the cities of Elk Grove and Rancho Cordova and the County of Sacramento) and are focused on identifying and developing long-term water supplies for these development areas. Meeting these long-term needs is accomplished through the development of water supply master plans for Zones 40 and 50, the Zone 40 Water System Infrastructure Plan, and the Zone 41 Urban Water Management Plan. Planning is also responsible for reviewing and conditioning development proposals to ensure compliance with the latest water supply planning requirements and development of Water Supply Assessments and Written (SCWA 2021).

Ensuring an adequate supply of water is available to serve the existing and future needs for SCWA's residential and Commercial, Institutional, and Industrial (CII) customers is a critical component of successful operations. The SCWA UWMP draws on local, regional, and statewide inputs to synthesize information from numerous sources into a reliable water management action plan designed to be referred by SCWA's Board, Management, and Staff.

Sacramento County Water Agency Zone 40 Water Supply Master Plan

The purpose of the 2005 Sacramento County Water Agency Zone 40 Water Supply Master Plan (WSMP) is to address those changes made since the development of the 1987 Plan and to further define SCWA's conjunctive use program of groundwater, surface water, and recycled water supplies, as well as a financing program for the

construction of surface water diversion and treatment facilities; water conveyance pipelines; groundwater extraction, treatment, storage, and distribution facilities; and recycled water storage and distribution facilities within Zone 40. SCWA prepared amendments to the 2005 Zone 40 WSMP to address the sufficiency of water supply for the West Jackson, Jackson Township, and NewBridge projects (SCWA 2016b, cited in City of Elk Grove 2019).

Sacramento County Water Agency Zone 40 Water Supply Infrastructure Plan

The purpose of the 2016 Sacramento County Water Agency Zone 40 Water Supply Infrastructure Plan (WSIP) Update is to identify and size the water system facilities needed to supply Zone 40 through buildout and determine when the facilities are needed and develops the associated capital costs. SCWA updated the plan in 2016 to reflect changes in the Zone 40 water supply portfolio, adoption of the Sacramento County General Plan, and completion of the Freeport Regional Water Project. The 2016 WSIP (includes water demand factors, growth projections, and estimates of projected water demand and supply (SCWA 2016b, cited in City of Elk Grove 2019). It also identifies recommended infrastructure types, locations, and timing to meet future demand through buildout.

Sacramento Central Groundwater Authority

The Sacramento Central Groundwater Authority (SCGA) manages groundwater in the Central Basin portion of the South American Subbasin. SCGA was formed in 2006 through a joint powers agreement signed by the Cities of Elk Grove, Folsom, Rancho Cordova, and Sacramento and Sacramento County. Among its many purposes, SCGA is responsible for managing the use of groundwater in the Central Basin to ensure long-term sustainable yield and for facilitating a conjunctive use program. The framework for maintaining groundwater resources in the Central Basin is the SCWA Groundwater Management Plan, which includes specific goals, objectives, and an action plan to manage the basin. The plan also prescribes a well protection program to protect existing private domestic well and agricultural well owners from declining groundwater levels resulting from increased groundwater pumping attributable to new development in the basin (SCWA 2016a).

Water Forum Agreement

The Water Forum is made up of a diverse group of businesses, agricultural leaders, environmentalists, citizen groups, water managers, and local governments from Sacramento, Placer, and El Dorado Counties. These stakeholders came together in 2000 to form an agreement for water management with the goals of providing a reliable and safe water supply for the region's economic health through 2030 and preserving the fishery, wildlife, recreation, and aesthetic values of the lower American River. The Water Forum Agreement was formalized through a Memorandum of Understanding whereby all signatories agreed to carry out the actions specified for them.

South American Subbasin Groundwater Sustainability Plan

The Groundwater Sustainability Agencies that consists of the SCGA, Omochumne-Hartnell Water District (OHWD), Sloughhouse Resource Conservation District, North Delta GSAs, Reclamation District 551 (RD 551), and Sacramento County adopted the 2021 South American Subbasin Groundwater Sustainability Plan (SASb GSP) in compliance with SGMA. The SASb GSP identifies that the long-term average annual sustainable groundwater yield of the South American Subbasin is 235,000 AFY. Project and management actions that would contribute to the achievement of the sustainability goal of the SASb GSP include existing projects that include diversification of water supplies (Freeport Regional Water Project, Vineyard Surface Water Treatment Plant, and conjunctive use improvements). Near-term planned project that include the Sacramento Regional County Sanitation District Harvest Water project, OHWD Groundwater Recharge Project, Regional Conjunctive Use Program, and Sacramento Area Flood Control Agency Flood-MAR (Northern Delta Groundwater Sustainability Agency et al. 2021: 4-1 – 4-22). The SASb GSP is currently under review by the California Department of Water Resources.

City of Elk Grove General Plan

The following City General Plan (2019) policies are applicable to the Project. The reader is referred to Section 3.9, "Hydrology and Water Quality," for a discussion of groundwater and water quality General Plan policies.

- ▶ **Policy INF-1-1:** Water supply and delivery systems shall be available in time to meet the demand created by new development.
- ▶ **Policy INF-1-3:** Establish and expand recycled water infrastructure for residential, commercial, industrial, and recreational facilities and support the use of reclaimed water for irrigation wherever feasible.
- ▶ **Policy IFP-1-7:** New development shall fund its fair share portion of impacts to all public facilities and infrastructure as provided for in State law.
- ▶ **Policy IFP-1-8:** Infrastructure improvements must be financed and constructed concurrent with or prior to completion of new development.
 - **Standard IFP-1-8.a:** Establish concurrency measures to ensure infrastructure adequately serves future development:
 - Coordinate public facility and service capacity with the demands of new development.
 - Require that the provision of public facilities and service to new development does not cause a reduction in established service levels for existing residents.
 - Ensure that new infrastructure will meet the required level of service standards set by the City's General Plan and Municipal Code.
 - **Standard IFP-1-8.b:** Phase new development in expansion areas to occur where public services and infrastructure exist or may be extended to serve the public interest with minimal impact.
- ▶ **Policy NR-3-4:** Ensure adequate water supply is available to the community by working with water providers on facilities, infrastructure, and appropriate allocation.
- ▶ **Policy NR-3-5:** Continue to coordinate with public and private water users, including users of private wells, to maintain and implement a comprehensive groundwater management plan.
- ▶ **Policy NR-3-6:** Continue interagency partnerships to support water conservation.
- ▶ **Policy NR-3-7:** Continue to eliminate water use inefficiencies and maintain ongoing communication with water suppliers to ensure sustainable supply.
- ▶ **Policy NR-3-8:** Reduce the amount of water used by residential and nonresidential uses by requiring compliance with adopted water conservation measures.
- ▶ **Policy NR-3-9:** Promote the use of greywater systems and recycled water for irrigation purposes.
- ▶ **Policy NR-3-10:** Improve the efficiency of water use at City facilities through retrofits and employee education.
- ▶ **Policy NR-3-11:** Promote upgrades to existing buildings to support water conservation.
- ▶ **Policy NR-3-12:** Advocate for native and/or drought-tolerant landscaping in public and private projects.
 - **Standard NR-3-12.a:** Require the planting of native and/or drought-tolerant landscaping in landscaped medians and parkway strips to reduce water use and maintenance costs.
- ▶ **Policy ER-6-6:** Work with the Sacramento County Water Agency and water utilities to support programs and conservation activities intended to help water customers voluntarily conserve approximately 10 percent over time.
- ▶ **Policy ER-6-7:** Enforce the City's water-efficient landscape ordinance that is as strict or stricter than the State Water Resources Control Board regulations affecting local water agencies, and ensure future state updates are incorporated in some form to the City's ordinance. Provide opportunity for and encourage public reporting of violations.

City of Elk Grove Municipal Code

Municipal Code Chapter 14.10: Water Efficient Landscape Requirements

Elk Grove Municipal Code (EGMC) Chapter 14.10 identifies water management practices and water waste prevention for existing landscapes. It specifies requirements for planning, designing, installing, maintaining, and managing water efficient landscapes in new construction and rehabilitated projects.

WASTEWATER AND STORMWATER

Federal

Clean Water Act

The Clean Water Act (CWA) employs a variety of regulatory and non-regulatory tools to reduce direct pollutant discharges into waterways, finance municipal wastewater treatment facilities, and manage polluted runoff. Those portions of the CWA that relate to wastewater and stormwater discharges are discussed below.

National Pollutant Discharge Elimination System

The National Pollutant Discharge Elimination System (NPDES) permit program was established under the CWA to regulate municipal and industrial discharges to surface waters of the US. NPDES permit regulations have been established for broad categories of discharges including point source waste discharges and nonpoint sources (nonpoint source discharges are further discussed in Section 3.9, "Hydrology and Water Quality"). Each NPDES permit identifies limits on allowable concentrations and mass loadings of pollutants contained in the discharge. Sections 401 and 402 of the CWA contain general requirements regarding NPDES permits. Section 307 of the CWA describes the factors that EPA must consider in setting effluent limits for priority pollutants.

NPDES permits cover various industrial and municipal discharges, including discharges from storm sewer systems in larger cities, stormwater generated by industrial activity, runoff from construction sites disturbing more than 1 acre, and mining operations. Point source dischargers must obtain a discharge permit from the proper authority (usually a state, sometimes EPA, a tribe, or a territory). So-called "indirect" point source dischargers are not required to obtain NPDES permits. "Indirect" dischargers send their wastewater into a public sewer system, which carries it to the municipal sewage treatment plant, through which it passes before entering any surface water.

The CWA was amended in 1987 with Section 402(p) requiring NPDES permits for nonpoint source (i.e., stormwater) pollutants in discharges. Stormwater sources are diffuse and originate over a wide area rather than from a definable point. The goal of the NPDES stormwater regulations is to improve the water quality of stormwater discharged to receiving waters to the "maximum extent practicable" using structural and nonstructural best management practices (BMPs). BMPs can include educational measures (e.g., workshops informing the public of what impacts can result when household chemicals are dumped into storm drains), regulatory measures (e.g., local authority of drainage-facility design), public-policy measures (e.g., labeling storm-drain inlets as to impacts of dumping on receiving waters) and structural measures (e.g., filter strips, grass swales, and detention ponds).

The City of Elk Grove is a MS4 co-permittee with the Cities of Citrus Heights, Folsom, Galt, Rancho Cordova, and Sacramento and the County of Sacramento. NPDES permits are issued for 5-year terms. The current region-wide permit (Order No. R5-2016-0040) adopted by the Central Valley Regional Water Quality Control Board (RWQCB) in June 2019 allows each permittee to discharge urban runoff from MS4s in its respective municipal jurisdiction and requires Phase I MS4 permittees to enroll under the region-wide permit as their current individual permits expire. Regional MS4 permit activities are managed jointly by the Sacramento Stormwater Quality Partnership, which consists of the seven jurisdictions covered by the permit.

State

NPDES Permit for the Sacramento Regional Water Treatment Plant

In April 2016, the Central Valley RWQCB issued WDR Order No. R5-2016-0020 (NPDES No. CA 0077682) to the Regional San for its Sacramento Regional Wastewater Treatment Plant (SRWWTP), which treats wastewater from its service area before discharging it to the Sacramento River. The original permit for the SRWWTP was issued in October 1974. This is an NPDES self-monitoring permit that outlines performance standards for the effluent into the Sacramento River. The water quality objectives established in the Central Valley RWQCB Basin Plan are protected, in part, by NPDES Permit No. CA 0077682.

The quality of the effluent that can be discharged to waterways within the Sacramento area is established by the Central Valley RWQCB through Waste Discharge Requirements (WDRs) that implement the NPDES permit. WDRs are updated at least every 5 years. A new permit must be issued in the event of a major change or expansion of the facility.

Local

Sacramento Area Sewer District Standards and Specifications

The Sacramento Area Sewer District's (SacSewer) Standards and Specifications establish minimum standards for the SacSewer public sewer collection system. These standards apply to planning, design, construction, and rehabilitation of the public sewer collection system that SacSewer operates and maintains, require SacSewer's approval, or are installed within existing or new public rights-of-way or easements. The standards ensure SacSewer assets are consistently designed and constructed. The Standards and Specifications were approved by the SacSewer Board of Directors on March 13, 2019.

Sacramento Regional County Sanitation District

Regional San is responsible for collection by interceptors (sanitary sewers that are designed to carry flows in excess of 10 million gallons per day [mgd]) and for wastewater treatment in Sacramento County. The district owns, operates, and is responsible for the collection, trunk, and interceptor sewer systems throughout the county, as well as the Sacramento Regional Wastewater Treatment Plant (SRWTP) located west of Elk Grove.

Regional San sets forth requirements for use of its wastewater collection and treatment system, provides for the enforcement of these requirements, establishes penalties for violations, and establishes the rates and fees for users of the district's sewer facilities.

Sacramento Regional Wastewater Treatment Plant 2020 Master Plan

The SRWTP 2020 Master Plan provides a phased program of recommended wastewater treatment facilities and management programs to accommodate planned growth and to meet existing and anticipated regulatory requirements through the year 2020. The Master Plan addresses both public health and environmental protection issues while ensuring reliable service at affordable rates for Regional San customers. The Master Plan's key goals are to provide sufficient capacity to meet growth projections and an orderly expansion of SRWTP facilities, to comply with applicable water quality standards, and to provide for the most cost-effective facilities and programs from a watershed perspective (Regional San 2008).

Regional Interceptor Master Plan 2000

Regional San has prepared a long-range master plan for the large-diameter interceptors that transport wastewater to the SRWTP, which includes interceptor upgrades/expansions to accommodate anticipated growth through 2035 (Regional San 2023).

City of Elk Grove General Plan

The following City General Plan (2019) policy is applicable to the Project:

- ▶ **Policy INF-2-1:** Sewage conveyance and treatment capacity shall be available in time to meet the demand created by new development, or shall be assured through the use of bonds or other sureties to the City's satisfaction.

City of Elk Grove Municipal Code

Municipal Code Chapter 15.12: Stormwater Management and Discharge Control

EGMC Chapter 15.12 provides authority to the City for inspection and enforcement related to control of illegal and industrial discharges to the City storm drainage system and local receiving waters. It also addresses the requirement for best management practices (BMPs) and regulations to reduce pollutants in the City's stormwater.

SOLID WASTE

Federal

No federal plans, policies, regulations, or laws are applicable to solid waste for the New Zoo Project.

State

California Integrated Waste Management Act

The California Integrated Waste Management Act of 1989 (AB 939) required all California cities and counties to reduce the volume of waste deposited in landfills by 50 percent by the year 2000, and requires all California cities and counties to continue to remain at 50 percent or higher for each subsequent year. The purpose of AB 939 is to reduce the amount of solid waste generated and extend the life of landfills.

AB 939 requires each California city and county to prepare, adopt, and submit to California Department of Resources Recycling and Recovery (CalRecycle) a source reduction and recycling element (SRRE) that demonstrates how the jurisdiction will meet the act's mandated diversion goals. Each jurisdiction's SRRE must include specific components defined in PRC Sections 41003 and 41303. In addition, the SRRE must include a program for management of solid waste generated within the jurisdiction that is consistent with the following hierarchy: (1) source reduction, (2) recycling and composting, and (3) environmentally safe transformation and land disposal. Included in this hierarchy is the requirement to emphasize and maximize the use of all feasible source reduction, recycling, and composting options to reduce the amount of solid waste that must be disposed of by transformation and land disposal (PRC Sections 40051, 41002, and 41302).

CalRecycle Model Ordinance

Subsequent to the Integrated Waste Management Act, additional legislation was passed to assist local jurisdictions in accomplishing the goals of AB 939. The California Solid Waste Re-use and Recycling Access Act of 1991 (SB 1327) (PRC Sections 42900–42911) required CalRecycle to approve a model ordinance for adoption by any local government for the transfer, receipt, storage, and loading of recyclable materials in development projects by March 1, 1993. The act also required local agencies to adopt a local ordinance by September 1, 1993, or to allow the model ordinance to take effect.

Local

City of Elk Grove Source Reduction and Recycling Element

In response to AB 939, the City prepared an SRRE that includes policies and programs that will be implemented by the City to achieve the State waste reduction mandates. As required by AB 939, the SRRE must project the amount of disposal capacity needed to accommodate the waste generated within the City for a 15-year period. In addition, the jurisdictional mandated goal is 50 percent diversion, with diversion meaning source reduction, recycling, composting, and related activities.

City of Elk Grove General Plan

The following City General Plan (2019) policies are applicable to the Project:

- ▶ **Policy CIF-1-1:** Facilitate recycling, reduction in the amount of waste, and reuse of materials to reduce the amount of solid waste sent to landfill from Elk Grove.
- ▶ **Policy CIF-1-2:** Reduce municipal waste through recycling programs and employee education.

City of Elk Grove Municipal Code

Municipal Code Title 30: Solid Waste Management

EGMC Chapter 30 defines the City's requirements for solid waste management. Chapter 30.50 identifies requirements for commercial hauling such as required qualifications, vehicle specifications, and transportation specifications. EGMC Chapter 30.70 identifies requirements related to debris reduction, reuse, and recycling for new construction and demolition projects in the City. Specifically, EGMC Chapter 30.70 identifies requirements to recycle or divert no less than 65 percent of construction material and complete a waste management plan. Chapter 30.90 identifies space allocation and enclosure design guidelines for trash and recycling. For example, guidelines are provided for location and dimension of commercial trash and recycling enclosures.

Commercial Refuse Hauler Fee

Elk Grove Municipal Code (EGMC) Chapter 30.50, Nonresidential Haulers, provides information relating to the setting, charging, collecting, and enforcement of nonresidential refuse hauler fees, as well as establishing registration requirements stating that all nonresidential waste haulers operating, conducting business, or providing solid waste services must register with the City and receive a registration decal to operate and remit an amount based on their diversion performance.

Construction and Demolition Debris Reduction, Reuse, and Recycling

Elk Grove Municipal Code (EGMC) Chapter 30.70, Construction and Demolition Debris Reduction, Reuse, and Recycling, makes construction and demolition debris recycling mandatory for all new construction (with a valuation greater than \$200,000) and demolition projects. Materials required to be recycled include scrap metal, inert materials (concrete, asphalt paving, bricks, etc.), corrugated cardboard, wooden pallets, and clean wood waste. A waste management plan must be completed to identify waste that would be generated by a project as well as the proposed recycling and hauling methods. During construction and/or demolition, a waste log must be maintained on the project area and submitted to the City at project completion.

Space Allocation and Enclosure Design Guidelines for Trash and Recycling

Elk Grove Municipal Code (EGMC) Chapter 30.90, Space Allocation and Enclosure Design Guidelines for Trash and Recycling, provides recycling and waste collection requirements for all development in the City. Integrated collection areas with recycling components assist in the reduction of waste materials, thereby prolonging the life of landfills and promoting environmentally sound practices, and help the City meet the State-mandated recycling requirements described previously in this subsection.

The guidelines include information and resources for designing trash and recycling sites that will be used by building occupants in new developments or significant remodels. Conventional recycling and green waste recycling must be designed into the site along with the trash capacity. The California Solid Waste Reuse and Recycling Access Act of 1991 requires new commercial and multifamily developments of five units or more, or improvements that add 30 percent or more to the existing floor area, to include adequate, accessible, and convenient areas for collecting and loading recyclable materials.

ENERGY

Refer to Section 3.5, "Energy," for plans, policies, regulations, or laws that are applicable to energy for the New Zoo Project.

3.14.2 Environmental Setting

WATER SUPPLY

This subsection provides information on water supplies that would be used by and may be available during construction and operation of the New Zoo. SCWA prepared a Water Supply Assessment (WSA) for the Project in accordance with Water Code Sections 10910-10915 (Appendix I). The following discussion summarizes the information in the Project WSA. This subsection also discusses the availability and adequacy of existing and planned water treatment and conveyance infrastructure. The SCWA is both a retail urban water supplier and a wholesale water supplier; it provides retail water supply to the City, as well as portions of unincorporated Sacramento County and the City of Rancho Cordova. The EGWD serves an area of approximately 13 square miles in the City limits east of SR 99. Part of its supply is water purchased from the SCWA.

Sacramento County Water Agency

The SCWA manages water supplies in Sacramento County, and boundaries of the SCWA are identical to the county boundaries. Water supplies consist of surface water, groundwater, recycled water, and purchased water. The service area is divided into eight systems, the largest of which are the Mather Sunrise and Laguna Vineyard systems. The City of Elk Grove, within City limits, is in the Laguna Vineyard system. The SCWA constructs and operates water supply infrastructure as well as some drainage systems. Zones have been approved by the Sacramento County Board of Supervisors to “finance, construct, acquire, reconstruct, maintain, operate, extend, repair, or otherwise improve any work or improvement of common benefit to such zone” (SCWA 2016b). There are eight water and drainage zones and each zone encompasses a unique geographic area of benefit to achieve the desired objectives. The Project site is in Zone 40 South Service Area, which comprises the Mather Sunrise and Laguna Vineyard public water systems. The Laguna Vineyard water system consists of both the Zone 40 Central Service Area and South Service Area.

The Project is accounted for in the current SCWA UWMP, which describes SCWA’s existing and projected water demands through 2045 (SCWA 2021). Therefore, the UWMP serves as the base document for the Project’s WSA. The water demand growth shown in the UWMP is based on the estimated gallons per capita per day (GPCD) target and the projected population growth. Establishing a GPCD target is a requirement for the UWMP in accordance with the Water Conservation Act of 2009 (SB x7-7) so that each purveyor achieves a 20 percent reduction in water use by 2020. The target for SCWA is determined to be 229 gallons per capita per day in the 2020 UWMP, which is less than the SCWA’s established target.

With the population projection and the established GPCD target, the UWMP estimates the water demands for SCWA’s service areas in 5-year increments until 2045 (see Table 3.14-1).

Table 3.14-1 Water Demands for SCWA Service Areas in Five-Year Increments – Normal Year (afy)

	2025	2030	2035	2040	2045
SERVICE AREA					
Zone 40	46,235	54,494	62,006	68,143	74,388
Arden Park Vista	3,454	3,394	3,315	3,237	3,217
Northgate 880	1,365	1,365	1,365	1,365	1,365
Metro Air Park	1,193	2,325	3,457	4,590	5,715
Hood	31	31	31	31	31
East Walnut Grove	56	56	56	56	56
Southwest Tract	24	24	24	24	24
Total Potable Water Use	52,358	61,690	70,254	77,446	84,796
Non-Potable Water Use	1,420	1,890	2,360	2,830	3,300
Total Water Use	53,778	63,580	72,614	80,276	88,096

Note: afy = acre-feet per year.

Source: SCWA 2021.

The water demands for single dry and multiple dry water years are listed in Table 3.14-2. The multiple-dry year scenario mimics the water supply conditions of 2013 through 2015 when CVP allocations were 100 percent, 75 percent, and 25 percent of the average use of supplies during the previous three years. The demands are the same as the normal year demands, but as explained for the single-dry year scenario, the second through fifth year demands might be lower if demand reduction mandates are imposed by the State (SCWA 2021: Tables 5-3 and 5-4).

Table 3.14-2 SCWA Zone 40 Water Demands in Five-Year Increments in Normal, Single Dry, and Multiple Dry Years (afy)

Water Year	2025	2030	2035	2040	2045
Normal Year (see Table 5-3 of UWMP)	46,235	54,494	62,006	68,143	74,388
Single Dry Year (see Table 5-3 of UWMP)	48,547	57,219	65,106	71,551	78,107
Multiple Dry Year 1 (see Table 5-4 of UWMP)	48,547	57,219	65,106	71,551	78,107
Multiple Dry Year 2 (see Table 5-4 of UWMP)	48,547	57,219	65,106	71,551	78,107
Multiple Dry Year 3 (see Table 5-4 of UWMP)	48,547	57,219	65,106	71,551	78,107

Note: afy = acre-feet per year.

Source: SCWA 2021.

The Project's water demands, as part of the Zone 40 water demand, will ultimately be met by conjunctive use of groundwater and surface water and a small portion of recycled water, as described in the WSMP and UWMP. Water demands do not change between normal and dry year conditions because water supplies are assured during these water year conditions (see Appendix I). SCWA currently exercises, and will continue to exercise, its rights as a groundwater appropriator to extract groundwater from the groundwater basin (Central Basin) underlying Zone 40 for delivery to its customers. As described in Section 3.14.1, "Regulatory Setting," SCGA prepared a Groundwater Sustainability Plan for submittal to DWR by January 31, 2022.

SCWA has a remediated groundwater supply of 8,900 acre-feet per year (afy) in accordance with the terms and conditions in the agreement entitled "Agreement between Sacramento County, SCWA, and Aerojet-General Corporation with Respect to Transfer of GET Water" dated May 18, 2010. This remediated groundwater supply is diverted by SCWA from the Sacramento River at Freeport along with SCWA's surface water supplies.

A greater proportion of groundwater is used in the Central Service Area and South Service Area of Zone 40. There is also some groundwater pumping in other SCWA service areas outside of Zone 40. The UWMP identifies SCWA's groundwater availability until 2045, as shown in Table 3.14-3.

Table 3.14-3 SCWA Projected Groundwater Supply Availability (afy)

	2025	2030	2035	2040	2045
Groundwater	41,000	46,000	56,000	56,000	56,000
Remediated Groundwater	8,900	8,900	8,900	8,900	8,900
Total	49,900	54,900	64,900	64,900	64,900

Note: afy = acre-feet per year.

Source: SCWA 2021.

Surface Water

The SCWA conjunctive use program includes the delivery of surface water within the Zone 40 boundaries as part of a comprehensive program to maintain the long-term, regional balance of the groundwater basin. The UWMP uses the terms "purchased water" and "surface water" to describe surface water supply. DWR defines purchased water as water purchased from other suppliers, including non-self-supplied surface water. Surface water is defined by DWR as self-supplied water that is drawn from streams, lakes, and reservoirs.

Purchased Water

SCWA has two sources of purchased surface water supplies, as described below.

Central Valley Project

The Central Valley Project water supply consists of the CVP contracts held by SCWA. One contract, referred to as the SMUD contract, is for 30,000 afy. Most of the CVP water is diverted at the Freeport diversion on the Sacramento River and treated at the Vineyard surface water treatment plant. Occasionally, some of the CVP supplies are diverted from the Sacramento River and treated at the City's Sacramento River surface water treatment plant and delivered to SCWA at the Franklin Intertie.

SCWA entered into a contract in April 1999 with the U.S. Bureau of Reclamation (Reclamation) for 15,000 afy of CVP supplies pursuant to Public Law 101-514. This contract is often referred to as "Fazio Water" in recognition of the efforts by Congressman Vic Fazio to secure this contract. The 15,000 afy is available for SCWA through the Freeport diversion or Franklin Intertie.

SCWA's total CVP supply is subject to reductions in dry years. The water supply allocations are defined by Reclamation on a year-to-year basis and are expressed as a percentage of either the contract amount or the amount of average use. For the 21-year period from 1995 to 2015, the lowest allocation was in 2015 when it reduced to health and safety levels of 55 gallons per capita per day. Due to SCWA's abundant groundwater supplies, SCWA took no CVP water with that allocation.

The water supply allocations are based on a draft policy that defines water shortage terms and conditions. Reclamation initiated the development of a Municipal and Industrial (M&I) Water Shortage Policy in 1992, with several proposals prepared through 2001. The 2001 draft water shortage policy states that Reclamation would reduce M&I water to a contractor once irrigation water allocations are reduced below 75 percent of the contract amount. Reclamation has a provision in the draft policy for a minimum M&I shortage allocation of 75 percent that is applied to the last 3 years of historical use with certain adjustments, although the actual allocation in 2014 was 75 percent, and in 2015 the allocation was 25 percent of the use during the previous three unconstrained years ultimately ending with health and safety levels. In 2010, Reclamation convened several workshops that will lead to the development of an Environmental Impact Statement that could potentially modify the existing policy or develop a new policy. This process has not been completed.

City of Sacramento's American River Place of Use Water Supply

A portion of Zone 40 lies within the City of Sacramento's American River Place of Use (POU). The City of Sacramento has a pre-1914 water right to the American River with a POU boundary that extends beyond the city's boundary and includes a portion of Zone 40. The amount of water available to serve the POU area within Zone 40 is estimated to be 9,300 afy. SCWA is planning for the future wholesale delivery of American River water within the POU. A connection would be constructed to supply the portion of Zone 40 in the POU area, with the timing based on when the supply is actually needed.

The City of Sacramento's diversions from the American River at the Fairbairn Water Treatment Plant are reduced when American River flows are less than the Hodge Flow Criteria, which would likely result in no POU water being available for SCWA in these circumstances. The City of Sacramento may decide to divert water during these restricted times at its Sacramento River diversion, although additional infrastructure might need to be constructed by the City of Sacramento to be able to convey this water to SCWA. It might be possible for SCWA to divert the POU water at the Freeport diversion. Given the uncertainty of the availability of POU water during dry periods, a supply allocation of zero percent is assumed for dry years and 100 percent for normal climate years.

Surface Water Rights

SCWA has an appropriative water supply that is self-supplied surface water drawn from the Sacramento River. In February 2008, SWRCB approved SCWA's appropriative right permit application to divert water from the American and Sacramento rivers (Permit 21209). The amount of appropriated water available for use could range up to 71,000 afy in wet years, primarily during the winter months. This water would be diverted at the Freeport diversion on the

Sacramento River and the City of Sacramento’s diversion structure. Since SCWA’s demands are low in the winter months, it is possible that not all of this supply could be used without the ability to store the water.

Contract documents, agreements, and applications for appropriative water and CVP water supplies are available for review. Table 3.14-4 shows all the surface water entitlements, water rights, and water services contracts to meet the buildout water demand.

Table 3.14-4 Surface Water Supply Entitlements, Water Rights, and Water Service Contracts to Meet SCWA Buildout Water Demand

Water Supply Sources	Description	Wholesaler Supplied (Yes/No)	Status of Contract, Permit, and Agreement	Quantity (afy)
Purchased Water	Wholesaler – (City of Sacramento) to serve portion of Zone 40 in City of Sacramento’s American River POU	Yes	Planned	9,300
Purchased Water	Supplier-produced surface water to serve Zone 40: U.S. Bureau of Reclamation – CVP Supply (SMUD and Fazio Water)	Yes	Existing	45,000
Surface Water	Supplier-produced surface water to serve Zone 40: Appropriative Water – SWRCB Permit 21209	No	Existing	71,000
Total	—	—	—	125,300

Note: afy = acre-feet per year.

Source: SCWA 2021.

Table 3.14-5 presents the quantities of surface water supply pursuant to these water rights and contract entitlements in 5-year increments from 2025 to 2045. The projected volume takes into consideration facility constraints and hydrological constraints.

Table 3.14-5 Projected Reasonably Available Surface Water Supply in Five-Year Increments (afy)

Water Supply	Description	2025	2030	2035	2040	2045
Purchased Water	Wholesaler – (City of Sacramento) to serve portion of Zone 40 in City of Sacramento’s American River POU	0	0	0	0	0
Purchased Water	Supplier-produced surface water to serve Zone 40: U.S. Bureau of Reclamation – CVP Supply (SMUD and Fazio Water)	21,300	21,300	21,300	21,300	21,300
Surface Water	Supplier-produced surface water to serve Zone 40: Appropriative Water – SWRCB Permit 21209	4,000	4,000	4,000	4,000	4,000
TOTAL		25,300	25,300	25,300	25,300	25,300

Note: afy = acre-feet per year.

Source: SCWA 2021.

WATER SUPPLY INFRASTRUCTURE

The Project site receives water supply through a 24-inch-diameter pipeline within Kammerer Road. Other water distribution infrastructure in the area are provided along Lotz Parkway and B Drive.

STORMWATER

The Project site is currently undeveloped and stormwater from the Project site flows into the Shed C channel (Kimley Horn 2023). The Project would include the addition of drainage and water quality improvements to the site as shown in Figure 2-11, in Section 2, “Project Description.” To manage these flows and address impacts from hydromodification, two new stormwater retention basins would be constructed in the southern parking lot and a

series of retention basins in the northern parking lot. Additionally, a new stormwater detention basin would be constructed at the north end of B Drive south of Shed C channel.

WASTEWATER

Sacramento Regional County Sanitation District and SacSewer

Regional San provides wastewater treatment for the City of Elk Grove. The district serves approximately 1.4 million residents and industrial and commercial customers, and it owns and operates the regional wastewater conveyance system. Regional San manages wastewater treatment, major conveyance, and wastewater disposal. The treatment plant, operated by Regional San, is located on 900 acres of a 3,550-acre site between I-5 and Franklin Boulevard, north of Laguna Boulevard. The remaining 2,650 acres serve as a “bufferland” between the SRWTP and nearby residential areas. The SRWTP has 169 miles of pipeline and treats an average of 181 million gallons of wastewater per day. Wastewater is treated by accelerated physical and natural biological processes before it is discharged to the Sacramento River (Regional San 2023).

The SRWTP 2020 Master Plan describes a phased program of recommended wastewater treatment facilities and management programs to accommodate planned growth and to meet existing and anticipated regulatory requirements in the Regional San service area through the year 2020. The Master Plan uses Sacramento Area Council of Governments (SACOG) population projections multiplied by per capita flow and load values to determine future facility needs (Regional San 2008). The SRWTP’s reliable capacity is currently limited, based on hydraulic considerations, to an equivalent 207 mgd average dry weather flow (ADWF). This existing capacity falls short of the projected 218 mgd ADWF in 2020.

The SRWTP has been master planned to accommodate 350 mgd ADWF (Regional San 2008). In addition, Regional San has prepared a long-range master plan for the large-diameter interceptors that transport wastewater to the SRWTP. The master plan includes interceptor upgrades and expansions to accommodate anticipated growth through 2035 (Regional San 2008). Regional San currently treats an average of 130 mgd. Some water is recycled for local use and the remainder is discharged to the Sacramento River.

In spring 2023, Regional San completed the EchoWater Project, an expansion and upgrade of the existing SRWTP. The new tertiary treatment process removes 99 percent of ammonia and 89 percent of nitrogen from the wastewater. The facility is being renovated to meet the new treatment requirements set by the Central Valley RWQCB and the State Water Resources Control Board. It will also improve the quality of water discharged into the Sacramento River. With this upgrade, the treatment plant has been renamed the EchoWater Resource Recovery Facility (Regional San 2023).

SacSewer serves as one contributing agency to Regional San. SacSewer provides wastewater collection and conveyance services in the urbanized unincorporated area of Sacramento County, in the cities of Citrus Heights, Elk Grove, and Rancho Cordova, and in a portion of the cities of Sacramento and Folsom. SacSewer owns, operates, and maintains a network of 107 pump stations and approximately 80 miles of pressurized force main pipes (SacSewer 2023). SacSewer trunk sewer pipes function as conveyance facilities to transport the collected wastewater flows to the Regional San interceptor system. The Project site is served by the Laguna Ride Trunk Shed that is located west of Highway 99, east of Bruceville Road, north of Kammerer Road, and south of Elk Grove Boulevard (SacSewer 2020). The SouthEast Policy Area Lift Station supports the site and runs a force main from the pump north to the Laguna Interceptor that runs along Laguna Boulevard.

Of note, in 2024 SacSewer will be merged into Regional San, with the combined agency referred to as SacSewer. Following the merger, the new, combined SacSewer will be responsible for collection, conveyance, and treatment of sanitary sewer flows from the Project.

Existing Wastewater Infrastructure

The SacSewer currently serves the Project site through a series of sewer mains, collectors, and a trunk line that connects to an 8-inch and 12-inch force main to a Regional San interceptor, depicted in Figure 2-11 in Chapter 2, “Project Description.”

SOLID WASTE COLLECTION AND DISPOSAL

Solid waste generated by commercial developments is served by registered commercial haulers, county-authorized recyclers, and hazardous waste materials handlers. Solid waste generated in the City is taken to a variety of landfills (City of Elk Grove 2019). Table 3.14-6 shows landfills used by the City and the permitted and remaining capacities of those landfills. As shown, most of the landfills serving City waste haulers have over 80 percent remaining capacity. In addition to these facilities, the City operates the Special Waste Collection Center located in the City (9255 Disposal Lane) that collects household hazardous waste.

Table 3.14-6 Disposal Facilities and Remaining Capacities

Facility	Total Estimated Permitted Capacity (in cubic yards)	Total Estimated Capacity Used		Remaining Estimated Capacity		Estimated Closure Year
		Cubic Yards	Percentage	Cubic Yards	Percentage	
Altamont Landfill & Resource Recovery (01-AA-0009)	124,400,000	59,000,000	47.4%	65,400,000	52.6%	2025
Recology Hay Road (48-AA-0002)	37,000,000	6,567,000	17.7%	30,433,000	82.3%	2077
Bakersfield Metropolitan SLF (15-AA-0273)	53,000,000	20,191,740	38.1%	32,808,260	61.9%	2046
Foothill Sanitary Landfill (39-AA-0004)	138,000,000	13,000,000	9.4%	125,000,000	90.6%	2082
Forward Landfill, Inc. (39-AA-0015)	51,040,000	28,940,000	56.7%	22,100,000	43.2%	2020
Keller Canyon Landfill (07-AA-0032)	75,018,280	11,609,870	15.5%	63,408,410	91%	2030
L and D Landfill Co. (34-AA-0020)	6,031,055	1,931,055	32%	4,100,000	84.5%	2023
North County Landfill (39-AA-0022)	41,200,000	5,800,000	14.1%	35,400,000	85.9%	2048
Potrero Hills Landfill (48-AA-0075)	83,100,000	69,228,000	83.3%	13,872,000	16.7%	2048
Sacramento County Landfill (Kiefer) (34-AA-0001)	117,400,000	4,500,000	3.8%	112,900,000	96.2%	2064

Sources: CalRecycle 2023b, 2023c, 2023d, 2023e, 2023f, 2023g, 2023h, 2023i, 2023j, 2023k.

ENERGY

Electricity

SMUD provides all electric services in Elk Grove. SMUD is an independent operator of power and generates, transmits, and distributes electricity to an approximately 900-square-mile area with 10,473 miles of power lines located mostly in Sacramento County and small portions of Placer and Yolo counties. SMUD currently provides electricity to the Project site from existing underground 12-kilovolt (kV) facilities that would remain and are connected to SMUD's existing underground 12-kV facilities along Kammerer Road and Lotz Parkway.

The Project would include solar panels on several roofs of proposed buildings that would generate additional electricity for the site. At minimum, a 20-kilowatt (kW) solar array would be installed on the proposed retail building and a 14-kw array would be installed on the proposed office building.

Natural Gas

Natural gas is supplied to the Project site by PG&E through local transmission lines that are supplied via a large natural gas transmission pipeline located within Kammerer Road. However, the Project would be all electric and would not use natural gas as an energy source.

TELECOMMUNICATIONS

Telecommunication (e.g., phone and internet) facilities are provided to the Project site through existing underground infrastructure facilities along the New Zoo's frontage roads, Kammerer Road and Lotz Parkway.

3.14.3 Impacts and Mitigation Measures

ANALYSIS METHODOLOGY

Water Demand

State CEQA Guidelines Section 15155 requires preparation of a WSA when a project is of sufficient size to be defined as a "water-demand project." The evaluation of utility extension and service impacts is based on review of the WSA (Appendix I), published information and reports, and consultation with the City, the New Zoo, and utility service providers. The impact analysis considers whether capacity would be adequate to serve the Project and whether infrastructure impacts would be required that could result in physical environmental impacts. In determining the level of significance, the analysis assumes that the Project would comply with relevant federal, state, and local ordinances and regulations. The reader is referred to Section 3.5, "Energy," for the estimated energy demands of the Project and to Section 3.9, "Hydrology and Water Quality," for further analysis of water quality, groundwater, and flooding impacts.

Wastewater Treatment and Disposal

Impacts related to wastewater conveyance and treatment capacity were evaluated by estimating the increase in wastewater generated by the Project and by determining whether the existing wastewater treatment and conveyance infrastructure would have capacity adequate to accommodate the increase. Regional San treats an average of 130 million gallons of wastewater per day and has been master planned to accommodate 350 mgd ADWF (Regional San 2008). In determining the level of significance, the analysis assumes that the Project would comply with relevant federal, state, and local ordinances and regulations.

Solid Waste

Evaluation of potential solid waste impacts is based on the estimated solid waste generation of construction and operation, as well as evaluation of existing and future capacity at landfills serving the project area. There is substantial remaining capacity in the landfills in the area serving local waste haulers, with an average remaining capacity of more than 70 percent. In determining the level of significance, the analysis assumes that the Project would comply with relevant federal, state, and local ordinances and regulations.

THRESHOLDS OF SIGNIFICANCE

A utilities and service systems impact would be significant if implementation of the Project would:

- ▶ require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects;
- ▶ result in insufficient water supplies available to serve the Project and reasonably foreseeable future development during normal, dry, and multiple dry years;
- ▶ result in a determination by the wastewater treatment provider that serves or may serve the Project that it has inadequate capacity to serve the Project's projected demand, in addition to the provider's existing commitments;
- ▶ generate solid waste in excess of State or local standards or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals; or
- ▶ fail to comply with federal, State, and local management and reduction statutes and regulations related to solid waste.

IMPACTS NOT DISCUSSED FURTHER

Relocation or Construction of Utility Infrastructure

As discussed in Chapter 2, "Project Description," with the exception of electrical and wastewater improvements, infrastructure improvements for the Project (water supply, stormwater, natural gas, and telecommunications) would be limited to on-site improvements. Draft EIR Sections 3.1 through 3.15 address the environmental impacts of the construction of on- and off-site infrastructure improvements and describe mitigation measures to address identified significant impacts. No further analysis of Project infrastructure improvements is necessary. This issue is not addressed further in this Draft EIR.

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Impact 3.14-1: Result in Insufficient Water Supplies

As described in the WSA prepared by SCWA for the Project, sufficient water would be available to meet the demands of the Project during normal, single, and multiple dry years. This impact would be **less than significant**.

Construction

Construction of the proposed Project would require water for dust control, equipment cleaning, soil excavation and export, and recompaction and grading activities. Water use would vary during construction, depending on the phase (e.g., demolition, excavation, building construction). Temporary construction-related water use would be substantially less than existing water consumption at the Project site and could be accommodated by the existing water infrastructure on-site. The intensity of potential water use would vary with the activity conducted and with the concentration of water needed. In general, activities involving construction-related water use are small and have a negligible impact on water supplies. Project construction could result in a temporary increase in water use; however, impacts on water supply would be minimized through implementation of applicable federal, State, and local regulations, the intent of which is to meet the demands of the Project during normal, single, and multiple dry years. With proper implementation, construction of the New Zoo would use minimal water and would reduce the potential for construction activities to adversely affect water supplies. Therefore, the temporary construction-related impact associated with water demand and water infrastructure would be **less than significant**.

Operation

Project implementation would result in water demand for the New Zoo associated with visitation, visitor-serving facilities (e.g., food and beverage stalls, drinking fountains, restrooms), animals and exhibits, new pathways and structures, and landscaped areas. Based on the anticipated amount of growth to occur as part of the Project, the New Zoo's water supply demand at full buildout would be approximately 162 afy (EXP 2023). This operational water demand would be less than the water demand estimated in the WSA of approximately 240 afy (assuming system loss) (SCWA 2023). The term system loss refers to the unintentional waste of drinking water that occurs in various ways in a supply system. Most often they are caused by leaks at different points in the water supply system, by illegal connections, and by inaccurate readings resulting from very old meters. Water demand for the New Zoo would be met by SCWA's conjunctive use program, which is a sustainable water supply program that provides a reliable water supply while stabilizing the groundwater basin (SCWA 2023).

SCWA determined that it has identified water supplies sufficient to meet the water demands of the Project over the next 20 years during normal, single dry, and multiple dry years. SCWA made this determination based on the information in the WSA and on the following specific facts:

- ▶ SCWA's conjunctive use program is a sustainable water supply program that provides a 100-percent reliable water supply while protecting environmental values and stabilizing the groundwater basin underlying Zone 40.

- ▶ SCWA's conjunctive use program was extensively analyzed and documented in the WSMP, the Final EIR for the 2002 WSMP (certified in February 2006), the Final EIR for the Water Forum Agreement (certified in 1999), and the Water Forum Agreement. All these documents have been subjected to thorough technical peer review and public scrutiny.
- ▶ A financing plan for SCWA's conjunctive use program for constructing facilities required for delivering groundwater and surface water to the Project has been approved by the SCWA Board through its adoption of the WSMP, bond feasibility reports, and the SCWA Code.

The UWMP demonstrates that SCWA's total projected water supplies during normal, single dry, and multiple dry water years would meet the proposed water demands through 2045, as shown in Table 3.14-7.

Table 3.14-7 Zone 40 Water Supply Sufficiency Analysis in Five-Year Increments (afy)

Water Year	2025	2030	2035	2040	2045
Normal Year (see Table 5-3, UWMP)					
Total Supply	159,096	164,096	174,096	174,096	174,096
Total Demand	46,235	54,494	62,006	68,143	74,388
Sufficiency (Supply Minus Demand)	112,861	109,602	112,090	105,953	99,708
Single Dry Year (see Table 5-3, UWMP)					
Total Supply	87,199	92,676	103,926	105,176	107,676
Total Demand	48,547	57,219	65,106	71,551	78,107
Sufficiency (Supply Minus Demand)	38,652	35,457	38,820	33,625	29,569
Multiple Dry Year (1) (see Table 5-4, UWMP)					
Total Supply	111,954	118,386	132,136	135,886	143,386
Total Demand	48,547	57,219	65,106	71,551	78,107
Sufficiency (Supply Minus Demand)	63,407	61,167	67,030	64,335	65,279
Multiple Dry Year (2) (see Table 5-4, UWMP)					
Total Supply	99,576	105,531	118,031	120,531	125,531
Total Demand	48,547	57,219	65,106	71,551	78,107
Sufficiency (Supply Minus Demand)	51,029	51,029	52,925	48,980	47,424
Multiple Dry Year (3) (see Table 5-4, UWMP)					
Total Supply	87,199	92,676	103,926	105,176	107,676
Total Demand	48,547	57,219	65,106	71,551	78,107
Sufficiency (Supply Minus Demand)	38,652	35,457	38,820	33,625	29,569

Note: afy = acre-feet per year.

Source: SCWA 2021.

The WSA documents all required information specifically delineated in Water Code Sections 10910–10915. It demonstrates that SCWA's water supplies would be sufficient to satisfy the water demands of the currently proposed Project while still meeting the current and projected water demands of existing customers in the next 20 years. If there are significant changes to land uses for the proposed Project in the future, this WSA may need to be revisited and updated accordingly. The impact related to water supply would be **less than significant**.

Mitigation Measures

No mitigation is required.

Impact 3.14-2: Result in Impacts on Available Wastewater Treatment Capacity

The Project's wastewater generation of approximately 0.17 mgd ADWF would be an increase over the Project site's existing wastewater treatment volumes. However, the SRWTP has been master planned to accommodate 350 mgd ADWF. Therefore, the Project's wastewater generation could be accommodated within the existing and planned treatment capacity of the SRWTP. This impact would be **less than significant**.

The Project is estimated to generate approximately 0.17 mgd ADWF. Phases 1A and 1B would cumulatively create approximately 0.04 mgd ADWF of wastewater, and Phase 1C and Phases 2–4 would cumulatively generate 0.13 mgd ADWF. The Project's wastewater generation would be an increase over existing wastewater treatment volumes, given that the property is currently vacant.

Regional San treats an average of 130 million gallons of wastewater per day and has been master planned to accommodate 350 mgd ADWF (Regional San 2008). The Project would represent less than 0.1 percent of SRWTP's capacity. In addition, it is not anticipated that Regional San will need to consider further improvements to the SRWTP until after 2050 (Regional San 2008). Therefore, the Project's wastewater generation could be accommodated within the existing and planned treatment capacity of the SRWTP. This impact would be **less than significant**.

Mitigation Measures

No mitigation is required.

Impact 3.14-3: Result in Impacts on Solid Waste Facilities and Compliance with Regulations Related to Solid Waste

The Project would include uses that would increase the generation of municipal solid waste. Waste generated at the Project site could be accommodated by several permitted haulers, and wastes would be hauled to a permitted landfill for disposal as selected by the hauler. There is substantial remaining capacity in the landfills in the area serving local waste haulers, with an average remaining capacity of more than 70 percent. Therefore, because the Project would not generate solid waste in excess of State or local standards or in excess of the capacity of the local infrastructure, negatively affect the provisions of solid waste services, or affect the attainment of solid waste reduction goals, this impact would be **less than significant**.

The Project would include uses that would increase the generation of operational solid waste generation at the New Zoo, including trash and recycling, related to visitor attendance, employment, and animal exhibits. The resulting increased demand for waste disposal has the potential to result in the need for additional landfill capacity to meet solid waste disposal needs. To determine whether there would be sufficient landfill capacity to accommodate waste generated under the Project, the projected waste generated was estimated based on CalRecycle solid waste assumptions and projected visitors and employees. Using assumptions included in the Elk Grove General Plan EIR, new jobs from the Project are assumed to generate 11.4 pounds of waste per employee per day. Because the Project is a unique land use as a zoo, there are no available waste generation rates for visitors. The Project site is not a commercial, industrial, or residential land use and related waste generation rates would not apply. It is anticipated that with the proposed use the Project would generate greater solid waste than assumed for park or recreational facilities. The Project would have visitors coming and going throughout the day during hours of operation. Therefore, waste generation rates for educational facilities were assumed to be most applicable to represent Project visitors.

Visitors to the New Zoo are assumed to generate 0.5 pound of waste per person per day (CalRecycle 2023a). As shown in Table 3.14-8, projected solid waste generation associated with the Project would be 1,021 tons per year.

Table 3.14-8 Projected Solid Waste Generation

Projection	Disposal Rate	Annual Disposal Rate	Project Waste Generation
4,408 daily visitors ¹	0.5 lb/visitor/day	0.09 ton per visitor	397 tons per year
300 employees	11.4 lb/employee/day	2.08 tons per employee	624 tons per year
Total Projected Solid Waste Generation			1,021 tons per year

¹ Assumes the New Zoo would be open 363 days a year with 1.6 million annual visitors.

Source: Compiled by Ascent Environmental in 2023.

Municipal solid waste, recyclable materials, and compostable food waste would be separated on-site and collected by a contracted waste hauler. Waste generated at the Project site could be hauled by several permitted haulers, and wastes would be hauled to a Sacramento County landfill (Kiefer Landfill) located approximately 13 miles northeast of the Project site for disposal. As shown in Table 3.14-6, there is substantial remaining capacity in the landfills serving local waste haulers, with an average remaining capacity of more than 80 percent. Therefore, the Project would be served by solid waste management companies and landfills with capacity sufficient to serve the future development. In addition, the New Zoo's animal exhibits would result in operational solid waste generation at the New Zoo associated with animal bedding and waste. Waste from animals could be used to create a composted blend of select animal manures mixed with bedding materials, such as straw and wood chips from various exhibits. Two compostable animal waste and five non-compostable animal waste low boys or hoppers would be located on the site, as shown in Figure 2-10, in Section 2, "Project Description." Animal waste not composted on site and bedding would be picked up by waste haulers every one to two days. Two collector areas at the northeast and northwest portions of the site would include a 20 yard dumpster for animal waste compost and three hoppers for trash, recycling, and compost pickup.

The Project would also include facilities that create waste related to veterinarian equipment and medical materials. As noted in Section 3.8, "Hazards and Hazardous Materials," the New Zoo's care quarter buildings would house the veterinarian facilities for daily and preventive medical procedures on the animal residents. The Sacramento County Environmental Management Department would ensure that the Medical Waste Program provides health and safety protection for members of the public and health care facility personnel by minimizing or eliminating exposure to biohazardous wastes containing pathogenic organisms and sharps that were used on animals. The reader is referred to Section 3.8, "Hazards and Hazardous Materials," for further discussion of the handling of hazardous waste.

The Project would be required to comply with all applicable solid waste regulations, such as the California Integrated Waste Management Act, CalRecycle Model Ordinance, City of Elk Grove Source Reduction and Recycling Element, and EGMC Chapters 30.50, 30.70, and 30.9, which would be ensured through the development review process. Therefore, because the Project would not generate solid waste in excess of State or local standards or in excess of the capacity of the local infrastructure, negatively affect the provisions of solid waste services, or affect the attainment of solid waste reduction goals, this impact would be **less than significant**.

Mitigation Measures

No mitigation is required.

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4 CUMULATIVE IMPACTS

4.1 INTRODUCTION TO THE CUMULATIVE ANALYSIS

This Draft EIR provides an analysis of cumulative impacts of the proposed New Zoo at Elk Grove Project, as required by Section 15130 of the State CEQA Guidelines. The goal of such an exercise is twofold: first, to determine whether the overall long-term impacts of all such projects would be cumulatively significant, and second, to determine whether the incremental contribution to any such cumulatively significant impacts of the Project would be “cumulatively considerable” (and thus significant). (See State CEQA Guidelines Sections 15130[a]–[b], Section 15355[b], Section 15064[h], and Section 15065[c]; and *Communities for a Better Environment v. California Resources Agency* [2002] 103 Cal. App. 4th 98, 120.) In other words, the required analysis intends first to create a broad context in which to assess cumulative impacts, viewed on a geographic scale beyond the Project site itself, and then to determine whether the Project’s incremental contribution to any significant cumulative impacts from all projects is itself significant (i.e., “cumulatively considerable”).

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

4.2 CUMULATIVE IMPACT METHODOLOGY

Consistent with State CEQA Guidelines Section 15130, the discussion of cumulative impacts in this Draft EIR focuses on significant and potentially significant cumulative impacts. Section 15130(b) of the State CEQA Guidelines provides, in part, the following:

[t]he discussion of cumulative impacts shall reflect the severity of the impacts and their likelihood of occurrence, but the discussion need not provide as great detail as is provided for the effects attributable to the project alone. The discussion should be guided by the standards of practicality and reasonableness, and should focus on the cumulative impact to which the identified other projects contribute rather than the attributes of other projects which do not contribute to the cumulative impact.

A proposed Project is considered to have a significant cumulative effect if:

- ▶ the cumulative effects of development without the project are not significant and the project’s additional impact is substantial enough, when added to the cumulative effects, to result in a significant impact, or
- ▶ the cumulative effects of development without the project are already significant and the project contributes measurably to the effect.

The term “measurably” is subject to interpretation. The standards used herein to determine measurability are that the impact must be noticeable to a reasonable person or must exceed an established threshold of significance (defined throughout the resource sections in Chapter 3 of this Draft EIR). This cumulative analysis also assumes that all mitigation measures identified in Chapter 3 to mitigate Project impacts are adopted and implemented and that all elements of the design-build performance criteria that would minimize environmental effects are implemented.

The State CEQA Guidelines (Section 15130) identify two basic methods for establishing the cumulative environment in which the project is to be considered: the use of a list of past, present, and probable future projects or the use of adopted projections from a general plan, other regional planning document, or a certified EIR for such a planning document. This analysis uses a combination of the list and planning document approach, as described further below.

4.3 CUMULATIVE SETTING

4.3.1 Geographic Scope

The geographic area that could be affected by the project and is appropriate for a cumulative impact analysis varies depending on the environmental resource topic, as presented in Table 4-1.

Table 4-1 Geographic Scope of Cumulative Impacts

Resource Topic	Geographic Area
Aesthetics	Project site and City General Plan planning area
Air Quality	Sacramento Valley Air Basin and Sacramento County within the jurisdiction of the Sacramento Metropolitan Air Quality Management District, and immediate Project vicinity (pollutant emissions that are localized)
Biological Resources	Greater Project area vicinity, including adjacent migration and movement corridors
Cultural, and Tribal Cultural Resources	City and surrounding Sacramento Valley region (historical resources), former territory of the Nisenan and Plains Miwok (archaeological resources, human remains, and tribal cultural resources)
Energy	Sacramento Municipal Utility District (SMUD) and Pacific Gas and Electric Company (PG&E) service areas
Geology and Soils	Flood terraces of the Sacramento River and its tributaries within the Riverbank and Modesto geologic formations (unique paleontological and geological resources)
Greenhouse Gas Emissions and Climate Change	Global/Statewide
Hazards and Hazardous Materials	City
Hydrology and Water Quality	South Stone Lake–Snodgrass Slough watershed for surface waters and the central South American Subbasin for groundwaters
Land Use and Planning	City and immediate Project vicinity
Noise and Vibration	Project site and immediate vicinity
Public Services and Recreation	Local service areas (e.g., Cosumnes Community Services District Fire Department and Elk Grove Police Department)
Transportation	City and City General Plan planning area
Utilities and Service Systems	Local service areas (e.g. Sacramento County Water Agency, Sacramento Regional County Sanitation District, Sacramento Area Sewer District) and service areas for landfills that serve the City, SMUD, and PG&E)

Source: Compiled by Ascent Environmental in 2023

4.3.2 Regional Planning Environment

City of Elk Grove General Plan

The 2019 *City of Elk Grove General Plan* is a broad framework for planning the future of the City. It is the official policy statement of the City Council that is used to guide the private and public development of the City in a manner to gain the maximum social and economic benefit to the citizens. The Planning Area for the General Plan includes both land within City boundaries (37 square miles, or 23,453 acres) and lands outside the City in unincorporated Sacramento County to the south and east (12.2 square miles, or 7,795 acres) in four study areas.

Development within the current City limits is anticipated to generate a maximum of 72,262 dwelling units, 233,406 residents, and 81,784 jobs. According to the most recent General Plan amendment approved in December 2023, and assuming future annexation and development of the study areas, buildout under the 2019 General Plan would result

in a maximum of 103,428 dwelling units, 334,078 residents, and 121,885 jobs (City of Elk Grove 2023). The 2023 amendments to the General Plan did not alter the planned development footprint of the City and Planning Area established under the 2019 General Plan. The EIR for the General Plan and Subsequent EIR (SEIR) for the General Plan Amendments and Update to VMT Standards (State Clearinghouse No. 2022020463) analyzes the full development potential of the General Plan Land Use Diagram, including the study areas, compared to existing (2015) conditions (City of Elk Grove 2018 and 2023).

4.3.3 Related Projects

A list of probable future projects is provided below. Probable future projects are those in the Project vicinity that have the possibility of interacting with the Project to generate a cumulative impact (based on proximity and construction schedule) and either:

- ▶ are partially occupied or under construction,
- ▶ have received final discretionary approvals,
- ▶ have applications accepted as complete by local agencies and are currently undergoing environmental review, or
- ▶ are proposed projects that have been discussed publicly by an applicant or that otherwise have become known to a local agency and for which sufficient information about the project has been provided to allow at least a general analysis of environmental impacts.

Past and present projects in the vicinity are also considered as part of the cumulative analysis because they contribute to the existing conditions upon which the Project's and probable future projects' environmental effects are considered.

Table 4-2 briefly summarizes reasonably foreseeable projects within approximately 5 miles of the Project site in the City of Elk Grove and unincorporated Sacramento County with the potential to contribute to the cumulative condition.

Table 4-2 Related Projects

#	Project	Location	Description	Status
1	Wilton Rancheria Casino Resort Project	Northwest portion of the intersection of Grant Line Road and Highway 99, Elk Grove	Casino, events center, hotel, and associated facilities	Under construction, partially complete
2	Dignity Health Hospital	Elk Grove Town Center	Six-story, 456,719 square-foot, 330-bed hospital; a three-story, 65,000 square-foot medical office building; a five-level, 169,520 square-foot parking structure; and additional supporting facilities for the hospital	On hold pending updated entitlement approvals
3	Elliot Springs	Intersection of Bond Road and Waterman Road	New 230 Acre Residential community, up to 660 single-family residences and 125 assisted living units	Under construction
4	McGeary Ranch Village	East side of Bruceville Road at Machado Ranch Drive	New 33-acre subdivision with 241 single family homes	Under construction
5	Poppy Keys Southwest	South of Poppy Ridge Road, Elk Grove	267 single-family residential lots on 61 acres	Approved
6	Sterling Meadows Subdivision	Northeast corner of Kammerer Road and Lotz Parkway, Elk Grove	Single-family homes	Under construction, partially complete
7	Mendes Subdivision	Bilby Road, Elk Grove	216 single-family residential lots, two office lots, a school, and park on 80 acres	Under construction

#	Project	Location	Description	Status
8	Bruceview Meadows Subdivision	10425 Bruceville Road, Elk Grove	332 single-family homes	Under construction
9	Madeira South (Poppy Lane)	North and South of Poppy Ridge Road, Elk Grove	460 single-family homes	Under construction
10	Kammerer Road Extension Project	Kammerer Road, near the City of Elk Grove's southern boundary	Widen and extend Kammerer Road from State Route 99 to Interstate 5	Approved
11	Buscher House- Point Pleasant United Methodist Church	8550 Twin Cities Road, Walnut Grove	Request for a Substantial Compliance determination that activities under review are compliant with conditions placed on past site entitlement approvals.	Pending
12	Tuscan Ridge West	South of Poppy Ridge Road and Knotts Drive	A new 20 acre subdivision with 100 single-family homes	Under construction
13	Arbor Ranch Large Lot	Bilby road and Big Horn boulevard	Tentative parcel map to subdivide arbor ranch into four large lot subdivision for the purposes for the Arbor Ranch small lot map to be constructed pursuant to the approved layout, including all necessary infrastructure and public improvements, subject to the conditions of approval	Approved
14	Telos Greens TSM and Rezone	South of Bilby Road east of Montaria way	Create 85 single family residential lots on 26 acres and a SPA and Community Plan Amendment for minor changes to land uses	Approved
15	Bruceville Meadows Townhomes	Southeast corner of Bruceville road and Bilby Road	26 buildings containing a total of 157 units at the southeast corner of Bruceville and Bilby roads	Approved
16	Poppy Grove Apartments	Southeastern corner of Bruceville road and Poppy Ridge Road	Apartment development consisting of 387 units developed in three phases. Tentative parcel map and tree removal permit	Under construction
17	Quail Run II	South side of Quail run lane and Tuzza court intersection	108 unit apartment complex, along with associated site improvements including parking and landscaping	Complete
18	Sheldon Farms North	South of Sheldon Road between Bruceville road and Lewis Stein road	Subdivide 79 acres to develop 55 acres with up to 391 single family residential units, 5 acres with up to 126 multi family residential units, 5 acres of commercial, and 10 acres of parks and open space	Under construction
19	The Lyla	Northwest corner of Laguna boulevard and Bruceville road	Apartment complex with 294 affordable units.	Under construction
20	Cornerstone Village	9270 Bruceville road	Multi-family development consisting of 84 units. Also includes parcel map to subdivide site into two parcels and a Density Bonus	Under construction
21	Tegan Estate	5201 Tegan Road	Request to subdivide 3 existing parcels totaling 11.6 acres into 41 parcels and one remainder lot for residential development	Approved

Note: sq. ft. = square feet.

Sources: Compiled by Ascent Environmental in July 2023 based on review of City of Elk Grove 2023 and Sacramento County 2023

4.4 ANALYSIS OF CUMULATIVE IMPACTS

The following sections contain a discussion of the cumulative effects anticipated from implementation of the New Zoo at Elk Grove Project, together with related projects and planned development in the City of Elk Grove and Sacramento County, for each of the 14 environmental issue areas evaluated in this Draft EIR. The analysis conforms with Section 15130(b) of the State CEQA Guidelines, which specifies that the “discussion of cumulative impacts shall reflect the severity of the impacts and their likelihood of occurrence, but the discussion need not provide as great detail as is provided for the effects attributable to the project alone. The discussion should be guided by the standards of practicality and reasonableness, and should focus on the cumulative impact to which the identified other projects contribute rather than the attributes of other projects which do not contribute to the cumulative impact.”

When considered in relation to other reasonable foreseeable projects, cumulative impacts to some resources would be significant and more severe than those caused by the Project alone.

For purposes of this EIR, the project would result in a significant cumulative effect if:

- ▶ the cumulative effects of related projects (past, current, and probable future projects) are not significant and the incremental impact of implementing the New Zoo at Elk Grove Project is substantial enough, when added to the cumulative effects of related projects, to result in a new cumulatively significant impact; or
- ▶ the cumulative effects of related projects (past, current, and probable future projects) are already significant and implementation of the New Zoo at Elk Grove Project makes a considerable contribution to the effect. The standards used herein to determine a considerable contribution are that either the impact must be substantial or must exceed an established threshold of significance.

This cumulative analysis assumes that all mitigation measures identified in Chapter 3 to mitigate project impacts are adopted and implemented, and all elements of the design build performance criteria that would minimize environmental effects are implemented. The analysis herein analyzes whether, after implementation of project-specific mitigation and performance criteria that minimize environmental effects, the residual impacts of the Project would cause a cumulatively significant impact or would contribute considerably to existing/anticipated (without the project) cumulatively significant effects. Where the Project would so contribute, additional mitigation is recommended where feasible.

4.4.1 Aesthetics

The geographic context for cumulative impacts related to aesthetics is confined to those areas that would be visible in the landscape in the vicinity of the Project. For a project to contribute to a cumulative impact with respect to visual resources or aesthetics, the project would need to be visible within the same views or viewshed as other contributing projects, with the combination of multiple projects within the views creating an adverse visual effect. The City General Plan EIR identified visual character and lighting/glare impacts from buildout of the City and planning area as cumulatively considerable and significant and unavoidable (City of Elk Grove 2019). The SEIR prepared for the General Plan Amendments and Update to VMT Standards made similar findings as those identified in the General Plan EIR (City of Elk Grove 2023).

Aesthetic impacts related to visual character and quality impacts and light and glare identified for the Project are summarized below. As discussed in Section 3.1, “Aesthetics,” implementing the Project would not result in impacts on scenic vistas or scenic resources (scenic roadways and highways) and would therefore not combine to create considerable changes and cumulative effects on visual resources. Therefore, impacts related to scenic vistas or scenic resources are not discussed further.

Impact 4-1: Contribute to Cumulative Visual Character Impacts

As identified in Impact 3.1-1, the Project site is in the Livable Employment Area (LEA) Community Plan Area, which is in an area planned for urban development that was evaluated in the General Plan EIR as well as in the General Plan Amendments and Update to VMT Standards SEIR. Development of the proposed New Zoo would convert the rural

visual character of the site to an urban/suburban developed character. However, as described in Impact 3.1-1 the Project would be compatible with proposed future urban development envisioned in the LEA Community Plan Area. Proposed development surrounding the Project site, such as residences to the north and east, along with construction of the Project would result in continued development of the area as an urban center. The overall architectural design of the New Zoo would incorporate the use of neutral tones in varying shades and material types used to break up the massing of large building façades to make the site consistent with existing and proposed surrounding development. Surrounding development proposed around the site would be of similar scale and color as the Project and would be required to adhere to the LEA Community Plan development standards. Therefore, the Project's contribution to the significant cumulative impact **would be less than cumulatively considerable**.

Mitigation Measures

No mitigation is required.

Impact 4-2: Contribute to Cumulative Light and Glare Impacts

Continued urbanization of the region introduces additional sources of nighttime light and glare. Overall, continued development increases skyglow and other nighttime illumination within the region. However new development projects in the City, such as those surrounding the site listed in Table 4-2, are required to comply with the design guidelines and with Elk Grove Municipal Code (EGMC) Chapter 23.56 for lighting standards and the City's adopted Design Guidelines, which reduce light and glare impacts. Although the Project would contribute to ambient light levels, the Project would conform to the design guidelines in the City's General Plan, EGMC Chapter 23.56, and the Zoological Park SPA, which requires the New Zoo to include non-reflective surfaces and shielded lighting to reduce glare and off-site spillage. Development near the site listed in Table 4-2 would similarly be subject to the LEA Community Plan design standards and EGMC Chapter 23.56 to reduce light and glare. Therefore, the Project would not contribute to cumulative effects of light and glare. The Project's contribution to the significant cumulative impact **would be less than cumulatively considerable**.

Mitigation Measures

No mitigation is required.

4.4.2 Air Quality

The geographic context for cumulative impacts related to air quality is regional for criteria air pollutant and ozone precursors and includes the Sacramento Valley Air Basin (SVAB) and Sacramento County within the jurisdiction of the Sacramento Metropolitan Air Quality Management District (SMAQMD), and the context is local for toxic air contaminants (TACs) and odors. Cumulative development in the region will continue to increase the concentration of pollutants from construction activities, traffic, natural gas combustion in buildings, area sources, and stationary sources, but this increase would be partially offset by State and federal policies that set emissions standards for mobile and nonmobile sources.

The City General Plan EIR and the General Plan Amendments and Update to VMT Standards SEIR identified cumulative air quality impacts from buildout of the City and planning area as cumulatively considerable and significant and unavoidable (City of Elk Grove 2019). The General Plan Amendments and Update to VMT Standards SEIR identified additional mitigation for the LEA Community Plan Area to reduce NO_x emissions and determined that long-term operational air quality emissions would be greater than those identified in the General Plan EIR (City of Elk Grove 2023).

Toxic air contaminants, carbon monoxide (CO) hotspots, and odor are localized impacts for the Project area. There are no existing or planned land uses adjacent to the Project that would be a large stationary sources of local TACs or odors. SMAQMD's CEQA Guide, CO emissions are "predominately generated in the form of mobile-source exhaust from vehicle trips. These vehicle trips occur throughout a paved network of roads, and therefore, associated exhaust emissions of [CO] are not generated in a single location where high concentrations could be formed" (SMAQMD 2020:4-7). A CO hotspot impact is not anticipated unless an intersection experiences more than 31,600 vehicles per

hour. Cumulative traffic volumes at intersections near the Project would not exceed 31,600 vehicles per hour (see Appendix H). The reader is referred to Section 3.2, "Air Quality."

Ozone impacts are the result of cumulative emissions from numerous sources in the region and transport from outside the region. Ozone is formed in chemical reactions involving NO_x, reactive organic gases (ROG), and sunlight. All but the largest individual sources emit NO_x and ROG in amounts too small to have a measurable effect on ambient ozone concentrations by themselves. However, when all sources throughout the region are combined, they can result in cumulative ambient concentrations of ozone that exceed the NAAQS and CAAQS.

PM₁₀ and PM_{2.5} have similar regional cumulative impacts when particulates are entrained in the air and build to unhealthy concentrations over time. Operational PM₁₀ and PM_{2.5} are less likely to result in local cumulative impacts because operational sources of PM₁₀ and PM_{2.5} tend to be spread throughout the region (i.e., vehicles traveling on roads), not concentrating at one receptor.

Impact 4-3: Generate Short-Term Construction-Related Emissions of ROG, NO_x, CO, SO_x, PM₁₀, and PM_{2.5}

In accordance with SMAQMD guidance, the Project was evaluated quantitatively and compared to SMAQMD's daily mass emission thresholds of significance for consistency with the most recently adopted air quality plan in the region. These thresholds are inherently tied to long-term regional air quality planning and demonstrate that the Project would not conflict with the applicable air quality plans. After implementation of SMAQMD's best management practices (BMPs) for construction provided in Mitigation Measure 3.2-1, the Project was determined to be consistent with the applicable air quality plans.

Sacramento County and the SVAB are in nonattainment for ozone and respirable particulate matter (PM₁₀) with respect to the California ambient air quality standards (CAAQS) and for ozone and fine particulate matter (PM_{2.5}) with respect to the national ambient air quality standards (NAAQS). Construction activities in the region would emit additional particulate matter and ozone precursors that may conflict with attainment efforts in the county. Because the region is in nonattainment, the existing cumulative condition is adverse, and any additional emissions would exacerbate that condition. However, SMAQMD has established construction emission thresholds for development projects that determine whether that particular project's emissions would be cumulatively considerable. As detailed in Section 3.2, "Air Quality," Project construction emissions would not exceed the applicable mass emission threshold established by SMAQMD. However, Mitigation Measure 3.2-1 requires the incorporation of construction emission BMPs that would reduce emissions. All other criteria air pollutants would remain below the SMAQMD thresholds. Other cumulative projects would similarly be subject to SMAQMD's basic management practices for construction pursuant to Rule 403. Therefore, the Project's construction-related contribution to criteria air pollutant or precursor emissions **would not be cumulatively considerable**.

Mitigation Measures

No mitigation is required.

Impact 4-4: Generate Long-Term Operational Emissions of ROG, NO_x, CO, SO_x, PM₁₀, and PM_{2.5}

SMAQMD's operational thresholds of significance apply at the project level and are cumulative in nature; that is, they identify the level of project-generated emissions above which impacts would be cumulatively considerable. Thus, they represent the level at which emissions of a given project would impede the air basin from achieving ambient air quality standards, considering anticipated growth and associated emissions in the region.

Implementation of the Project would result in a new zoo in the City of Elk Grove, which would in turn increase criteria air pollutants and ozone precursors in an area that is currently designated as nonattainment for several of the NAAQS and CAAQS. The Project would not generate emissions of ROG, NO_x, PM₁₀, and PM_{2.5} in exceedance of SMAQMD's mass emissions thresholds with compliance with the mandatory provisions of Parts 6 and 11 of the Title 24 California Building Code. Other cumulative projects would similarly be subject to SMAQMD's operational emissions thresholds and Parts 6 and 11 of the Title 24 California Building Code to reduce operational emissions. Therefore,

operational emissions would not exceed the thresholds of significance for criteria air pollutants or precursor emissions and **would not be cumulatively considerable**.

Mitigation Measures

No mitigation is required.

Impact 4-5: Contribute to Cumulative Long-Term Operational Criteria Air Pollutant or Precursor Emissions

SMAQMD has established operational emission criteria thresholds for individual projects beyond which a particular project's emissions would be cumulatively considerable. These thresholds of significance are determined using growth projections for the SVAB and are inherently cumulative. A project that operates below these thresholds is generally considered not to contribute to a cumulatively significant air quality impact, and those that operate above the thresholds would contribute to a cumulative impact.

As noted above, the Project is consistent with applicable local air quality plans designed to reduce regional emissions. Nonetheless, overall emissions associated with the Project would increase over existing conditions. The analysis included in Impact 3.2-2 shows that operation of the Project would result in the generation of additional ROG, NO_x, PM_{2.5}, and PM₁₀, which are criteria air pollutants and precursors that form the basis for the region's nonattainment status and the existing adverse cumulative condition in the air basin. The Project would not conflict with the policies and strategies included in the *Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan* to address attainment of the NAAQS and CAAQS for ozone, respectively, and the Project would not exceed SMAQMD's project-level operational emissions threshold. Other cumulative projects would be required to be consistent with strategies in SMAQMD's attainment plan and operational emission thresholds. Therefore, the Project would not contribute to a net increase in long-term operational criteria air pollutant and precursor emissions that form the basis for the region's nonattainment status **would not be cumulatively considerable**.

Mitigation Measures

No mitigation is required.

4.4.3 Biological Resources

The geographic context for cumulative impacts related to biological resources is the greater Project vicinity, including adjacent vacant parcels used for agriculture. Surrounded by single-family residences to the east, agriculture to the south and west, and active construction of a new residential subdivision to the north. Impacts to biological resources of buildout under the General Plan were determined to be significant and unavoidable under cumulative conditions in the General Plan EIR (City of Elk Grove 2019). The SEIR prepared for the General Plan Amendments and Update to VMT Standards made similar biological resources findings as those identified in the General Plan EIR (City of Elk Grove 2023).

The area surrounding the site is planned for development as part of the LEA Community Plan and conversion of undeveloped and agricultural land will continue throughout the region within the vicinity of the Project. Development in the vicinity of the Project can be placed into two categories: (1) commercial and residential development and (2) roadway construction and widening (see Table 4-2). Past development in the region, including conversion of natural land to residential uses and agriculture, has resulted in a substantial loss of native habitat. The overall effect of this land conversion on special-status plants and wildlife and on sensitive habitat has been decidedly negative. Therefore, the cumulative condition for special-status species and sensitive habitats in the vicinity of the Project is already adverse.

As discussed in Section 3.3, "Biological Resources," implementing the Project would not result in impacts on special-status plants, sensitive natural communities or riparian habitat, or State-protected or federally protected wetlands and therefore would not combine to create considerable changes to and cumulative effects on biological resources. Therefore, impacts on special-status plants, sensitive natural communities or riparian habitat, and State-protected or federally protected wetlands are not discussed further.

Impact 4-6: Contribute to Cumulative Impacts on Biological Resources

Project construction activities (e.g., operation of vehicles and equipment, presence of construction crews) may produce levels of noise and novel visual stimulus that may result in disturbance to wildlife species in the vicinity of the Project site. Construction of the related projects presented in Table 4-2 would result in similar conditions during construction activities, and impacts on special-status wildlife species in the vicinity of those projects would be the same as or similar to those described in Section 3.3, "Biological Resources," of this EIR.

As described in Section 3.3, Project construction may result in impacts on Swainson's hawk, white-tailed kite, burrowing owl, and other nesting birds. Implementation of Mitigation Measures 3.3-1a, 3.3-1b, 3.3-1c, and 3.3-1d would offset Project impacts under cumulative conditions through preconstruction protection measures (surveys and avoidance of identified species). Development around the Project site, as listed in Table 4-2, would be subject to biological resources protection measures in the EGMC as well as State and federal requirements to protect biological resources. Therefore, the Project's contribution to substantial effects on special-status wildlife or habitat **would not be cumulatively considerable**.

Mitigation Measures

No mitigation is required.

4.4.4 Cultural, Historical, and Tribal Cultural Resources

The geographic scope for the analysis of cumulative impacts to archaeological resources, tribal cultural resources, and human remains is the historic lands of the Plains Miwok people. The Plains Miwok lived in the Sacramento Valley along the Sacramento, Cosumnes, and Mokelumne rivers. Impacts to cultural resources of buildout under the General Plan were determined not to be cumulatively considerable in the General Plan EIR (City of Elk Grove 2019). The SEIR prepared for the General Plan Amendments and Update to VMT Standards made similar cultural resources findings as those identified in the General Plan EIR (City of Elk Grove 2023).

Impact 4-7: Contribute to Cumulative Impacts on Cultural, Historical, and Tribal Cultural Resources

Because all significant cultural resources are unique and nonrenewable members of finite classes, meaning there are a limited number of significant cultural resources, all adverse effects erode a dwindling resource base. The loss of any one archaeological site could affect the scientific value of others in a region because these resources are best understood in the context of the entirety of the cultural system of which they are a part. The cultural system is represented archaeologically by the total inventory of all sites and other cultural remains in the region. Development in the Sacramento region has resulted in an existing significant adverse effect on archaeological resources, tribal cultural resources, and human remains. Cumulative development, including projects described in Table 4-2, continues to contribute to the disturbance of cultural resources. As a result, a meaningful approach to preserving and managing cultural resources must focus on the likely distribution of cultural resources, rather than on a single project or parcel boundary.

No known unique archaeological resources, tribal cultural resources, or human remains are located within the boundaries of the proposed Project area; nonetheless, Project-related earth-disturbing activities could damage undiscovered archaeological resources, tribal cultural resources or human remains. The Project, in combination with other developments in the region, could contribute to ongoing substantial adverse changes in the significance of unique archaeological resources resulting from urban development and conversion of natural lands. Cumulative development could result in potentially significant archaeological resource impacts. Implementation of Mitigation Measure 3.4-1a would ensure that the proposed Project's contribution to cumulatively significant archeological resources and tribal cultural resources impacts would not be considerable by requiring construction work to cease in the event of an accidental find and the appropriate treatment of discovered resources, in accordance with pertinent laws and regulations. With implementation of this mitigation measure, the Project's contribution to these impacts would be offset. Mitigation Measures 3.4-2b would require cultural awareness training and Mitigation Measure 3.4-2c would require Native American monitoring ensure that the Project's contribution to cumulatively significant tribal

cultural resources impacts would not be considerable by training construction employees and staff and inviting Native American monitors. Further, cumulative development would be required to implement similar mitigation to avoid/reduce impacts to archaeological resources and tribal cultural resources. Compliance with California Health and Safety Code Section 7050.5 and PRC Section 5097 would ensure that treatment and disposition of the remains occurs in a manner consistent with state guidelines and California Native American Heritage Commission guidance. Proposed development surrounding the Project site, as included in Table 4-2, would be subject to individual environmental analysis and mitigation impacts and would be required to comply with federal, state, and local requirements related to cultural resources. Therefore, the Project **would not have a considerable contribution** to any significant cumulative impact related to archaeological resources, tribal cultural resources, or human remains.

Mitigation Measures

No mitigation is required.

4.4.5 Energy

The geographic area considered for cumulative impacts related to energy use includes the Sacramento Municipal Utility District (SMUD) and Pacific Gas and Electric Company (PG&E) service areas. SMUD and PG&E employ various programs and mechanisms to support the provision of electricity and natural gas services to new development and recoup costs of new infrastructure. Connection fees are typically charged through standard billing for services.

Several other currently planned and approved projects identified in Table 4-2 would also receive electricity service from SMUD and natural gas service from PG&E. These projects would also consume energy related to transportation (i.e., gasoline and diesel consumption for passenger vehicles, trucks, buses, and other vehicles) and construction. These projects would be required to implement energy efficiency measures in accordance with Part 6 of the Title 24 California Building Code (California Energy Code) to reduce energy demand from buildings. There is no evidence to suggest that implementation of development would result in a significant cumulative energy impact related to the wasteful or inefficient use of energy.

The City General Plan EIR identified less than cumulatively considerable energy impacts from buildout of the City and planning area (City of Elk Grove 2019). The SEIR prepared for the General Plan Amendments and Update to VMT Standards made similar energy findings as those identified in the General Plan EIR (City of Elk Grove 2023).

Impact 4-8: Contribute to Cumulative Energy Impacts

Impact 3.5-1 concludes that the Project would not result in the wasteful or inefficient use of energy and that a 20-kilowatt (kW) solar array would be installed on the proposed retail building and a 14-kW array would be installed on the proposed office building. The Project would not use natural gas or natural gas infrastructure, complying with the California Energy Code and the City of Elk Grove Climate Action Plan's (CAP) direction to minimize natural gas consumption, would include 120 bicycle parking stalls, 327 total EV parking spaces (87 of which would be EV ready and 240 of which would be EV-capable parking spaces).

Impact 3.5-2 concludes that the Project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. The Project would incorporate various design features that are similar to the GHG reduction measures included in the City's CAP, such as prohibiting on-site natural gas infrastructure, including 327 total EV parking spaces and infrastructure to support 120 bicycle stalls, and including on-site solar photovoltaic systems. Proposed development surrounding the Project site, as included in Table 4-2, would be subject to individual environmental analysis and mitigation impacts and would be required to comply with federal, state, and local requirements related to energy. Because implementing the Project would not result in the wasteful or inefficient use of energy and the Project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency, the Project's contribution to cumulative energy use **would not be cumulatively considerable**.

Mitigation Measures

No mitigation is required.

4.4.6 Geology and Soils

Development of the Project would have a significant effect on the environment if it, in combination with other projects, would contribute to a significant cumulative impact related to geology and soils. The following sections describe the potential for the Project to result in a cumulatively considerable contribution to impacts related to seismic and geologic hazards, erosion and loss of topsoil, and paleontological resources. Impacts to geology and soils from buildout under the General Plan were determined to be less than cumulatively considerable in the General Plan EIR (City of Elk Grove 2019). The SEIR prepared for the General Plan Amendments and Update to VMT Standards made similar geology and soils findings as those identified in the General Plan EIR (City of Elk Grove 2023).

Impact 4-9: Cumulative Seismic Groundshaking

As described in Section 3.6, "Geology and Soils," the Project site, which comprises the cumulative setting, would potentially be susceptible to hazards from seismic ground shaking and expansive soils. Surface fault rupture, liquefaction, landslides, lateral spreading, subsidence, and collapse are not anticipated to be a concern within the cumulative setting. Impacts related to seismic and geologic hazards would not be cumulatively considerable because the geographic context is generally site-specific, rather than cumulative in nature. Notwithstanding, past development within the cumulative setting has been regulated by the California Building Code (CBC) and local building codes, which ensure that structures are designed and engineered to site-specific conditions. Each site where present and reasonably foreseeable projects would occur has unique geologic considerations that would also be subject to uniform site development and construction standards consistent with the CBC and local building codes. As discussed in Section 3.6, a site-specific geotechnical study has been prepared for the Project (Geocon Consultants, Inc. 2023). The Project would incorporate the design and engineering recommendations contained in the geotechnical study, which would account for the unique geotechnical factors affecting the Project site and conform to the requirements of the CBC and local building code requirements. Proposed development surrounding the Project site, as included in Table 4-2, would be subject to individual environmental analysis and mitigation impacts and would be required to comply with the requirements of the CBC. Therefore, implementation of the Project would result in a **less than cumulatively considerable** contribution to impacts related to seismic and geologic hazards.

Impact 4-10: Contribute to Cumulative Soil Erosion and Loss of Topsoil

As described in Section 3.6, "Geology and Soils," the Project site, which comprises the cumulative setting, is relatively flat with no major slopes. However, development in the cumulative setting involving substantial ground disturbance and earth-moving activities or changes to drainage patterns would have potential to result in soil erosion or the loss of topsoil.

Past construction activities within the cumulative setting have been regulated by the National Pollutant Discharge Elimination System (NPDES) permit program, which includes requirements to minimize erosion from construction sites and from operational activities associated with past development. Therefore, the contribution of past projects to cumulative erosion impacts has been negligible.

The present and reasonably foreseeable projects listed in Section 4.2.4, "Related Projects," include development, transportation, infrastructure, and public works projects. These types of projects generally require temporary construction activities involving ground disturbance, which have potential to contribute to erosion and loss of topsoil throughout the cumulative setting. Under the NPDES permit program, projects that disturb more than 1 acre of land are required to prepare a Storm Water Pollution Prevention Plan (SWPPP) and implement associated best management practices (BMPs) that are specifically designed to reduce construction-related erosion. The SWPPP and BMPs would be submitted to the Central Valley Regional Water Quality Control Board in compliance with the statewide *National Pollutant Discharge Elimination System General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities* (Construction General Permit) (Order 2009-009-DWQ as amended by Order 2012-0006-DWQ). The Project would also be required to obtain and comply with a grading and erosion control permit from the City. In addition, construction activities would be subject to Sacramento Metropolitan Air Quality Management District (SMAQMD) rules regarding dust control, which would reduce the potential for erosion and sedimentation. Once operational, the potential for erosion would be reduced because areas of bare ground would be

developed with structure, pavement, and landscaping and projects would be required to incorporate post-construction stormwater management strategies to reduce the potential for erosion from new development and redevelopment. Therefore, the contribution to cumulative erosion impacts from present and reasonably foreseeable projects would be negligible.

In combination with past, present, and reasonably foreseeable projects discussed above, development of the Project would not exacerbate the potential for erosion and loss of topsoil within the cumulative setting. Impacts related to erosion and loss of topsoil would be negligible because the development under the Project would be subject to the NPDES permit program, City grading and erosion control permit, and SMAQMD requirements described above. The Project would not involve operational activities with potential to result in erosion or loss of topsoil. Proposed development surrounding the Project site, as included in Table 4-2, would be subject to individual environmental analysis and mitigation impacts and would be required to comply with federal, state, and local requirements related to soil erosion and loss of topsoil. Therefore, Project implementation would result in a **less than cumulatively considerable** contribution to impacts related to erosion and loss of topsoil.

Impact 4-11: Contribute to Cumulative Impacts to Paleontological Resources

Geologic deposits that underlie the Central Valley, which comprises the cumulative setting, have a high paleontological sensitivity. Construction of development projects within the cumulative setting would potentially require ground disturbance within previously undisturbed soils and in areas of high sensitivity for paleontological resources.

Before the adoption of regulations pertaining to the protection of paleontological resources (e.g., California Public Resources Code sections 5097.5 and 30244), past development within the cumulative setting has contributed to the loss of important paleontological resources. Therefore, the contribution of past projects to cumulative paleontological resources impacts has been significant.

The present and reasonably foreseeable projects listed in Section 4.2.4, "Related Projects," include development, transportation, infrastructure, and public works projects. These types of projects generally require temporary construction activities involving ground disturbance, which have potential to occur within previously undisturbed soils and contribute to the destruction of paleontological resources. Therefore, the potential impact from cumulative development would be potentially significant.

In combination with past, present, and reasonably foreseeable projects discussed above, Project construction would increase the potential for destruction of paleontological resources within the cumulative setting. However, the Project would be required to comply with Mitigation 3.6-5, which specifies procedures to protect paleontological resources. Under Mitigation 3.6-5, a qualified paleontologist would develop a recovery plan for any paleontological resources that are encountered during Project construction. Other future development projects would be required to implement similar measures in compliance with California Public Resources Code sections 5097.5 and 30244 and other local regulations governing the protection of paleontological resources. Therefore, Project implementation would result in a **less than cumulatively considerable** contribution to impacts related to paleontological resources.

4.4.7 Greenhouse Gas Emissions and Climate Change

Climate change is a global problem. Greenhouse gases (GHGs) are global pollutants, unlike criteria air pollutants and toxic air contaminants, which are pollutants of regional and local concern. Whereas most pollutants with localized air quality effects have relatively short atmospheric lifetimes (approximately 1 day), GHGs have long atmospheric lifetimes (1 year to several thousand years). GHGs persist in the atmosphere long enough to be dispersed around the globe. Although the lifetime of any GHG molecule depends on multiple variables and cannot be determined with any certainty, it is understood that more carbon dioxide (CO₂) is emitted into the atmosphere than is sequestered by ocean uptake, vegetation, and other forms of sequestration. Of the total annual human-caused CO₂ emissions, approximately 55 percent are estimated to be sequestered through ocean and land uptake every year, averaged over the last 50 years, whereas the remaining 45 percent of human-caused CO₂ emissions remain stored in the atmosphere (IPCC 2013:467).

No single project alone would measurably contribute to an incremental change in the global average temperature or to global or local climates or microclimates. From the standpoint of CEQA, GHG impacts relative to global climate change are inherently cumulative.

The City General Plan EIR identified cumulative GHG impacts from buildout of the City and planning area as cumulatively considerable and significant and unavoidable by 2050 (City of Elk Grove 2019). A substantial increase in severity of this cumulative impact was identified in the General Plan Amendments and Update of VMT Standards SEIR (City of Elk Grove 2023).

Impact 4-12: Contribute to Cumulative Impacts Related to Greenhouse Gas Emissions and Climate Change

As described in Section 3.7, “Greenhouse Gas Emissions and Climate Change,” the discussion of GHG emissions associated with the Project for Impact 3.7-1 is inherently a cumulative impact analysis. GHG emissions from one project cannot, on their own, result in changes in climatic conditions. Therefore, the emissions from one project must be considered in the context of their contribution to cumulative global emissions. Implementation of Mitigation Measures 3.7-1 and 3.13-2a and 3.13-2b would reduce the Project’s GHG emissions, but it cannot be assured that the Project, with mitigation, would produce emissions sufficiently low enough to not conflict with the state’s long-term GHG reduction goal of carbon neutrality by 2045 established by AB 1279. Therefore, the Project’s contribution to substantial effects related to GHG emissions **would be cumulatively considerable and significant and unavoidable**.

Mitigation Measures

No mitigation is required.

4.4.8 Hazardous Materials and Public Health

In the cumulative condition, development of the City could result in increased use of potentially hazardous materials. Facilities that use hazardous materials would be required to obtain permits and comply with appropriate regulatory agency standards designed to avoid hazardous waste releases. The storage, use, disposal, and transport of hazardous materials are extensively regulated by various federal, State, and local agencies. Therefore, construction companies and businesses that would handle any hazardous substances would be required by law to implement and comply with these existing hazardous-materials regulations. Development of City would increase the extent of population that would need to be accommodated for emergency response and evacuation. The City General Plan EIR identified less than cumulatively considerable hazard impacts from buildout of the City and Planning Area (City of Elk Grove 2019). The SEIR prepared for the General Plan Amendments and Update to VMT Standards made similar hazardous materials findings as those identified in the General Plan EIR (City of Elk Grove 2023).

As discussed in Section 3.8, “Hazards and Hazardous Materials,” the Project would have no impact on existing or proposed schools associated with the handling or emission of hazardous materials; no potential to create a significant hazard to the public or the environment from known contamination on or near the Project site; no impact associated with exposing future employees to potential safety hazards or excessive noise generated by established aviation uses in the area; and no potential to increase wildland fire on or near the Project site. Therefore, implementation of the Project would not combine with other related projects to create cumulative impact under these impact areas.

Impact 4-13: Cumulative Transport, Use, Storage, and Disposal of Hazardous Materials

Future development in the Project vicinity, as shown in Table 4-2, would be required to comply with applicable hazardous materials management laws and regulations adopted at the federal, State, and local level including but not limited to Titles 10, 29, 40, and 49 of the CFR, which regulate the handling (including transportation), storage, and disposal of hazardous materials and wastes; and Titles 8, 22, and 26 of the CCR, which address the handling, storage, disposal and management (including workplace safety) of hazardous materials and wastes. Compliance with these regulations would be monitored during construction and occupancy of new projects through a variety of agencies.

Therefore, the Project would not combine with other related projects to create cumulative impacts related to the transport, use, storage, and disposal of hazardous materials.

As identified in Impact 3.8-1, Project construction and operation would involve the use of materials that could create a hazard if released into the environment. The proposed Project and projects listed in Table 4-2 would be required to comply with applicable federal, State, and local regulations and policies regarding hazardous materials and waste. Use, transport, and disposal of materials in compliance with established regulations would effectively address hazards associated with the use of these materials. Therefore, the Project would not result in a new or greater contribution to cumulative effects related to hazardous materials. The Project's contribution to substantial effects related to hazardous materials **would be less than cumulatively considerable**.

Mitigation Measures

No mitigation is required.

Impact 4-14: Contribute to Cumulative Impacts Related to Impairment of or Physical Interference with an Adopted Emergency Response or Emergency Evacuation Plan.

Project construction activities (e.g., operation of vehicles and equipment, presence of construction crews) could temporarily affect roadways and increase the number of people who may need to evacuate the region in the event of an emergency. These activities could result in the need for lane closures or narrowing, however such impacts tend to be localized, would be short-term, and would not combine to produce a significant cumulative effect. Construction traffic control plans are typically used for individual projects to mitigate potential effects. Therefore, the cumulative impact would not be significant.

As identified in Impact 3.8-2, the proposed Project would be located on existing parcels within the City and is not anticipated to encroach on or obstruct any existing evacuation routes. Proposed development in the Project vicinity would be required to comply with existing fire codes regarding emergency access as included in Chapter 17.04 of the EGMC. The Project would not result in a new or greater contribution to cumulative effects related to adopted emergency responses or emergency evacuation plans. Therefore, the Project's contribution to substantial effects related to adopted emergency responses or emergency evacuation plans **would be less than cumulatively considerable**.

Mitigation Measures

No mitigation is required.

4.4.9 Hydrology and Water Quality

The geographic context for cumulative impacts related to Hydrology and Water Quality is the local watershed. Groundwater quality in the central South American Subbasin is generally good (SCWA 2016); however, a portion of the northeastern side of the subbasin has been contaminated with industrial pollutants. Intensive groundwater pumping and remediation are conducted at the spill sites to prevent contaminated groundwater from spreading and mixing with the general aquifer. Intensive groundwater extraction over the past 60 years has resulted in a lowering of groundwater elevations centered near Elk Grove. Groundwater elevations in the subbasin have been monitored and extraction limited since the Water Forum Agreement in 2000. Although groundwater elevations have recovered to some extent, the problem persists, resulting in an existing cumulative adverse condition related to groundwater elevations.

The City General Plan EIR identified less than cumulatively considerable water quality and flooding impacts from the buildout of the City and planning area (City of Elk Grove 2019). However, the General Plan EIR identified a cumulatively considerable and significant and unavoidable impact on groundwater resources from future water supply demands that may result in impacts on surface water features (City of Elk Grove 2019). The SEIR prepared for the General Plan Amendments and Update to VMT Standards made similar hydrology and water quality findings as those identified in the General Plan EIR (City of Elk Grove 2023).

Impact 4-15: Contribute to Cumulative Water Quality Impacts

Implementing the Project and other development projects would result in construction and ground disturbance that would increase the potential for soil erosion and sediment pollution of waterways. The equipment required for construction would use fuel, solvents, lubricants, and other potentially hazardous materials that may degrade surface water and groundwater quality through accidental spills. However, the Project and other foreseeable development would also be required to comply with Central Valley Regional Water Quality Control Board (Central Valley RWQCB) National Pollutant Discharge Elimination System (NPDES) permit conditions that include preparation of a stormwater pollution prevention plan and a hazardous materials spill response plan. Improvement plans provided to the City before authorization for each construction phase would be required to conform to provisions of Municipal Code Chapter 16.44 (Land Grading and Erosion Control) and Chapter 15.12 (Drainage Control) that are in effect at the time of submittal and that include water quality control measures, such as the use of filter fences, fiber rolls, erosion control blankets, mulch, temporary drainage swales, settling basins, and fuel spill containment features. This would offset the Project's construction-related contribution to cumulative water quality impacts. Therefore, the Project's contribution to cumulative construction water quality impacts would not be cumulatively considerable.

Continued urban development creates the potential for accidental discharge of household or commercial products, improper use of pesticides, and runoff carrying oil and roadway residue. The Project and other regional development projects would create new urban areas and may increase the potential for contaminated urban runoff to reach surface waters and groundwaters, degrading water quality and affecting beneficial uses. The Central Valley RWQCB works to protect water quality from urban runoff through NPDES programs for municipal stormwater and industrial uses.

The Project and the cumulative projects would be required to meet the conditions of the Sacramento Region Stormwater Quality Design Manual, which implements the Central Valley RWQCB municipal NPDES permits. These permit conditions apply to projects within the Cities of Elk Grove and Sacramento, as well as projects permitted by Sacramento County. Low-impact development (LID) design measures have been well studied by governmental and research institutions and, when properly implemented, can substantially reduce water quality degradation when compared with conventional stormwater management systems. Examples of minimum LID measures include isolation requirements for fueling areas and waste disposal areas, disconnection of impervious surfaces to allow infiltration of runoff on-site, identification signs and marking on storm drains to discourage improper use, and stormwater filtration and treatment where applicable. Each development project would be required to demonstrate compliance with LID measures as a condition of permit approval. In addition, the Project would implement specific LID measures as described in Impact 3.9-2. Implementation of LID measures, including directing stormwater into a bioretention basin west of the Project site, would prevent the contamination of stormwater and infiltrate the majority of stormwater on-site and avoid water quality impacts during flood events. The reader is referred to Section 3.9, "Hydrology and Water Quality," for further details on water quality controls.

Therefore, the Project's contribution to cumulative water quality impairments from urban runoff **would not be cumulatively considerable**.

Mitigation Measures

No mitigation is required.

Impact 4-16: Contribute to Cumulative Impacts Related to Drainage

As discussed in Impact 3.9-2, implementation of the Project would include directing stormwater into a bioretention basin west of the Project site. Other Project LID features would further reduce peak stormwater flow. Proposed stormwater control methods included in the Stormwater Quality Management Plan have been designed to allow water to percolate and recharge local aquifers (Kimley Horn 2023). Therefore, the Project would not result in off-site flooding from inadequate drainage that in combination with nearby projects could flood the storm drain or deplete the aquifer. Proposed development surrounding the Project site, as included in Table 4-2, would be subject to individual environmental analysis and mitigation impacts and would be required to comply with federal, state, and local requirements related to drainage. The Project's contribution to cumulative increases in drainage flows and flooding **would not be cumulatively considerable**.

Mitigation Measures

No mitigation is required.

Impact 4-15: Contribute to Cumulative Groundwater Impacts

Increased groundwater extraction to support new development may deplete groundwater resources. The Project and the cumulative development projects listed in Table 4-1 would increase the demand for potable water in the Sacramento County Water Agency (SCWA) and Elk Grove Water District service areas. The cumulative development projects are consistent with the City General Plan (City of Elk Grove 2018). Groundwater represents a substantial part of the SCWA's water supply portfolio to meet projected demand, particularly for the area that includes the City. The SCWA UWMP provides projections of "reasonably available" groundwater volume, based on groundwater supply capacity, with safe yield not quantified. The reasonably available groundwater volume would remain the same for normal, single-dry, and multiple-dry year scenarios, ranging from 41,000 AFY in 2025, increasing to 46,000 acre feet per year (AFY) in 2030, and 56,000 AFY in 2035, 2040, and 2045 (SCWA 2021). Therefore, to meet demand during dry years, the SCWA would seek to supplement its reduced supplies with the use of other surface water supplies. The SASb GSP identifies that the long-term sustainable groundwater yield of the South American Subbasin is 235,000 AFY (SCWA 2021).

Implementing the Project and the cumulative development projects listed in Table 4-2 would result in increased extraction of groundwater, which may further deplete groundwater resources. The Project would result in additional water demands and associated groundwater impacts beyond what was considered in the City General Plan EIR because it would increase the amount of water demand from the vacant site. As discussed in Section 3.9, "Hydrology and Water Quality," at buildout, the total annual water demand for the Project is 240 acre-AFY. Additionally, according to the Water Supply Assessment prepared for the Project, SCWA has sufficient water supply to serve the Project without pumping additional groundwater (SCWA 2023). Therefore, the Project's contribution to cumulative groundwater impacts would **not be cumulatively considerable**.

Mitigation Measures

No mitigation is required.

4.4.10 Land Use

The geographic context for cumulative impacts related to land use consist of the City and immediate Project vicinity. The cumulative projects listed in Table 4-2 would contribute to further development within the City of Elk Grove. The City General Plan EIR identified no cumulatively considerable land use impacts from buildout of the City and Planning Area (City of Elk Grove 2019).

As discussed in Section 3.5, "Land Use," implementing the Project would not physically divide the existing community and would not combine to create considerable changes and cumulative effects on the cohesiveness of the existing community. This impact is not further discussed.

Impact 4-16: Contribute to Cumulative Impacts on Land Use Plans, Policies, or Regulations

As identified in Impact 3.10-1, the Project site is located in the LEA Community Plan, which is in an area planned for urban development in the General Plan EIR. While development of the Project would convert the vacant site to an urban/suburban developed land use, the Project would be compatible with proposed future development envisioned in the LEA. In addition to provisions in the LEA Community Plan, the Project would implement the goals and policies of the General Plan, be consistent with City General Plan policies that address environmental effects and the EGMC regulations, as well as the SACOG 2020 MTP/SCS. The Project's contribution to the significant cumulative impact **would be less than cumulatively considerable**.

Mitigation Measures

No mitigation is required.

4.4.11 Noise

The geographic context for cumulative impacts related to noise is the local Project vicinity. The City General Plan EIR identified traffic noise impacts from buildout of the City and planning area as cumulatively considerable and significant and unavoidable (City of Elk Grove 2019). A substantial increase in severity of this cumulative impact was identified in the General Plan Amendments and Update of VMT Standards SEIR associated with changes in traffic volumes along certain roadway segments (City of Elk Grove 2023).

As discussed in Section 3.11, "Noise and Vibration," implementing the Project would not result in the exposure of people to excessive noise levels associated with airport activity or adverse vibration effects on off-site receivers. Therefore, the Project would not combine to create considerable changes and cumulative impacts related to these issues, and these impacts are not discussed further.

Impact 4-17: Contribute to Cumulative Construction Noise Impacts

Cumulative impacts from construction-generated noise may result if other future planned construction activities were to take place close to the Project site and cumulatively combine with construction noise from the Project. The Souza Dairy property (development of single family residences) is currently ongoing construction adjacent to the Project site to the north (Figure 4-1). As discussed in Impact 3.11-1, Project construction activities would involve the use of heavy-duty construction equipment occurring over an approximately 36 month construction period for Phase 1 and may combine with construction of single-family residences in Sterling Meadows to simultaneously affect the same residential receptors east of the Project site along Lotz Parkway. Construction of on the Souza Dairy property would likely be more than 50 percent complete before Project construction. Development of the Souza Dairy north of the site is subject to construction noise hours contained in the EGMC and construction noise reduction mitigation measures contained in the Southeast Policy Area EIR (SCH No. 2013042054). Project construction noise impacts were determined to be less than significant with implementation of Mitigation Measure 3.11-1 (construction noise controls), as discussed in Impact 3.11-1. Implementation of Mitigation Measure 3.11-1 would reduce construction noise levels and ensure that exposure from on-site construction at off-site noise-sensitive receivers would be minimized and would not contribute substantially to a cumulative impact. This impact **would be less than cumulatively considerable**.

Mitigation Measures

No mitigation is required.

Impact 4-18: Contribute to Cumulative Traffic Noise Impacts

Table 4-3 summarizes weekday and weekend traffic noise levels along roadway segments serving the Project site under existing and cumulative conditions and the associated incremental increases.

Table 4-3 Summary of Modeled Traffic Noise Levels

Roadway Segment	L _{dn} at Nearest Residential Land Use (Exterior, dB) ¹²				Incremental Increase (dB)	
	Existing Conditions	Cumulative	Cumulative Plus Full Buildout	Applicable Incremental Noise Standard (dB)	Cumulative Increase	Full Buildout Increase over Cumulative
Weekday Noise Levels						
Lotz Parkway, north of Classical Way	55.6	70.2	70.3	5	14.7	0.1
Kammerer Road, west of Lotz Parkway	68.5	75.6	75.6	1.5	7.1	0
Kammerer Road, Lotz Parkway to Lent Ranch Parkway	68.6	75.8	75.9	1.5	7.3	0.1

Roadway Segment	L _{dn} at Nearest Residential Land Use (Exterior, dB) ¹²				Incremental Increase (dB)	
	Existing Conditions	Cumulative	Cumulative Plus Full Buildout	Applicable Incremental Noise Standard (dB)	Cumulative Increase	Full Buildout Increase over Cumulative
Kammerer Road, Lent Ranch Parkway to Promenade Parkway	68.6	76.7	76.8	1.5	8.2	0.1
Kammerer Road, Promenade Parkway to SR 99 southbound ramps	72.7	78.0	78.0	1.5	5.3	0
Weekend Noise Levels						
Lotz Parkway, north of Classical Way	55.5	70.1	70.2	5	14.7	0.1
Kammerer Road, west of Lotz Parkway	68.3	75.4	75.4	1.5	7.1	0
Kammerer Road, Lotz Parkway to Lent Ranch Parkway	68.5	75.6	75.9	1.5	7.4	0.3
Kammerer Road, Lent Ranch Parkway to Promenade Parkway	68.4	76.6	76.8	1.5	8.4	0.2
Kammerer Road, Promenade Parkway to SR 99 southbound ramps	72.6	77.8	77.9	1.5	5.3	0.1

Notes: dB = decibel; L_{dn} = day-night level.

- Noise levels do not account for attenuation provided by existing structures that would block the line of sight between the modeled roadway segment and adjacent land uses. Refer to Appendix G for all traffic noise modeling input data and output results.
- Modeled traffic noise levels along Kammerer Road include the distance to the roadway centerline and are presented for disclosure purposes only. Traffic noise levels along this roadway segment are not subject to any of the incremental noise increase standards established by General Plan Policy N-2-2 because, under existing conditions, there are no residential land uses along this roadway segment. Parcels along Kammerer Road near the Project site, however, are zoned for residential and mixed-use development, which allows for the future development of residential units. If multi-family residential units are developed on this parcel then, pursuant to General Plan Policies N-1 and N-2, the design of this development should comply with the exterior and interior noise standards in Table 3.11-3 (i.e., 60 dB L_{dn} at outdoor activity areas and an interior noise standard of 40 dB L_{dn}). Design measures to comply with these noise standards may include, but are not limited to, including a sound barrier along the road, setting back outdoor activity areas from the road, placing buildings between the road and outdoor activity areas to act as a noise barrier, and/or including more noise insulation to protect interior noise levels.

Source: Noise levels modeled by Ascent Environmental in 2023.

As shown in Table 4-3, under Cumulative conditions there would be a substantial increase in roadway traffic noise on all roadway segments. However, under Cumulative-Plus-Full-Buildout conditions, the Project’s contribution to Cumulative-Plus-Full-Buildout conditions (cumulative base conditions) would be less than 1.5 dBA for all roadway segments. General Plan Policy N-2-2 establishes an incremental noise increase threshold of 5 dBA L_{dn} (day-night average sound level) when base noise levels are below 60 dBA L_{dn} and 1.5 dB L_{dn} when base noise levels exceed 65 dBA L_{dn}. Noise level changes below 1.5 dBA would not be perceptible as increase in noise below 3 dBA are not considered perceptible by the human ear. Therefore, the Project’s contribution to this cumulative impact **would not be cumulatively considerable**.

Mitigation Measures

No mitigation is required.

Impact 4-19: Contribute to Cumulative Operational Noise Impacts

Cumulative impacts related to on-site operational and stationary noise sources are site-specific, dissipate with distance from the source, and typically result in cumulative impacts only when Project-generated noise is located close to other off-site noise sources. Existing development close to the Project site does not include substantial noise sources that affect nearby sensitive receptors, and future projects would not be located close enough to the Project site for on-site operational and stationary noise to combine with other off-site noise sources to create substantial levels of noise that would affect nearby sensitive receptors. Additionally, as discussed in Impact 3.11-4 and 3.11-5, implementing Mitigation Measure 3.11-5 would reduce noise levels from on-site operational noise associated with amplification. Proposed development surrounding the Project site, as included in Table 4-2, would be subject to individual environmental analysis and mitigation impacts and would be required to comply with state and local requirements related to operational noise. Therefore, noise impacts associated with on-site operational activities, including special event noise, as discussed in Impacts 3.11-4 and 3.11-5 **would not be cumulatively considerable**.

Mitigation Measures

No mitigation is required.

4.4.12 Public Services and Recreation

The geographic context for cumulative impacts related to public services includes the Cosumnes Community Services District (CCSD) Fire Department and Elk Grove Police Department (EGPD) service areas, including the City.

Implementation of previously approved, proposed, or reasonably foreseeable projects in the service areas of the CCSD Fire Department and EGPD would result in increased demand for fire protection, emergency medical response, and police protection services. The increase in demand would result in the need for additional facilities, and these impacts would be cumulatively considerable. However, development projects are subject to property taxes and development impact fees. These fees, as well as other funding sources, allow for the expansion of the CCSD Fire Department and EGPD staff, equipment, and facilities to accommodate future demand. In addition, each development project will be subject to CEQA review of project-level impacts, as well as applicable regulations to reduce impacts.

The City General Plan EIR identified significant and unavoidable cumulatively considerable public service impacts related to new schools from buildout of the City and planning area (City of Elk Grove 2019). The SEIR prepared for the General Plan Amendments and Update to VMT Standards made similar public services findings as those identified in the General Plan EIR (City of Elk Grove 2023).

As discussed in Section 3.12, "Public Services," implementing the Project would not affect public schools such that construction or expansion of educational facilities would be required, would not affect libraries and other public facilities such that additional libraries or public facilities would be needed or constructed, and would not substantially increase the use of or physically affect existing parks and recreational facilities such that construction of new parks and recreational facilities would be required. Therefore, the Project would not combine to create considerable changes and cumulative effects related to educational, library, parks, recreational, or other public facilities. These impacts are not discussed further.

Impact 4-20: Contribute to Cumulative Impacts on Fire Protection and Emergency Medical Response Facilities

As described under Impact 3.12-1, implementation of the Project would result in increased demand for fire protection and emergency medical response services from the CCSD Fire Department. However, CCSD's current facilities along with operation of Station 77 (under construction and scheduled for opening in spring 2024), would be adequate to serve the Project as well as anticipated development in the Project vicinity. The CCSD is currently building Station 77 that would serve the southern portion of the City, including the Project site and surrounding developments. Development in the vicinity would also be subject to property taxes and assessment that would support expansion of

the CCSD Fire Department to provide the necessary services. Thus, the Project's impacts related to expansion of fire protection and emergency medical response facilities **would not be cumulatively considerable**.

Mitigation Measures

No mitigation is required.

Impact 4-21: Contribute to Cumulative Impacts on Police Protection Facilities

As described under Impact 3.12-2, implementation of the Project would result in increased demand for police protection services. However, the Project would include private on-site security services and would require minimal support from the Elk Grove Police Department. Additionally, the Project would implement security measures, including the installation of security lighting, fencing, and signage, which would thereby further reduce impacts to law enforcement. Proposed development surrounding the Project site, as included in Table 4-2, would be subject to individual environmental analysis and mitigation impacts and would be required to comply with federal, state, and local requirements for police services. Therefore, the Project's impacts related to police protection facilities **would not be cumulatively considerable**.

Mitigation Measures

No mitigation is required.

4.4.13 Transportation and Circulation

The geographic context for cumulative impacts related to transportation is the City and the City General Plan planning area. While the City General Plan EIR identified no cumulatively considerable impacts related to transit, bicycle, pedestrian, and traffic safety, vehicle miles travel impacts from buildout of the City and planning area were identified cumulatively considerable and significant and unavoidable because the effectiveness of VMT reductions strategies is not certain. In addition, disruptive changes occurring in transportation, such as transportation network companies (i.e., Uber, Lyft), autonomous vehicles, Mobility as a Service (i.e., ride-sharing, carsharing), Amazon (increased deliveries), may increase VMT (City of Elk Grove 2019:3.15-60). A substantial increase in severity of this cumulative impact was identified in the General Plan Amendments and Update of VMT Standards SEIR (City of Elk Grove 2023).

Impact 4-22: Contribute to Cumulative Impacts on Vehicle Miles Traveled

The VMT Memo identifies that, as long-term development in the City of Elk Grove continues, it is anticipated that the VMT impact of the Project would be most acute under opening year conditions where, if mitigated, would only become less of an impact under horizon year general plan buildout (Kimley-Horn 2023: 6). However, as detailed under Impact 3.13-2, the Project would result in an increase of net daily VMT when compared to existing conditions. Implementation of Mitigation Measures 3.13-2a and 3.13-2b, as included in Impact 3.13-2, would reduce average daily visitor VMT and employee VMT, which would reduce the total daily VMT generated by the Project. However, there would be no guarantee that the mitigation measures would reduce the total daily VMT generated by the Project to existing condition levels. Additionally, as detailed in the VMT Memo, until mitigation measures are identified and implemented in coordination with the City and a Mitigation and Monitoring Report Plan is produced, the Project's contribution would be **cumulatively considerable and significant and unavoidable**.

Mitigation Measures

No mitigation is required.

Impact 4-23: Contribute to Cumulative Impacts on Transit, Bicycle, and Pedestrian Facilities

General Plan EIR Impact 5.13.7 identified that implementation of the General Plan would not result in conflicts with plans, policies or programs for transit, bicycle, and pedestrian facilities. As described in Impact 3.13-1 of this Draft EIR, the Project would include the construction of bicycle, pedestrian, and transit facilities, thus enhancing mobility within the vicinity of the Project site. Additionally, the Project would be subject to and implement General Plan and BPTMP

policies applicable to transit, bicycle, and pedestrian facilities and service, and would not adversely affect any existing or planned bicycle, pedestrian, or transit facilities in the vicinity of the Project site. Therefore, the Project would not result in a new or greater contribution to cumulative effects related to transit, bicycle, and pedestrian facilities beyond what was identified in the General Plan EIR. Proposed development surrounding the Project site, as included in Table 4-2, would be subject to individual environmental analysis and mitigation impacts and would be required to comply with federal, state, and local requirements related to transit, bicycle, and pedestrian facilities. The Project's contribution to substantial effects related to transit, bicycle, and pedestrian facilities would **not be cumulatively considerable**.

Mitigation Measures

No mitigation is required.

Impact 4-24: Contribute to Cumulative Construction-Related Transportation Impacts

Cumulative impacts on transportation from Project-generated construction effects may result if other future planned construction activities were to take place close to the Project site and cumulatively combine to exacerbate the construction-related transportation impacts of the Project. The Kammerer Road Extension Project is proposed south of the Project site along Kammerer Road near the City's southern boundary. As described under Impact 3.13-3, the Project would be required to meet all City requirements related to construction activities including, but not limited to, maintaining emergency access, safe movement of construction equipment entering and leaving the Project site, and traffic controls and signage during construction. Additionally, the Project contractor would be required to develop and submit a traffic control plan to demonstrate appropriate traffic control measures to be used for vehicles, bicyclists, and pedestrians affected by construction. Other projects within the vicinity of the Project site, such as the Kammerer Road Extension Project, would also need to demonstrate to the City that they would not contribute to construction-related transportation impacts. Therefore, the impact to construction related transportation impacts would **not be cumulatively considerable**.

Mitigation Measures

No mitigation is required.

Impact 4-25: Contribute to Cumulative Impacts on Emergency Access

Cumulative impacts associated with emergency access or road design are primarily a localized effect. As such, the cumulative projects with the potential to result in a significant cumulative impact associated with construction phase emergency access and road design features would be the projects located in the immediate vicinity of the Project site as emergency responders attempt to respond to emergency and as vehicles use the Project site ingress and egress locations while merging on to the primary roadways. Given that all projects within the vicinity of the Project site would need to demonstrate to the City that they would not impede emergency access or cause a potential transportation-related hazard, the impact to emergency access would **not be cumulatively considerable**.

Mitigation Measures

No mitigation is required.

4.4.14 Utilities and Service Systems

The geographic context for cumulative impacts related to utilities and service systems includes the local service areas of the SCWA, Sacramento Regional County Sanitation District (Regional San), and SacSewer, as well as the service areas for landfills that serve the City, SMUD, and PG&E.

The City General Plan EIR identified less than cumulatively considerable solid waste impacts from buildout of the City and planning area (City of Elk Grove 2019). However, the General Plan EIR identified a cumulatively considerable and significant and unavoidable impact on water supply and wastewater service (City of Elk Grove 2019). The SEIR prepared for the General Plan Amendments and Update to VMT Standards made similar utilities and service system findings as those identified in the General Plan EIR (City of Elk Grove 2023).

As discussed in Section 3.14, "Utilities and Service Systems," the proposed Project would not require the relocation of new or expanded water, wastewater, solid waste, electricity, telecommunication equipment and availability of water supply, wastewater treatment capacity, and solid waste disposal capacity. Therefore, the Project would not combine to create considerable changes and cumulative effects related to telecommunications facilities and this impact is not further discussed.

Impact 4-26: Contribute to Cumulative Water Supply Impacts

As described in Section 3.14, "Utilities and Service Systems," SCWA provides retail water supply to the City, and the Project is located within SCWA's Zone 40 South Service Area potable water service area. The Project and the cumulative development projects listed in Table 4-2 would increase the demand for potable water in the SCWA service area.

SCWA prepared a Water Supply Assessment (SCWA 2023) for the Project in accordance with Water Code Sections 10910–10915. It demonstrates that SCWA's water supplies are sufficient to satisfy the water demands of the currently proposed Project while still meeting the current and projected water demands of existing customers in the next 20 years. However, under buildout of the Elk Grove General Plan, increased demand may exceed supplies for treated water, which may result in significant cumulative impacts.

As identified in Impact 3.14-1, the Project would result in an increase in water demand, but the increase is minor compared with projected demand, supply, and surplus. The additional water demand from implementation of the Project would not result in a new or substantially more severe impacts regarding water supply. Therefore, the Project would not result in a new or greater contribution to cumulative effects related to water service. The Project's contribution to substantial effects related to water service **would be less than cumulatively considerable**.

Mitigation Measures

No mitigation is required.

Impact 4-27: Contribute to Cumulative Wastewater Impacts

As identified in Impact 3.14-2, the Project's wastewater generation of approximately 0.24 mgd average dry weather flow (ADWF) would be an increase over existing conditions on the vacant site. However, Regional San currently treats an average of 130 million gallons of wastewater per day (mgd), and the Sacramento Regional Wastewater Treatment Plant (SRWTP) has been master planned to accommodate 350 mgd ADWF (Regional San 2008). It is not anticipated that Regional San will need to consider further improvements to the SRWTP until after 2050 (Regional San 2014). Because the SRWTP has been master planned to accommodate additional growth, the Project would not result in a new or greater contribution to cumulative effects related to wastewater. The Project's contribution to substantial effects related to wastewater **would be less than cumulatively considerable**.

Mitigation Measures

No mitigation is required.

Impact 4-28: Contribute to Cumulative Solid Waste Impacts

The Project would include uses that would increase the generation of municipal solid waste and medical waste, thereby increasing demand for hauling and disposal services. As shown in Section 3.14 "Utilities," Table 3.14-9 the Project's solid waste generation would be 1,021 tons per year. Municipal solid waste, medical waste, recyclable materials, and compostable food waste and animal waste would be separated on site and collected by a contracted waste hauler. The analysis concluded that the cumulative impact would not be significant and would not be cumulatively considerable.

At General Plan buildout, it is estimated that the City planning area may generate approximately 331,223 additional tons of solid waste each year. However, the City exceeds the mandated 50-percent diversion rate established under the Integrated Waste Management Act, so the amount of material reaching the landfills would be less than that amount, likely as low as 241,733 tons per year. As shown in Section 3.14 "Utilities," there is substantial remaining capacity in the landfills serving local waste haulers, with an average remaining capacity of more than 80 percent.

Therefore, the proposed Project and projects included in Table 4-2 would be served by solid waste management companies and landfills with sufficient capacity to serve the future development. Therefore, the Project's contribution to impacts related to the availability of solid waste generation and disposal capacity **would not be cumulatively considerable**.

Mitigation Measures

No mitigation is required.

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5 OTHER CEQA SECTIONS

5.1 GROWTH INDUCEMENT

California Environmental Quality Act (CEQA) Section 21100(b)(5) specifies that the growth-inducing impacts of a project must be addressed in an environmental impact report (EIR). Section 15126.2(d) of the State CEQA Guidelines provides the following guidance for assessing growth-inducing impacts of a project:

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

A project can induce growth directly, indirectly, or both. Direct growth inducement would result if a project involved construction of new housing. Indirect growth inducement would result, for instance, if implementing a project resulted in any of the following:

- ▶ substantial new permanent employment opportunities (e.g., commercial, industrial, or governmental enterprises);
- ▶ substantial short-term employment opportunities (e.g., construction employment) that indirectly stimulates the need for additional housing and services to support the new temporary employment demand; and/or
- ▶ removal of an obstacle to additional growth and development, such as removing a constraint on a required public utility or service (e.g., construction of a major sewer line with excess capacity through an undeveloped area).

Growth inducement itself is not an environmental effect but may foreseeably lead to environmental effects. If substantial growth inducement occurs, it can result in secondary environmental effects, such as increased demand for housing, demand for other community and public services and infrastructure capacity, increased traffic and noise, degradation of air or water quality, degradation or loss of plant or animal habitats, conversion of agricultural and open-space land to urban uses, and other effects.

5.1.1 Growth Inducing Impacts of the Project

POPULATION GROWTH

Direct growth inducement from the Project would result if the Project involved construction of new housing that would facilitate new population growth in an area. The Project is a zoo facility and does not include new housing or result in direct population growth. The Project would require 200 net new employees after relocation from the Sacramento Zoo. Because current employees at the Sacramento Zoo are residents local to the Sacramento region it is assumed that new employees would be individuals that currently reside in the region and that would not require housing. Therefore, the Project would have no impact on direct population growth.

ELIMINATION OF OBSTACLES TO GROWTH

The elimination of either physical or regulatory obstacles to growth is considered a growth-inducing impact. A physical obstacle to growth typically involves the lack of public infrastructure. The extension of public infrastructure, including roadways, water mains, and sewer lines, into areas not currently provided with roads and utilities would be expected to support new development. Similarly, the elimination of, or a change to, a regulatory obstacle, including growth and development policies, could result in new growth.

As described in Chapter 2, "Project Description," the Project would involve off-site improvements that consist of drainage and water quality infrastructure, wastewater infrastructure, extension of water pipelines, and various roadway improvements to Lotz Parkway and Kammerer Road. These improvements are designed to accommodate the operational needs of the Project and would not provide additional new capacity to accommodate new development in the Project area. Buildout of the Project area has been planned for urban development and associated infrastructure improvements as part of the Southeast Policy Area and in the City's General Plan and analyzed in the Subsequent EIR prepared for amendments to the General Plan (SCH No. 2022020463). Please refer to Section 3.13, "Transportation," and Section 3.14, "Utilities and Service Systems," for a further analysis of the utility and transportation demands of the Project.

OTHER EMPLOYMENT GROWTH AND OTHER ECONOMIC-RELATED GROWTH EFFECTS

Implementation of the Project would increase economic activity through the short-term creation of jobs during construction. As of December 2021, there were 43,300 construction jobs in Sacramento County (EDD 2023). Due to the short-term nature of such construction jobs and people moving from one job site to another, as done in the construction industry, these jobs would not result in housing demand. Therefore, it is assumed that the employment opportunities generated by construction of the Project would be filled by individuals in the construction industry who currently reside in the region and that construction workers would not permanently relocate to the City. Substantial population growth or increases in housing demand in the region as a result of Project-related construction jobs are not anticipated.

Operation of the Project would consist of up to 300 jobs, including animal care takers, administrative staff, chefs, veterinarians, and volunteers. Approximately 100 employees would be from relocation of the Sacramento Zoo. Therefore, the Project would require 200 new employees at buildout. The Project was included in the recently updated General Plan (122,155 jobs at buildout of the City and General Plan designated study areas) and thus would not result in growth in addition to current projections (City of Elk Grove 2023).

The Sacramento Area Council of Governments' (SACOG) 2020 Metropolitan Transportation Plan/Sustainable Communities Strategy (MTP/SCS) includes the Project area in the Developing Community Type. The 2020 MTP/SCS forecasts about 110,106 dwelling units and 53,093 employees in the Developing Community Type in the City. In comparison to the 2020 MTP/SCS, the Project would account for less than 1 percent of total new employees in the Developing Community /Type in Elk Grove by 2040. Therefore, the Project would be within the assumptions for the Developing Community /Type in the 2020 MTP/SCS.

Implementation of the Project would increase demand for public services and utilities, including water supply, wastewater (collection, treatment, and disposal), storm drainage, and electrical power. In fact, some infrastructure and facilities providing these services would be modified as part of the accommodating the Project but would not be sized to accommodate beyond what is identified in the City's recent General Plan update (2023). Potential impacts on these public services and utilities are discussed in Section 3.12, "Public Services," and Section 3.14, "Utilities and Service Systems," which also note that increased demand for public services and utilities would be based on population.

SUMMARY OF GROWTH-INDUCING IMPACTS

Although economic and employment growth in the area is an intended consequence of the Project, growth inducement directly and indirectly by the Project also could affect the region. Potential effects caused by induced growth in the region could include loss of agricultural land and open space, alteration of views, increases in light and glare, increased surface runoff, environmental impacts attributable to increases in regional water use, impacts on surface water quality, aquatic resource impacts, removal of habitat for species federally or State listed and other special-status species, loss of cultural resources, transportation and roadway impacts, air quality impacts, increases in greenhouse gas (GHG) emissions, increases in noise, increases in population, and increases in demand for public services and utilities.

The project does not include any dwelling units and an increase in housing demand in the region or reduce the planned housing in the LEA Community Plan and associated impacts of growth inducement or growth displacement would not occur.

5.2 SIGNIFICANT AND UNAVOIDABLE ADVERSE IMPACTS

The State CEQA Guidelines Section 15126.2(b) requires EIRs to include a discussion of the significant environmental effects that cannot be avoided if the proposed project is implemented. As documented throughout Chapter 3 (Project-level impacts) and Chapter 4, "Cumulative Impacts," of this Draft EIR, after implementation of the recommended mitigation measures, many of the impacts associated with the Project would be reduced to a less-than-significant level. The following impacts are considered significant and unavoidable; that is, no feasible mitigation is available to reduce these impacts to a less-than-significant level:

- ▶ Impact 3.7-1: Project Generated Greenhouse Gas (GHG) Emissions
- ▶ Impact 3.13-2: Project Generated Vehicle Miles Traveled (VMT)
- ▶ Impact 4-12: Cumulative GHG Emissions
- ▶ Impact 4-4-22: Cumulative VMT Impacts

5.3 SIGNIFICANT AND IRREVERSIBLE ENVIRONMENTAL CHANGES

The State CEQA Guidelines (Section 15126) require a discussion of the significant irreversible environmental changes that would be involved in a project if it were implemented. The irreversible and irretrievable commitment of resources is the permanent loss of resources for future or alternative purposes. Irreversible and irretrievable resources are those that cannot be recovered or recycled or those that are consumed or reduced to unrecoverable forms.

The Project would result in the irreversible and irretrievable commitment of material resources and energy during construction and operation, including:

- ▶ construction materials, such as soil, rocks, wood, concrete, glass, and steel;
- ▶ water supply for Project operation; and
- ▶ energy expended in the form of electricity, gasoline, diesel fuel, and oil for equipment and transportation vehicles that would be needed for Project construction and operation.

The use of these nonrenewable resources is expected to account for a minimal portion of the region's resources and would not affect the availability of these resources for other needs in the region. As discussed in Section 3.5, "Energy," construction activities would not result in the long-term inefficient use of energy or natural resources. Mitigation Measure 3.7-1 identified in this EIR to reduce operation-related GHG emissions requires the efficient use of energy during Project operation by promoting carpooling to reduce Project trips. Therefore, long-term Project operation would not result in substantial long-term consumption of energy and natural resources.

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6 ALTERNATIVES

6.1 INTRODUCTION

CCR Section 15126.6(a) (State CEQA Guidelines) requires EIRs to describe:

a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives. An EIR need not consider every conceivable alternative to a project. Rather, it must consider a range of potentially feasible alternatives that will avoid or substantially lessen the significant adverse impacts of a project, and foster informed decision making and public participation. An EIR is not required to consider alternatives that are infeasible. There is no ironclad rule governing the nature or scope of the alternatives to be discussed other than the rule of reason.

This section of the State CEQA Guidelines also provides guidance regarding what the alternatives analysis should consider. Subsection (b) further states the purpose of the alternatives analysis is as follows:

Because an EIR must identify ways to mitigate or avoid the significant effects that a project may have on the environment (Public Resources Code Section 21002.1), the discussion of alternatives shall focus on alternatives to the project or its location which are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly.

The State CEQA Guidelines require that the EIR include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the proposed project. If an alternative would cause one or more significant effects in addition to those that would be caused by the project as proposed, the significant effects of the alternative must be discussed, but in less detail than the significant effects of the project as proposed (CCR Section 15126.6[d]).

The State CEQA Guidelines further require that the “no project” alternative be considered (CCR Section 15126.6[e]). The purpose of describing and analyzing a no project alternative is to allow decision makers to compare the impacts of approving a proposed project with the impacts of not approving the proposed project. If the no project alternative is the environmentally superior alternative, CEQA requires that the EIR “shall also identify an environmentally superior alternative among the other alternatives” (CCR Section 15126[e][2]).

In defining “feasibility” (e.g., “feasibly attain most of the basic objectives of the project”), CCR Section 15126.6(f)(1) states, in part:

Among the factors that may be taken into account when addressing the feasibility of alternatives are site suitability, economic viability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries (projects with a regionally significant impact should consider the regional context), and whether the proponent can reasonably acquire, control or otherwise have access to the alternative site (or the site is already owned by the proponent). No one of these factors establishes a fixed limit on the scope of reasonable alternatives.

In determining what alternatives should be considered in the EIR, it is important to consider the objectives of the project, the project’s significant effects, and unique project considerations. These factors are crucial to the development of alternatives that meet the criteria specified in Section 15126.6(a). Although, as noted above, EIRs must contain a discussion of “potentially feasible” alternatives, the ultimate determination as to whether an alternative is feasible or infeasible is made by the lead agency’s decision-making body—here, the City of Elk Grove. (See PRC Sections 21081.5, 21081[a] [3].)

6.2 CONSIDERATIONS FOR SELECTION OF ALTERNATIVES

6.2.1 Attainment of Project Objectives

As described above, one factor that must be considered in selection of alternatives is the ability of a specific alternative to attain most of the basic objectives of the Project (CCR Section 15126.6[a]). Chapter 2, "Project Description," articulates the following Project objectives:

- ▶ construct a new larger zoo with expanded habitats and facilities to support a broader range of animal species;
- ▶ meet current animal care standards for animals housed in the zoo;
- ▶ increase access to the zoo with adequate parking facilities;
- ▶ provide enhanced visitor experience through education, overnight stay, event spaces, and animal encounters.

6.2.2 Environmental Impacts of the New Zoo in Elk Grove Project

Sections 3.1 through 3.14 and Chapter 4 of this Draft EIR address the environmental impacts of implementation of the proposed Project. Potentially feasible alternatives were developed with consideration of avoiding or lessening the significant, and potentially significant, adverse impacts of the project, as identified in Chapters 3 and 4 of this Draft EIR and summarized below. If an environmental issue area analyzed in this Draft EIR is not addressed below, it is because no significant impacts were identified for that issue area.

AIR QUALITY

- ▶ The Project would not generate construction emissions of criteria air pollutants and ozone precursors exceeding SMAQMD's daily mass emissions thresholds of significance. Nevertheless, the Project does not incorporate SMAQMD's BMPs into the Project description. Mitigation (Mitigation Measure 3.2-1) has been identified to reduce this impact to **less-than-significant** under Project and cumulative conditions (see Impacts 3.2-1 and 4-3).
- ▶ Project construction could result in sources of toxic air contaminants (TACs) that could expose sensitive receptors to a level of cancer risk greater than 10 in 1 million. Mitigation (Mitigation Measure 3.2-3) has been identified to reduce this impact to **less than significant** under Project conditions (see Impact 3.2-3). There would be no cumulative impacts.

BIOLOGICAL RESOURCES

- ▶ Project construction would include ground disturbance and construction of new buildings, which could result in disturbance to or loss of special-status wildlife species and reduced breeding productivity of these species. Mitigation (Mitigation Measures 3.3-1a and 3.3-1c) has been identified to reduce this impact to **less than significant** under Project and cumulative conditions (see Impacts 3.3-1 and 4-6).

CULTURAL AND TRIBAL CULTURAL RESOURCES

- ▶ Project-related ground-disturbing activities could result in the discovery of or damage to yet undiscovered archaeological resources as defined in State CEQA Guidelines Section 15064.5. Mitigation (Mitigation Measures 3.4-1) has been identified to reduce this impact to **less than significant** under Project and cumulative conditions (see Impacts 3.4-1 and 4-7).
- ▶ Tribal consultation has not resulted in the identification of tribal cultural resources on the Project site. However, excavation activities associated with Project construction could disturb or destroy previously undiscovered significant subsurface tribal cultural resources. Mitigation (Mitigation Measure 3.4-2a and 3.4-2b) has been

identified to reduce this impact to **less than significant** under Project and cumulative conditions (see Impacts 3.4-2 and 4-7).

GEOLOGY AND SOILS

- ▶ Excavations required for Project construction and off-site infrastructure improvements could disturb or destroy unique paleontological resources. Mitigation (Mitigation Measure 3.6-5) has been identified to reduce this impact to **less than significant** under Project and cumulative conditions (see Impacts 3.6-5 and 4-11).

GREENHOUSE GAS EMISSIONS AND CLIMATE CHANGE

- ▶ Construction and operation of the Project would result in an increase in greenhouse gas (GHG) emissions. Mitigation (Mitigation Measures 3.7-1 and 3.13-1a through 3.13-1d) has been identified to reduce this impact. However, impacts would remain **significant and unavoidable** under Project and cumulative conditions (see Impacts 3.7-1 and 4-12).

NOISE AND VIBRATION

- ▶ Project-related construction noise would expose nearby noise-sensitive receptors to elevated noise levels that could exceed local standards. Mitigation (Mitigation Measure 3.11-1) has been identified to reduce the extent of this impact to **less than significant** under Project and cumulative conditions (see Impacts 3.11-1 and 4-17).
- ▶ The Project would involve the long-term operation of new noise sources and new noise-generating activities on the Project site that could expose off-site noise-sensitive receptors to excessive noise levels. Mitigation (Mitigation Measure 3.11-3) has been identified to reduce this impact to **less than significant** under Project and cumulative conditions (see Impacts 3.11-3 and 4-19).

TRANSPORTATION

- ▶ Implementation of the Project would increase the number of vehicle trips and VMT as compared to VMT from the Sacramento Zoo under Phase 1 and full buildout conditions. Mitigation (Mitigation Measures 3.13-1a through 3.13-1d) has been identified to reduce this impact. However, with implementation of these mitigation measures net VMT would remain above existing conditions and no other feasible mitigation is available. Impacts would be **significant and unavoidable** under Project and cumulative conditions (see Impact 3.14-1 and 4-22).

6.3 ALTERNATIVES CONSIDERED BUT NOT EVALUATED FURTHER

As described above, State CEQA Guidelines Section 15126.6(c) provides that the range of potential alternatives the project shall include those that could feasibly accomplish most of the basic objectives of the project, and could avoid or substantially lessen one or more of the significant effects. Alternatives that fail to meet the fundamental project purpose need not be addressed in detail in an EIR. (*In re Bay-Delta Programmatic Environmental Impact Report Coordinated Proceedings* (2008) 43 Cal.4th 1143, 1165-1167.)

In determining what alternatives should be considered in the EIR, it is important to acknowledge the objectives of the project, the project's significant effects, and unique project considerations. These factors are crucial to the development of alternatives that meet the criteria specified in Section 15126.6(a). Although, as noted above, EIRs must contain a discussion of "potentially feasible" alternatives, the ultimate determination as to whether an alternative is feasible or infeasible is made by lead agency decision-maker(s). (See Pub. Resources Code, § 21081(a)(3).) At the time of action on the project, the decision-maker(s) may consider evidence beyond that found in this EIR in addressing such determinations. The decision-maker(s), for example, may conclude that a particular alternative is infeasible (i.e., undesirable) from a policy standpoint, and may reject an alternative on that basis provided that the decision-maker(s) adopts a finding, supported by substantial evidence, to that effect, and provided that such a finding reflects a

reasonable balancing of the relevant economic, environmental, social, and other considerations supported by substantial evidence. (*City of Del Mar v. City of San Diego* (1982) 133 Cal.App.3d 401, 417; *California Native Plant Society v. City of Santa Cruz* (2009) 177 Cal.App.4th 957, 998.)

The EIR should also identify any alternatives that were considered by the lead agency, but were rejected during the planning or scoping process and briefly explain the reasons underlying the lead agency's determination.

The following alternatives were considered by the City of Elk Grove but are not evaluated further in this Draft EIR.

6.3.1 Southwestern Elk Grove Alternative Site Location

This alternative would place the New Zoo in the southwestern portion of Elk Grove on available vacant land. However, the southwestern portion of the City contains topographical challenges for building. The area is in the 100-year floodplain, as designated in the Elk Grove General Plan (2019). Buildings are not permitted in this area of the City due to the flood risk and impacts on sensitive floodplain habitats near the Sacramento Delta.

6.3.2 Alternative Sites in the City of Sacramento

This alternative would provide an alternative location for the New Zoo in the City of Sacramento, either in the Meadowview or Natomas (two locations, one at the former Sacramento Kings area and one at the Natomas Community Park site) neighborhoods. A feasibility study was prepared by the City of Sacramento in 2020 and identified these locations. The City of Sacramento adopted a reuse plan for the previous Sacramento Kings Arena that did not include use as a zoo. The Meadowview site was put towards another use. Ultimately, the Sacramento City Council did not select any site.

6.3.3 Expansion of Existing Sacramento Zoo

This alternative would expand the existing Sacramento Zoo to meet the Association of Zoo and Aquariums standards, support a larger range of animal species, expand parking, and enhance visitor experience. The Sacramento Zoo has existing transit, pedestrian, and bicycle facilities that serve the zoo. Therefore, significant VMT impacts may be reduced by expanding the Sacramento Zoo at the current location. Under this alternative only 30 acres would be available for expansion and expansion would not significantly increase the number of animals at the zoo, limiting additional visitors (City of Sacramento 2020). Additionally, expansion of the Sacramento Zoo would require removal of existing ballfields reducing recreational opportunities. This alternative would not meet the project objectives and is considered infeasible.

6.4 ALTERNATIVES SELECTED FOR DETAILED ANALYSIS

The following alternatives evaluated in this Draft EIR.

- ▶ **Alternative 1: No Project–No Development Alternative** assumes no construction of the New Zoo. The Project site would remain vacant in its current condition.
- ▶ **Alternative 2: Reduced Development Alternative** assumes development of Phase 1a and 1b only.
- ▶ **Alternative 3: New Site Location Alternative** assumes the New Zoo would be developed at the site of the Elk Grove Park.

Further details on these alternatives, and an evaluation of their environmental effects relative to those of the proposed Project, are provided below. For purposes of comparison with the other action alternatives, conclusions for each technical area are characterized as "impacts" that are greater, similar, or less to describe conditions that are worse than, similar to, or better than those of the proposed Project.

6.4.1 Alternative 1: No Project-No Development Alternative

Under Alternative 1, the No Project–No Development Alternative, no actions would be taken. The Project site would remain vacant in its current condition and used for grazing. The New Zoo would not be constructed on the site and continue to operate in Sacramento at the current Sacramento Zoo site. The No Project–No Development Alternative would not meet the Project objectives. However, as required by CEQA (Section 15126.6[e]), the No Project–No Development Alternative is evaluated in this Draft EIR.

AESTHETICS

Under this alternative, there would be no alteration of the visual character and quality of the Project site. Views of the Project site from surrounding vantage points would not change, and no new sources of light and glare would be created, as would occur with the proposed Project. Project-related visual character and lighting impacts would not occur. Therefore, impacts under the No Project–No Development Alternative would be less than those that would occur with the Project. *(Less, no new impact)*

AIR QUALITY

Because the No Project–No Development Alternative would involve no construction disturbance and no new vehicular trip generation, this alternative would not generate construction- or operation-related air emissions and toxic air contaminants. By comparison, implementing the Project would result in less-than-significant construction-related emissions (with mitigation) and less than significant operational emissions. The No Project–No Development Alternative would not result in development and related air quality emissions. Therefore, implementation of the No Project–No Development Alternative would reduce impacts associated with Project emissions, and impacts would be less than those that would occur with the Project. *(Less, no new impact)*

BIOLOGICAL RESOURCES

The No Project–No Development Alternative would not result in any new ground disturbance on the Project site or in the off-site improvement areas. This would avoid Project-related significant but mitigatable impacts related to nesting birds and raptors, as well as potential disturbance to burrowing owl, Swainson’s hawk, and sandhill crane. Overall, impacts under this alternative would be less than those that would occur with the Project. *(Less, no new impact)*

CULTURAL AND TRIBAL CULTURAL RESOURCES

The No Project–No Development Alternative would not involve any earthmoving activities, thereby avoiding impacts related to the disturbance, destruction, or alteration of any known or as-yet-undiscovered/unrecorded archaeological resources, tribal cultural resources, or human remains. In comparison, implementing the proposed Project would result in ground disturbance that could cause potentially significant impacts related to disturbance of undiscovered/unrecorded subsurface archaeological resources, tribal cultural resources, and human remains. These impacts would be reduced to less-than-significant levels through implementation of mitigation measures. Because the No Project–No Development Alternative would not include any ground disturbance, it would avoid this impact. Therefore, cultural resource impacts under the No Project–No Development Alternative would be less than would occur under the Project. *(Less, no new impact)*

ENERGY

Under the No Project–No Development Alternative, no demolition or construction activities would occur. Therefore, there would be no change in energy use. The Project would increase energy use but would be all electric and design several new buildings to be energy efficient and provide on-site power generation through solar photovoltaic

systems. Thus, energy impacts under the No Project–No Development Alternative would be less than would occur under the Project. *(Less, no new impact)*

GEOLOGY AND SOILS

Under this alternative, no new buildings and no Project-associated facilities would be constructed, and existing site uses would remain. No ground disturbance or earthmoving activities would occur. Therefore, no impacts on previously undiscovered paleontological resources would occur. As described in Section 3.6, "Geology and Soils," Project impacts would be less than significant with the implementation of mitigation. Therefore, soils, geology, and seismicity impacts would be less under the No Project–No Development Alternative than under the Project. *(Less, no new impact)*

GREENHOUSE GAS EMISSIONS AND CLIMATE CHANGE

Under the No Project–No Development Alternative, the Project site would remain in its current condition. Project construction- and new operation-related emissions of greenhouse gases (GHG) would not occur. By comparison, implementing the Project would result in significant and unavoidable impacts related to GHG emissions. Therefore, implementation of the No Project–No Development Alternative would avoid the significant and unavoidable impact associated with GHG emissions, and impacts would be less than those that would occur with the Project. *(Less, no new impact)*

HAZARDS AND HAZARDOUS MATERIALS

No significant hazard impact would occur under the Project because it would be required to comply with federal, State, and local regulations regarding the handling of hazardous materials. Under this alternative, no new buildings or facilities associated with the Project would be constructed. Therefore, impacts on public health and safety related to hazardous materials or hazards would be less under the No Project–No Development Alternative than under the Project. *(Less, no new impact)*

HYDROLOGY AND WATER QUALITY

Under the No Project–No Development Alternative, there would be no potential for construction-related releases of sediment and contaminants into surface waters or groundwater, and no changes in water demand, stormwater generation, drainage patterns, or new flood risk. In comparison, the existing site is vacant, and implementation of the Project would result in on-site development and less-than-significant impacts related to hydrology and water quality. Implementing the No Project–No Development Alternative would result in impacts on hydrology and water quality that would be less than those that would occur under the Project. *(Less, no new impact)*

LAND USE AND PLANNING

The Project would not result in any significant land use impacts. This alternative would not divide an established community, nor would it conflict with plans adopted for the purpose of avoiding or mitigating a significant effect. As described in Section 3.10, "Land Use and Planning," the Project would be consistent with General Plan policies and would comply with City Municipal Code requirements that address environmental effects from development. Further, the Project would also be consistent with the Sacramento Area Council of Governments' (SACOG's) 2020 Metropolitan Transportation Plan/Sustainable Communities Strategy (MTP/SCS). Because the No Project–No Development Alternative would not require develop the vacant site requiring a conditional use permit, impacts associated with this alternative would be less than would occur under the Project. *(Less, no new impact)*

NOISE AND VIBRATION

Under this alternative, no Project-related construction activities would occur, and there would be no increases in short-term construction-related noise at nearby sensitive receptors. No increase in Project traffic noise, as well as new noise sources and new noise-generating activities on the site, would occur. This alternative would avoid Project-related mitigable noise impacts associated with construction and operational noise. Therefore, noise impacts under the No Project–No Development Alternative would be less than those that would occur under the Project. *(Less, no new impact)*

PUBLIC SERVICES AND RECREATION

The Project would not result in any significant public service impacts that would involve the construction of new facilities, but would include on-site security staff employed by the New Zoo. The No Project–No Development Alternative would result in less of an impact than the proposed Project with regard to public services. *(Less, no new impact)*

TRANSPORTATION/TRAFFIC

Implementing the No Project–No Development Alternative would not result in an increase in vehicular or multimodal trips. Therefore, it would not result in a change in trips or vehicle miles traveled (VMT) greater than existing conditions, or an increase in the demand for transit, bicycle, or pedestrian services and facilities. Additionally, the No Project–No Development Alternative would not result in any change to the existing transportation network. Therefore, it would not result in impacts on transportation or air navigation hazards, safety, or emergency access or conflict with transportation plans, guidelines, policies, or standards. Therefore, implementing the No Project–No Development Alternative would not result in any new transportation-related impacts and would avoid significant impacts related to VMT. The No Project–No Development Alternative would result in less of an impact than would the Project. *(Less, no new impact)*

UTILITIES AND SERVICE SYSTEMS

The Project would result in less than significant environmental impacts associated with water supply, wastewater service, and solid waste generation. The No Project–No Development Alternative would not result in any new demand for water, wastewater treatment, stormwater conveyance, electricity, or natural gas, nor would it result in the need for new infrastructure. The No Project–No Development Alternative would result in less of an impact than would the Project. *(Less, no new impact)*

6.4.2 Alternative 2: Reduced Development Alternative

Under the Reduced Development Alternative (Alternative 2), Phase 1 (Phases 1a and 1b) would be constructed on the Project site. Future Phases 2 through 4 would not occur and development of Phases 1a and 1b would be considered full buildout on 30 acres of the Project site. Alternative 2 would include the main entry complex, Giraffe Lodge, and Gelada Cafe, animal care center, overnight lawn, educational services, and administrative and office modular buildings. Exhibit zones for this alternative would include the Green Corridor and Africa. Under this alternative the New Zoo would not include the California or Australasia zones. Offroad infrastructure improvements would occur under this alternative, including the proposed parking facilities. Visitation under this alternative would be reduced to approximately 508,000 annual visitors.

AESTHETICS

The Reduced Development Alternative would result in reduced visual impacts to the Project site as compared to the Project because only Phases 1a and 1b would be constructed. Reduced development would similarly result in fewer

impacts from light and glare. Development on the site would continue to be subject to the requirements in the City's General Plan, Zoning Code, and New Zoo SPA related to visual character. Therefore, the reduced development footprint would result in fewer Aesthetic impacts. Impacts under this alternative would be less than those that would occur under the Project. *(Less)*

AIR QUALITY

The Reduced Development Alternative would result in reduced development on the site as compared to the Project because only Phase 1a and Phase 1b would be developed. Construction and operational related emissions would be reduced as compared to the Project. However, similar to the Project, this alternative would expose nearby sensitive receptors along Lotz Parkway to construction related emissions and toxic air contaminants. Although construction impacts would continue to occur under this alternative the reduced development footprint would result in fewer air quality impacts as compared to the Project. This impact was identified as significant but mitigable for the Project. Therefore, impacts under this alternative would remain less than significant with mitigation, but would be less than those that would occur under the Project. *(Less)*

BIOLOGICAL RESOURCES

The Reduced Development Alternative would result in reduced ground disturbance as compared to the Project because the areas proposed for the California and Australasia zones would not be developed. However, similar to the Project, this alternative could affect nesting birds and raptors, as well as burrowing owl, Swainson's hawk, and sandhill crane. However, the reduced development footprint would result in fewer impacts to biological resources as compared to the Project. This impact was identified as significant but mitigatable for the Project and would remain less than significant with mitigation under this alternative. Impacts under this alternative would be less than those that would occur under the Project. *(Less)*

CULTURAL, AND TRIBAL CULTURAL RESOURCES

The Reduced Development Alternative would involve less earthmoving activities than the Project, which could result in reduced disturbance, destruction, or alteration of known or as-yet-undiscovered/unrecorded archaeological resources, tribal cultural resources, or human remains. Although the Reduced Development Alternative would include less development on the site, the Alternative 2 would develop most of the site and therefore would not avoid potential impacts associated with archaeological or tribal cultural resources. The impacts under the Reduced Development Alternative would be less than those under the Project, and would require mitigation for unanticipated discovery of cultural resources. *(Less)*

ENERGY

Under the Reduced Development Alternative, construction activities would occur at the Project site, and energy would be temporarily used for construction activities. New Project buildings and facilities would incorporate energy efficiency features and the Project would be all electric. As with the Project, implementing the Reduced Development Alternative would not result in the long-term wasteful, inefficient, and unnecessary consumption of energy. However, this alternative's energy demands would be less than those of the Project because of the reduced size of the New Zoo. Therefore, energy impacts under the Reduced Development Alternative would be less than those under the Project. *(Less)*

GEOLOGY AND SOILS

Construction activities for the Reduced Development Alternative would be less than those described for the Project (development of Phase 1 only), including ground-disturbing and earthmoving activities. However, construction activities may still result in damage to and/or destruction of previously undiscovered paleontological resources. As described in

Section 3.6, "Geology and Soils," impacts would be less than significant with the implementation of mitigation. Therefore, because the development footprint for Alternative 2 would be reduced geology and soils impacts under the Reduced Development Alternative would be less than those that would occur under the Project. (*Less*)

GREENHOUSE GAS EMISSIONS AND CLIMATE CHANGE

Under the Reduced Development Alternative, the development on the site would be reduced. Therefore, fewer operation- and construction-related GHG emissions would be generated than under the Project. However, although operation-related GHG emissions would be reduced the Project would continue to have a significant VMT impact and would not meet regional standards for GHG emissions. Therefore, although GHG emissions under the Reduced Development Alternative would be less than under the Project GHG impacts would remain significant. (*Less*)

HAZARDS AND HAZARDOUS MATERIALS

No significant hazard impacts would occur under the Project because it would be required to comply with federal, State, and local regulations regarding the handling of hazardous materials. As with the Project, the use and handling of hazardous materials under this alternative would be consistent with federal, State, and local regulations, which would minimize the potential for upset or accident conditions or exposure to nearby receptors. Therefore, impacts on public health and safety related to hazardous materials or hazards under the Reduced Development Alternative would be similar to those under the Project. (*Similar*)

HYDROLOGY AND WATER QUALITY

The Reduced Development Alternative would include a reduced development footprint as compared to the Project. Therefore, although the amount of impervious surfaces would be decreased under this alternative there is still potential for construction-related releases of sediment and contaminants into surface waters or groundwater, as well as stormwater generation, changes in drainage patterns, and/or flood risk. Impacts to hydrology and water quality would be reduced under this alternative and remain less than significant. (*Less*)

LAND USE AND PLANNING

The Project would not result in any significant land use impacts. This alternative also would not result in significant land use impacts (division of an established community or conflict with plans adopted for the purpose of avoiding or mitigating a significant effect). As with the Project, the Reduced Development Alternative would include development on the vacant site and a conditional use permit for the New Zoo. Further, the Project and the Reduced Development Alternative would also be consistent with the SACOG 2020 MTP/SCS. Land use and planning impacts associated with this alternative would be similar to those under the Project. (*Similar*)

NOISE AND VIBRATION

Under this alternative, construction activities similar to those that would occur under the Project would occur; however, construction would only occur on 30 acres of the site for development of Phase 1a and 1b. The single family residences along Lotz Parkway would be exposed to similar construction noise as the Project because construction would occur at the same distance from the residences under this alternative. Construction noise was identified as significant but mitigable and the same mitigation would apply under this alternative. However, overall construction noise would be reduced with less development. As with the Project, this alternative would also include traffic noise, as well as new noise sources and new noise-generating activities. Similar to the Project, this alternative could result in operational noise impacts from heating, ventilation, and air conditioning (HVAC) equipment. This impact was identified as significant but mitigable for the Project. As a result of overall reduced development, impacts under this alternative would be less than those that would occur under the Project. (*Less*)

PUBLIC SERVICES AND RECREATION

The Project would not result in any significant public service impacts that would involve the construction of new facilities. The extent of public services needed for the Reduced Development Alternative would be less than the Project because potential future phases would not be developed. The need for public services would be reduced under this alternative because there would be fewer visitors and employees for the New Zoo. Public service impacts under the Reduced Development Alternative would be less than those under the Project. (*Less*)

TRANSPORTATION/TRAFFIC

Similar to the Project, this alternative would not result in any significant transportation impacts on transit, bicycle, or pedestrian facilities or emergency access. Proposed transit, bicycle, and pedestrian facilities and emergency access as part of the Project would be developed under this alternative. The VMT memo prepared for the Project calculated the estimated net daily VMT generated by Phase 1 of the Project by calculating the difference between the Sacramento Zoo daily VMT and the New Zoo daily VMT during opening year. Both visitor and employee trips were included in the VMT analysis assuming an annual visitor attendance of approximately 508,000. Total daily VMT for Phase 1 of the New Zoo was determined to be 15,339. Daily VMT from the existing Sacramento Zoo is 14,171. Therefore, this alternative would result in a net increase in daily VMT of 1,168, or an 8 percent increase compared to existing conditions. For detailed information regarding trip generation and VMT methodology and analysis see Appendix H. Because this alternative would result in an increase of net daily VMT, impacts under this alternative to VMT from Phase 1 would be significant, similar to the Project. As with the Project, impacts would remain significant and unavoidable because all feasible mitigation measures would not be sufficient to reduce daily VMT under this alternative by 1,168. Although impacts under this alternative would be less than the Project, impacts would similarly be significant and unavoidable. (*Less, but the impacts would remain significant and unavoidable*)

UTILITIES AND SERVICE SYSTEMS

The Project would result in less than significant environmental impacts associated with water supply, wastewater service, and solid waste generation. Because the size of the New Zoo would be reduced under the Reduced Development Alternative, water supply, wastewater, and solid waste demands under this alternative would be less than under the Project. Therefore, impacts on utilities and service systems under the Reduced Development Alternative would be less than under the Project. (*Less*)

6.4.3 Alternative 3: New Site Location Alternative

Under Alternative 3, the New Zoo proposed for the Project would be located at the site of the approximately 120 acre Elk Grove Park adjacent to State Route (SR) 99 and owned by the Consumes Community Service District. Elk Grove Park is currently developed with amenities such as a swim center, dog park, BMX track, and sports fields. Existing amenities at the park would be removed to accommodate the New Zoo at this location. This off-site alternative location was identified because of its proximity to SR 99 and it is large enough to accommodate the New Zoo. Under the New Site Location Alternative, the New Zoo SPA would be applied to the site.

AESTHETICS

This alternative would include levels of construction activities similar to those that would occur under the Project. Therefore, this alternative would also introduce new lighting, especially at night, that could adversely affect nearby residents. Construction of the New Zoo and associated facilities would significantly alter the visual character and quality of the area from a park to zoo facility. The overall massing of zoo facilities would result in more development than currently on the site that is mostly park land. Thus, visual impacts under the New Site Location Alternative would be greater than those under the Project. (*Greater*)

AIR QUALITY

Similar to the Project, this alternative would include construction of the New Zoo, but unlike the Project, it would include construction emissions associated with demolition of the Elk Grove Park. As with the proposed Project, this alternative would result in less-than-significant construction-related emissions with the application of Project mitigation measures. Both this alternative and the Project would result in less than significant impacts related to operation-related emissions. Although this alternative would result in similar operational emissions, increased construction emissions from demolition under this alternative would result in greater air quality emissions. (*Greater*)

BIOLOGICAL RESOURCES

The New Site Location Alternative would result in the same level of ground disturbance as the Project. However, although partially developed the Elk Grove Park has portions of undeveloped land that may support special status species. Additionally, the New Site Location has more trees than the Project site that would provide habitat for nesting birds and raptors. Similar to the Project, this alternative could affect foraging habitat and nesting birds and raptors during construction. This alternative would require the application of Project mitigation measures to reduce impacts to biological resources to a less-than-significant level. This impact was identified as significant but mitigable for the Project. Because issues associated with special status species would be reduced with application of Project mitigation, impacts under this alternative would be similar to those that would occur under the Project. (*Similar*)

CULTURAL, AND TRIBAL CULTURAL RESOURCES

Elk Grove Park was established in 1903 and has a rich history as the first community park in Elk Grove, and the first governed rural park district in California (Elk Grove Historical Society 2021). Therefore, demolition of the park under this alternative would have the potential to impact several historic resources. Historical resources impacts for this alternative would be greater than the project. The Elk Grove Park Alternative would involve the same level of earthmoving activities associated with the Project, which could result in the disturbance, destruction, or alteration of known or as-yet-undiscovered/unrecorded archaeological resources, tribal cultural resources, or human remains. Although the Project footprint and level of construction would remain similar to the Project and there would be greater impacts to historical resources due to the history of the park. Impacts under this alternative would be greater to those under the Project. (*Greater*)

ENERGY

Under this alternative, construction activities would be similar to those proposed for the Project, except demolition would be required. New buildings and facilities would incorporate energy efficiency features similar to those as proposed for the Project. As with the Project, this alternative would not result in the long-term wasteful, inefficient, and unnecessary consumption of energy, because identified mitigation would be applied. Therefore, energy impacts under this alternative would be similar to those that would occur under the Project. (*Similar*)

GEOLOGY AND SOILS

Under this alternative, construction activities would be similar to those described for the proposed Project, including ground-disturbing and earthmoving activities, which could result in damage to and/or destruction of previously undiscovered paleontological resources. As described in Section 3.6, "Geology and Soils," impacts would be less than significant with the implementation of mitigation. Geology and soils impacts under this alternative would be similar to those that would occur under the Project. (*Similar*)

GREENHOUSE GAS EMISSIONS AND CLIMATE CHANGE

This alternative would generate GHG emissions during construction and operation similar to those that would be generated under the Project because the same extent of site development would occur. Construction emissions would be increased as demolition would occur. However, demolition would result in an incremental increase in GHG emissions under this alternative. Therefore, this alternative and the Project would generate similar GHG emissions. (*Greater*)

HAZARDS AND HAZARDOUS MATERIALS

No significant hazard impact would occur under the Project. As with the Project, the use and handling of hazardous materials under this alternative would be consistent with federal, State, and local regulations, which would minimize the potential for upset or accident conditions or exposure to nearby receptors. The use of hazardous materials under this alternative would be the same as under the Project because the New Zoo would be the same. Therefore, impacts on public health and safety related to hazardous materials or hazards under this alternative would be similar to those under the Project. (*Similar*)

HYDROLOGY AND WATER QUALITY

Under this alternative the amount of impervious surfaces would be similar to the Project and the potential for construction-related releases of sediment and contaminants into surface waters or groundwater, as well as stormwater generation, changes in drainage patterns, and/or flood risk would be similar. Implementation of best management practices and compliance with State and local requirements under this alternative would result in runoff and water quality during storm events similar to those under the Project. This alternative and the Project would have similar hydrology and water quality impacts. (*Similar*)

LAND USE AND PLANNING

The Project would not result in any significant land use impacts. This alternative also would not result in significant land use impacts (division of an established community or conflict with plans adopted for the purpose of avoiding or mitigating a significant effect). As with the Project, this alternative would include an SPA for the New Zoo. Further, the Project and this alternative would also be consistent with the SACOG 2020 MTP/SCS. Impacts associated with this alternative would be similar to those of the Project. (*Similar*)

NOISE AND VIBRATION

Under this alternative, construction activities would be similar to those that would occur under the Project, with the addition of demolition. However, the Elk Grove Park site is surrounded by residential development and there would be an increase in short-term construction-related noise at sensitive receptors. As with the Project, this alternative would include traffic noise, as well as new operational noise sources. Because the site includes more surrounding residences as compared to the Project site additional receivers would be exposed to operational noise sources. Project impacts were determined to be less than significant with mitigation and the same mitigation would apply. This alternative would result in noise increased impacts as compared to those of the Project as more noise receptors would be impacted. (*Greater*)

PUBLIC SERVICES AND RECREATION

The Project would not result in any significant public service or recreation impacts that would involve the construction of new facilities. This alternative would have similar public service needs as the Project and public services impacts would be similar. However, under this alternative the Elk Grove Park would be demolished to accommodate the New Zoo. This alternative would reduce recreational opportunities in Elk Grove by replacing them with the New Zoo.

These recreational opportunities would need to be replaced elsewhere in the community at one or more locations. These replacement facilities would have their own potential impacts as a result of their construction and operation. Therefore, public service and recreation impacts would be greater under this alternative as compared to the Project. (*Greater*)

TRANSPORTATION/TRAFFIC

The Project would not result in any significant transportation impacts on transit, bicycle, or pedestrian facilities. Additionally, the Project would provide adequate emergency access. However, significant impacts related to VMT would occur as the Project would result in an increase in VMT. This alternative would generate a similar VMT as the Project due to its location near the Project site and similar size of the proposed New Zoo. Therefore, this alternative would not avoid significant and unavoidable VMT impacts. This alternative's impact on City circulation plans, policies, and standards would be similar to the Project. Therefore, transportation impacts under this alternative would be similar to the Project. (*Similar*)

UTILITIES AND SERVICE SYSTEMS

The Project would result in less than significant environmental impacts associated with water supply, wastewater, and solid waste generation. The water supply and wastewater demands and solid waste generation under this alternative would be similar to those under the Project because the size of the facilities would be the same. Therefore, impacts on utilities and service systems under this alternative would be similar to those under the Project. (*Similar*)

6.5 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

Because the No Project–No Development Alternative (described above in Section 5.4.1) would avoid all adverse impacts resulting from construction and operation of the Project analyzed in Chapter 3, it is the environmentally superior alternative. However, the No Project–No Development Alternative would not meet the objectives the project as presented above in Section 5.2.

When the environmentally superior alternative is the No Project Alternative, the State CEQA Guidelines (Section 15126[d][2]) require selection of an environmentally superior alternative from among the other action alternatives evaluated. As illustrated in Table 6-1, below, the Reduced Development Alternative would be environmentally superior action alternative because although the environmental impacts would be similar to the Project, and no significant impacts or significant and unavoidable impacts would be completely avoided, the reduced degree of development would reduce the potential impacts.

Table 6-1 Summary of Environmental Effects of the Alternatives Relative to the New Zoo Project

Environmental Topic	Project Impacts	Alternative 1: No Project – No Development Alternative	Alternative 2: Reduced Development Alternative	Alternative 3: New Site Location Alternative
Aesthetics	Less than significant	Less	Less	Greater
Air Quality	Less than significant (with mitigation)	Less	Less	Greater
Biological Resources	Less than significant (with mitigation)	Less	Less	Similar
Cultural, and Tribal Cultural Resources	Less than significant (with mitigation)	Less	Less	Greater
Energy	Less than significant	Less	Less	Similar
Geology and Soils	Less than significant (with mitigation)	Less	Less	Similar
Greenhouse Gas Emissions and Climate Change	Significant and unavoidable	Less	Less	Greater
Hazards and Hazardous Materials	Less than significant	Less	Similar	Similar
Hydrology and Water Quality	Less than significant	Less	Less	Similar
Land Use and Planning	Less than significant	Less	Similar	Similar
Noise	Less than significant (with mitigation)	Less	Less	Greater
Public Services and Recreation	Less than significant	Less	Less	Greater
Transportation/Traffic	Significant and unavoidable (VMT impacts)	Less	Similar	Similar
Utilities and Service Systems	Less than significant	Less	Less	Similar

7 REPORT PREPARERS

City of Elk Grove (Lead Agency)

Christopher Jordan, AICP Director of Strategic Planning and Innovation

Ascent Environmental, Inc. (CEQA Compliance)

Patrick Angell Principal
Kari Zajac Project Manager
Saba Asghary Environmental Planner
Nicole Greenfield Environmental Planner
Cole Hackett Environmental Planner
Bryn Kirk Environmental Planner
Alta Cunningham Senior Cultural Resources Specialist
Roberto Mora Cultural Resources Specialist
Peter Hoholick Air Quality, GHG, and Energy Specialist
Julia Wilson Air Quality, GHG, and Energy Specialist
Jazmin Amini Transportation and Noise Specialist
Dimitri Antoniou Senior Air Quality/GHG/Noise Specialist
Tammie Beyerl Senior Biologist
Karileigh Williams Biologist
Lisa Merry GIS Specialist
Gaiety Lane Publishing Specialist
Riley Smith Publishing Specialist
Brian Perry Graphic Specialist
Corey Alling Graphic Specialist

Kimley-Horn (Transportation Analysis)

Matt Weir Principal
Chris Gregerson Engineer
Stephen Dillon Engineer

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9 LIST OF ABBREVIATIONS

°C	degrees Celsius
°F	degrees Fahrenheit
2008 update	2003 <i>Energy Action Plan</i>
2022 Scoping Plan	<i>Final 2022 Scoping Plan for Achieving Carbon Neutrality</i>
AB	Assembly Bill
ACM	Asbestos Containing Materials
ADWF	average dry weather flow
af	acre-feet
AFV	Alternative fuel vehicle
AFY	acre feet per year
APN	Assessor's Parcel Number
ASTM	American Society of Testing Materials
AZA	Association of Zoos and Aquariums
BAAQMD	Bay Area Air Quality Management District
BACT	best available control technology
BenMAP	Benefits Mapping and Analysis
BMP	best management practices
BPTMP	<i>Bicycle, Pedestrian, and Trails Master Plan</i>
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CAFE	Corporate Average Fuel Economy
CAL FIRE	California Department of Forestry and Fire Protection
Cal	Calibrated
Cal/OSHA	California Occupational Safety and Health Administration
CalEEMod	California Emissions Estimator Model
CALGreen	California Green Building Standards
CalRecycle	California Department of Resources Recycling and Recovery
Caltrans	California Department of Transportation
CAP	climate action plan
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CBC	California Building Code
CCAA	California Clean Air Act
CCR	California Code of Regulations
CCSD	Cosumnes Community Services District
CDFW	California Department of Fish and Wildlife

CEC	California Energy Commission
Central Valley RWQCB	Central Valley Regional Water Quality Control Board
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CGS	California Department of Conservation Division of Mines and Geology
CI	carbon intensity
CMP	Congestion Management Process
CNDDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CNPS	California Native Plant Society
CO	carbon monoxide
CO ₂	carbon dioxide
CPTED	Crime Prevention Through Environmental Design
CPUC	California Public Utilities Commission
CRHR	California Register of Historical Resources
CRPR	California Rare Plant Rank
CSD	Cosumnes Community Services District
CVFPB	Central Valley Flood Protection Board
CVFPP	Central Valley Flood Protection Plan
CWA	Clean Water Act
dB	decibels
dbh	diameter at breast height
Delta	Sacramento River–San Joaquin River Delta
diesel PM	exhaust from diesel engines
DOT	U.S. Department of Transportation
Draft EIR	draft environmental impact report
DTSC	California Department of Toxic Substances Control
DWR	California Department of Water Resources
EAI	exotic animal industry
EGMC	City of Elk Grove Municipal Code
EGPD	Elk Grove Police Department
EGUSD	Elk Grove Unified School District
EIR	environmental impact report
EMD	Environmental Management Department
EOP	Emergency Operations Plan
EPA	U.S. Environmental Protection Agency
EPAct	Energy Policy Act of 1992
EPCRA	Emergency Planning and Community Right-to-Know Act of 1986
ESA	Endangered Species Act

EV	electric vehicle
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Map
FMP	Facilities Master Plan
FTA	Federal Transit Administration
GBV	Ground-Borne Vibration
GHG	greenhouse gas
GPCD	gallons per capita per day
GWP	global warming potential
HAP	hazardous air pollutants
HRA	Health Risk Assessment
Hz	hertz
IEPR	Integrated Energy Policy Report
in/sec	inches per second
IPaC	Information for Planning and Consultation
IPCC	Intergovernmental Panel on Climate Change
kV	kilovolt
kW	kilowatt
LBP	Lead Based Paint
LCFS	Low Carbon Fuel Standard
LCM	Lead Containing Material
L_{dn}	Day-Night Level
LEA	Livable Employment Area
LED	light-emitting diode
LEED	Leadership in Energy and Environmental Design
L_{eq}	Equivalent Continuous Sound Level
LHMP	Local Hazard Mitigation Plan
LID	low impact development
L_{max}	Maximum Sound Level
LOS	level of service
LSS	life support systems
MBTA	Migratory Bird Treaty Act
MCL	maximum contaminant levels
mgd	million gallons of wastewater per day

MOU	Memorandum of Understanding
mPa	Micro-Pascals
MPO	Metropolitan planning organization
MRZ	Mineral Resource Zone
MS4 Permit	Municipal Separate Storm Sewer Systems Permit
MSL	Meal sea level
MTCO _{2e}	Metric tons of carbon dioxide equivalent
MTIP	Metropolitan Transportation Improvement Program
MTP/SCS	Metropolitan Transportation Plan/Sustainable Communities Strategy
NAAQS	National ambient air quality standards
NAHC	Native American Heritage Commission
NEHRP	National Earthquake Hazards Reduction Program
NFIP	National Flood Insurance Program
NHTSA	National Highway Traffic Safety Administration
NCIC	North Central Information Center
NO	Nitric oxide
NO ₂	Nitrogen dioxide
NOP	Notice of Preparation
NO _x	Nitrogen oxide
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
OEHHA	Office of Environmental Health Hazard Assessment
OHWD	Omochumne-Hartnell Water District
OPR	Governor's Office of Planning and Research
OSHA	Occupational Safety and Health Administration
Ozone	Photochemical smog
P/O	Parks and Open Space
PG&E	Pacific Gas and Electric Company
PM	particulate matter
PM ₁₀	Respirable particulate matter with an aerodynamic diameter of 10 micrometers or less
PM _{2.5}	Fine particulate matter with an aerodynamic diameter of 2.5 micrometers or less
POU	Place of Use
ppm	parts per million
PPV	Peak Particle Velocity
PRC	Public Resources Code
Project	New Zoo at Elk Grove Project
PUE	Public Utility Easement
PV	photovoltaic

Qr	Quaternary Riverbank Formation
RD 551	Reclamation District 551
Regional San	Sacramento Regional County Sanitation District
RMS	root-mean-square
ROG	reactive organic gas
RTP	regional transportation plan
RWQCB	regional water quality control board
SACOG	Sacramento Area Council of Governments
SacRT	Sacramento Regional Transit
SacSewer	Sacramento Area Sewer District
SAF Plan	State Alternative Fuels Plan
SARA	Superfund Amendments and Reauthorization Act
SASb GSP	South American Subbasin Groundwater Sustainability Plan
SB	Senate Bill
SCGA	Sacramento Central Groundwater Authority
SCWA	Sacramento County Water Agency
SDWA	Safe Drinking Water Act
SEIR	Subsequent EIR
SEPA	Southeast Planning Area
SGMA	Sustainable Groundwater Management Act of 2014
SIP	State Implementation Plan
SJVAPCD	San Joaquin Valley Air Pollution Control District
SMAQMD	Sacramento Metropolitan Air Quality Management District
SMUD	Sacramento Municipal Utility District
SO ₂	Sulfur dioxide
SO _x	sulfur oxides
SPA	Special Planning Area
SPCC	Spill Prevention, Control, and Countermeasure
SPL	sound pressure level
SR	State Route
SRRE	source reduction and recycling element
SRWTP	Sacramento Regional Wastewater Treatment Plant
SSQP	Sacramento Stormwater Quality Partnership
State CEQA Guidelines	California Environmental Quality Act Guidelines
State Water Board	State Water Resources Control Board
SVAB	Sacramento Valley Air Basin
SWPPP	stormwater pollution prevention plan
SWRCB-DDW	State Water Resources Control Board Division of Drinking Water
SWRCB	State Water Resources Control Board

TAC	toxic air contaminant
TDM	transportation demand measure
TDS	total dissolved solids
TMDL	total maximum daily load
TMP	traffic management plan
tpy	tons per year
USACE	U.S. Army Corps of Engineers
USC	US Code
USFWS	U.S. Fish and Wildlife Service
UST	underground storage tank
UWMP	urban water management plan
UWMPA	Urban Water Management Planning Act
VdB	vibration decibels
VEC	Vapor Encroachment Condition
VMT	Vehicle Miles Traveled
WDR	Waste Discharge Requirements
WDR	waste discharge requirement
WQO	Water Quality Objective
WRCC	Western Regional Climate Center
WSA	water supply assessment
WSIP	Water Supply Infrastructure Plan
WSMP	Water Supply Master Plan
ZAHP	Zoo and Aquarium All Hazards Partnership
ZEV	zero-emission vehicle