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December 2, 2025

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Re: Agenda Item # 7B: Comments on the Staff Report and Revised Mitigated Negative Declaration for the E&P Technology Way – Buildings A & B (Use Permits #P22-00307 and #P22-00308) (SCH 2021400855)

Dear Chair Dameron, Vice Chair Brunzell, Commissioners, and Mr. Trippi:

On behalf of Napa-Solano Residents for Responsible Development ("Napa-Solano Residents"), we submit these comments on Agenda Item 7B of the December 3, 2025 Napa County Planning Commission meeting. This item relates to the Staff Report and Revised Mitigated Negative Declaration for the E&P Technology Way –

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Buildings A and B project (Use Permits #P22-00307 and #P22-00308) (SCH 2024100855) ("Project"), proposed by Michael Kelley ("Applicant").

The Project proposes to construct two separate buildings on three parcels comprising two sites: Building A is proposed on a 13.2-acre parcel on the north side of Technology Way and Morris Court (APN 057-250-030) and Building B is proposed on a 6.87-acre project site on the north side of Technology Way, opposite Gateway Road West (APN's 057-250-031, -032), which will be combined.[1] Both sites are located in the Napa Valley Business Park Specific Plan ("NVBPSP") area within the IP:AC (Industrial Park: Airport Compatibility) Zoning District.[2]

Building A is a 143,312 square foot ("SF") refrigerated wine production facility with an annual production capacity of 450,000 gallons.[3] The winery uses will include grape crushing, bulk wine processing and storage, stainless steel tank and barrel storage, bottling, and office space.[4] An additional 13,000 SF of covered outdoor work area is also proposed for the north side of the building.[5] During non-harvest season, the facility will have 16 full-time and 7 part-time employees, which will increase during harvest to approximately 35 total employees.[6] Building A will have 129 parking spaces and eight (8) spaces for semi-trailers.[7]

Building B is a proposed 66,915 SF building for warehouse uses that the MND claims will be "consistent with allowable warehouse uses as outlined in Industrial Park zoning district (18.40.020) and the [NVBPSP]."[8] Building B will be utilized primarily for warehousing/distribution as well as office space.[9] The facility will be run by up to 30 employees but no user has been identified.[10] There will be no retail sales and no access for the general public.[11]

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[1] Napa County, *Staff Report for the E&P Technology Way - Buildings A & B (Use Permits #P22-00307 and #P22-00308) Project* at p. 2 (November 8, 2024).
[2] *Ibid.*
[3] RMND at pdf p. 2.
[4] *Ibid.*
[5] *Ibid.*
[6] *Ibid.*
[7] *Ibid.*
[8] *Id.* at p. 2.
[9] *Ibid.*
[10] *Ibid.*
[11] *Ibid.*

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On November 19, 2024, Napa-Solano Residents submitted comments on the Project's original Mitigated Negative Declaration. Napa-Solano's comments included expert reports which presented the County with substantial evidence supporting a fair argument that the Project may result in significant air quality, GHG, transportation, and agriculture impacts. The comments also pointed out deficiencies in the MND that render it inadequate under CEQA, including an incomplete project description and an inaccurate description of existing biological resources on the Project site. For example, our expert consultants identified potentially significant and unmitigated ROG emissions, impacts to special-status species due to increased traffic and reduced foraging habitat, significant and unmitigated VMT levels, and significant and unmitigated conversion of agricultural land to non-agricultural use**.** These impacts required the County to prepare an environmental impact report ("EIR") for the Project to comply with the California Environmental Quality Act. ("CEQA").[12]

Instead of preparing an EIR, as required by CEQA, the County has prepared written responses[13] to Napa-Solano Residents' comments and revised some of its environmental analysis in the Revised MND ("RMND"). We reviewed the RMND and Staff Report with air quality, public health, and greenhouse gas ("GHG") emissions expert James Clark[14], biological resources expert Dr. Shawn Smallwood[15], and transportation expert Daniel Smith.[16] These comment letters and all attachments thereto are incorporated by reference as if fully set forth herein.[17]

These comments and those of our experts address legal and factual deficiencies in the RMND and the Staff Report. They also provide substantial

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[12] Pub. Resources Code, §§ 21000 et seq.; 14 Cal. Code Regs. §§ 15000 et seq. ("CEQA Guidelines").
[13] First Carbon Solutions Memo Dated November 10, 2025 (hereinafter "Responses to Comments"), available at: https://napa.legistar.com/gateway.aspx?M=F&ID=c46a64ce-a7bd-46ca-aee1-116de21c442c.pdf.
[14] Exhibit A, James Clark, *Comments on the Revised Mitigated Negative Declaration and Staff Report for the E&P Technology Way – Buildings A & B Project* (hereinafter "Clark Comments").
[15] Exhibit B, Dr. Shawn Smallwood, *Comments on the Revised Mitigated Negative Declaration and Staff Report for the E&P Technology Way – Buildings A & B Project* (hereinafter "Smallwood Comments").
[16] Exhibit C, Daniel Smith, *Comments on the Revised Mitigated Negative Declaration and Staff Report for the E&P Technology Way – Buildings A & B Project* (hereinafter "Smith Comments").
[17] Napa-Solano Residents reserves the right to supplement these comments, and to file further comments at any and all future proceedings and hearings related to the Project. Gov. Code § 65009(b); Pub. Res. Code § 21177(a); *Bakersfield Citizens for Local Control v. Bakersfield* (2004) 124 Cal.App.4th 1184, 1199-1203; *see also Galante Vineyards v. Monterey Water Dist.* (1997) 60 Cal.App.4th 1109, 1121.

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evidence supporting a fair argument that the Project may result in significant air quality, GHG, biological resources, transportation, and agricultural impacts that are not adequately disclosed and are not reduced to less than significant levels by the mitigation measures or conditions of approval proposed in the RMND.

In particular, Dr. James Clark provides substantial evidence supporting a fair argument that the Project may result in significant ROG emissions during construction by failing to analyze necessary utility improvements and by not comparing maximum daily emissions of criteria pollutants to the applicable significance threshold. Dr. Shawn Smallwood provides substantial evidence supporting a fair argument that the Project may result in significant and unmitigated impacts to several biological resources, including northern harrier and white-tailed kite. He also provides substantial evidence to support a fair argument that significant impacts to biological resources may result from increased collisions with Project-generated traffic. Mr. Daniel Smith provides substantial evidence supporting a fair argument that the Project may result in significant transportation impacts that the RMND fails to properly analyze and mitigate. Lastly, the Project's conversion of agricultural land for non-agricultural uses is a significant impact that the RMND must disclose, analyze, and mitigate in an EIR.

For the foregoing reasons, the County must prepare an Environmental Impact Report ("EIR") for the Project before the County may consider Project approval. Accordingly, we respectfully request that the Commission continue the hearing on the Project until after an EIR has been prepared and circulated as required by CEQA.

I. STATEMENT OF INTEREST

Napa-Solano Residents is an unincorporated association of individuals and labor organizations that may be adversely affected by the potential public and worker health and safety hazards, and the environmental and public service impacts of the Project. The coalition includes the International Brotherhood of Electrical Workers Local 180, Plumbers & Steamfitters Local 343, Sheet Metal Workers Local 104, Sprinkler Fitters Local 483, along with their members, their families, and other individuals who live and work in Napa County.

Napa-Solano Residents supports the development of sustainable residential, commercial, and industrial centers where properly analyzed and carefully planned to minimize impacts on public health and the environment. Developments like the

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Project should avoid adverse impacts to air quality, biological resources, transportation, and public health, and should take all feasible steps to ensure unavoidable impacts are mitigated to the maximum extent feasible. Only by maintaining the highest standards can development truly be sustainable.

The individual members of Napa-Solano Residents and the members of the affiliated labor organizations live, work, recreate and raise their families in and around Napa County. They would be directly affected by the Project's environmental and health and safety impacts. Individual members may also work constructing the Project itself. They would be the first in line to be exposed to any health and safety hazards which may be present on the Project site. They each have a personal interest in protecting the Project area from unnecessary, adverse environmental and public health impacts.

Napa-Solano Residents and its members also have an interest in enforcing environmental laws that encourage sustainable development and ensure a safe working environment for the members they represent. Environmentally detrimental projects can jeopardize future jobs by making it more difficult and more expensive for industry to expand in Napa County, and by making it less desirable for businesses to locate and people to live and recreate in the County, including the Project vicinity. Continued environmental degradation can, and has, caused construction moratoriums and other restrictions on growth that, in turn, reduces future employment opportunities.

Finally, Napa-Solano Residents is concerned with projects that can result in serious environmental harm without providing countervailing economic benefits. CEQA provides a balancing process whereby economic benefits are weighed against significant impacts to the environment.[18] It is in this spirit we offer these comments.

II. THE COUNTY FAILED TO RECIRCULATE THE RMND AS REQUIRED BY CEQA GUIDELINES §15073.5

The County made substantial revisions to the MND, triggering the need for recirculation. Under CEQA Guidelines Section 15073.5, "[a] lead agency is required to recirculate a negative declaration when the document must be ***substantially revised*** after public notice of its availability has previously been given pursuant to

[18] Pub. Res. Code § 21081 (a)(3); *Citizens for Sensible Development of Bishop Area v. County of Inyo* (1985) 172 Cal.App.3d 151, 171.

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Section 15072, but prior to its adoption." A "substantial revision" requiring recirculation means either:

> (1) A new, avoidable significant effect is identified and mitigation measures or project revisions must be added in order to reduce the effect to insignificance, or
> (2) The lead agency determines that the proposed mitigation measures or project revisions will not reduce potential effects to less than significance and new measures or revisions must be required.[19]

The revisions to the MND fall within the second definition. The County added new language to Mitigation Measure BIO-6 that reflects the burrowing owl's updated conservation status, acknowledges that "take" is likely, and requires the County to obtain a California Endangered Species Act ("CESA") Incidental Take Permit.[20] The County claims that this revision "merely clarifies and amplifies the analysis" and does not introduce new or more severe impacts.[21] But this argument addresses only the first definition of "substantial revision" and ignores the second, which is the definition that applies here.

As the California Department of Fish and Wildlife explained in its November 15, 2024 comment letter, the original MND did not reflect the burrowing owl's reclassification as a CESA candidate species.[22] As a result, CDFW found the mitigation measures in the original MND were not sufficient to reduce impacts to burrowing owls to less than significant.[23] Accordingly, "[t]o reduce potential impacts to [burrowing owl] to less-than-significant and comply with CESA, CDFW recommend[ed] adding" language to Mitigation Measure BIO-6 requiring the County to obtain a CESA ITP before Project activities commence.[24]

Because the MND revisions were necessary as the previously proposed mitigation was inadequate to reduce impacts to less than significant, they constitute a "substantial revision" under CEQA Guidelines Section 15073.5. Therefore, the County was required to recirculate the RMND.

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[19] 14 CCR §15073.5.
[20] RMND, p. 13.
[21] Responses to Comments, p. 2.
[22] CDFW Comments on the E&P Technology Way – Buildings A&B Project (Nov. 15, 2024), p. 3, available at: https://napa.legistar.com/gateway.aspx?M=F&ID=9a61e666-35a5-4e55-b18c-0c697da3c73d.pdf.
[23] *Id.* at pp. 3-4.
[24] *Id.* at p. 4.

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III. THE RMND LACKS A COMPLETE AND ADEQUATE PROJECT DESCRIPTION

Napa-Solano Residents' previous comments explained that the MND failed to include a complete project description by omitting information about the required utility improvements the Project will need to install in order to utilize recycled water. This omission leads to a complete lack of any analysis of potential impacts from construction of these improvements.

In response, the County continues to claim that the Project will not require construction of utility infrastructure beyond connections to existing facilities and that the "construction of new facilities is not directly referenced in the comment letter."[25] The County also points to a Will Serve letter from Napa Sanitation District ("NapaSan") as evidence that no new infrastructure will be required. This conclusion is incorrect and is in fact contradicted by correspondence from NapaSan to the County. The RMND therefore omits critical information about the required sanitary sewer improvements and lacks any analysis of potentially significant impacts associated with such improvements.

Several courts have found CEQA documents inadequate for omitting necessary utility infrastructure improvements from their Project Descriptions. For example, In *San Joaquin Raptor/Wildlife Rescue Center v. County of Stanislaus*, the FEIR omitted from the description of the development project the necessary wastewater treatment plan (sewer expansion).[26] The Court found that the FEIR was premised on an improperly "curtailed" and distorted" project description.[27] Thus, because an accurate stable and finite description is the *sine qua non* of an informative and legally sufficient EIR, the Court held that even were the FEIR deemed to be adequate in all other respects, the selection and use of a "truncated project concept" violated CEQA and the County did not proceed "in a manner required by law."[28]

Similarly, in *Santiago County Water District v. County of Orange*, the appellate court held that an EIR on a proposed mining operation was inadequate

[25] Responses to Comments, p. 10.
[26] *San Joaquin Raptor/Wildlife Rescue Center v. County of Stanislaus* (1994) 27 Cal.App.4th 713, 730.
[27] *Id.* (citing *County of Inyo v. City of Los Angeles* (1977) 71 Cal.App.3d 185, 192).
[28] *Id.* at p. 200 (citing *City of Santee v. County of San Diego* (1989) 214 Cal.App.3d 1483, 1454-1455).

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because it failed to include "a description of the facilities that will have to be constructed to deliver water to the mining operation, or facts from which to evaluate the pros and cos of supplying the amount of water that the mine will need."[29] The Court found that this frustrates one of the core goals of CEQA: "Only through an accurate view of the project may affected outsiders and public decision-makers balance the proposal's benefit against its environmental cost, consider mitigation measures, assess the advantage of terminating the proposal…and weigh other alternatives in the balance."[30]

Here, the NapaSan Will Serve letter to the County expressly states that sanitary sewer improvements will be required. Specifically, the Will Serve Letter dated November 13, 2025 states "[t]he following items will be required by the owner/developer: 1. Install the sanitary sewer improvements as specified in NapaSan's Conditions of Approval for the Project."[31] Another letter from NapaSan dated September 29, 2022, outlines this required condition of approval: "[t]he proposed project shall be subject to the following conditions of approval: 1. A plan showing the required sanitary sewer improvements, conforming to NapaSan standards, shall be prepared by a registered civil engineer and shall be submitted to NapaSan for approval prior to issuance of permits."[32] These improvements were not disclosed, nor were any potential environmental impacts of these improvements analyzed in the RMND as required by CEQA.

Dr. Clark's comments demonstrate that this omission further exacerbates the Project's significant and unmitigated air quality impacts.[33] He explains that the sanitary sewer improvements will have both criteria pollutant emissions (ROGs, particulate matter, carbon monoxide and oxides of nitrogen) and toxic air contaminant emissions (primarily diesel particulate matter) that are not disclosed in the RMND.[34] This will further contribute to the 111 lbs/day of ROG emissions that Dr. Clark calculated will be emitted by the Project during the construction phase, which already exceeds the significance threshold of 54 lbs/day.[35] This is a significant and unmitigated impact that requires the County to prepare an EIR.

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[29] *Santiago County Water Dist. v. County of Orange* (1981) 118 Cal.App.3d 818, 829.
[30] *Id.* at pp. 829-830.
[31] NapaSan Will Serve Letter dated November 13, 2025.
[32] NapaSan Will Serve Letter re: Conditions of Approval dated September 29, 2022.
[33] Clark Comments, p. 2-3.
[34] *Id.* at p. 3.
[35] *Id.* at p. 2.

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IV. THE RMND FAILS TO ACCURATELY DESCRIBE THE ENVIRONMENTAL SETTING FOR BIOLOGICAL RESOURCES

Dr. Smallwood's previous comments on the MND provided substantial evidence supporting a fair argument that the County failed to accurately describe the environmental setting against which the Project's impacts on biological resources are measured. Specifically, Dr. Smallwood highlighted deficiencies in the County's desktop review, reconnaissance level survey, and conclusions related to species occurrence likelihoods. As explained in detail by Dr. Smallwood, the County's responses do not adequately address these comments, and no revisions were made to the RMND's biological resource surveys despite clear evidence of their deficiencies.

The County still has not conducted a thorough desktop review. The County attempts to justify its sole reliance on CNDDB for its desktop review of potential species by claiming that records from eBird and iNaturalist are not reliable because lay people are allowed to contribute to these databases and the data is not vetted for accuracy by experts. These statements are inaccurate and fail to represent the reliability, reputability, and widespread use of these databases in CEQA review and peer-reviewed research. As Dr. Smallwood explains, professional biologists also contribute to eBird and iNaturalist.[36] Although lay individuals can submit observations, this does not diminish the value or reliability of the data.[37] In addition, postings to eBird and iNaturalist—like those in CNDDB—are subject to review through built-in filters and by other users of the database, including professionals at Cornell University Lab of Ornithology.[38] Furthermore, hundreds of peer-reviewed papers have resulted from analysis of eBird data over the past decade.[39] The County's failure to consult these databases resulted in the County omitting certain species from consideration in the Biological Resources Analysis, despite recorded instances of those species on the Project site.

The County mischaracterizes Dr. Smallwood's comment by stating that he found the reconnaissance level surveys inappropriate. This is not true. Rather, Dr. Smallwood's comments highlighted deficiencies in the County's survey efforts that led to an incomplete description of existing biological resources and improper conclusions regarding species occurrence. First, the County's surveys of the Project

[36] Smallwood Comments, p. 25.
[37] *Id.*
[38] *Id.* at p. 26.
[39] *Id.*

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site did not comport with CDFW protocols.[40] The FCS survey conducted on December 8, 2022 began at 11am, which is too late to meet any of the CDFW protocols.[41] The 9 additional surveys for Swainson's Hawk conducted by Pinecrest were inconsistent with CDFW protocols because they were all conducted by foot rather than by car.[42] Two of the surveys were also conducted in the wrong period when the Swainson's Hawk is very difficult to detect.[43] Pinecrest's survey for burrowing owls also did not meet the minimum standards in CDFW 2012, and none of the Pinecrest surveys followed any of the available survey protocols for special-status species of wildlife.[44]

Second, the County improperly concluded that certain species had a low likelihood of occurring on the Project site merely because they were not observed during the site survey. Dr. Smallwood explains that while the detection of a species can confirm the presence of that species, the failure to detect a species during a reconnaissance level survey cannot confirm the absence of that species, nor can it confirm the absence of habitat of that species.[45] It is essential to interpret the results of such a survey in the context of the detection probabilities of each species, which FCS fails to do.[46]

Third, the County relies on speculative and over-generalized statements to conclude that certain species or features will not exist on the Project site. For instance, the County concludes that the Project site lacks fossorial mammals due to regular disking and mowing,[47] contains no evidence of wildlife corridors,[48] provides no suitable nesting habitat,[49] and will not experience any increase in habitat fragmentation.[50]. Dr. Smallwood's comments provides evidence based on his direct observations of the Project site, his prior surveys of nearby areas, and his extensive experience as a biological research professional, all of which contradict the County's unsupported conclusions.

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[40] Smallwood Comments, p. 15.
[41] *Id.*
[42] *Id.*
[43] *Id.*
[44] *Id.* at p. 16.
[45] Smallwood Comments, p. 1.
[46] *Id.*
[47] *Id.* at p. 39.
[48] *Id.* at p. 44.
[49] *Id.* at pp. 47-48.
[50] *Id.* at p. 48.

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Therefore, the County still lacks an adequate description of the environmental setting against which to measures the Project's impacts on biological resources. In order to accurately assess the Project impacts, the County must prepare an EIR that includes an adequate environmental setting.

V. AN EIR IS REQUIRED BECAUSE THERE IS SUBSTANTIAL EVIDENCE SUPPORTING A FAIR ARGUMENT THAT THE PROJECT MAY HAVE SIGNIFICANT UNMITIGATED IMPACTS

The County fails to adequately respond to Napa-Solano Residents' and its expert consultants' comments. As discussed in more detail below, there is substantial evidence supporting a fair argument that the Project may result in significant and unmitigated impacts to air quality, GHGs, biological resources, transportation, and agriculture. This necessarily requires the County to prepare an EIR.

A. Substantial Evidence Supports a Fair Argument That the Project May Result in Significant Air Quality Impacts from ROG Emissions

Napa-Solano Residents previously commented that the MND lacked substantial evidence to support its air quality conclusions because it did not model any of the Project's construction or operational emissions. The County asserted that such modeling was unnecessary because the Project meets Bay Area Air Quality Management District ("BAAQMD") screening thresholds. However, Dr. Clark conducted detailed emissions calculations using CalEEMod, which identified potentially significant ROG emissions during the construction phase of the Project.

The County's response attempts to discredit Dr. Clark's calculations by claiming that he incorrectly compared the Project's summer maximum emissions to the BAAQMD thresholds, instead of the average daily emissions as the RMND does. This response is legally inadequate and is contrary to common and recognized methods of conducting air quality analysis.

First, Dr. Clark explains that comparing a Project's maximum daily emissions of criteria pollutants is a common and standard method used to assess potential health impacts of development projects.[51] The fact that the County disagrees with this methodology is irrelevant. CEQA Guidelines Section 15064

[51] Clark Comments, p. 2.

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explains that "***if there is a disagreement among expert opinion supported by facts over the significance of an effect on the environment, the Lead Agency shall treat the effect as significant and shall prepare an EIR***."[52] Therefore, under the fair argument standard, a disagreement among experts, including disagreement between agency staff and appellants' experts, as here, necessitates preparation of an EIR.[53]

Second, the County's use of the total average daily emissions fails to disclose the potentially significant levels of reactive organic gases (111 lbs/day) emitted during the Project's Architectural Coatings phase.[54] This far exceeds the significance threshold of 54 lbs/day, which is a significant and unmitigated impact that the County must analyze and mitigate in an EIR.

B. Substantial Evidence Supports a Fair Argument That the Project May Result in Significant GHG Impacts

Dr. Clark's previous comments pointed out deficiencies in the County's GHG analysis. Specifically, the County stated that the Project's GHG emissions would be mitigated to less than significant levels by the implementation of minimal voluntary best management practice measures. However, despite this conclusion, the County only committed to implementing a much narrower set of mitigation measures without providing any evidence that this would adequately mitigate the Project's GHG emissions.

In response, the County conflates CEQA's legal standards by simply asserting that Dr. Clark's comments did not amount to substantial evidence that preclude the County's less than significant finding. This mistakes the applicable legal standard. To the contrary, Dr. Clark's comments raise a fair argument supported by substantial evidence that the Project may have significant GHG impacts. Moreover, the County's response ignores the underlying comment: The County's conclusions rely on the voluntary adoption of GHG reduction measures without demonstrating they will be effective in mitigating impacts to less than significant levels. It is legal error by the County if the Project's CEQA document

[52] 14 CCR § 15064(f), (g).
[53] *Id.*; *Pocket Protectors,* 124 Cal.App.4th at 934-935, 938 ('opposing views are substantial evidence going the other way, which is insufficient to refute the claim of a fair argument.')
[54] *Id.*

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omits information and analysis required by law and necessary to an informed discussion of impacts, as the RMND does here.[55]

The County's GHG analysis does not provide substantial evidence to support the conclusion that BAAQMD's quantitative threshold of significance will be met. According to BAAQMD's CEQA Air Quality Guidelines, a development project that incorporates the following design elements would contribute its "fair share" of what will be required to achieve the State's long-term climate goals and thus its impacts will be considered less than significant.[56]

1. Buildings
    a. The project will not include natural gas appliances or natural gas plumbing (in both residential and nonresidential development).
    b. The project will not result in any wasteful, inefficient, or unnecessary energy usage as determined by the analysis required under CEQA Section 21100(b)(3) and Section 15126.2(b) of the State CEQA Guidelines.
2. Transportation
    a. Achieve a reduction in project-generated vehicle miles traveled (VMT) below the regional average consistent with the current version of the California Climate Change Scoping Plan (currently 15 percent) or meet a locally adopted Senate Bill 743 VMT target, reflecting the recommendations provided in the Governor's Office of Planning and Research's Technical Advisory on Evaluating Transportation Impacts in CEQA:
        i. Residential projects: 15 percent below the existing VMT per capita
        ii. Office projects: 15 percent below the existing VMT per employee
        iii. Retail projects: no net increase in existing VMT

[55] See *Sierra Club v. Cnty. Of Fresno* (2014) 226 Cal.App.4th 704, 725; 14 CCR §15064(b)(1); *Kings Cty. Farm Bur. V. Hanford* (1990) 221 Cal.App.3d 692, 732 (lead agency may deem a particular impact to be insignificant only if it produces rigorous analysis and concrete substantial evidence justifying the finding).

[56] BAAQMD, CEQA Air Quality Guidelines Appendix B: CEQA Thresholds for Evaluating the Significance of Climate Impacts, p. B-1, available at: https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa-guidelines-2022/appendix-b-thresholds-for-evaluating-significance-of-climate-impacts_final-pdf.pdf?rev=10305f45037b41dba2cd1b45b288d54b&sc_lang=en.

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b. Achieve compliance with off-street electric vehicle requirements in the most recently adopted version of CALGreen Tier 2.[57]

The County fails to demonstrate compliance with requirement 2(a) above. As Mr. Smith's comments explain, the County improperly conducts a piecemeal analysis of the Project's VMT impacts, by considering the VMT impacts of Building A and Building B separately.[58] In doing so, the County only incorporates Mitigation Measure TRANS-1 to reduce Building B's VMT levels by 15%.[59] This mitigation measure does not apply to Building A, which the County improperly screened out of further VMT analysis.[60] The County's response claims that if Mitigation Measure TRANS-1 did apply to both Building A and Building B, then the 15% reduction would be achieved. However, the County did not revise the mitigation measure in the RMND and thus, as currently proposed, the VMT impacts from both buildings would not be mitigated to ensure a reduction of 15%. Thus, the County lacks substantial evidence to conclude that the Project meets BAAQMD's significance threshold and these impacts are considered significant.

The County's analysis related to requirement 2(b) is also inconsistent and unclear. BAAQMD requires a project to achieve compliance with electric vehicle requirements in the most recently adopted version of CALGreen Tier 2. The RMND claims that CALGreen's Tier 2 Voluntary Provisions are only applicable to residential projects and thus, since the project is not a residential project, it is not subject to this requirement.[61] It goes on to state that the Project will instead comply with CALGreen EV charging requirements for nonresidential new construction.[62] The County's assertion is incorrect. CALGreen Tier 2 Voluntary Provisions include measures for both residential and nonresidential projects; specifically, Appendix A5, Section A5.601.3.4 lists the required voluntary measures for nonresidential projects. In order to meet BAAQMD's significance threshold, the County must comply with the electric vehicle requirements in that section. The County cannot merely substitute these heightened requirements with the lower baseline CalGreen EV charging requirements.

[57] *Id.* at p. B-2.
[58] Smith Comments, pp. 1-2.
[59] *Id.* at p. 2.
[60] *Id.*
[61] RMND, pdf p. 19.
[62] *Id.*

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The revised Conditions of Approval for both Buildings, on the other hand, is inconsistent with this analysis in the RMND. COA 6.18(b) for Building A and COA 4.13(b) for Building B require compliance with CalGreen Tier 2 electric vehicle requirements. The County must revise the analysis in the RMND to be consistent with the requirements of BAAQMD's significance threshold and the Revised Conditions of Approval.

For these reasons, the County must prepare an EIR that corrects these deficiencies in the GHG analysis.

C. Substantial Evidence Supports a Fair Argument That the Project May Result in Significant Impacts to Biological Resources

Napa-Solano Resident's previous comments demonstrated that the MND lacks substantial evidence to conclude that the Project will not result in significant impacts on biological resources. The County's responses rely on flawed analysis and unsupported conclusions regarding special status species, and they further mischaracterize and dismiss the substantial evidence provided in Dr. Smallwood's comments.

First, the County fails to identify and propose mitigation for several special-status species that Dr. Smallwood observed and that would be negatively impacted by the Project. Dr. Smallwood conducted a survey of the Project site on November 28, 2025 and identified 12 special-status species, including white-tailed kite (California fully protected species), northern harrier (federally and state threatened), cackling goose, and yuma myotis.[63] The County's biological resources consultant FCS performed a biological resources survey that found that all of these species, besides cackling goose, had low or very low potential to occur on the Project site. The County did not identify and thus did not analyze cackling goose as a potential species that would occur on the site. This omission is particularly egregious because the County would be required to obtain a take permit for white-tailed kite, which is a California fully protected species, and the northern harrier, which is a federally and state threatened species.

According to the CDFW website the CDFW may only authorize the take of a fully protected species under specific circumstances, including certain necessary

[63] Smallwood Comments, p. 5.

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scientific research or if the take is incidental to one of five type of projects.[64] None of the listed types of projects include the Project's winery and warehouse uses.[65] Similarly, the take of a listed threatened species in California may only be authorized if the requirements in Fish and Game Code Section 2081(b) are met. One of these requirement is that the impacts shall be minimized and fully mitigated.[66] The current mitigation proposed by the County involves silt-fencing to protect the site's aquatic resources, protocol level surveys for special-status plants, nesting season and pre-construction nest surveys with potential work exclusion zones, Swainson's hawk surveys, conservation of Swainson's hawk foraging habitat, burrowing owl surveys, conservation of burrowing own foraging habitat, exclusion fencing for native amphibians, and an arborist report and tree protection plan. Most of these mitigation measures are not applicable to northern harrier or white-tailed kite. And the nesting season and pre-construction surveys proposed in the RMND are insufficient because, as Dr. Smallwood explains, a pre-construction survey would be too late to formulate an appropriate mitigation strategy.[67] These are potentially significant and unmitigated impacts that must be addressed in an EIR.

Second, the County attempts to dismiss Dr. Smallwood's comment regarding potentially significant impacts to biological resources from Project-generated traffic as speculative. The County also claims that Dr. Smallwood's prediction of vehicle mortality rates would not apply because Vasco Road is busier than Technology Way. These responses are untrue and a mischaracterization of Dr. Smallwood's evidence. Dr. Smallwood's prediction was not specific to Technology Way or to Morris Court, but rather to any and all roads upon which Project-generated traffic would travel.[68] Additionally, Dr. Smallwood's prediction was not speculative because it was based on data collected from surveys related to automobile wildlife collision mortality.[69] In addition to the 2009 report on a survey conducted in Contra Costa County that Dr. Smallwood discussed in comments on the Project's original MND, Dr. Smallwood also conducted a more recent survey in Davis, California, which provides additional support for his comments on vehicle mortality rates.[70]

Third, the County has not made any revisions to Mitigation Measure BIO-3 to address Dr. Smallwood's previous comments. Thus, the mitigation measure

[64] CDFW, Fully Protected Animals, available at: https://wildlife.ca.gov/Conservation/Fully-Protected.
[65] *Id.*
[66] Fish and Game Code Section 2081.
[67] Smallwood Comments, p. 36.
[68] *Id.* at p. 49.
[69] *Id.*
[70] *Id.*

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would still be ineffective in reducing the potential significant impacts from habitat loss and still needs additional objective criteria for determining buffer area size in order to be effective.

Dr. Smallwood's comments include replies to all of the County's responses to his original comments, and further provide substantial evidence supporting a fair argument that the Project may have significant unmitigated impacts on biological resources. For these reasons, the County must prepare an EIR for the Project that adequately analyzes and mitigates all of the potentially significant impacts on biological resources.

D. Substantial Evidence Supports a Fair Argument That the Project May Result in Significant Transportation Impacts

Napa-Solano Resident's MND comments demonstrated that the County improperly conducted a piecemeal analysis of the Project's VMT impacts. As a result, the County did not propose adequate mitigation to ensure that the significant VMT levels from the entire project will be reduced to less than significant levels. Our comments also highlighted an additional deficiency in the Project's VMT analysis, specifically its failure to account for "maximum daily visitation" in the trip generation analysis—despite acknowledging that visitor trips will occur.

In response, the County concedes that it analyzed the Project's two buildings separately,[71] but claims that because the combined traffic impacts were analyzed in the cumulative impact analysis that the RMND properly analyzes the whole of the project. The County also argues that because the proposed project does not include retail sales or access for the general public any future client trips would be nominal. These responses are incorrect, contrary to law, and inadequate to address the Project's significant VMT impacts.

First, the County admittedly still violates CEQA's prohibition against piecemealed analysis.[72] A cumulative impacts discussion under CEQA is specifically meant to consider impacts from a project in combination with other past, present, and reasonably foreseeable future projects.[73] This is not a substitute for a proper analysis of the individual impacts of the Project as a whole. Additionally, the

[71] Responses to Comments, p. 18.
[72] 14 Cal Code Regs §15063(a)(1); 14 Cal Code Regs §15378(a).
[73] 14 Cal Code Regs §§15065(a)(3), 15130(b)(1)(A), 15355(b).

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RMND's cumulative impacts discussion merely adopts the flawed piecemeal analysis, stating: "Potential…traffic associated impacts are discussed in [the]…sections above. The analysis determined that all potential impacts were less than significant and would not contribute significantly to cumulative impacts."[74]

Second, the RMND acknowledges that the County's General Plan Circulation Element Policy CIR-7 requires development projects to achieve a 15% reduction in project-generated VMT to avoid triggering a significant environmental impact.[75] Projects for which the specified VMT reduction measures would not reduce unmitigated VMT by 15 or more percent shall be considered to have a significant environmental impact.[76] Despite this, as Mr. Smith's comments explain, the County only proposes mitigation measure TRANS-1 for Building B to ensure that VMT will be reduced by 15%.[77] Thus, because the County has not revised the VMT analysis or the mitigation measures to ensure that the Project's total VMT impacts will be reduced by 15%, impacts remain significant.

Third, the RMND still fails to quantify the visitor trips that will occur as part of the Project.[78] The Project Description states that "[i]ndividual clients will visit the site on occasion to hold meetings with members of the wine trade, such as their distributors, restaurants, wine shop owners and similar types of wine buyers."[79] As Napa-Solano's previous comments explained, by omitting information about how frequently such gatherings would occur and the number of attendees, the RMND fails to provide an accurate analysis of the Project's VMT impacts. Merely asserting, as the County does, that these trips would be nominal, does not satisfy CEQA's informational requirements, nor does it constitute the substantial evidence required to support the County's conclusions.

Therefore, the County must prepare an EIR that properly addresses the Project's significant VMT levels and that proposes adequate mitigation.

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[74] RMND, pdf p. 32.
[75] *Id.* at pdf p. 27.
[76] *Id.*
[77] Smith Comments, p. 2.
[78] Smith Comments, p. 2.
[79] RMND, pdf p. 3.

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E. Substantial Evidence Supports a Fair Argument That the Project May Result in Significant Impacts from the Conversion of Farmland

Napa-Solano Resident's prior comments explained that the Project site is designated as Farmland of Local Importance according to maps maintained by the Department of Conservation Farmland Mapping and Monitoring Program ("FMMP") and that the conversion of this land to non-agricultural use is a significant impact that must be mitigated under CEQA.

The County's response states that because the Project has been designated for industrial/business park use under the County's zoning code and General Plan for the last 35 years that the Project would not result in the conversion of farmland to nonagricultural uses. The County also says that the development of this Project site parallels the development of surrounding parcels in the Napa Valley Business Park Specific Plan area, which have been reclassified as Urban and Built-up Land on the FMMP Maps. This reasoning is flawed and not consistent with CEQA.

CEQA Guidelines Appendix G states that impacts will be considered significant if the Project "[i]nvolve[s] changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use." This includes conversion of Farmland of Local Importance.[80] Additionally, it is common practice to rely on FMMP Maps to identify the classification of farmland parcels. Local zoning or general plan designations do not override FMMP Mapping.

Furthermore, unlike other parcels in the NVBPSP area, the three proposed Project parcels have not been reclassified as Urban and Built-up Land on the FMMP Maps. Because they are designated as Farmland of Local Importance, the County must analyze and propose mitigation for the potentially significant impacts from the conversion of this land in an EIR.

VI. CONCLUSION

For the reasons discussed above, Napa Solano Residents respectfully requests that the Commission continue the hearing on the Project and remand the Project back to staff to prepare an EIR as required by CEQA.

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[80] *Friends of Kings River v. County of Fresno* (2014) 232 Cal.App.4th 105, 120 (recognizing that the conversion of farmland of local importance to non-agricultural use is a significant impact).

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There is substantial evidence in the record before the Planning Commission which supports a fair argument that the Project may result in potentially significant air quality, GHG, biological resources, transportation, and agriculture resources impacts that were not adequately analyzed or mitigated in the RMND. The County also fails to comply with CEQA's informational requirements in its analysis by omitting critical information about the Project's required utility improvements. As a result, the County lacks substantial evidence to approve the Project based on the current RMND.

Thank you for your attention to this matter.

Sincerely,

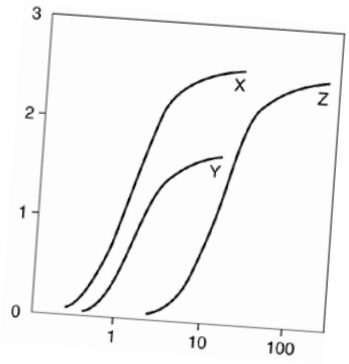


Alaura McGuire

Attachments
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EXHIBIT A



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November 28, 2025

Adams Broadwell Joseph & Cardozo
601 Gateway Boulevard, Suite 1000
South San Francisco, CA 94080

Attn: Ms. Alaura McGuire

Subject: Comment Letter on First Carbon Solutions (FCS) Responses To Comments On Revised Mitigated Negative Declaration (IS/MND) For E&P Technology Way - Building A & B Use Permit #'sP22-00307-UP and P22-00308-UP (APN's: 057-250-030, -031, -032), Napa County, California.

Dear Ms. McGuire:

At the request of Adams Broadwell Joseph & Cardozo (ABJC), Clark and Associates (Clark) has reviewed the Revised Mitigated Negative Declaration ("RMND") and the December 3, 2025 Napa County Planning Commission hearing Staff Report related to the above referenced project.

Clark's review of the materials in no way constitutes a validation of the conclusions or materials contained within the RMND. If we do not comment on a specific item, this does not constitute acceptance of the item. In November 2024, Clark provided comments on the original IS/MND noting that the IS/MND failed to accurately assess the Project's impacts from Greenhouse Gas Emissions and included an air quality analysis of construction and operational emissions using the CalEEMod, which showed that the unmitigated (baseline) scenario would result in a significant release of Reactive Organic Gases (ROGs),which are precursors to the formation of the criteria pollutant ozone (O3) during the construction phase of the Project.

Response To Comments

1. Air Quality Impacts

In its November 10, 2025 Memorandum to Dennis Paulley (E&P Properties, Inc.) FCS responded to comments (including those by Adams Broadwell Joseph & Cardoza) received during the public comment period from October 19, 2024 to November 20, 2024 regarding the E&P Technology Way Buildings A and B Project Initial Study/Mitigated Negative Declaration (IS/MND) (State Clearinghouse [SCH] No. 2024100855). The response (Response to NSRRD2-17) from FCS regarding the emissions of reactive organic gases (ROGs) as detailed in the CalEEMOD analysis of the Project's construction phase demonstrates a disregard for the general standard practice in preparing air quality analyses under CEQA. The maximum daily emissions of criteria pollutants, in particular for ROGs, is commonly used to assess potential health impacts from the Project.

As was previously pointed out in comments on the IS/MND, the calculated daily construction emissions are based on the total average emissions for the entire construction phase of the project. The County's use of the total average daily emissions ignores the substantial impacts that are associated with the maximum daily emission rates calculated by the CALEEMOD model of the project.

Over the course of the construction phase of the project the emissions of reactive organic gases (ROGs), precursors to the formation of ozone, increase substantially from a low of 1.52 lbs/day during the paving phase of the project to a high of 111 lbs/day during the Architectural Coatings phase of the project, exceeding the Significance Threshold of 54 lbs/day. While the total averaged values over the whole are lower than the Significance Threshold value of 54 lbs/day, the County is obligated to assess impacts of emissions from each phase of the construction of the project. Short term exceedances of the significance thresholds may have significant local impacts on the air quality and the community at large. The County must report the impacts from each step of the construction of the project in an EIR providing a clear analysis of the criteria and toxic air contaminants as well as the greenhouse gas emissions.

Additionally, the County continues to underestimate the emissions from the construction phase by intentionally failing to disclose the need for new utility infrastructure to service the Project. A Will

Serve Letter from the Napa Sanitation District states that the owner of the Project site will be required to install sanitary sewer improvements and that a Condition of Approval is incorporated in the letter to ensure that the improvements are performed. This undisclosed source of emissions associated with the Project will have both criteria pollutant emissions (ROGs, particulate matter, carbon monoxide and oxides of nitrogen) and toxic air contaminant emissions (primarily diesel particulate matter) that are not disclosed in the RMND. This oversight is significant and represents a foreseeable risk to the community and must be addressed in an environmental impact report (EIR).

2. **GHG Impacts**

Regarding the failure to reduce GHG emissions, FCS's response (Response to NSRRD2-19) that under CEQA the proposed project is not required to reduce project-specific impacts to the maximum extent possible, but to a level that is less than significant demonstrates the Project's non-commitment to act in good faith. As noted previously, to the extent that these additional GHG reduction strategies are necessary to reduce the Project's GHG emissions to less than significant levels but are not required by the Project's Conditions of Approval, the Project will have a significant and unmitigated impact on GHG emissions that must be evaluated in an EIR. The County has not provided any evidence (i.e., a quantitative analysis) to support its conclusion that GHG emissions will be reduced to less than significant with the absence of additional GHG reduction strategies.

Additionally, the County has not demonstrated that the Project will comply with BAAQMD's significance threshold for GHGs. BAAQMD has a qualitative significance threshold for GHG emissions that include a requirement that "The Project will achieve off-street electric vehicle requirements in the most recently adopted version of CALGreen Tier 2." The County incorrectly states that this only applies to residential projects and that it will only comply with the baseline standards (CALGreen EV charging requirements for nonresidential new construction). According to BAAQMD, if this design element is not met, the Project's GHG impacts are presumably significant. It also must be noted that the revised Conditions of Approval *do include* conditions for each building that *require them* to comply with the CALGreen Tier 2 requirements. The inconsistency in the County's analysis (e.g., the standards are only for residential and the Project will comply with the CALGreen Tier 2 requirements) requires the County to revise its analysis and state clearlythat the Project will comply with CALGreen Tier 2 standard and that the Project will achieve off-street electric

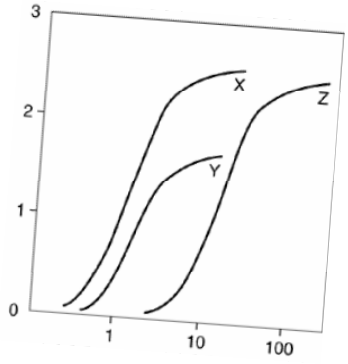
vehicle requirements in the most recently adopted version of CALGreen Tier 2.

Conclusion

The facts identified and referenced in this comment letter led me to reasonably conclude that the Project could result in significant impacts if allowed to proceed. An EIR should be prepared to address these substantial concerns.

Sincerely,





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James J. J. Clark, Ph.D.

Principal Toxicologist

Toxicology/Exposure Assessment Modeling

Risk Assessment/Analysis/Dispersion Modeling

Education:

Ph.D., Environmental Health Science, University of California, 1995

M.S., Environmental Health Science, University of California, 1993

B.S., Biophysical and Biochemical Sciences, University of Houston, 1987

Professional Experience:

Dr. Clark is a well recognized toxicologist, air modeler, and health scientist. He has 20 years of experience in researching the effects of environmental contaminants on human health including environmental fate and transport modeling (SCREEN3, AEROMOD, ISCST3, Johnson-Ettinger Vapor Intrusion Modeling); exposure assessment modeling (partitioning of contaminants in the environment as well as PBPK modeling); conducting and managing human health risk assessments for regulatory compliance and risk-based clean-up levels; and toxicological and medical literature research.

Significant projects performed by Dr. Clark include the following:

LITIGATION SUPPORT

Case: James Harold Caygle, et al, v. Drummond Company, Inc. Circuit Court for the Tenth Judicial Circuit, Jefferson County, Alabama. Civil Action. CV-2009

Client: Environmental Litgation Group, Birmingham, Alabama

Dr. Clark performed an air quality assessment of emissions from a coke factory located in Tarrant, Alabama. The assessment reviewed include a comprehensive review of air quality standards, measured concentrations of pollutants from factory, an inspection of the facility and detailed assessment of the impacts on the community. The results of the assessment and literature have been provided in a declaration to the court.

Case Result: Settlement in favor of plaintiff.

Case: Rose Roper V. Nissan North America, et al. Superior Court of the State Of California for the County Of Los Angeles – Central Civil West. Civil Action. NC041739

Client: Rose, Klein, Marias, LLP, Long Beach, California

Dr. Clark performed a toxicological assessment of an individual occupationally exposed to multiple chemicals, including benzene, who later developed a respiratory distress. A review of the individual's medical and occupational history was performed to prepare an exposure assessment. The exposure assessment was evaluated against the known outcomes in published literature to exposure to respiratory irritants. The results of the assessment and literature have been provided in a declaration to the court.

Case Result: Settlement in favor of plaintiff.

Case: O'Neil V. Sherwin Williams, et al. United States District Court Central District of California

Client: Rose, Klein, Marias, LLP, Long Beach, California

Dr. Clark performed a toxicological assessment of an individual occupationally exposed to petroleum distillates who later developed a bladder cancer. A review of the individual's medical and occupational history was performed to prepare a quantitative exposure assessment. The results of the assessment and literature have been provided in a declaration to the court.

Case Result: Summary judgment for defendants.

Case: Moore V., Shell Oil Company, et al. Superior Court of the State Of California for the County Of Los Angeles

Client: Rose, Klein, Marias, LLP, Long Beach, California

Dr. Clark performed a toxicological assessment of an individual occupationally exposed to chemicals while benzene who later developed a leukogenic disease. A review of the individual's medical and occupational history was performed to prepare a quantitative exposure assessment. The exposure assessment was evaluated against the known outcomes in published literature to exposure to refined petroleum hydrocarbons. The results of the assessment and literature have been provided in a declaration to the court.

Case Result: Settlement in favor of plaintiff.

Case: Raymond Saltonstall V. Fuller O'Brien, KILZ, and Zinsser, et al. United States District Court Central District of California

Client: Rose, Klein, Marias, LLP, Long Beach, California

Dr. Clark performed a toxicological assessment of an individual occupationally exposed to benzene who later developed a leukogenic disease. A review of the individual's medical and occupational history was performed to prepare a quantitative exposure assessment. The exposure assessment was evaluated against the known outcomes in published literature to exposure to refined petroleum hydrocarbons. The results of the assessment and literature have been provided in a declaration to the court.

Case Result: Settlement in favor of plaintiff.

Case: Richard Boyer and Elizabeth Boyer, husband and wife, V. DESCO Corporation, et al. Circuit Court of Brooke County, West Virginia. Civil Action Number 04-C-7G.

Client: Frankovitch, Anetakis, Colantonio & Simon, Morgantown, West Virginia.

Dr. Clark performed a toxicological assessment of a family exposed to chlorinated solvents released from the defendant's facility into local drinking water supplies. A review of the individual's medical and occupational history was performed to prepare a qualitative exposure assessment. The exposure assessment was evaluated against the known outcomes in published literature to exposure to chlorinated solvents. The results of the assessment and literature have been provided in a declaration to the court.

Case Result: Settlement in favor of plaintiff.

Case: JoAnne R. Cook, V. DESCO Corporation, et al. Circuit Court of Brooke County, West Virginia. Civil Action Number 04-C-9R

Client: Frankovitch, Anetakis, Colantonio & Simon, Morgantown, West Virginia.

Dr. Clark performed a toxicological assessment of an individual exposed to chlorinated solvents released from the defendant's facility into local drinking water supplies. A review of the individual's medical and occupational history was performed to prepare a qualitative exposure assessment. The exposure assessment was evaluated against the known outcomes in published literature to exposure to chlorinated solvents. The results of the assessment and literature have been provided in a declaration to the court.

Case Result: Settlement in favor of plaintiff.

Case: Patrick Allen And Susan Allen, husband and wife, and Andrew Allen, a minor, V. DESCO Corporation, et al. Circuit Court of Brooke County, West Virginia. Civil Action Number 04-C-W

Client: Frankovitch, Anetakis, Colantonio & Simon, Morgantown, West Virginia.

Dr. Clark performed a toxicological assessment of a family exposed to chlorinated solvents released from the defendant's facility into local drinking water supplies. A review of the individual's medical and occupational history was performed to prepare a qualitative exposure assessment. The exposure assessment was evaluated against the known outcomes in published literature to exposure to chlorinated solvents. The results of the assessment and literature have been provided in a declaration to the court.

Case Result: Settlement in favor of plaintiff.

Case: Michael Fahey, Susan Fahey V. Atlantic Richfield Company, et al. United States District Court Central District of California Civil Action Number CV-06 7109 JCL.

Client: Rose, Klein, Marias, LLP, Long Beach, California

Dr. Clark performed a toxicological assessment of an individual occupationally exposed to refined petroleum hydrocarbons who later developed a leukogenic disease. A review of the individual's medical and occupational history was performed to prepare a qualitative exposure assessment. The exposure assessment was evaluated against the known outcomes in published literature to exposure to refined petroleum hydrocarbons. The results of the assessment and literature have been provided in a declaration to the court.

Case Result: Settlement in favor of plaintiff.

Case: Constance Acevedo, et al., V. California Spray-Chemical Company, et al., Superior Court of the State Of California, County Of Santa Cruz. Case No. CV 146344

Dr. Clark performed a comprehensive exposure assessment of community members exposed to toxic metals from a former lead arsenate manufacturing facility. The former manufacturing site had undergone a DTSC mandated removal action/remediation for the presence of the toxic metals at the site. Opinions were presented regarding the elevated levels of arsenic and lead (in attic dust and soils) found throughout the community and the potential for harm to the plaintiffs in question.

Case Result: Settlement in favor of defendant.

Case: Michael Nawrocki V. The Coastal Corporation, Kurk Fuel Company, Pautler Oil Service, State of New York Supreme Court, County of Erie, Index Number I2001-11247

Client: Richard G. Berger Attorney At Law, Buffalo, New York

Dr. Clark performed a toxicological assessment of an individual occupationally exposed to refined petroleum hydrocarbons who later developed a leukogenic disease. A review of the individual's medical and occupational history was performed to prepare a qualitative exposure assessment. The exposure assessment was evaluated against the

known outcomes in published literature to exposure to refined petroleum hydrocarbons. The results of the assessment and literature have been provided in a declaration to the court.

Case Result: Judgement in favor of defendant.

SELECTED AIR MODELING RESEARCH/PROJECTS

Client – Confidential

Dr. Clark performed a comprehensive evaluation of criteria pollutants, air toxins, and particulate matter emissions from a carbon black production facility to determine the impacts on the surrounding communities. The results of the dispersion model will be used to estimate acute and chronic exposure concentrations to multiple contaminants and will be incorporated into a comprehensive risk evaluation.

Client – Confidential

Dr. Clark performed a comprehensive evaluation of air toxins and particulate matter emissions from a railroad tie manufacturing facility to determine the impacts on the surrounding communities. The results of the dispersion model have been used to estimate acute and chronic exposure concentrations to multiple contaminants and have been incorporated into a comprehensive risk evaluation.

Client – Los Angeles Alliance for a New Economy (LAANE), Los Angeles, California

Dr. Clark is advising the LAANE on air quality issues related to current flight operations at the Los Angeles International Airport (LAX) operated by the Los Angeles World Airport (LAWA) Authority. He is working with the LAANE and LAX staff to develop a comprehensive strategy for meeting local community concerns over emissions from flight operations and to engage federal agencies on the issue of local impacts of community airports.

Client – City of Santa Monica, Santa Monica, California

Dr. Clark is advising the City of Santa Monica on air quality issues related to current flight operations at the facility. He is working with the City staff to develop a comprehensive strategy for meeting local community concerns over emissions from flight operations and to engage federal agencies on the issue of local impacts of community airports.

Client: Omnitrans, San Bernardino, California

Dr. Clark managed a public health survey of three communities near transit fueling facilities in San Bernardino and Montclair California in compliance with California Senate Bill 1927. The survey included an epidemiological survey of the effected communities, emission surveys of local businesses, dispersion modeling to determine potential emission concentrations within the communities, and a comprehensive risk assessment of each community. The results of the study were presented to the Governor as mandated by Senate Bill 1927.

Client: Confidential, San Francisco, California

Summarized cancer types associated with exposure to metals and smoking. Researched the specific types of cancers associated with exposure to metals and smoking. Provided causation analysis of the association between cancer types and exposure for use by non-public health professionals.

Client: Confidential, Minneapolis, Minnesota

Prepared human health risk assessment of workers exposed to VOCs from neighboring petroleum storage/transport facility. Reviewed the systems in place for distribution of petroleum hydrocarbons to identify chemicals of concern (COCs), prepared comprehensive toxicological summaries of COCs, and quantified potential risks from carcinogens and non-carcinogens to receptors at or adjacent to site. This evaluation was used in the support of litigation.

Client – United Kingdom Environmental Agency

Dr. Clark is part of team that performed comprehensive evaluation of soil vapor intrusion of VOCs from former landfill adjacent residences for the United Kingdom's Environment

Agency. The evaluation included collection of liquid and soil vapor samples at site, modeling of vapor migration using the Johnson Ettinger Vapor Intrusion model, and calculation of site-specific health based vapor thresholds for chlorinated solvents, aromatic hydrocarbons, and semi-volatile organic compounds. The evaluation also included a detailed evaluation of the use, chemical characteristics, fate and transport, and toxicology of chemicals of concern (COC). The results of the evaluation have been used as a briefing tool for public health professionals.

EMERGING/PERSISTENT CONTAMINANT RESEARCH/PROJECTS

Client: Ameren Services, St. Louis, Missouri

Managed the preparation of a comprehensive human health risk assessment of workers and residents at or near an NPL site in Missouri. The former operations at the Property included the servicing and repair of electrical transformers, which resulted in soils and groundwater beneath the Property and adjacent land becoming impacted with PCB and chlorinated solvent compounds. The results were submitted to U.S. EPA for evaluation and will be used in the final ROD.

Client: City of Santa Clarita, Santa Clarita, California

Dr. Clark is managing the oversight of the characterization, remediation and development activities of a former 1,000 acre munitions manufacturing facility for the City of Santa Clarita. The site is impacted with a number of contaminants including perchlorate, unexploded ordinance, and volatile organic compounds (VOCs). The site is currently under a number of regulatory consent orders, including an Immanent and Substantial Endangerment Order. Dr. Clark is assisting the impacted municipality with the development of remediation strategies, interaction with the responsible parties and stakeholders, as well as interfacing with the regulatory agency responsible for oversight of the site cleanup.

Client: Confidential, Los Angeles, California

Prepared comprehensive evaluation of perchlorate in environment. Dr. Clark evaluated the production, use, chemical characteristics, fate and transport, toxicology, and remediation of perchlorate. Perchlorates form the basis of solid rocket fuels and have recently been detected in water supplies in the United States. The results of this research

were presented to the USEPA, National GroundWater, and ultimately published in a recent book entitled *Perchlorate in the Environment.*

Client – Confidential, Los Angeles, California

Dr. Clark is performing a comprehensive review of the potential for pharmaceuticals and their by-products to impact groundwater and surface water supplies. This evaluation will include a review if available data on the history of pharmaceutical production in the United States; the chemical characteristics of various pharmaceuticals; environmental fate and transport; uptake by xenobiotics; the potential effects of pharmaceuticals on water treatment systems; and the potential threat to public health. The results of the evaluation may be used as a briefing tool for non-public health professionals.

PUBLIC HEALTH/TOXICOLOGY

Client: Brayton Purcell, Novato, California

Dr. Clark performed a toxicological assessment of residents exposed to methyl-tertiary butyl ether (MTBE) from leaking underground storage tanks (LUSTs) adjacent to the subject property. The symptomology of residents and guests of the subject property were evaluated against the known outcomes in published literature to exposure to MTBE. The study found that residents had been exposed to MTBE in their drinking water; that concentrations of MTBE detected at the site were above regulatory guidelines; and, that the symptoms and outcomes expressed by residents and guests were consistent with symptoms and outcomes documented in published literature.

Client: Confidential, San Francisco, California

Identified and analyzed fifty years of epidemiological literature on workplace exposures to heavy metals. This research resulted in a summary of the types of cancer and non-cancer diseases associated with occupational exposure to chromium as well as the mortality and morbidity rates.

Client: Confidential, San Francisco, California

Summarized major public health research in United States. Identified major public health research efforts within United States over last twenty years. Results were used as a briefing tool for non-public health professionals.

Client: Confidential, San Francisco, California

Quantified the potential multi-pathway dose received by humans from a pesticide applied indoors. Part of team that developed exposure model and evaluated exposure concentrations in a comprehensive report on the plausible range of doses received by a specific person. This evaluation was used in the support of litigation.

Client: Covanta Energy, Westwood, California

Evaluated health risk from metals in biosolids applied as soil amendment on agricultural lands. The biosolids were created at a forest waste cogeneration facility using 96% whole tree wood chips and 4 percent green waste. Mass loading calculations were used to estimate Cr(VI) concentrations in agricultural soils based on a maximum loading rate of 40 tons of biomass per acre of agricultural soil. The results of the study were used by the Regulatory agency to determine that the application of biosolids did not constitute a health risk to workers applying the biosolids or to residences near the agricultural lands.

Client – United Kingdom Environmental Agency

Oversaw a comprehensive toxicological evaluation of methyl-*tertiary* butyl ether (M*t*BE) for the United Kingdom's Environment Agency. The evaluation included available data on the production, use, chemical characteristics, fate and transport, toxicology, and remediation of M*t*BE. The results of the evaluation have been used as a briefing tool for public health professionals.

Client – Confidential, Los Angeles, California

Prepared comprehensive evaluation of *tertiary* butyl alcohol (TBA) in municipal drinking water system. TBA is the primary breakdown product of M*t*BE, and is suspected to be the primary cause of M*t*BE toxicity. This evaluation will include available information on the production, use, chemical characteristics, fate and transport in the environment, absorption, distribution, routes of detoxification, metabolites, carcinogenic potential, and remediation of TBA. The results of the evaluation were used as a briefing tool for non-public health professionals.

Client – Confidential, Los Angeles, California

Prepared comprehensive evaluation of methyl *tertiary* butyl ether (MTBE) in municipal drinking water system. MTBE is a chemical added to gasoline to increase the octane

rating and to meet Federally mandated emission criteria. The evaluation included available data on the production, use, chemical characteristics, fate and transport, toxicology, and remediation of MTBE. The results of the evaluation have been were used as a briefing tool for non-public health professionals.

Client – Ministry of Environment, Lands & Parks, British Columbia

Dr. Clark assisted in the development of water quality guidelines for methyl tertiary-butyl ether (MTBE) to protect water uses in British Columbia (BC). The water uses to be considered includes freshwater and marine life, wildlife, industrial, and agricultural (e.g., irrigation and livestock watering) water uses. Guidelines from other jurisdictions for the protection of drinking water, recreation and aesthetics were to be identified.

Client: Confidential, Los Angeles, California

Prepared physiologically based pharmacokinetic (PBPK) assessment of lead risk of receptors at middle school built over former industrial facility. This evaluation is being used to determine cleanup goals and will be basis for regulatory closure of site.

Client: Kaiser Venture Incorporated, Fontana, California

Prepared PBPK assessment of lead risk of receptors at a 1,100-acre former steel mill. This evaluation was used as the basis for granting closure of the site by lead regulatory agency.

RISK ASSESSMENTS/REMEDIAL INVESTIGATIONS

Client: Confidential, Atlanta, Georgia

Researched potential exposure and health risks to community members potentially exposed to creosote, polycyclic aromatic hydrocarbons, pentachlorophenol, and dioxin compounds used at a former wood treatment facility. Prepared a comprehensive toxicological summary of the chemicals of concern, including the chemical characteristics, absorption, distribution, and carcinogenic potential. Prepared risk characterization of the carcinogenic and non-carcinogenic chemicals based on the exposure assessment to quantify the potential risk to members of the surrounding community. This evaluation was used to help settle class-action tort.

Client: Confidential, Escondido, California

Prepared comprehensive Preliminary Endangerment Assessment (PEA) of dense non-aqueous liquid phase hydrocarbon (chlorinated solvents) contamination at a former printed circuit board manufacturing facility. This evaluation was used for litigation support and may be used as the basis for reaching closure of the site with the lead regulatory agency.

Client: Confidential, San Francisco, California

Summarized epidemiological evidence for connective tissue and autoimmune diseases for product liability litigation. Identified epidemiological research efforts on the health effects of medical prostheses. This research was used in a meta-analysis of the health effects and as a briefing tool for non-public health professionals.

Client: Confidential, Bogotá, Columbia

Prepared comprehensive evaluation of the potential health risks associated with the redevelopment of a 13.7 hectares plastic manufacturing facility in Bogotá, Colombia The risk assessment was used as the basis for the remedial goals and closure of the site.

Client: Confidential, Los Angeles, California

Prepared comprehensive human health risk assessment of students, staff, and residents potentially exposed to heavy metals (principally cadmium) and VOCs from soil and soil vapor at 12-acre former crude oilfield and municipal landfill. The site is currently used as a middle school housing approximately 3,000 children. The evaluation determined that the site was safe for the current and future uses and was used as the basis for regulatory closure of site.

Client: Confidential, Los Angeles, California

Managed remedial investigation (RI) of heavy metals and volatile organic chemicals (VOCs) for a 15-acre former manufacturing facility. The RI investigation of the site included over 800 different sampling locations and the collection of soil, soil gas, and groundwater samples. The site is currently used as a year round school housing approximately 3,000 children. The Remedial Investigation was performed in a manner

that did not interrupt school activities and met the time restrictions placed on the project by the overseeing regulatory agency. The RI Report identified the off-site source of metals that impacted groundwater beneath the site and the sources of VOCs in soil gas and groundwater. The RI included a numerical model of vapor intrusion into the buildings at the site from the vadose zone to determine exposure concentrations and an air dispersion model of VOCs from the proposed soil vapor treatment system. The Feasibility Study for the Site is currently being drafted and may be used as the basis for granting closure of the site by DTSC.

Client: Confidential, Los Angeles, California

Prepared comprehensive human health risk assessment of students, staff, and residents potentially exposed to heavy metals (principally lead), VOCs, SVOCs, and PCBs from soil, soil vapor, and groundwater at 15-acre former manufacturing facility. The site is currently used as a year round school housing approximately 3,000 children. The evaluation determined that the site was safe for the current and future uses and will be basis for regulatory closure of site.

Client: Confidential, Los Angeles, California

Prepared comprehensive evaluation of VOC vapor intrusion into classrooms of middle school that was former 15-acre industrial facility. Using the Johnson-Ettinger Vapor Intrusion model, the evaluation determined acceptable soil gas concentrations at the site that did not pose health threat to students, staff, and residents. This evaluation is being used to determine cleanup goals and will be basis for regulatory closure of site.

Client –Dominguez Energy, Carson, California

Prepared comprehensive evaluation of the potential health risks associated with the redevelopment of 6-acre portion of a 500-acre oil and natural gas production facility in Carson, California. The risk assessment was used as the basis for closure of the site.

Kaiser Ventures Incorporated, Fontana, California

Prepared health risk assessment of semi-volatile organic chemicals and metals for a fifty-year old wastewater treatment facility used at a 1,100-acre former steel mill. This evaluation was used as the basis for granting closure of the site by lead regulatory agency.

ANR Freight - Los Angeles, California

Prepared a comprehensive Preliminary Endangerment Assessment (PEA) of petroleum hydrocarbon and metal contamination of a former freight depot. This evaluation was as the basis for reaching closure of the site with lead regulatory agency.

Kaiser Ventures Incorporated, Fontana, California

Prepared comprehensive health risk assessment of semi-volatile organic chemicals and metals for 23-acre parcel of a 1,100-acre former steel mill. The health risk assessment was used to determine clean up goals and as the basis for granting closure of the site by lead regulatory agency. Air dispersion modeling using ISCST3 was performed to determine downwind exposure point concentrations at sensitive receptors within a 1 kilometer radius of the site. The results of the health risk assessment were presented at a public meeting sponsored by the Department of Toxic Substances Control (DTSC) in the community potentially affected by the site.

Unocal Corporation - Los Angeles, California

Prepared comprehensive assessment of petroleum hydrocarbons and metals for a former petroleum service station located next to sensitive population center (elementary school). The assessment used a probabilistic approach to estimate risks to the community and was used as the basis for granting closure of the site by lead regulatory agency.

Client: Confidential, Los Angeles, California

Managed oversight of remedial investigation most contaminated heavy metal site in California. Lead concentrations in soil excess of 68,000,000 parts per billion (ppb) have been measured at the site. This State Superfund Site was a former hard chrome plating operation that operated for approximately 40-years.

Client: Confidential, San Francisco, California

Coordinator of regional monitoring program to determine background concentrations of metals in air. Acted as liaison with SCAQMD and CARB to perform co-location sampling and comparison of accepted regulatory method with ASTM methodology.

Client: Confidential, San Francisco, California

Analyzed historical air monitoring data for South Coast Air Basin in Southern California and potential health risks related to ambient concentrations of carcinogenic metals and volatile organic compounds. Identified and reviewed the available literature and calculated risks from toxins in South Coast Air Basin.

IT Corporation, North Carolina

Prepared comprehensive evaluation of potential exposure of workers to air-borne VOCs at hazardous waste storage facility under SUPERFUND cleanup decree. Assessment used in developing health based clean-up levels.

Professional Associations

American Public Health Association (APHA)
Association for Environmental Health and Sciences (AEHS)
American Chemical Society (ACS)
California Redevelopment Association (CRA)
International Society of Environmental Forensics (ISEF)
Society of Environmental Toxicology and Chemistry (SETAC)

Publications and Presentations:

Books and Book Chapters

Sullivan, P., **J.J. J. Clark,** F.J. Agardy, and P.E. Rosenfeld. (2007). *Synthetic Toxins In The Food, Water and Air of American Cities*. Elsevier, Inc. Burlington, MA.

Sullivan, P. and **J.J. J. Clark**. 2006. *Choosing Safer Foods, A Guide To Minimizing Synthetic Chemicals In Your Diet*. Elsevier, Inc. Burlington, MA.

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Clark, J.J.J. 2000. "Toxicology of Perchlorate" in *Perchlorate in the Environment.* Edward Urbansky, Ed. Kluwer/Plenum: New York.

Clark, J.J.J. 1995. Probabilistic Forecasting of Volatile Organic Compound Concentrations At The Soil Surface From Contaminated Groundwater. UMI.

Baker, J.; **Clark, J.J.J.**; Stanford, J.T. 1994. Ex Situ Remediation of Diesel Contaminated Railroad Sand by Soil Washing. Principles and Practices for Diesel Contaminated Soils, Volume III. P.T. Kostecki, E.J. Calabrese, and C.P.L. Barkan, eds. Amherst Scientific Publishers, Amherst, MA. pp 89-96.

Journal and Proceeding Articles

Tam L. K.., Wu C. D., Clark J. J. and **Rosenfeld, P.E.** (2008) A Statistical Analysis Of Attic Dust And Blood Lipid Concentrations Of Tetrachloro-p-Dibenzodioxin (TCDD) Toxicity Equialency Quotients (TEQ) In Two Populations Near Wood Treatment Facilities. Organohalogen Compounds, Volume 70 (2008) page 002254.

Tam L. K.., Wu C. D., Clark J. J. and **Rosenfeld, P.E.** (2008) Methods For Collect Samples For Assessing Dioxins And Other Environmental Contaminants In Attic Dust: A Review. Organohalogen Compounds, Volume 70 (2008) page 000527

Hensley A.R., Scott, A., Rosenfeld P.E., **Clark, J.J.J.** (2007). "Attic Dust And Human Blood Samples Collected Near A Former Wood Treatment Facility." *Environmental Research.* 105:194-199.

Rosenfeld, P.E., **Clark, J. J.,** Hensley, A.R., and Suffet, I.H. 2007. "The Use Of An Odor Wheel Classification For The Evaluation of Human Health Risk Criteria For Compost Facilities" Water Science & Technology. 55(5): 345-357.

Hensley A.R., Scott, A., Rosenfeld P.E., **Clark, J.J.J.** 2006. "Dioxin Containing Attic Dust And Human Blood Samples Collected Near A Former Wood Treatment Facility." The 26th International Symposium on Halogenated Persistent Organic Pollutants – DIOXIN2006, August 21 – 25, 2006. Radisson SAS Scandinavia Hotel in Oslo Norway.

Rosenfeld, P.E., **Clark, J. J.** and Suffet, I.H. 2005. "The Value Of An Odor Quality Classification Scheme For Compost Facility Evaluations" The U.S. Composting Council's 13th Annual Conference January 23 - 26, 2005, Crowne Plaza Riverwalk, San Antonio, TX.

Rosenfeld, P.E., **Clark, J. J.** and Suffet, I.H. 2004. "The Value Of An Odor Quality Classification Scheme For Urban Odor" WEFTEC 2004. 77th Annual Technical Exhibition & Conference October 2 - 6, 2004, Ernest N. Morial Convention Center, New Orleans, Louisiana.

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EXHIBIT B

Shawn Smallwood, PhD
3108 Finch Street
Davis, CA 95616

Alaura McGuire
Adams Broadwell Joseph & Cardozo
601 Gateway Boulevard, Suite 1000
South San Francisco, CA 94080

2 December 2025

RE: E&P Technology Way

Dear Ms. McGuire,

I write to provide comments on the Revised Mitigated Negative Declaration and to reply to the County of Napa's responses to my 13 November 2024 comments on the original Initial Study/Mitigated Negative Declaration ("IS/MND") prepared for the proposed E&P Technology Way - Building A & B Project. In my replies below, I further separate some responses by alphabetical letter. I do this to separate out multiple issues that are addressed by the County under one response number. The following comments are informed in part by my 28 November 2025 reconnaissance survey of the Project site, which lasted 5 hours total. This included a 2.1 hour survey beginning at 7:00 hours and a 2.9 hour survey starting at 16:32 and ending at 19:26 hours. During the site visit I used a visual-scan survey method and then transitioned to using both an acoustic bat detector and thermal-imaging camera.

Response to NSRRD2-40a: The commenter states that the survey performed on December 8, 2022 was reconnaissance level and therefore not appropriate for use as baseline data for an IS/MND.

Reply: The response mischaracterizes my comment, as I did not state that a reconnaissance survey is inappropriate for use in establishing baseline information. My comment was that recording the identities of species *encountered* during a survey does not achieve the IS/MND's stated objective of determining the potential presence of biological resources. For example, my detection of a red-tailed hawk at a site does not inform me of the potential for the occurrence of white-tailed kite, unless I am aware of a correlation between the occurrences of red-tailed hawks and white-tailed kites. Determining species' occurrence likelihoods requires more than simply surveying a site one day.

Furthermore, it is important to distinguish what determination can and cannot be made by a reconnaissance survey. In most cases, the detection of a species can confirm the presence of that species, thereby adding certainty to the determination that that species' habitat is present on the project site. It is therefore supportive of a more accurate characterization of the wildlife community to conduct multiple reconnaissance surveys, and even more so to conduct the surveys at various times of day and in each season of the year. However, the failure to detect a species cannot confirm the absence of that

species, nor can it confirm the absence of habitat of that species. The failure to detect a particular species can mean the survey was insufficient, or it can mean that the available habitat was temporarily vacant, or it can mean that the site does not provide habitat to that species. Due to the uncertainty surrounding a failure to detect a species, protocols have been formulated for what are known as detection surveys to provide survey personnel with a reasonably high likelihood of detection and concomitantly to serve as evidence of absence should the species not be detected despite adequate implementation of the protocol. While there is nothing wrong about conducting a reconnaissance survey, it is essential to interpret the results of such a survey in the context of the detection probabilities of each species. FCS (2024) makes no mention of this context, but rather inappropriately presents the findings of its reconnaissance survey as definitive.

As an example, Noriko Smallwood and I compared our reconnaissance survey findings throughout the geographic range of white-tailed kite over the past five years, comparing whether we detected white-tailed kite as functions of proximity of occurrence records and survey duration. Using logit regression analysis, we found that the probability of detection of white-tailed kite was certainly highest on sites where the species had already been documented to occur, but we also found that the probability of detection was always greater than zero so long as a sufficient survey effort was invested (Figure 1). Even at sites where the nearest occurrence records were relatively distant, the species could be detected with greater survey effort. Ultimately, determinations of low, moderate and high occurrence potential are equivalent to a determination of present, which means the aforementioned levels of occurrence potential are unreliable outside the context of survey effort.

Considering the models fit to our data in Figure 1, it should not be surprising that FCS (2024) failed to detect white-tailed kite, nor should there be any significance attached to FCS's failure to detect this species. Pinecrest (2024) detected white-tailed kite on the Conservation Easement, but unfortunately Pinecrest fails to report the number of its surveys in which white-tailed kite was detected. Had the number of detections been reported, then one could assess the proportion of surveys with detections relative to the detection probability denoted by the black circles in Figure 1. As for me, I conducted a reconnaissance survey of the project site on 28 November 2025. My 2.1-hour survey carried a 36% chance of detecting white-tailed kite based on the pattern in the results of hundreds of previous surveys that Noriko and I conducted throughout the geographic range of white-tailed kite. Despite the 64% chance I would fail to detect white-tailed kite on the project site, I detected a pair of white-tailed kites on the project site (Photo 1).

FCS (2024) determines the white-tailed kite has a very low likelihood of occurrence. One of the reasons given for this pessimistic determination is that the "nearest known occurrence is 2.2 miles N of the project site near Napa Golf Course." This reason was inaccurate because there is an on-site occurrence record in eBird, but regardless, the nearness of the cited occurrence records was not far enough away to justify a very low occurrence likelihood determination (see Figure 1). In only 20 minutes upon my arrival to the project site, I confirmed that the occurrence likelihood of white-tailed kite is not "very low," and I learned this from a reconnaissance survey.

Figure 1. *Probability of detection of white-tailed kite as a function of survey effort and proximity of occurrence records to a project site. Because an on-site record existed of white-tailed kite, my probability of detecting white-tailed kite during my morning survey was 0.36, so my detection beat the odds.*

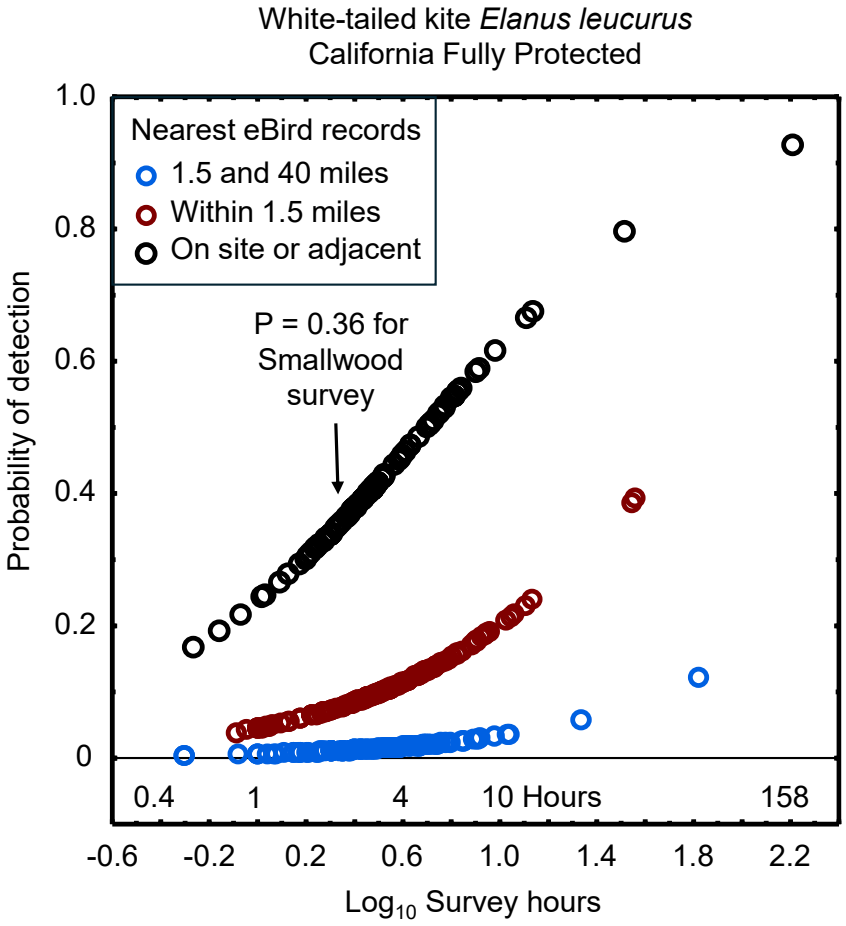


Photo 1. *One of a pair of white-tailed kites foraging over the project site on 28 November 2025. FCS (2024) determined that the occurrence likelihood of white-tailed kite on the project site is "low," but I saw a pair on site at both dawn and dusk.*



Response to NSRRD2-40b:
Comment noted. As described in Response to NSRRD2-11 above, the December 8, 2022 survey was followed by 10 protocol-level avian surveys and five protocol-level plant surveys. No additional response is required.

Reply: The 8 December 2022 survey was not followed by 10 protocol-level avian surveys. The 10 surveys reported in Pinecrest (2024) were inclusive of the 8 December 2022 survey. Only 9 surveys followed the 8 December 2022 survey. Moreover, the additional surveys completed by Pinecrest (2024) had no effect on the County's Revised IS/MND, as the Revised IS/MND never cites Pinecrest (2024), and it references only the 8 December 2024 survey completed by FCS (2024). As far as the Revised IS/MND is concerned, the Pinecrest (2024) surveys never happened.

Nevertheless, noting the additional surveys does not respond meaningfully to my comment, which was about the misapplication of a reconnaissance survey for meeting the IS/MND's stated objective of determining the potential for occurrence of biological resources. The survey of 8 December 2022 could not have achieved the County's stated objective, and so the IS/MND's stated objective is misleading.

The summary of additional survey results in Response to NSRRD2-11 adds support to the point of my comments Whereas the 8 December 2022 survey resulted in the detections of only 13 species of vertebrate wildlife, the additional 9 surveys resulted in the detections of 55 species of birds. The Response inaccurately reports there were 58 vertebrate species detected, and Responses NSRRD2-43 and NSRRD2-49 claim that 61 vertebrate species were detected, but all these claims are either inaccurate or one of them is based on species that were detected but not reported. Regardless, the fact that

the additional surveys resulted in more species being detected – 42 more in this case – confirms the point of my comment. Starting from the bare beginnings of a wildlife survey effort, a greater survey effort results in more species detections and a more accurate characterization of the wildlife community. In this case, the Pinecrest surveys increased the species known to the project area by 4.3-fold. My own research involving repeat reconnaissance surveys further supports this point. To accumulate detections of 149 diurnally active vertebrate wildlife species at a proposed project site in Rancho Cordova, California, I needed 158.5 hours of survey time across 41 surveys, and I still fell 31 species short of an inventory of diurnally active species (Figure 2). Pinecrest's additional surveys certainly improved on the accuracy of the characterization of the project site's wildlife community, but they still fall far short of what is needed for predicting project impacts.

My own reconnaissance survey on 28 November 2025 added 27 more species of vertebrate wildlife, bringing the total number of vertebrate species documented on the project site by reconnaissance surveys to 82 (Figure 2). On 28 November 2025, I started my reconnaissance survey at 07:00 hours under a high fog layer with a temperature range of 43 to 47 F. My survey lasted 2.1 hours and was located on the west end of Technology Way. I returned for a second reconnaissance survey at 16:32 hours and I continued my survey until 19:26 hours, having transitioned 17:00 hours from a visual-scan survey method to the use of both an acoustic bat detector and a thermal-imaging camera. The bat detector was a Petterson M500, which I cabled from my computer to the top of a pole about 18 feet above ground. On my computer was Sonobat Live, which identifies species of bats detected by their sonograms. The thermal-imaging camera was a FLIR T620 fit with a wide-angle lens, both of which I mounted on a tripod.

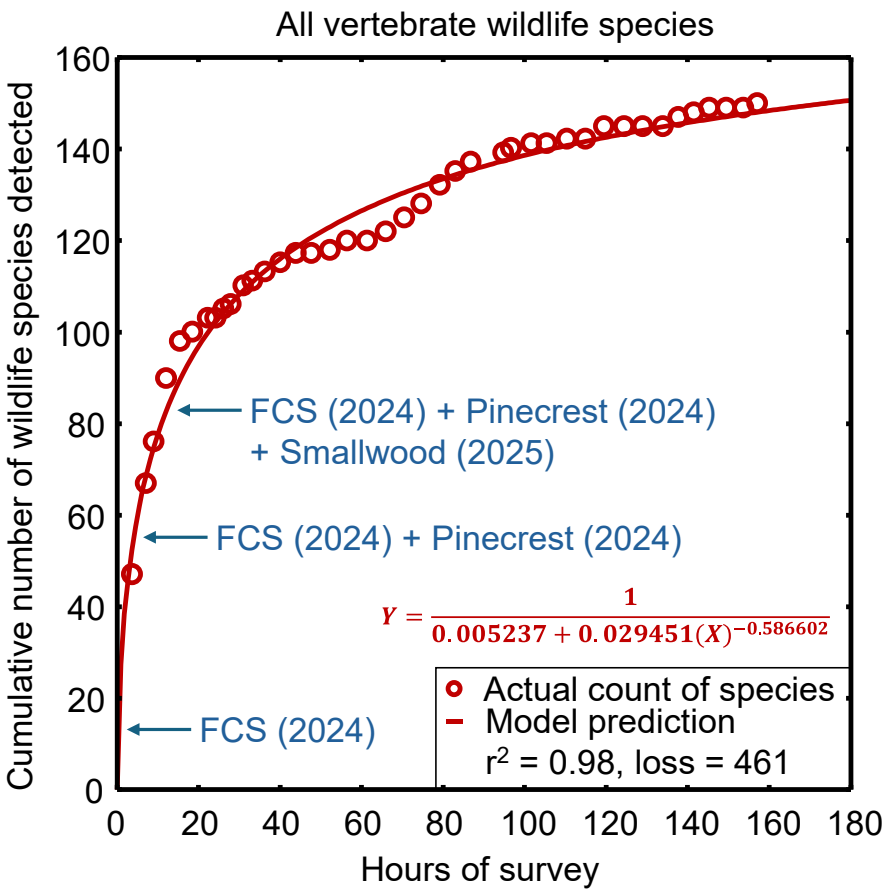


Figure 2. *A model I fit to my cumulative detections of diurnally active vertebrate wildlife species with increasing hours of daylight survey in Rancho Cordova predicts 180 species make use of the site. I was 31 species short of the inventory after 158.5 hours of survey effort. At the project site, FCS (2024) detected 13 species, and Pinecrest's surveys, the species brought the tally to 55, which remains incipient relative to the species inventory of the project site's wildlife community.*

During my 2.1-hour morning survey, I detected 53 species of vertebrate wildlife, and during my evening and nocturnal survey I detected another 9 species for a total 62 species of vertebrate wildlife. Among these species were 12 special-status species such as white-tailed kite, northern harrier, cackling goose and Yuma myotis (Photos 2–5). I will add that I detected Yuma myotis despite the lateness of the season for bat activity. Table 1 includes a compilation of vertebrate wildlife species I detected at three nearby sites, and on the project site, as well as the species detected by FCS (2024) and Pinecrest (2024). Altogether, these surveys by professional biologists have accumulated detections of 128 species of vertebrate wildlife on and around the project site.

Photo 2. *One of a pair of white-tailed kites foraging over the project site on 28 November 2025.*



Figure 3. *One of a pair of northern harriers foraging over the project site on 28 November 2025. FCS (2024) determined that the occurrence likelihood of northern harrier on the project site is "low," but I saw at least two on site.*





Figure 4. *Fifty-two cackling geese fly low over the west end of the project site, 28 November 2025. These were looking for a site on which to forage, and they might very well have selected the project site had I not been standing next to it.*

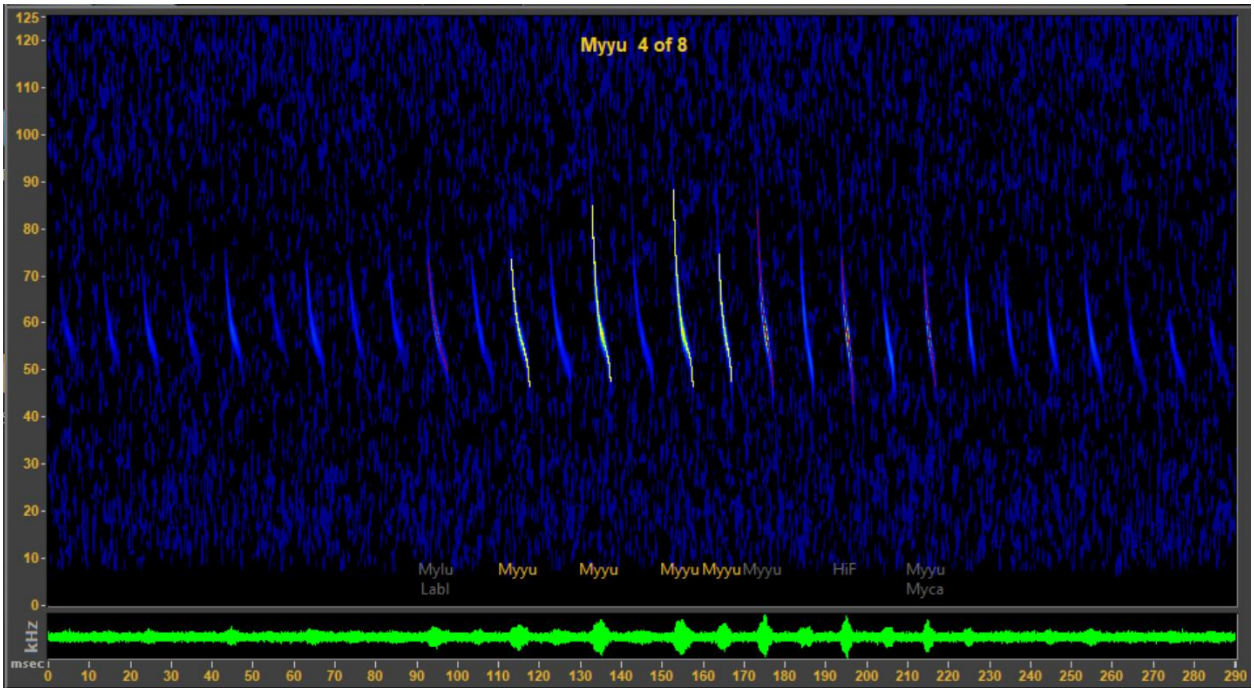


Figure 5. *Sonogram of Yuma myotis (Myotis yumanensis) depicted by SonoBat Live on the project site, 28 November 2025. Yuma myotis is considered by the Western Bat Working Group to be of low-moderate conservation concern. FCS (2024) determined it is "very low" to occur on the project site.*

Table 1. *Species of wildlife I observed at nearby sites 1 and 2, 3 and 4, and at the project site, where site 1 = 3.9 hours on 9 May 2024 at 1,380 m north-northeast of the project site on, site 2 = 3.08 hours on 15-16 July 2018 at 1,100 m north, site 3 = 1.58 hours starting at 17:15 hours on 21 April 2018 at 2,200 m south, and site 4 = on 23 January 2019 and 5 January 2021 at 4,345 m south-southeast of the project site. And species detected by consultants.* Detections indicated by Z *are those that had not been detected during my surveys at nearby sites.*

Common name	***Species name***	**Status[1]**	***IS/MND occurrence likelihood***	***I detected at nearby sites***			**Detected at project site**	
				1, 2	***3***	***4***	**KSS**	**FCS & Pinecrest**
Sierran treefrog	*Pseudacris sierra*					X	X	
Western fence lizard	*Sceloporus occidentalis*			X	X	X		
Pacific gophersnake	Pituophis melanoleucus						Z	
Greater white-fronted goose	*Anser albifrons*						Z	
Canada goose	*Branta canadensis*			X	X	X		X
Cackling goose	*Branta hutchinsonii leucopareia*	WL					Z	
Northern shoveler	*Anas clypeata*					X		
Mallard	*Anas platyrhynchos*			X	X	X	X	X
Gadwall	*Anas strepera*				X			
Bufflehead								Z
California quail	*Callipepla californica*			X		X		
Rock pigeon	*Columba livia*	Non-native		X	X		X	X
Band-tailed pigeon	*Patagioenas fasciata*			X				
Eurasian collared-dove	*Streptopelia decaocto*	Non-native		X	X	X		
Mourning dove	*Zenaida macroura*			X	X	X		X
White-throated swift	*Aeronautes saxatalis*			X				
Black-chinned hummingbird	*Archilochus alexandri*					X		
Anna's hummingbird	*Calypte anna*			X			X	X
Allen's hummingbird	*Selasphorus sasin*	BCC				X		
Sora								Z
Virginia rail	*Rallus limicola*					X	X	X

Common name	*Species name*	Status[1]	*IS/MND occurrence likelihood*	*I detected at nearby sites*			Detected at project site	
				1, 2	*3*	*4*	KSS	FCS & Pinecrest
American coot	*Fulica americana*			X		X		
Pied-billed grebe	*Podilymbus podiceps*					X		
Ring-necked pheasant	*Phasianus colchicus*	Non-native				X		
Wild turkey	*Meleagris gallopavo*			X		X		X
Black-necked stilt	*Himantopus mexicanus*					X		
American avocet	*Recurvirostra americanus*					X		
Killdeer	*Charadrius vociferus*			X	X	X	X	X
Wilson's snipe	*Gallinago delicata*						Z	
Greater yellowlegs	*Tringa melanoleuca*			X	X			
Long-billed dowitcher	*Limnodromus scolopaceus*					X	X	
Least sandpiper	*Caladris minutilla*					X	X	
Ring-billed gull	*Larus delawarensis*					X	X	
Bonaparte's gull	*Chroicocephalus philadelphia*			X				
California gull	*Larus californicus*	BCC, TWL		X		X	X	X
Western gull	Larus occidentalis	BCC					Z	
Herring gull	*Larus argentatus*			X		X		
Forster's tern	*Sterna forstreri*			X				
American white pelican	*Pelacanus erythrorhynchos*	BCC,SSC1				X		
Double-crested cormorant	*Nannopterum auritum*	TWL		X			X	
Great blue heron	*Ardea herodias*		Very low		X	X	X	X
Great egret	*Ardea alba*		Very low	X	X		X	X
Turkey vulture	*Cathartes aura*	BOP		X	X	X		X
Osprey	*Pandion haliaetus*	TWL, BOP	Very low			X		
White-tailed kite	*Elanus leucurus*	CFP, BOP	Very low	X	X	X	X	X
Northern harrier	*Circus cyaneus*	BCC, SSC3, BOP	Low	X		X	X	
Cooper's hawk	*Accipiter cooperii*	TWL, BOP	None	X	X	X		X
Bald eagle	*Haliaeetus leucocephalus*	CE, BGEPA, BOP	Very low			X		
Red-shouldered hawk	*Buteo lineatus*	BOP			X	X	X	
Red-tailed hawk	*Buteo jamaicensis*	BOP		X	X	X	X	X

Common name	*Species name*	Status[1]	*IS/MND occurrence likelihood*	*I detected at nearby sites*			Detected at project site	
				1, 2	*3*	*4*	KSS	FCS & Pinecrest
Swainson's hawk	*Buteo swainsoni*	CT, BOP	Very low	X				
Barn owl	*Tyto furcata*	BOP				X	X	
Great horned owl	*Bubo virginianus*	BOP				X	X	
Belted kingfisher	*Ceryle alcyon*			X		X	X	
Nuttall's woodpecker	*Picoides nuttallii*	BCC				X		
Northern flicker	*Colaptes auratus*					X	X	
American kestrel	*Falco sparverius*	BOP		X	X	X	X	
Peregrine falcon	*Falco peregrinus*	BOP	Very low			X		
Western kingbird	*Tyrannus verticalis*			X				X
Black phoebe	*Sayornis nigricans*			X	X	X	X	X
Say's phoebe	*Sayornis saya*			X		X	X	
Blue-gray gnatcatcher								Z
Loggerhead shrike	*Lanius ludovicianus*	SSC2						Z
Horned lark			None					Z
California scrub-jay	*Aphelocoma californica*			X		X	X	X
American crow	*Corvus brachyrhynchos*			X	X	X	X	X
Common raven	*Corvus corax*			X	X	X	X	X
Hutton's vireo	*Vireo huttoni*					X		X
Chestnut-backed chickadee	*Poecile rufescens*					X		
Tree swallow	*Tachycineta bicolor*			X		X	X	X
Northern rough-winged swallow	*Stelgidopteryx serripennis*			X	X	X		
Barn swallow	*Hirundo rustica*			X	X	X		X
Cliff swallow	*Petrochelidon pyrrhonota*			X	X	X		X
Violet-green swallow	*Tachycineta thalassina*					X		X
Oak titmouse	*Baeolophus inornatus*	BCC		X				
Bushtit	*Psaltriparus minimus*			X		X	X	X
Wrentit	*Chamaea fasciata*	BCC				X		

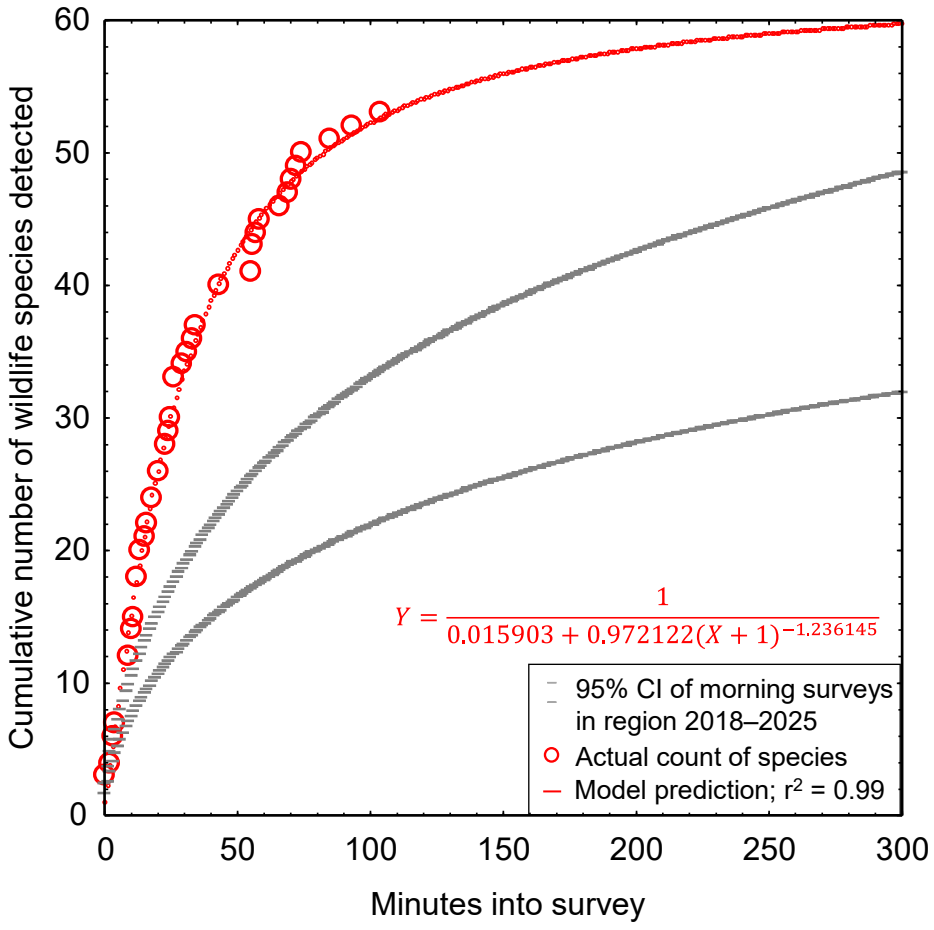
Common name	*Species name*	Status[1]	*IS/MND occurrence likelihood*	*I detected at nearby sites*			Detected at project site	
				1, 2	*3*	*4*	KSS	FCS & Pinecrest
Ruby-crowned kinglet	*Regulus calendula*					X	X	X
Cedar waxwing	*Bombycilla cedrorum*					X	X	
Brown creeper	*Certhia americana*					X		
Rock wren	*Salpinctes obsoletus*					X		
Bewick's wren	*Thryomanes bewickii*					X	X	X
House wren	*Troglodytes aedon*					X	X	
Marsh wren	*Cistothorus palustris*					X	X	X
Northern mockingbird	*Mimus polyglottos*			X	X	X	X	X
European starling	*Sturnus vulgaris*	Non-native		X	X	X	X	X
Western bluebird	*Sialia mexicana*			X		X		
Hermit thrush	*Catharus guttatus*			X		X		X
American robin	*Turdus migratorius*			X	X	X	X	X
House sparrow	*Passer domesticus*	Non-native				X		X
American pipit	*Anthus rubescens*					X	X	
Spotted towhee	*Pipilo maculatus*			X		X		
Purple finch	*Haemorhous purpureus*			X		X		
House finch	*Haemorphous mexicanus*			X	X	X	X	X
Lesser goldfinch	*Spinus psaltria*			X		X		X
American goldfinch	*Spinus tristis*			X	X	X		
Rufous-crowned sparrow							Z	Z
Savannah sparrow	*Passerculus sandwichensis*					X	X	X
Lincoln's sparrow	*Melospiza lincolnii*					X	X	
Samuel's song sparrow	*Melospiza melodia samuelis*	SSC3	Very low	X				
Song sparrow	*Melospiza melodia*					X	X	X
White-crowned sparrow	*Zonotrichia leucophrys*				X	X	X	X
White-throated sparrow								Z
Golden-crowned sparrow	*Zonotrichia atricapilla*					X	X	
Fox sparrow	*Passerella iliaca*					X		
Dark-eyed junco	*Junco hyemalis*					X	X	X

Common name	*Species name*	Status[1]	*IS/MND occurrence likelihood*	*I detected at nearby sites*			Detected at project site	
				1, 2	*3*	*4*	KSS	FCS & Pinecrest
California towhee	*Melozone crissalis*			X		X	X	X
Western meadowlark	*Sturnella neglecta*				X	X	X	X
Bullock's oriole	*Icterus bullockii*	BCC		X		X		
Red-winged blackbird	*Agelaius phoeniceus*			X	X	X	X	X
Brown-headed cowbird	*Molothrus ater*			X	X	X		
Brewer's blackbird	*Euphagus cyanocephalus*			X	X	X	X	
Great-tailed grackle	*Quiscalus mexicanus*			X			X	
Western tanager	*Piranga ludoviciana*			X				
Black-headed grosbeak	*Pheucticus melanocephalus*			X				
Yellow-rumped warbler	*Setophaga coronata*					X	X	X
Orange-crowned warbler	Leiothlypis celata						Z	
Yuma myotis	*Myotis yumanensis*	WBWG:LM	Very low				Z	
House cat	*Felis catus*	Non-native				X		
Coyote	*Canis latrans*				X	X		
Desert cottontail	*Sylvilagus audubonii*						Z	
Black-tailed jackrabbit	*Lepus californicus*			X	X	X	X	
Western gray squirrel	*Sciurus griseus*					X		
California ground squirrel	*Otospermophilus beecheyi*					X		
Botta's pocket gopher	*Thomomys bottae*			X	X	X		
Deer mouse	*Peromyscus maniculatus*						Z	
California vole	*Microtus californicus*			X		X	X	
Mule deer	*Odocoileus hemionus*			X		X		

[1] Listed as FT or FE = federal threatened or endangered, CT or CE = California threatened or endangered, CFP = California Fully Protected (CFG Code 3511), SSC = California Species of Special Concern, BCC = U.S. Fish and Wildlife Service Bird of Conservation Concern, TWL = Taxa to Watch List, and BOP = Birds of Prey (California Fish and Game Code 3503.5).

However, the species of wildlife I detected at the project site were not the only species that were present during my survey, as there are always species that are not detected. To demonstrate this, I fit a nonlinear regression model to my cumulative number of vertebrate species detected with time into my survey to predict the number of species that I would have detected with a longer survey or perhaps with additional biologists available to assist. The type of model is a logistic growth model, which reaches an asymptote that corresponds with the theoretical maximum number of vertebrate wildlife species that could have been detected during the survey. The model fit to my morning survey data predicts 63 species of vertebrate wildlife were available to be detected, or 10 more than I detected that morning (Figure 3). And in fact, in the evening I detected another six species of diurnally active wildlife – the type of wildlife I had detected in the morning. The rate of species detections in the morning survey greatly exceeded the upper bound of the 95% confidence interval estimated from many other morning surveys I have completed in the region. Despite the disturbed nature of the site, it supports a high species richness due to the inherently high species richness of the area.

Figure 3. *Actual and predicted relationships between the number of vertebrate wildlife species detected and the elapsed survey time based on my visual-scan survey on the morning of 28 November 2025.*



Unknown are the identities of a few of the species I missed in my morning survey, but the species that I did and did not detect on 28 November 2025 composed only a fraction of the species that would occur at the project site over the period of a year or longer. This is because many species are seasonal in their occurrence, some require more survey

effort because they are highly cryptic, and the members of other species would visit the site only periodically while patrolling large home ranges. One day of surveys cannot possibly detect all of the species of the local wildlife community.

At least a year's worth of surveys would be needed to more accurately report the number of vertebrate species that occur at the project site, but I only have my one day of surveys and the survey findings of FCS (2024) and Pinecrest (2024). However, by use of an analytical bridge, a modeling effort applied to a large, robust data set from a research site can predict the number of vertebrate wildlife species that likely make use of the site over the longer term. This analytical bridge draws inference from the pattern of species detections more than it does from the research site, and I note that the pattern, i.e., rate, of species detections is consistent from site to site.

As part of my research, I completed a much larger survey effort at a proposed project site in Rancho Cordova, California, where a riparian forest similarly abutted the project site. At this site, I conducted 41 daytime visual-scan surveys across both the upland and riparian areas, totaling 158.5 hours over three years. I used binoculars and otherwise the methods were the same as the methods I and other consulting biologists use for surveys at proposed project sites. I tallied new species detected with each sequential survey, and then related the cumulative species detected to the hours used to accumulate my counts of species detected. I used combined quadratic and simplex methods of estimation in Statistica to estimate least-squares, best-fit nonlinear models of the number of cumulative species detected regressed on hours of survey: $\hat{R} = \frac{1}{1/a+b\times(Hours)^c}$, where $\hat{R}$ represented cumulative species richness detected. The coefficients of determination, r^2, of the model was 0.98; or in other words, the model was an excellent fit to the data (Figure 2). The model in Figure 2 predicts 180 diurnally active vertebrate wildlife occur on the site over the long term.

Based on the pattern of my data at Rancho Cordova (Figure 2), the 2.1 hours of morning survey I completed on the E&P Technology Way site would have detected about 41 species had I directed those 2.1 hours to the Rancho Cordova research site. This number would have composed 22.8% of the predicted total number of species I would detect with a much larger survey effort at the research site. With many more repeat surveys through the year at the E&P Technology Way site, I would likely detect $53/0.228 = 232$ species of diurnally active vertebrate wildlife at the site. Assuming my ratio of special-status to non-special-status species was to hold through the detections of all 232 predicted species, then continued surveys would eventually detect 39 special-status species of diurnally active vertebrate wildlife. Indeed, 128 species of vertebrate wildlife, including 26 special-status species have already been documented within a few miles of the project site, which is more than 50% of the way to my prediction based on my analytical bridge between my one survey at the project site and my reseasrch site in Rancho Cordova (Table 1). To my prediction of 232 diurnally active species, one needs to also consider the nocturnally active species such as owls and bats, some of which my nocturnal survey confirmed as present. Then there are the fossorial species that are difficult to detect without walking over the project site, such as pocket gopher, moles, harvest mice, and species of Peromyscus other than the deer mouse I already detected.

The large number of species that have been detected, and the larger number that I predict at the project site, are indicative of a species-rich wildlife community that remains insufficiently surveyed and warrants a serious survey effort. The County has not performed due diligence to characterize the wildlife community of the project site. The results of the FCS survey and of the 9 additional surveys are not contextualized by comparing them to the survey efforts committed to collecting the results, nor to the results of surveys performed elsewhere. The failures to detect species are not contextualized by considering the negative survey outcomes relative to the survey effort needed to achieve reasonable likelihoods of detection. For these reasons, the basis for analyzing and predicting impacts remains incomplete and grossly inadequate.

Response to NSRRD2-41: The commenter states that without knowing how long the December 8 survey lasted the survey results cannot be fully interpreted. … Comment noted. As described in Response to NSRRD2-11 above, the December 8 survey was followed by 10 protocol-level avian surveys and five protocol-level plant surveys. Duration and timing of each survey was performed according to CDFW protocols. Duration of avian surveys were at least 4 hours and were initiated typically between 7:30 a.m. and 8:30 a.m. as described in the Special-Status Avian Survey Report prepared by Pinecrest dated January 29, 2024. No additional response is required.

Reply: Again, only 9 surveys followed that of 8 December 2022. The 8 December 2028 survey was begun at 11:00, according to FCS (2024), so at least one of the surveys was started too late to meet any of the CDFW protocols.

Pinecrest (2024) purportedly followed the Swainson's hawk survey protocol and the burrowing owl survey protocol, and it insinuates having followed protocols for nesting passerine birds and raptors. To be clear, Pinecrest (2024) cites no other survey protocols for any other nesting bird inclusive of raptors. Additionally, the only protocol survey schedule that is tied to the surveys is that of Swainson's hawk. Considering that the survey schedule was responsive only to the Swainson's hawk survey protocol, I will first assess the degree to which the Pinecrest surveys followed that protocol.

Ther surveys were conducted by foot, which was contrary to CDFW (2000) recommendation to survey for Swainson's hawk by car. CDFW (2000) also recommends that surveys should always be completed in Periods II, III, and V, and never in IV. The 8 December 2022 survey was not timed to meet the CDFW (2000) protocol. Pinecrest performed three surveys in Period II, three in Period III, two in Period IV, and one survey in Period V. The two surveys in Period IV were contrary to CDFW's (2000) recommendation to avoid this Period – a recommendation that is emphasized in **bold font**, because Swainson's hawks are sensitive to disturbance and well known to be very difficult to detect during this Period. With these two surveys conducted when they should not have been, three of Pinecrest's surveys were throw-away surveys because they were conducted at the wrong times of year, and all the surveys were conducted on foot rather than by the recommended use of a motorized vehicle. Another shortfall was the simultaneous surveys for burrowing owls, other raptors, nesting passerines, and rare plants, despite the CDFW (2000) protocol recommending no distractions. The surveys

at the project site were inconsistent with the CDFW (2000) protocol for Swainson's hawk.

Did the Pinecrest surveys meet the minimum standards of CDFW (2012) for burrowing owl surveys? The first survey was outside the breeding season, so that one did not count. Whereas only one of the surveys should have preceded 15 April, seven of Pinecrest's surveys did so. The later surveys achieved the recommended inter-survey spacing, but none were performed after 15 July as recommended. Furthermore, the reporting lacked statements of qualifications and the level of details in methods and findings that are recommended by CDFW (2012). Pinecrest (2024) did not meet the minimum standards of CDFW (2012).

The Pinecrest (2024) surveys failed to follow any of the available survey protocols for special-status species of wildlife.

Moreover, assuming the Pinecrest biologist attempted to follow a special-status species survey protocol, then the focus would have been on the special-status species at issue rather than on other species of wildlife. Other species of wildlife can certainly be detected during a protocol-level survey, and their detections would need to be reported, but the focus of the protocol surveys is optimized for the target species. The evidence of this can be seen in Figure 2, where in my survey effort at Rancho Cordova, 30 hours of survey had accumulated 108 species of diurnally active vertebrate wildlife species. (Response 2-41 claims the surveys were 4 hours each, which would total 40 hours after 10 surveys, but Pinecrest (2024) reports the surveys totaled 30 hours.) In comparison, Pinecrest (2024) had accumulated only half this number of species in 30 hours using what it thought to qualify as a special-status species protocol.

Moreover, the response fails to respond to my comment that the survey duration was not reported for the 8 December 2022 survey. The duration of the 8 December 2022 survey remains unreported.

Response to NSRRD2-42: The commenter states that starting surveys at 11:00 a.m. results in fewer species observed than early morning surveys. … Comment noted. As described in Response to NSRRD2-41 above, avian surveys were initiated typically between 7:30 a.m. and 8:30 a.m. as described in the Special-Status Avian Survey Report prepared by Pinecrest dated January 29, 2024. No additional response is required.

Reply: The fact remains that the 8 December 2022 survey reportedly began at 11:00 hours (FCS 2024). Furthermore, the response states that the other surveys were "typically" begun between 07:30 and 08:30 hours, but the response fails to identify the surveys that started at atypical times. The start and end times of each survey need to be reported, but neither FCS (2024) nor Pinecrest (2024) does so. Including the response, the reporting of the surveys remains deficient.

Response to NSRRD2-43a: The commenter argues that FCS detected 13 taxa of vertebrate wildlife within the project site and stated that he detected 69 species of vertebrate wildlife at three separate locations within 700 meters of the site. The

commenter concludes that the reconnaissance surveys conducted by FCS were "grossly deficient, and its results ill-suited for characterizing the existing environmental settings." … Comment noted. As described in Response to NSRRD2-14, above, the Pinecrest Special-Status Avian Survey Report and the FCS Biological Resources Assessment report a combined total of 61 vertebrate species, not 13.

Reply: At the time of my 13 November 2024 comments, the Pinecrest (2024) report had not been publicly disclosed, even though the Pinecrest report is dated 29 January 2024, or 10.5 months earlier than the date of my comment letter. I did not receive the Pinecrest report until 25 November 2025.

As noted earlier, reported by FCS (2024) and Pinecrest (2024) are 55 species of vertebrae wildlife were detected by their 10 surveys, not 61 species. Regardless, Pinecrest's added survey effort detected many more species of wildlife, which is evidence in support of one of the most important points of my comment letter. The Response compares the total findings of FCS and Pinecrest to my findings at three nearby sites, which is helpful, but the Response does so as if we are in some sort of competition, which is not what an environmental review should be about.

Response to NSRRD2-43b: This number from a single site exceeds the 44 species observed by the commenter at three combined sites south/southeast of the project site and is approximately equal to the 69 species observed by the commenter at three combined sites within 700 meters of the project site. Additionally, the commenter's species counts result from summing the number of species observed at each of three different sites, which is not an industry accepted practice for conducting species counts.

Reply: If there is an industry accepted practice for conducting species counts, then the County ought to identify it. Otherwise, the argument appears contrived. And anyway, my survey outcome on the project site is similar to the cumulative list of species I detected at the three nearby sites. Applying the Sørensen $Index\ of\ Similarity = \frac{2c}{a+b}$ (Sørensen 1948), where a is the number of species I found at the three nearby sites, b is the number of species I found at the E&P project site, and c is the number of species I found at both the three nearby sites and the project site, the Index of Similarity is 0.61. For perspective, the mean Index of Similarity among 40 comparisons of surveys I completed over the same time periods and at the same place in Rancho Cordova, California, but on different days over three years 2020-2023, was 0.755 with a high value of 0.90. An Index value of 0.61 is reasonably similar. Combining the FCS and Pinecrest survey results with my own on the project site to represent b in the *Index of Similarity*, and the *Index* value increases to 0.68. In other words, the species I detected at the three nearby sites are representative of the wildlife community that occurs on the project site, nearly to the same degree as my average *Index* value among my repeat surveys at the Rancho Cordova site.

Response to NSRRD2-43c: To be comparable to the single site surveyed in the FCS and Pinecrest reports, the 44 and 69 species observed by Dr. Smallwood across three sites should be reverse extrapolated to a lower number to be comparable to the single site surveyed in the FCS and Pinecrest reports, since the number of species observed will

increase as you increase the number of sites surveyed. Thus, based on Dr. Smallwood's own data, the community of vertebrates at the project site has been adequately characterized by the FCS and Pinecrest reports. No additional response is required.

Reply: This part of the response makes little sense, as there is no such thing as a reverse extrapolation. I would not conclude that the project site has been adequately surveyed or characterized (see Figure 2).

Response to NSRRD2-44: The commenter states that FCS did not follow the CDFW 2018 plant survey guidelines. … Comment noted.

As described in Response to NSRRD2-11 above, five special-status plant surveys were conducted according to protocols described in the CDFW publication titled Protocols for Surveying and Evaluating Impacts to Special-Status Native Plant Populations and Sensitive Natural Communities (2018), exceeding the number of surveys required. The results of these surveys are described in the memorandum prepared by Pinecrest titled Results of Special-Status Plant Surveys at E&P Technology Way dated July 21, 2023. A total of 54 species of plants were observed in the project area, defined as the grassland portion of the three parcels excluding the Sheehy Creek riparian corridor and pedestrian pathway. No additional response is required.

Reply: At the time of my 13 November 2024 comments, the Pinecrest (2023) report had not been publicly disclosed, even though the Pinecrest report is dated 21 July 2023, or 16 months earlier than the date of my comment letter. Moreover, the Pinecrest surveys had no effect on the Revised IS/MND, which does not even cite the Pinecrest surveys.

The dates of every rare plant survey conducted by Pinecrest corresponded with dates of what were supposed to be focused surveys for Swainson's hawk, burrowing owl, other raptors and nesting passerines. This is another reason why it is so important to report the start and end times of every survey, because the reader needs to know whether the rare plant surveys were performed simultaneous to the surveys for Swainson's hawks, burrowing owls and everything else. If the surveys were sequential rather than simultaneous, then Pinecrest's biologist would have walked the entirety of the site twice per day, once for Swainson's hawks, and once for rare plants. If the surveys were simultaneous, then one has to wonder how the biologist could simultaneously look downward for plants and upward for Swainson's hawks. Things would get even more complicated by adding in burrowing owls, other raptors, and nesting passerine birds as subjects of simultaneous focused surveys. The biological resources surveys require more detailed reporting if the results are to be taken seriously.

Additionally, Pinecrest (2024) did not visit reference populations, nor did Pinecrest identify the blooming season of each potentially occurring rare plant species, so there is no compelling evidence that the survey dates were appropriate to each species.

Response to NSRRD2-45: The commenter states that no surveys were performed for bats, small mammals, or reptiles. … Comment noted. See Response to NSRRD2-12,

above, regarding bat, reptile, and amphibian surveys. Live trapping for small mammals is not warranted since there are no known special-status species of small mammals that have the potential to exist on the project site. No additional response is required.

Reply: The response's argument is that only special-status species need to be analyzed in a CEQA review. This argument would not have applied to bats, reptiles and amphibians, as there are numerous species of these taxa that are special-status species. However, the Response does not explain why no surveys were completed for these other taxa. Regardless, this argument is flawed (see below).

Most environmental reviews pursuant to the California Environmental Quality Act (CEQA) focus on special-status species because CEQA's Checklist Evaluation of Environmental Impacts specifies that such evaluation includes potential impacts to special-status species. However, an important policy of CEQA is "to prevent the elimination of fish or wildlife species due to man's activities, insure that fish and wildlife populations do not drop below self-perpetuating levels, and preserve for future generations representations of all plant and animal communities and examples of the major periods of California history." Pub. Res. Code § 21001(c). This policy is not restricted to special-status species, but it also applies to wildlife populations and plant and animal communities. In fact, the CEQA Guidelines Section 21155.1 defines wildlife habitat as "the ecological communities upon which wild animals, birds, plants, fish, amphibians, and invertebrates depend for their conservation and protection." This definition is consistent with the scientific definition of habitat, which is that portion of the environment that is used by members of a species for survival and reproduction (Hall et al. 1997). An essential portion of the environment used by any special-status species is composed of the collection of other species of plants and wildlife, because these species are forage, provisioners of refugia and nest substrates, and ecological mutualists; no special-status species can exist in a vacuum of other wildlife. The CEQA Checklist Evaluation assigns priority to special-status species to balance information and cost, but it does not exclude the need to evaluate environmental impacts to other species, which, after all, are members of the very communities within which special-status species inter-depend for survival and reproduction.

Response to NSRRD2-46a: The commenter reports there is a discrepancy in the FCS (2024) report in that the riparian corridor is stated as having high quality habitat whereas the project area does not contain habitat for special-status species due to the history of disking.

Reply: The response mischaracterizes my comment to the degree that it is opposite of what I wrote. FCS (2024) and the Response mischaracterizes the riparian environment of Sheehy Creek and the upland environment of the project site as two separate, disconnected environments. However, no natural boundary separates these two environments other than the standing definition of the riparian environment, which is the vegetation that overgrows the alluvial floodplain on either side of a stream channel (Ohmart (1994), and which is the transition zone between aquatic and terrestrial environments (Ramey and Richardson 2017). Note that a transition zone is not a hard boundary as the County wishes the reader to believe, and the transition zone itself is left

vague in its extent which likely varies among species. While wildlife occur disproportionately in riparian environments, meaning that they concentrate in riparian vegetation (Ohmart 1994, Ballard et al. 2004), Lee and Rotenberry (2015) found that whereas the occurrences of some bird species in riparian forests correlated with local variables defined by percent tree cover versus percent shrub cover, the occurrences of twice as many bird species correlated with landscape variables such as adjacency and extent of uplands. Consistent with these findings, in its opening sentence of Restoring California's Wildlife Connectivity 2022, CDFW (2022) writes, "Habitat connectivity is critical for maintaining viable populations of wildlife species, particularly in the face of anthropogenic pressures and a changing climate."

Despite the degradation of the upland portion of the project site due to disking, it remains connected to the riparian environment of Sheehy Creek (Figure 6). The wildlife on the project site rely on this connectivity, as I observed many of them moving back and forth between the riparian environment and the uplands of the project site. Several Say's phoebes did so (Photo 7), and so did northern flickers (Photo 8), an orange-crowned warbler (Photo 9), a ruby-crowned kinglet (Photo 10), and savannah sparrows (Photo 11) and barn owl (Photo 12). At night I also observed a great horned owl hunting the project site from a tree perch within the transition zone to the riparian environment (its eyes are visible in Photo 12). And along this same transition zone I saw a red-shouldered hawk that was hunting. The loss of the upland portion of the environment, the riparian portion of the environment would lose most of its wildlife. Only a few species of wildlife are riparian obligates, and most require the adjacency of riparian and upland environments.



Figure 6. *The wildlife community of the project site cannot be decoupled from that of the riparian environment of Sheehy Creek, as all the wildlife of either environment requires resources in the adjoining environment.*



Figure 7. *One of several Say's phoebes that foraged on the project site on 28 November 2025. These Say's phoebes often sought refuge in the riparian environment of Sheehy Creek when white-tailed kites, northern harriers, red-tailed hawks and a red-shouldered hawk foraged over the uplands.*

Figure 8. *Northern flicker flying from the project site to the riparian environment of Sheehy Creek, preparing to land on a willow, 28 November 2025.*



Figure 9. *An orange-crowned warbler caught a large insect on the edge of the project site on 28 November 2025. Orange-crowned warblers are often found in riparian environments, but also rely on trees and shrubs in adjoining uplands.*



Figure 10. *A ruby-crowned kinglet departs a shrub on the transition zone from the riparian environment of Sheehy Creek to the project site, 28 November 2025.*



Figure 11. *A savannah sparrow on the transition zone between the riparian environment of Sheehy Creek and the uplands of the project site, 28 November 2025.*



Photo 12. *A barn owl hunting the project site from the transition zone between the riparian vegetation of Sheehy Creek and the project site, 28 November 2025. Image taken from a video captured by a FLIR T620 thermal-imaging camera fit with a wide-angle lens. In the background, the eyes of a great horned owl are visible from where the owl was perched in a tree along the transition zone.*



Response to NSRRD2-46b: Comment noted. This is correct, the Sheehy Creek riparian corridor is in a conservation easement, and is not defined as part of the project area.

Reply: Of course Sheehy Creek and its riparian environment is part of the project area; to claim otherwise lacks foundation in basic ecology. The behaviors of the wildlife at the site also serves as ample evidence that Sheehy Creek and its riparian environment is part of the project area.

Response to NSRRD2-46c: The project area is defined as the ruderal grassland portion of the parcels, exclusive of the riparian corridor and pedestrian walkway. The project area has been disked and mowed annually for many years and is not high-quality natural habitat particularly when compared to the conservation easement. The value of the upland grassland habitat is reduced due to the history of disking, since disking eliminates fossorial mammal burrows and soil cracks that might otherwise provide refugia for animals migrating out of the riparian corridor. There is no discrepancy or inconsistency in the IS/MND. No additional response is required.

Reply: Disking does not necessarily eliminate fossorial mammal burrows, as I have used disking in recovery efforts directed toward an endangered fossorial mammal – the Fresno kangaroo rat (*Dipodomys nitratoides nitratoides*). At another research site

(Smallwood and Morrison 2018), trenching enabled habitation of a site by California ground squirrels, and hence by burrowing owls. The response over-generalizes the effects of disking on fossorial mammals, and it also over-generalizes the need for fossorial mammals to special-status species of wildlife. And anyway, the assertations made in this portion of the Response were refuted by my observations of multiple special-status species on the project site, including white-tailed kite and northern harrier. Lastly, the term *habitat quality*, which the Response claims was reduced by disking on the site, is typically expressed by productivity metrics such as nest success, fecundity, and survivorship, none of which have been measured in any way or for any species on the project site. The Response lacks any basis for offering conclusions regarding habitat quality.

Response to NSRRD2-48a: The commenter indicates that the FCS report did not consult eBird or iNaturalist when compiling a list of species that are known to occur on or near the project site. … As described in Response to NSRRD2-13, above, species with potential to exist in the vicinity of the site were compiled based on an industry standard "nine-quadrangle" search around the project site using the CNDDB database.

Reply: If there is an industry standard for how to query the CNDDB for species occurrence records, the Response does not cite it; there is not an industry standard for querying the CNDDB. In fact, the scope of the queries have varied among the environmental review documents I have reviewed. Some queries rely on a 9-Quadrangle scope, some on two quads, some on the one quadrangle in which the project site occurs, and others on various distance buffers from the project site. There is no standard, which is why it is important for the biological technical report to report the scope of its queries.

Response to NSRRD2-48b: Neither eBird or iNaturalist were used since they are not reliable sources of information on the presence or absence of species at a given location, nor are they consistent with industry practice.

Reply: The Response cites another industry standard that does not exist. In my review of hundreds of environmental review documents, some consultants use eBird and iNaturalist and others do not. Nowhere is there a written standard that only the CNDDB is to be used in CEQA review.

Response to NSRRD2-48c: Whereas the CNDDB database is curated, eBird and iNaturalist are community-sourced platforms that allow lay individuals to upload occurrences.

Reply: Professional biologists also contribute observations to eBird and iNaturalist. Moreover, there is nothing lesser about the observations of members of the lay public. Members of the public have eyes and ears, and many of them are more skilled at detecting and identifying species of wildlife than are my professional peers. Additionally, the eBird and iNaturalist records often come with photos, sonograms, or notes, any of which can be used to further assess the veracity of observational records.

Response to NSRRD2-48d: The data is not vetted by experts and occurrences are not regularly checked for accuracy. These databases are known to frequently misidentify species that are frequently confused, such as hawks and raptors. However, CNDDB's comprehensive and curated data is maintained by CDFW and contains vetted and updated records that cater to special-status species.

Reply: As to the issue of the vetting of occurrence records, the CNDDB deserves credit for the screening it requires of posted records. The standards are appropriately high. However, postings to eBird and iNaturalist are also scrutinized by built-in filters and by other users of the databases, including by professionals at Cornell University Lab of Ornithology – one of the world's leading institutions of ornithology. Documentation of observations is also often provided in the form of photographs and written notes. I have found a few errors in both databases, usually involving immature birds mistaken as other species. Overall, however, accuracy has been high and sufficiently trustworthy to have resulted in a large and growing list of papers published in the peer-reviewed, scientific literature. Hundreds (1,220 through 2024) of peer-reviewed papers have resulted from analysis of eBird data over the past decade (https://science.ebird.org/en/research-and-conservation/publications). The same cannot be said of the CNDDB, likely due its near-exclusive use by consulting biologists who can afford the CNDDB subscription fee.

Response to NSRRD2-48e: CNDDB is also widely used in CEQA compliance and is the standardized method of identifying the likelihood of species occurrences.

The Response is unclear what it means by standardized when it comes to using the CNDDB in environmental review. As I already commented, the scope of CNDDB queries has not been standardized. And as I commented in my comment letter, the CNDDB warns against the type of use that FCS (2024) made of it.

Response to NSRRD2-48f: As Dr. Smallwood did not reference CNDDB in his discussion of the likelihood of species presence on-site and relied solely on eBird and iNaturalist, his conclusions cannot be confirmed as accurate. No additional response is required.

Reply: There is nothing inaccurate about using eBird or iNaturalist to draw inferences about the likelihood that any given species would be detected on a project site, after also considering survey effort. But why not check on the performance of using eBird and iNaturalist records? The County could have done so in support of its response, but it did not. I will do it.

To Table 4 of my comment letter, I added great blue heron and great egret to be consistent with the FCS (2024) analysis. These two species do not carry special status, so it is curious that FCS included them, but there is no harm in adding them. Hence, my original Table 4 is revised with the additions of great blue heron and great egret, and it is included here as Table 2. Of the 119 species in Table 2 that were subject to detection via reconnaissance surveys since the 8 December 2022 survey of FCS (2024), 19 (16%) have been detected by Pinecrest or myself (KSS in Table 2). Of these 19 species detected,

18 had been previously documented on eBird as on site or within 1.5 miles of the site, and for one (Yuma myotis) the nearest occurrence record in iNaturalist had been between 4 and 30 miles from the project site (Table 2). There is nothing about any of these findings that informs of the accuracy of my conclusions, except for the conclusion that additional survey effort would garner additional confirmations of the presence of special-status species. Also, the preponderance of detections of species with occurrence records within 1.5 miles is consistent with the model prediction for white-tailed kite in Figure 1.

To be fair and balanced, one could also ask how well FCS's (2024) use of the CNDDB performed in assessing occurrence likelihoods of special-status species. I noticed that the Response did not attempt to do so, so I will do it. Of the 19 special-status species detected by surveys following the FCS survey of 8 December 2024, FCS (2024) had assigned occurrence likelihoods of 1 as low, of 4 as very low, and of 2 as none, and it did not assess the occurrence likelihoods of another 12 special-status species that have since been detected there. In summary, FCS's use of the CNDDB was a dismal failure at predicting the occurrence likelihoods of 19 special-status species. It is likely that additional surveys would additionally document the poor performance of FCS's habitat assessments.

Response to NSRRD2-49a: The commenter states that CNDDB is not sufficient to characterize the wildlife community of a site and states that FCS "misuses" the CNDDB database. … Comment noted. As described in Response to NSRRD2-43, above, the wildlife community of the site was extensively characterized with over 10 targeted wildlife surveys identifying a total of 61 vertebrate species, and five protocol-level plant surveys identifying a total of 54 plant species. The number of animal species identified on-site meets or exceeds the commenter's own species counts from nearby locations.

Reply: As I replied earlier, the statistics cited here are largely inaccurate. More importantly, it does not address my comment that FCS (2024) misapplies the lack of records in the CNDDB as evidence of absence. Even the CNDDB warns against doing this.

Response to NSRRD2-49b: The CNDDB database was also used according to its intended purpose. As described in Response to NSRRD2-48 above, an industry standard "nine-quadrangle" search was performed around the project site using the CNDDB database in order to generate a minimum list of species that may occur on-site, not to rule out species that may exist on-site. Subsequent field surveys were performed to identify any special status species on-site, and any special-status species on-site would be identified even if they did not appear on the nine-quadrangle CNDDB search. No additional response is required.

Reply: The Response is not compelling that the misuse of the CNDDB is vindicated by additional surveys. Surveys have their purpose, and so does the desktop review, and reliance on surveys cannot overcome the shortcomings of the desktop review, because 10 reconnaissance surveys are not going to detect all the species that occur on the project site.

Table 2. *Occurrence likelihoods of special-status bird species at or near the proposed project site, according to eBird/iNaturalist records (https://eBird.org, https://www.inaturalist.org) and on-site survey findings, where 'Very close' indicates within 1.5 miles of the site, "nearby" indicates within 1.5 and 4 miles, and "in region" indicates within 4 and 30 miles, and 'in range' means the species' geographic range overlaps the site.*

Common name	***Species name***	**Status[1]**	**IS/MND occurrence potential**	**Data base records, FCS survey**	**Survey detections**	
					Pinecrest	**KSS**
Conservancy fairy shrimp	*Branchinecta conservatio*	FE		In region	--	--
Vernal pool fairy shrimp	*Branchinecta lynchi*	FT	None	In region	--	--
California freshwater shrimp	*Syncaris pacifica*	FE, CE	None	In region	--	--
Monarch	*Danaus plexippus*	FC	Very low	Nearby	--	--
Marin Elfin butterfly	*Callophrys mossii marinensis*	SSC	Very low	In region	--	--
Obscure bumble bee	*Bombus caliginosus*	SSC	Low	In region	--	--
Crotch's bumble bee	*Bombus crotchii*	CCE	Medium	Nearby	--	--
Western bumble bee	*Bombus occidentalis*	CCE	Low	In range	--	--
California tiger salamander	*Ambystoma californiense*	FT, CT, WL	Very low	In region		
California giant salamander	*Dicamptodon ensatus*	SSC	Very low	In region		
Red-bellied newt	*Taricha rivularis*	SSC	None	In region		
Foothill yellow-legged frog	*Rana boylii*	CT, SSC	Low	In region		
California red-legged frog	*Rana draytonii*	FT, SSC	Low	In region		
Western pond turtle	*Emys marmorata*	SSC	None	Nearby		
Brant	*Branta bernicla*	SSC2		Nearby		
Cackling goose (Aleutian)	*Branta hutchinsii leucopareia*	WL		Very close		Yes
Redhead	*Aythya americana*	SSC2		Very close		
Harlequin duck	*Histrionicus histrionicus*	SSC2		In region		
Barrow's goldeneye	*Bucephala islandica*	SSC		Very close		
Western grebe	*Aechmophorus occidentalis*	BCC		Very close		
Clark's grebe	*Aechmophorus clarkii*	BCC		Very close		

Common name	*Species name*	Status[1]	IS/MND occurrence potential	Data base records, FCS survey	Survey detections	
					Pinecrest	KSS
Western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	FT, CE	Very low	In region		
Black swift	*Cypseloides niger*	SSC3, BCC	None	Nearby		
Vaux's swift	*Chaetura vauxi*	SSC2		Very close		
Calliope hummingbird	*Selasphorus calliope*	BCC		Nearby		
Rufous hummingbird	*Selasphorus rufus*	BCC		Very close		
Allen's hummingbird	*Selasphorus sasin*	BCC		Very close		
Ridgway's rail (San Francisco Bay)	*Rallus obsoletus obsoletus*	FE, CE, CFP	None	Nearby		
Yellow rail	*Coturnicops noveboracensis*	BCC, SSC	None	In region		
Black oystercatcher	*Haematopus bachmani*	BCC		In region		
Mountain plover	*Charadrius montanus*	SSC2, BCC		In region		
Snowy plover	*Charadrius nivosus*	BCC		Nearby		
Western snowy plover	*Charadrius nivosus nivosus*	FT, SSC	None	In region		
Long-billed curlew	*Numenius americanus*	WL		Very close		
Marbled godwit	*Limosa fedoa*	BCC		Very close		
Black turnstone	*Arenaria melanocephala*	BCC		Nearby		
Red knot (Pacific)	*Calidris canutus*	BCC		Nearby		
Pectoral sandpiper	*Calidris melanotos*	BCC		Nearby		
Short-billed dowitcher	*Limnodromus griseus*	BCC		Very close		
Wandering tattler	*Tringa incana*	BCC		Nearby		
Lesser yellowlegs	*Tringa flavipes*	BCC		Very close		
Willet	*Tringa semipalmata*	BCC		Very close		
Laughing gull	*Leucophaeus atricilla*	WL		In region		
Heermann's gull	*Larus heermanni*	BCC		In region		
Western gull	*Larus occidentalis*	BCC		Very close		Yes
California gull	*Larus californicus*	BCC, TWL		Very close		Yes
California least tern	*Sternula antillarum browni*	FE, CE, CFP		Nearby		
Black tern	*Chlidonias niger*	SSC2, BCC		Nearby		

Common name	*Species name*	Status[1]	IS/MND occurrence potential	Data base records, FCS survey	Survey detections	
					Pinecrest	KSS
Elegant tern	*Thalasseus elegans*	BCC, WL		Nearby		
Black skimmer	*Rynchops niger*	BCC, SSC3		In region		
Common loon	*Gavia immer*	SSC		Nearby		
Brandt's cormorant	*Urile penicillatus*	BCC		In region		
Double-crested cormorant	*Phalacrocorax auritus*	WL		Very close		Yes
American white pelican	*Pelacanus erythrorhynchos*	SSC1		Very close		
California brown pelican	*Pelecanus occidentalis californicus*	FP		Nearby		
Great blue heron	*Ardea herodias*		Very low	On site	Yes	
Great egret	*Ardea alba*		Very low	Very close	Yes	Yes
Least bittern	*Ixobrychus exilis*	SSC2		In region		
White-faced ibis	*Plegadis chihi*	WL		Very close		
Turkey vulture	*Cathartes aura*	BOP		On site	Yes	
Osprey	*Pandion haliaetus*	WL, BOP	Very low	Very close		
White-tailed kite	*Elanus luecurus*	CFP, BOP	Very low	On site	Yes	Yes
Golden eagle	*Aquila chrysaetos*	BGEPA, CFP, BOP, WL	Low	Very close		
Northern harrier	*Circus cyaneus*	BCC, SSC3, BOP	Low	Very close		Yes
Sharp-shinned hawk	*Accipiter striatus*	WL, BOP	Very low	On site		
Cooper's hawk	*Accipiter cooperii*	WL, BOP	None	On site	Yes	
Bald eagle	*Haliaeetus leucocephalus*	CE, BGEPA, BOP	Very low	Very close		
Red-shouldered hawk	*Buteo lineatus*	BOP		Very close		Yes
Swainson's hawk	*Buteo swainsoni*	CT, BOP	Very low	On site		
Red-tailed hawk	*Buteo jamaicensis*	BOP		On site	Yes	Yes
Ferruginous hawk	*Buteo regalis*	WL, BOP	Low	Very close		
Rough-legged hawk	*Buteo lagopus*	BOP		Very close		
American barn owl	*Tyto furcata*	BOP		Very close		Yes
Western screech-owl	*Megascops kennicotti*	BOP		Nearby		
Great horned owl	*Bubo virginianus*	BOP		Very close		Yes

Common name	*Species name*	Status[1]	IS/MND occurrence potential	Data base records, FCS survey	Survey detections	
					Pinecrest	KSS
Burrowing owl	*Athene cunicularia*	BCC, SSC2, BOP, CCE	Very low	Very close - CNDDB		
Long-eared owl	*Asio otus*	BCC, SSC3, BOP		In region		
Short-eared owl	*Asia flammeus*	BCC, SSC3, BOP		In region		
Northern saw-whet owl	*Aegolius acadicus*	BOP		Nearby		
Northern pygmy-owl	*Glaucidium gnoma*	BOP		Nearby		
Lewis's woodpecker	*Melanerpes lewis*	BCC		Very close		
Nuttall's woodpecker	*Picoides nuttallii*	BCC		Very close		
American kestrel	*Falco sparverius*	BOP		On site		Yes
Merlin	*Falco columbarius*	WL, BOP		Very close		
Peregrine falcon	*Falco peregrinus*	BOP	Very low	Very close		
Prairie falcon	*Falco mexicanus*	WL, BOP	Very low	Very close		
Olive-sided flycatcher	*Contopus cooperi*	BCC, SSC2		Nearby		
Willow flycatcher	*Empidonax trailii*	CE		Very close		
Vermilion flycatcher	*Pyrocephalus rubinus*	SSC2		In region		
Loggerhead shrike	*Lanius ludovicianus*	SSC2		On site	Yes	
Yellow-billed magpie	*Pica nuttalli*	BCC		In region		
Oak titmouse	*Baeolophus inornatus*	BCC		Very close		
California horned lark	*Eremophila alpestris actia*	WL	None	Very close	Yes	
Bank swallow	*Riparia riparia*	CT	None	Very close		
Purple martin	*Progne subis*	SSC2	Very low	Very close		
Wrentit	*Chamaea fasciata*	BCC		Very close		
California thrasher	*Toxostoma redivivum*	BCC		Very close		
Cassin's finch	*Haemorhous cassinii*	BCC		In region		
Lawrence's goldfinch	*Spinus lawrencei*	BCC		Very close	Yes	
Grasshopper sparrow	*Ammodramus savannarum*	SSC2	Very low	Nearby		
Samuel's song sparrow	*Melospiza melodia samuelis*	BCC, SSC	Very low	Very close		
Black-chinned sparrow	*Spizella atrogularis*	BCC		In region		
Bell's sparrow	*Amphispiza b. belli*	WL		Nearby		
Yellow-breasted chat	*Icteria virens*	SSC3	Very low	Nearby		

Common name	*Species name*	Status[1]	IS/MND occurrence potential	Data base records, FCS survey	Survey detections	
					Pinecrest	KSS
Yellow-headed blackbird	*Xanthocephalus xanthocephalus*	SSC3		Very close		
Bullock's oriole	*Icterus bullockii*	BCC		Very close		
Tricolored blackbird	*Agelaius tricolor*	CT, BCC, SSC1	Very low	Very close		
Lucy's warbler	*Leiothlypis luciae*	SSC3		In region		
Virginia's warbler	*Leiothlypis virginiae*	WL, BCC		In region		
San Francisco common yellowthroat	*Geothlypis trichas sinuosa*	SSC3, BCC	Very low	In range		
Yellow warbler	*Setophaga petechia*	SSC2	Very low	Very close		
Summer tanager	*Piranga rubra*	SSC1		Nearby		
Little brown bat	*Myotis lucifugus*	WBWG: M		In region		
Yuma myotis	*Myotis yumanensis*	WBWG: LM	Very low	In region		Yes
Long-eared myotis	*Myotis evotis*	WBWG: M	Very low	In region		
Fringed myotis	*Myotis thysanodes*	WBWG: H	Very low	In range		
Long-legged myotis	*Myotis volans*	WBWG: H	Very low	In range		
Canyon bat	*Parastrellus hesperus*	WBWG: M		In region		
Silver-haired bat	*Lasionycteris noctivagans*	WBWG: M	Very low	In region		
Hoary bat	*Lasiurus cinereus*	WBWG: M	Very low	In region		
Western red bat	*Lasiurus blossevillii*	SSC, WBWG: H	Very low	In region		
Townsend's big-eared bat	*Corynorhinus townsendii*	SSC, WBWG: H	Very low	In region		
Pallid bat	*Antrozous pallidus*	SSC, WBWG: H	Very low	In region		
Big free-tailed bat	*Nyctinomops macrotis*	SSC, WBWG: MH	Very low	In range		
Salt-marsh harvest mouse	*Reithrodontomys raviventris*	FE, CE, FP	None	In region		
American badger	*Taxidea taxus*	SSC	None	In region		
Mountain lion	*Puma concolor*	SA		In region		

[1] Listed on CDFW's Special Animals List (https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=109406) as FT or FE = federal threatened or endangered, FC = federal candidate for listing; BCC = U.S. Fish and Wildlife Service Bird of Conservation Concern (https://www.fws.gov/sites/default/files/documents/birds-of-conservation-concern-2021.pdf);

CT or CE = California threatened or endangered; CCT or CCE = Candidate California threatened or endangered; CFP = California Fully Protected (California Fish and Game Code 3511); SSC_i = California Species of Special Concern with i = priorities 1, 2 and 3; WL = Taxa to Watch List, and BOP = Birds of Prey (CFG Code 3503.5, see https://wildlife.ca.gov/Conservation/Birds/Raptors), and WBWG = Western Bat Working Group with priority rankings, of low (L), moderate (M), and high (H).

Response to NSRRD2-51a: The commenter states they believe 125 special-status species of wildlife should be analyzed for occurrence, and reports that some of these species have been observed on or in the vicinity of the project site. … The numbers presented by the commenter are in error.

Reply: The Response fails to describe the alleged error of my number. What is erroneous about it?

Response to NSRRD2-51b: Additionally, the comment's assertion that, based on those numbers, the project site supports multiple special-status species of wildlife is unsupported. See Response to NSRRD2-14above. No additional response is required.

Reply: Considering that 19 additional special-status species have been documented on the project site after additional surveys since the 8 December 2022 survey, I would suggest that my assertion is accurate that the project site supports multiple special-status species of wildlife. Pinecrest (2024). Pinecrest (2024) detected 9 special-status species of wildlife, and I detected 13 special-status species of wildlife in only one day. The evidence in Tables 1 and 2 indicates that many additional special-status species occur on the project site.

Below, I will update the paragraph to which the Response applies. This update includes the survey findings of Pinecrest and myself, but I remove the great blue heron and great egret to be consistent with my original analysis. The most substantial change to the analysis is the shift in the number of multiple species that had been documented very close to the project site to an increase in the number of species detected on the project site.

In my assessment based on database reviews and site visits, 125 special-status species of wildlife are known to occur near enough to the site to warrant analysis of occurrence potential (Table 2). Of these species, 19 were recorded on or just next to the project site, and another 36 (29%) species have been documented within 1.5 miles of the site ('Very close'), another 25 (20%) within 1.5 and 4 miles ('Nearby'), and another 40 (32%) within 4 to 30 miles ('In region'). Nearly two-thirds (64%) of the species in Table 2 have been reportedly seen within 4 miles of the project site. The site therefore supports multiple special-status species of wildlife, and it carries the potential for supporting many more special-status species of wildlife based on proximity of recorded occurrences. The site is far richer in special-status species than is characterized in FCS (2024).

Response to NSRRD2-52a: The commenter claims that FCS analyzed only 51 special-status species for the potential to occur on-site and contends that numerous species are misclassified as having a low likelihood of existing on-site. … The numbers presented by the commenter are in error. As described in Response to NSRRD2-14 above, the Biological Resources Assessment prepared by FCS analyzes the likelihood of occurrence of a total of 259 special-status species including 94 species of animals. This list was generated using an industry standard "nine-quadrangle" search of the CNDDB database. No species occurrences that appeared during this search were omitted.

Reply: FCS (2024) should have expanded its search of occurrence databases to include eBird and iNaturalist. For the reasons I explained in my comment letter, the CNDDB is not an appropriate screening tool for populating a list of potentially occurring special-status species. The CNDDB itself warns against using the CNDDB in the manner it was used by FCS (2024).

Response to NSRRD2-52b: As described in Response to NSRRD2-13 above, the likelihood of occurrence for each avian species was determined primarily based on nesting habitat and secondarily based on foraging habitat, thus the "low" or "very low" likelihood of occurrence listed for several raptor species in the project area is substantiated since there is no nesting habitat in the project area but some foraging habitat that ranges in quality from low to very low due to the history of disking. … Subsequent field surveys were performed to identify any special-status species on-site, and any special status species on-site would be identified even if they did not appear on the nine-quadrangle CNDDB search. No additional response is required.

Reply: The distinction the Response makes between nesting and foraging habitat is contrived. Habitat is defined as that part of the environment that is used by members of a species for survival and reproduction (Hall et al. 1997). Any part of the environment that is important to the survival of members of a species is also important to its reproduction, as animals cannot reproduce without first surviving. Furthermore, the distinction asserted in the Response would establish a standard of significance that could rarely if ever be defended based on reconnaissance surveys, and that standard would be distinguishing between foraging and nesting habitat.

For example, I observed a pair of white-tailed kites foraging on the site on 28 November 2025, but was the behavior of this pair evidence of the site serving as only foraging habitat? The kites were certainly foraging, which means the site is important to these kites for foraging, but what of nesting? First, regardless of where these kites will nest in the spring, they cannot do so without first surviving the winter. But having worked on white-tailed kites for many years, I know that their courtship begins early and they begin mating in January. All these behaviors are important to nesting, so it is likely that the two white-tailed kites are already preparing for nesting in ways that are additional to foraging. Even if this pair does not nest on or next to the project site, the project site is likely very important to its nesting.

Response to NSRRD2-53: The commenter describes inaccuracies in the legal status of various species in the occurrence likelihood table. … Comment noted. Out of 259 species in the occurrence likelihood table, 17 displayed legal status based on outdated classifications. Despite this, none of the conclusions in the IS/MND are affected or require revision. The occurrence likelihood table does not claim to be an exhaustive listing of all the state and federal protections afforded to each species. Any special-status species observed on-site would be given appropriate protections regardless of the status presented in the occurrence likelihood table. No additional response is required.

Reply: According to the Response, “The occurrence likelihood table does not claim to be an exhaustive listing of all the state and federal protections afforded to each species,”

but it should; this is the job of the consulting biologist. If the IS/MND cannot accurately identify the legal statuses of the species at issue, then it is unlikely that the special-status species that occur on the project site are going to be "given appropriate protections regardless of the status presented in the occurrence likelihood table." Furthermore, the Response states that any special-status species observed on site would be given appropriate protections, but when is it that these species are to be observed? Already, my survey on the site revealed seven special-status species that had not previously been observed. A preconstruction survey would be too late to formulate an appropriate mitigation strategy. These shortfalls of reconnaissance and preconstruction surveys are why desktop review is also important. The Revised IS/MND remains grossly deficient.

Response to NSRRD2-54a: The commenter states that no valid reason for determining potential for occurrence is given. The commenter also claims that differences between nesting and foraging habitat are a "contrived bifurcation of habitat that lacks scientific foundation." ... Comment noted. The claim by the commenter that the difference between nesting and foraging habitat is a "contrived bifurcation of habitat that lacks scientific foundation" is without merit. It is common knowledge that most birds nest in different habitats than they forage in. Furthermore, birds spend much more time proportionately at their nest site than in any one foraging site. Finally, from a population dynamic perspective, disturbance of nest sites has a much more profound influence on population persistence than an equal area of foraging habitat. These are all broadly accepted scientific principles.

Reply: The Response relies on "common knowledge" without citing any of it. No examples are cited of species that bifurcate their foraging and breeding habitats. Nor does the Response refute my argument that animals cannot breed without first finding sufficient forage to survive both the non-breeding and breeding seasons. This entire portion of the response is speculative and over-generalized.

Response to NSRRD2-54b: The "likelihood to occur" is an often-used phrase but really contains two distinct components, likelihood of nesting, and likelihood of foraging. As described in Response to NSRRD2-13 above, the likelihood of occurrence for each avian species was determined primarily based on nesting habitat and secondarily based on foraging habitat. For this project site, there is no likelihood of nesting, but some likelihood of foraging for most raptors. To come up with a single "likelihood to occur," FCS weighted the lack of nesting habitat as greater than the presence of foraging habitat. Thus the "low" or "very low" likelihood of occurrence listed for several raptor species in the project area is substantiated since there is no nesting habitat but some foraging habitat that varies in quality from high to low depending on the foraging patterns and preferences of the species. No additional response is required.

Reply: The Response is again contrived. The "likelihood to occur" phrase is often used because biologists usually lack the capacity for determining whether documented occurrences are indicative of any particular function such as breeding. Occurrence records rarely include the attribute of whether the observed animal(s) was breeding. To determine whether breeding is taking place, biologists typically perform a directed studies involving repeat visits to a study site in search of behaviors or structures

indicative of breeding. But in support of a CEQA review, it is enough to define habitat by the presence of a species, and that presence can be established by occurrence records.

Moreover, the CEQA usually does not require evidence of breeding in support of occurrence determinations, or in support of significance determinations. Loss of foraging opportunities is recognized in most survey and mitigation guidelines as significant, and mitigation is usually required for it. It is also well known that protection of nesting substrate alone is insufficient for conserving the nest site. For example, as areas are developed around Swainson's hawk nest sites, there comes a distance threshold to foraging areas that causes Swainson's hawks to abandon nest sites (England et al. 1995). I have observed the same pattern with burrowing owls. Breeding animals cannot successfully breed without foraging.

Response to NSRRD2-55s: The commenter states that American badger may exist on-site due to their personal observation of American badger in a variety of habitats. The commenter takes issue with the claim that American badger prefer habitats with "plenty of prey;" however, the comment does not provide any specific evidence or facts related to the project site.

Reply: Scientific inference is evidence. Also, as I commented, an occurrence records 2 miles away is a relatively short distance for an American badger. Ironically, the point of my comment was that FCS (2024) lacks any specific evidence that would support an absence determination. FCS (2024) only speculates that prey are not abundant and therefore American badgers are likely absent.

Response to NSRRD2-55b: Comment noted. The likelihood of occurrence for this species was determined based on the probability that this species would den in the project area. The project area is defined as the grassland habitat of the parcels exclusive of the Sheehy Creek riparian corridor and pedestrian pathway. The project area is entirely flat, lacks any woody plant cover or topography, is regularly disked and mowed, and is surrounded on three sides by development. This would be considered by most Biologists as unsuitable habitat for American badger to create dens in.

Reply: Again, the Response relies on speculation about what most biologists would think. I know for certain that I have seen American badgers denning on flat terrain. An example was the den on Resource Management Area 5 on Naval Air Station, Lemoore, where the den was constructed into a ground squirrel burrow on perfectly flat terrain. The Navy and I set up a thermal-imaging video camera and collected many nights of observations of the badgers entering and exiting the den. Over the years of my research, I have found badger dens in numerous places I would never have suspected, such as in dense riparian forest, in chapparal, on open grassland slopes, and on the canal banks of farmland. The CEQA Guidelines discourage the use of speculation in environmental reviews, and so do I.

Response to NSRRD2-55c: In terms of foraging, it is an established principle in the scientific literature that large predators including badgers prefer and migrate toward habitats with plenty of prey. The project area is surrounded on three sides by

development and has no fossorial mammal or rodent burrows due to the history of disking and mowing, limiting the prey abundance. The project site quantitatively contains less prey than un-disked habitats adjacent to open space, and American badger, like most predators, prefer habitats with plenty of prey. No additional response is required.

Reply: The Response cites a principle without citing any examples of it. I have studied predator-prey relationships since before I started graduate school in 1985, beginning with mountain lions and mule deer. Another principle of predator-prey dynamics is that predators are attracted to situations where prey can be captured. It does a predator little good if it puts itself in plain sight of lots of prey when and where the prey can alarm-call to each other or quickly find refuge. In one of my studies, I related the locations of golden eagle observations to the spatial distribution of California ground squirrel burrow complexes, the ground squirrels being the principal prey of goldene eagles at this particular study site. I found that golden eagle positions were inversely related to ground squirrel abundance (Figure 4). The same was true for red-tailed hawks (Figure 4). What this means is that where ground squirrels were more concentrated, golden eagles and red-tailed hawks wasted less of their foraging time directly over the squirrels. Instead, these predators were more successful picking off the squirrels that had fewer other squirrels (and burrowing owls) located near enough to warn of approaching predators. This interpretation was supported by 10 years of subsequent behavioral observations of these predators and their prey. To summarize, the Response selectively over-generalizes one of the multiple principles of predator-prey relationships.

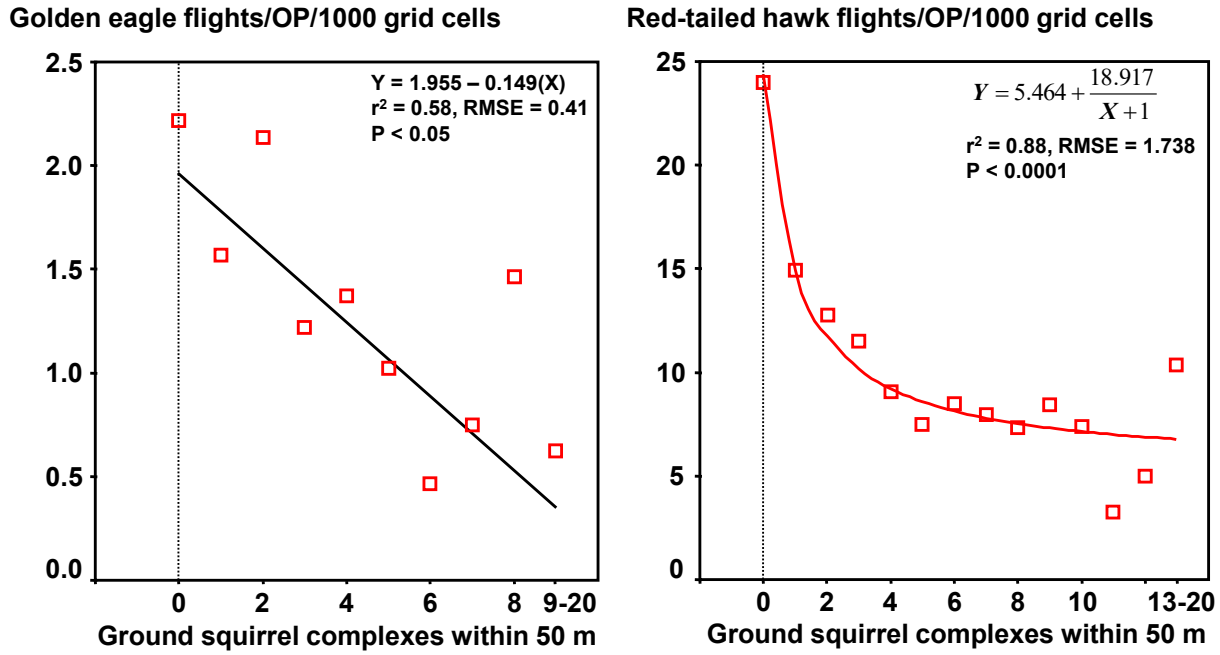


Figure 4. *The numbers of golden eagle (left graph) and red-tailed hawk (right graph) flights declined California ground squirrel burrow complexes within the same analytical grid cells within Vasco Caves Regional Preserve, Contra Costa County California (Smallwood et al. 2009).*

Response to NSRRD2-56a: The commenter states that bald eagles forage in a variety of habitats and may hunt ground squirrels and other mammals. The commenter says they observed a bald eagle 2.7 miles from the project site and that "2.7 miles from the project site is essentially at the project site." … Comment noted. As discussed in Response to NSRRD2-54 above, the likelihood of occurrence for each avian species was determined primarily based on nesting habitat and secondarily based on foraging habitat. For this project site, there is no likelihood of nesting for bald eagle, and the likelihood of foraging for this particular species is also close to zero. Moreover, there is a lack of substantial evidence to support a finding of foraging habitat on the project site in the comment.

Reply: This part of the Response is mostly speculative, and it lacks the survey evidence needed to determine absence of bald eagle.

Response to NSRRD2-56b: As the commenter mentions, bald eagles will occasionally hunt ground squirrels and other terrestrial animals. However, there are no ground squirrels or other fossorial mammals at this site due to the history of disking and mowing.

Reply: As a point of correction, there are fossorial mammals on the project site. There are California voles, and I saw an American kestrel capture and consume a deer mouse from the project site. These are not bald eagle prey, but also on the site are desert cottontails and black-tailed jackrabbits, and these *are* bald eagle prey. Other prey on the site include Pacific gophersnakes (Photo 13), and medium- to large-sized birds.



Photo 13. *A Pacific gophersnake on the project site along the bordering sidewalk, 28 November 2025.*

Response to NSRRD2-56c: Bald eagles prefer large prey, and the project site entirely lacks large prey such as rabbits and ground squirrels, making the likelihood of observing a bald eagle foraging this site unlikely. While the commenter may have observed a bald

eagle 2.7 miles away, this is not "essentially at the project site." The observation of a bald eagle 2.7 miles away coincides with a known occurrence of bald eagle in the CNDDB database in the Napa-Sonoma Marsh surrounding the Napa River, a much more likely place to find a bald eagle foraging and a completely different habitat than on the project site. Nonetheless, FCS classified the likelihood of occurrence of this species as "very low" and not "none." No additional response is required.

Reply: As noted above, it is inaccurate to claim that the project site lacks rabbits. In fact, it supports two species of rabbits. I first detected desert cottontails by the abundant pellets they left for biologists to find. At night I watched them through my thermal-imaging camera.

The bald eagle I observed 2.7 miles from the project site is classified as “Nearby” in my analysis. See Figure 1 for how to interpret a nearby occurrence. The likelihood of detection is lower than had my observation been about a mile closer, but it would be only a matter of survey time before a bald eagle is seen on the project site. And in fact, within the last month, bald eagle observations have been reported to eBird at a location only about 800 m from the project site. The likelihood of detecting bald eagle on the project site is now much higher than I had assessed, and certainly much higher than FCS’s (2024) determination.

FCS (2024) classified the likelihood of occurrence of bald eagle as very low, but a review of other “very low” classifications reveals how much faith one can put in this classification. Multiple other special-status species FCS determines to have very low likelihood of occurrence have since been detected on the project site.

Response to NSRRD2-57a: The commenter states that they saw a peregrine falcon within 2.7 miles of the project site and that the classification of "low" likelihood of occurrence is inaccurate. … Comment noted. As discussed in Response to NSRRD2-54 above, the likelihood of occurrence for each avian species was determined primarily based on nesting habitat and secondarily based on foraging habitat. To come up with a single "likelihood to occur," FCS weighted the lack of nesting habitat as greater than the presence of foraging habitat. For this project site, there is no likelihood of nesting for peregrine falcon, and the likelihood of foraging for this particular species is low. Peregrine falcons primarily hunt other birds in the air, thus a peregrine falcon would tend to occur on-site only if they caught a bird and landed in the field to process the prey. Therefore, the weighted likelihood of occurrence for this species as "very low" is substantiated.

Reply: The Response provides no substantiation for FCS’s determination of a very low likelihood of occurrence of peregrine falcon; it only relies on a false distinction of occurrence based on whether the species is thought to be foraging or breeding, and it only speculates. Moreover, there are many birds on the project site, so there is ample forage available to peregrine falcon. Peregrine falcons have been recorded on eBird along Sheehy Creek, and multiple observation were reported within the past month within 800 m of the project site. The Response’s argument is as flawed as FCS’s original analysis of occurrence likelihood.

Response to NSRRD2-57b: Regardless of the stated likelihood of occurrence, if peregrine falcon were observed nesting near the project parcel, appropriate protections would be afforded this species. The likelihood of occurrence is only a guide and does not exclude species from consideration. No additional response is required.

Reply: The Response implies that if peregrine falcons are not nesting, the loss of their habitat would be insignificant. Such a determination would be inconsistent with the CEQA's principle objectives of conserving the environment.

Response to NSRRD2-58: The commenter disagrees that western pond turtle is listed as having no likelihood of occurrence on-site. … Comment noted. This is a typographical error and is clarified in the sentence in the occurrence likelihood table that immediately follows: "Some marginally suitable nesting habitat exists on-site." In addition, surveys and avoidance measures for western pond turtle are recommended in the conclusions of the Biological Resources Assessment and incorporated into MM BIO-8. The conclusions in the IS/MND accurately reflect the biological findings and do not require any revisions. No additional response is required.

Reply: I appreciate the note of correction, but the project would nonetheless reduce the numerical capacity of western pond turtles, and there is no strategy to compensate for this loss.

Response to NSRRD2-59: The commenter states that the likelihood determination for burrowing owl is incorrectly classified as "very low" and asserts that no reason is given for this determination other than the disturbed nature of the site. The commenter describes a locality known from 240 meters off-site, and claims that this is "essentially on the project site." … Comment noted. As described in Response to CDFW-4 above, a habitat assessment for burrowing owl following the CDFW (2012) protocols determined that the entirety of the project site is free from structures that could be utilized as burrows including fossorial mammal burrows, pipes, culverts, and debris piles. The entirety of the project site has been disked and mowed regularly, disrupting the formation of ground squirrel or other types of burrows, and is free from debris including pipes or wood piles. This is sufficient to declare the habitat unsuitable for burrowing owl according to the CDFW (2012) protocols. Nonetheless, FCS performed burrowing owl surveys 10 times in 2022 and 2023 that encompassed the entirety of the project site. No burrowing owls were observed on-site, and no burrowing owls have been observed within 15 miles of the project site since the single observation of a wintering individual 0.2 mile off-site to the northeast in 2006. No additional response is required.

Reply: FCS did not perform 10 surveys for burrowing owls in 2022 and 2023. FCS performed a reconnaissance survey on 8 December 2022, and Pinecrest (2024) performed 9 surveys for Swainson's hawks. The surveys did not meet the minimum survey standards of CDFW (2012).

It is also not true that there have been no observations of burrowing owls within 15 miles of the project site since 2006. There have been numerous observations reported to

eBird, including numerous observations in the last year. Multiple observations were reported over the past month only 3 miles to the south, and another was reported earlier in 2025 <3 miles to the north. Many of these eBird records included photos and notes, and one was provided by a very experienced birder who operates an avian tour business. This information is not hard to find.

Response to NSRRD2-62: The commenter describes how the site may be suitable for burrowing owl and how they have seen ground squirrels near the project site, but not on the project site. The commenter states that protocol-level burrowing owl surveys should be performed according to the CDFW (2012) protocols. … Comment noted. As described in Response to CDFW-4, and Response to NSRRD2-59 above, the commenter is incorrect in stating only a single reconnaissance survey was performed. In fact, 10 targeted burrowing owl field surveys were performed on the project site that conform to the protocols specified in the CDFW publication Staff Report on Burrowing Owl Mitigation (2012). No additional response is required.

Reply: Again, Pinecrest (2024) did not achieve the minimum standards of the CDFW (2012) survey protocol. The first survey was outside the breeding season, along with the next 6 surveys. Only one of the surveys should have preceded 15 April. The later surveys achieved the recommended inter-survey spacing, but no survey was performed after 15 July as recommended. Furthermore, the reporting lacked statements of qualifications and the level of details in methods and findings that are recommended by CDFW (2012). Pinecrest (2024) did not meet the minimum standards of CDFW (2012).

Response to NSRRD2-63: The commenter states that they believe that the designation of Swainson's hawk likelihood of occurrence as very low is incorrect. The commenter states that Swainson's hawk forage over many types of habitats including disturbed ground and that 0.25 mile is not far for a Swainson's hawk to fly. … Comment noted. As described in Response to NSRRD2-54 above, the likelihood of occurrence for each avian species was determined primarily based on nesting habitat and secondarily based on foraging habitat. To come up with a single "likelihood to occur" FCS weighted the lack of nesting habitat as greater than the presence of foraging habitat. For this project site, there is no likelihood of nesting for Swainson's hawk, and the likelihood of foraging for this particular species is low due to the lack of small mammal prey on-site due to the history of disking and disruption of fossorial mammal burrows. Nonetheless, FCS conducted 10 focused field surveys for Swainson's hawk in 2022 and 2023 according to the CDFW publication Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley (2000).

Regardless of the stated likelihood of occurrence, if Swainson's hawk were observed nesting near the project parcel, appropriate protections would be afforded this species. The likelihood of occurrence is only a guide and does not exclude species from consideration. No additional response is required.

Reply: The Response merely repeats the same flawed arguments that that had been used for bald eagle and peregrine falcon. Please see my replies to those responses. This said, and based on my research experience with Swainson’s hawks, I see no reason why

Swainson's hawks would not nest along Sheehy Creek and forage on the project site in support of their nest attempts.

Response to NSRRD2-64: The commenter describes their skepticism of reports documenting the recovery of Swainson's hawk in the region; however, this comment does not raise any issues specific to the project site or the IS/MND. … This comment is noted. No additional response is required.

Reply: The Response does not respond to my comment. There continues to be a claim of Swainson's hawk recovery in the project area, but without citing any source to this claim. The Revised IS/MND repeats this claim: "While the populations of Swainson's hawks were once declining, their populations more recently have been expanding into additional areas outside of the Central Valley where they were historically concentrated. This recovery success and expansion of SWHA range has been well-documented in other environmental documents from projects in the region, which have not been required to provide SWHA mitigation for foraging habitat." But again, there is no citation to the environmental documents that purportedly support the claim.

Response to NSRRD2-65: The commenter criticizes the County's "failure" to implement "appropriate survey and mitigation guidelines" related to Swainson's hawk. … This comment is noted. The IS/MND states that less than 1 percent of Swainson's hawk foraging habitat would be affected by the proposed project and that hundreds of acres of additional foraging habitat is within 5 miles of the project site. However, the proposed project would mitigate for the loss of Swainson's hawk habitat through MM BIO-5 which stipulates that the proposed project shall provide Swainson's hawk foraging habitat mitigation at a minimum 1:1 ratio. Dr. Smallwood does not address why MM BIO-5 would be insufficient to mitigate for the loss of foraging habitat for Swainson's hawk. Therefore, appropriate survey and mitigation guidelines are present within the IS/MND. No additional response is required.

Reply: I did not comment on MM BIO-5 because I concur with the compensatory mitigation measure in terms of the ratio. My comment goes to the surveys and to whether an impact would occur. My comment went to the County's attempt to explain away its failure to implement the available survey protocol. It turns out that Pinecrest (2024) was retained to implement protocol-level surveys, but as I commented herein, the surveys did not meet the minimum standards of CDFW (2000). The County needs to implement the appropriate surveys to establish whether Swainson's hawks are nesting along the reach of Sheehy Creek within 1/2 mile of the project site. This needs to be done to establish the level of mitigation that is needed.

Response to NSRRD2-66: The commenter takes issue with the claim that 0.16 percent of potential foraging habitat of the average home range of a single individual would be lost due to implementation of the proposed project. The commenter states that "[if] the 0.16% of foraging habitat that is lost is the 0.16% that makes the difference between persistence and extirpation, then the 0.16% would be of critical importance." … Comment noted. The County is aware of the severity of the loss of foraging habitat for the Swainson's hawk and although there is no conclusive way to argue that 0.16 percent

of habitat loss would be the difference between persistence and extirpation, the project nonetheless offers up mitigation to account for the loss of Swainson's hawk foraging habitat through the implementation of MM BIO-5. As stated above in Response to NSRRD2-65, the proposed project shall provide Swainson's hawk foraging habitat mitigation at a minimum 1:1 ratio. Therefore, impacts to Swainson's hawk foraging habitat would not be reduced to a less than significant level under CEQA. No additional response is required.

Reply: If the County was truly aware of the severity of the loss of Swainson's hawk foraging habitat, then it would not engage in the speculative argument that a loss of 0.16% of foraging habitat would be less than significant. Despite my questioning of what the 0.16% loss actually represents (0.16% of what?), the Response offers no clarification. As I commented originally, this claim of a 0.16% loss makes no sense, and neither does the Response.

Response to NSRRD2-67: The commenter describes the purpose of an impact analysis and emphasizes the importance of adequate characterization of the environmental setting. The commenter asserts that the environmental setting has not been adequately characterized and that potential impacts have not been analyzed. … Comment noted. As described in Response to NSRRD2-14 and Response to NSRRD2-12, adequate characterization of the environmental setting was performed including protocol-level surveys for plants, Swainson's hawk, and burrowing owl. No additional response is required. The comment does not raise any specific issues related to the proposed project or the IS/MND.

Reply: No protocol-level surveys were completed for any special-status species, at least not to the minimum standards of the protocols. Furthermore, an insufficient survey effort has yet been committed to detect a sufficient number of species to accurately characterize the wildlife community. The desktop review is incomplete and misleading due to its misuse of the CNDDB and its complete lack of use of other species occurrence databases.

Response to NSRRD2-68: The commenter summarizes text from the IS/MND making the case that no evidence of raptor nests, wildlife dens or burrows, or other sensitive habitats have been identified from the project area, concluding that there would be no significant impacts to wildlife or other sensitive habitats. … This comment is noted. With mitigation, as stated in the IS/MND, this comment is correct, there would be no significant impacts to wildlife or other sensitive habitats. No additional response is required.

Reply: The Response is not to a comment, but rather to a summary of what was stated in the IS/MND. And in fact, as made clear in the comments that followed this introductory paragraph, I disagree with the conclusions of the IS/MND.

For example, the claim of no evidence of a wildlife corridor results from survey personnel not beginning their surveys early or late enough in the day. When I first arrived at the project site, I began observing massive flocks of birds flying across the

project site, and in the late evening I observed return trips of these flocks. The largest flocks numbering thousands of birds in each flock were of red-winged blackbirds (Photo 14) and European starlings. The flocks of European starlings were of the one species, but the flocks of blackbirds could have been mixed; I was only able to identify red-winged blackbirds due to low light. Also flying over the site were hundreds of gulls of several species, as well as the flock of cackling goose and a flock of great egrets (Photo 15) and individual double-crested cormorants and other birds. Likely due to surrounding development and because of Sheehy Creek, the site is selected by many thousands of birds for daily movement between roost sites and foraging areas.



Figure 14. *A small portion of one of the flocks of thousands of blackbirds that flew over the project site in the early morning of 28 November 2025. At least some of these were red-winged blackbirds, but most could not be identified due to insufficient light. Thousands of European starlings also flew over in large flocks, and hundreds of gulls of multiple species also flew over.*

Figure 15. *One of seven great egrets that flew over the project site at the break of dawn on 28 November 2025. FCS (2024) determines that the occurrence likelihood of great egret on the project site was "very low."*



Response to NSRRD2-69: The commenter states that there would be potentially significant impacts from the project and describes surveys they have performed for other warehouse projects including before and after control-intervention studies that purported to detect declines in wildlife abundance and richness. … This comment is noted. No additional response is required.

Reply: Comment noted is not a considered response to a significant environmental issue.

Response to NSRRD2-70: The commenter describes how habitat loss consists of numerical declines of wildlife and also loss of "productive capacity" due to habitat fragmentation. The commenter describes methods for estimating the loss of productive capacity. … This comment is noted. See Response to NSRRD2-21 above. No additional response is required.

Reply: The paragraph to which the response is directed is part of a larger comment, but not a comment in and of itself.

Response to NSRRD2-71: The commenter relates the results of studies on avian abundance in different habitats that have been fragmented. The commenter describes data they collected on nest abundance at a location in Southern California. … This comment is noted. No additional response is required.

Reply: The paragraph to which the response is directed is part of a larger comment, but not a comment in and of itself. The larger comment is composed of paragraphs the County numbered 70, 71, 72 and 73.

Response to NSRRD2-72a: The commenter states that loss of nest sites and nest attempts would qualify as significant impacts for the purposes of the IS/MND. The commenter provides calculations where they estimate the number of birds that will be lost due to project implementation. … Comment noted. While the calculations and studies presented by the commenter are interesting, they are contradicted by the environmental conditions on-site.

Reply: The Response fails to explain how my calculations are contradicted by conditions on the site. I understand the project site has been disked, but it remains covered in vegetation along with bordering shrubs as well as a complex riparian environment along Sheehy Creek (Photo 16). Many birds nest in grasslands, and many more nest on shrubs and in trees, both of which are abundant around the perimeter of the site. Furthermore, the study sites I relied on for drawing inference were also disturbed environments. The largest of my study sites was disked every year.

Finally, I note that the County makes no attempt to predict the project's impacts on nesting birds, nor the productive capacity of other types of wildlife.



Figure 16. *The project site is covered by vegetation and is adjacent to riparian environment of Sheehy Creek, both of which provide ample nesting opportunities for birds.*

Response to NSRRD2-72b: The proposed project would not increase habitat fragmentation because the project site is surrounded on three sides by industrial

development and would not isolate patches of habitat from other patches of habitat, which is the scientific definition of habitat fragmentation.

Reply: The Response says that the project's impact on habitat would not meet the scientific definition of habitat fragmentation. However, no source is cited for this definition. I suggest Smallwood (2015), which reviews the definitions of habitat fragmentation and settles on one that is most consistent with past definitions while also providing the benefit of being quantifiable.

The project would remove one of the last patches of upland environments along the south side od Sheehy Creek, thereby further isolating the remaining upland patch to the west and leaving isolated the riparian environment of Sheehy Creek. The project would interfere with wildlife movement across the site, which is another form of habitat fragmentation. The habitat fragmentation resulting from the project would be severe.

Response to NSRRD2-72c: Additionally, there is little to no suitable habitat for nesting in the project area, and no nesting birds were observed in the project area during 10 protocol-level avian surveys in 2022 and 2023. Thus, the commenter's claim that project implementation will result in the loss of 1,113 birds per year is difficult to reconcile with the observation that no nests have so far been observed in the project area. No additional response is required.

Reply: The species reported having been detected during the 10 surveys included "red-shouldered blackbird," "Barn American swallow," "kildeer," "robin," and "crow," among other interesting but incorrect names. There is no such bird as a red-shouldered blackbird. These and other reporting problems do not give me confidence that survey personnel were qualified to find active bird nests. These types of species naming errors give me the impression that the biologists were insufficiently familiar with the wildlife under surveillance. It would have helped to have provided photographic evidence of the species reportedly detected, and to have another biologist review the reports before the reports were sent to the County.

Moreover, it is not credible that no nesting birds were found. At a site such as the project site, many birds nest every year. The failure of FCS and Pinecrest to detect nesting birds was more likely due to lack of qualification and poor survey implementation. For example, most (7) of the 10 surveys were not performed late enough in the nesting season to detect birds on shrub- or tree-nests. One survey was in early December, which was well outside the nesting season. Ground-nesting birds tend to nest early in spring, so the 6 surveys after December stood a chance of detecting ground-nests, but ground-nests can be very difficult to detect, especially if survey personnel are focused on Swainson's hawks. That no nests were observed says more about the surveys that it does about nesting on the project site.

Response to NSRRD2-73: The commenter states that many of the 1,113 birds that could be lost annually are protected by various State and federal laws, resulting in significant project impacts. … Comment noted. See Response to NSRRD2-72. No additional response is required.

Reply: Comment noted is not a considered response to a significant environmental issue.

Response to NSRRD2-74: The commenter states that traffic-related impacts to wildlife account for numerous mortality events each year for birds, reptiles, mammals, amphibians, and arthropods. The commenter provides statistics for traffic-related mortality in the United States and Canada. … This comment is noted. No additional response is required.

Reply: Again, this paragraph is part of a comment. Separating it out as a standalone comment is misleading.

Response to NSRRD2-75a: The commenter provides statistics on traffic-related mortality along Vasco Road in Contra Costa County. The commenter estimates the number of wildlife killed by traffic per mile per year and states that an analysis is needed to determine whether increased traffic at the project site will result in local impacts on wildlife. … This comment is noted. CDFW did not find issue with the lack of conversation related to traffic-related mortality within the IS/MND.

Reply: The CDFW is not who decides which issues are significant under the CEQA. If it was, then CEQA would provide no opportunity for public comments.

Response to NSRRD2-75b: Impacts of traffic-related mortality are not a threshold held under CEQA or identified by the lead agency and is therefore not a necessary component that need to be addressed.

Reply: To raise traffic-related mortality as an issue does not require a CEQA threshold or permission from the lead agency. The Response contrives thresholds that do not exist.

Response to NSRRD2-75c: Additionally, Vasco Road in Contra Costa County is a significantly busier road than Technology Way or Morris Court which bound the project site. The commenter's calculations are speculative to the amount of traffic-related mortality that the project would produce due to the type of road analyzed in his sample study. No additional response is required.

Reply: Whereas I will acknowledge there is uncertainty in my impact prediction, I reject the assertion that my prediction is speculative. Speculation is an inconclusive guess or ponderance on a phenomenon without the benefit of data, whereas inference is a conclusion derived logically from data that are available about a phenomenon. My prediction is based on inference.

The Response speculates that my prediction would not apply because the Vasco Road is busier than Technology Way. However, my prediction was not specific to Technology Way or to Morris Court, but rather to any and all roads upon which project-generated traffic would travel. Such roads would include Highways 12 and 29 and 121.

When I prepared my comments of 13 November 2024, I was three months into my own study of automobile-wildlife collision mortality. I initiated this study in Davis, California with the aim of quantifying mortality on urban streets, but also based on daily pedestrian surveys rather than the weekly surveys that had been conducted on Vasco Road. After one year of surveys on 2.7 km of local, collector and minor arterial roads in north Davis, I tallied 330 fatalities of 46 species of wildlife. Most of the fatalities were small-bodied animals such as Sierran treefrogs, western toads, western fence lizards, 10" to 16" juvenile Pacific gophersnakes, valley gartersnakes and California kingsnakes, as well as deer mice and California ground squirrels. Most of the animals I found would never have been detected from a moving vehicle, which is why many people underestimate how many wild animals are killed by vehicle traffic.

The animals I found in my study were not all the animals killed by vehicles on the roads I searched. Many were removed by scavengers before I could find them. (American crows patrol the roads every morning, and so does a large flock of wild turkeys.) Some of the animals are knocked off the road in places where I could never find them, and some were undoubtedly caught in the grills or in tire treads and carried away. Most of the Sierran treefrogs disappeared from where I found them within several hours, so daily searches missed many of the fatalities. To adjust for these undetected fatalities, I fit a logit regression model to my fatality finds, all of which transitioned to carcass detection trials after I initially found them. Starting with the first day after each detection, I monitored the carcass trials for 30 days, and I assigned each a body mass estimate based on typical body mass reported in the literature. Predictor variables were days since detection and $\log_{10}$ body mass. The relationship between carcass detection probability and the predictor variables is depicted in Figure 5. My fatality finds adjusted by the model results in an estimate of 2,126 fatalities over 2.7 km of roads in one year, or 827.8 fatalities/km/year. This rate is 35% the rate measured at Vasco Road. Applying this urban fatality rate to the VMT predicted for the project would predict 256 fatalities, but this prediction would likely prove too low for the project area. For one thing, much of the traffic would be of trucks, which pose much greater risks to wildlife crossing roads. Regardless, a reasonable mortality prediction range for the project would be 269 to 769 wildlife fatalities per year.

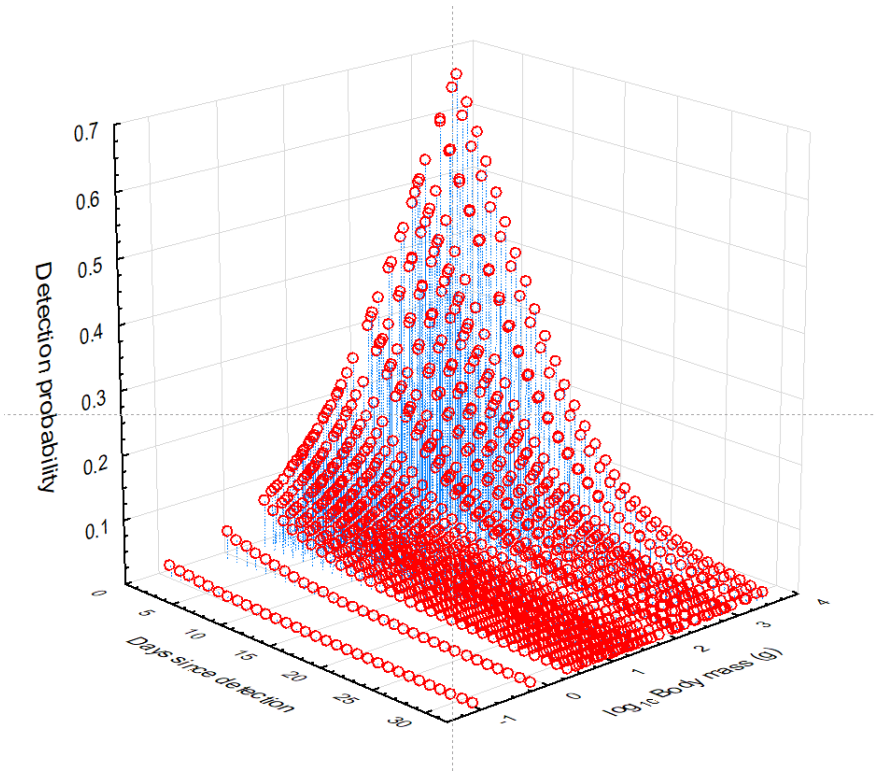
Response to NSRRD2-76: The commenter states that special-status species such as California tiger salamander and California red legged frog could suffer traffic collision mortality. … This comment is noted. See Response to NSRRD2-75 above. No additional response is required.

Reply: Comment noted is not a considered response to a significant environmental issue.

Response to NSRRD2-77: The commenter cites scientific literature to estimate the number of individuals killed along Vasco Road in Contra Costa County. The commenter lists the various species that were observed and states that VMT is an effective metric for predicting wildlife mortality. This comment is noted. No additional response is required.

Reply: Again, this paragraph is part of a comment. Separating it out as a standalone comment is misleading.

Figure 5. *Wildlife carcass detection probability is a function of the number of days since discovery and log_{10} body mass.*



Response to NSRRD2-78a: The commenter calculates wildlife fatalities for the proposed project based on VMT from the IS/MND and mortality estimates from the Vasco Road study and concludes that 399 vertebrate fatalities per year would result. … Comment noted. The calculations provided are interesting and potentially useful, however parameterizing these calculations with data from Vasco Road and comparing them to the project site is problematic. Vasco Road is in a rural area surrounded by undeveloped land and runs along a major wildlife corridor in the Altamont Pass. In contrast, the project area is surrounded on three sides by industrial development and is not a known wildlife movement corridor. These factors significantly affect the number of roadway deaths, making the calculations from Vasco Road inapplicable to the project site.

Reply: See my reply to Response NDRRD 2-75c.

Response to NSRRD2-78b: It is equally conceivable that development of the proposed budlings will prevent animals from migrating from the Sheehy Creek corridor onto Technology Way. Currently there are no barriers preventing animals from migrating onto Technology Way from Sheehy Creek. Thus, implementation of the proposed project could actually reduce wildlife mortality from traffic. No additional response is required.

Reply: The Response under-estimates the scope of the impact. Technology Way is only one small reach of road that would be traveled by project-generated traffic. Wildlife would be killed by project-generated traffic on every reach of road that is traveled by this traffic.

Response to NSRRD2-79: The commenter states that based on their analysis, traffic may cause significant impacts to wildlife. The commenter states that the IS/MND does not consider this possibility and that mitigation measures for avoidance of traffic mortality are available and feasible. … Comment noted. See Response to NSRRD2-78. No additional response is required.

Reply: See my reply to Response to NSRRD2-78, and note that the IS/MND makes no effort to analyze this potential impact or to mitigate it.

Response to NSRRD2-80: The commenter recommends that MM BIO-1 be amended such that silt fencing is placed 300 feet from the top of bank of Sheehy Creek. … Comment noted. See Response to NSRRD2-23 above. CDFW reviewed the IS/MND and did not have any comments regarding the placement of silt fencing along the edge of the riparian corridor. Placement of silt fencing 300 feet south of the top of bank of Sheehy Creek is not a practical recommendation, since the width of the project area between Sheehy Creek and Technology Way ranges from 350 to 440 feet, leaving only 50-140 feet of buildable space. No additional response is required.

Reply: CDFW staff are very busy, and should not be relied upon to recognize or validate every potentially significant issue related to a project. As for the issue of practicality, the placement of silt fencing could be phased with grading, starting from south to north.

Response to NSRRD2-81: The commenter claims that MM BIO-2 "misrepresents CDFW (2018) as a pre-construction survey rather than as a reconnaissance survey" and that implementing CDFW (2018) "would not qualify as a legitimate mitigation measure." … Comment noted. See Response to NSRRD2-24 above. Rare plant surveys that follow the CDFW (2018) guidelines are typically called "protocol level", whereas "reconnaissance level" surveys are those that are less thorough and preliminary in nature. MM BIO-2 proposes protocol-level surveys to be performed the spring before construction begins, in addition to the five protocol-level surveys that were performed on the project site by Pinecrest in 2023. If protocol-level surveys are performed, these can be considered more effective than pre-construction or reconnaissance surveys.

Reply: The response is misleading. The CDFW (2018) rare plant survey guidelines provide a protocol for conducting detection surveys for the purpose stated on page 1 of the guidelines: "These protocols are meant to help people meet California Environmental Quality Act (CEQA) requirements for adequate disclosure of potential impacts to plants and sensitive natural communities." The purpose of disclosure necessitates the surveys be completed prior to the public circulation of the environmental review document. Performing the rare plant surveys after the review document is certified would be useless for the purpose of disclosure. CDFW (2018) is

not intended as a mitigation measure, but as a step towards accurate characterization of the environmental setting.

Response to NSRRD2-82: The commenter states that MM BIO-3 would not detect all available nests nor prevent the loss of "productive capacity." The commenter also states that MM BIO-3". . . allows a single individual to make a subjective decision [about buffer width], outside the public's view. . . and lacks objective criteria." ... Comment noted. MM BIO-3 states that the project Biologist will consult with CDFW, a public agency, to determine buffer widths. No additional response is required.

Reply: There is more to the unenforceability issue than the project biologist deciding on buffer widths. The biologist would also decide when nesting efforts have ended and buffers can be dissolved. But this is just one of the issues I raised about the deficiencies of MM BIO-3. The response does not address the other issues.

Response to NSRRD2-83: The commenter recommends that MM BIO-6 require implementation of the CDFW (2012) protocols including breeding season surveys. The commenter states surveys should be completed prior to CEQA review, not after. ... Comment noted. As described in Response to NSRRD2-11 above, the CDFW (2012) burrowing owl protocols including breeding season surveys were already completed in 2022 and 2023 and will be performed again the year construction is scheduled to begin.

Reply: The response is incorrect. Breeding-season burrowing owl surveys have not been completed to the minimum standards of CDFW (2012).

Response to NSRRD2-84: The commenter states that exclusion fencing should be fitted with one-way passages to ensure that animals can move from the project site to the Sheehy Creek riparian corridor but not the other direction. The commenter states that even with these passages, there would be "substantial, highly significant impact to amphibians such as yellow-legged frog." ... Comment noted. The recommendation to install one-way passages is a good idea and should be easy to implement. However, it is not substantiated that there will be "substantial, highly significant impacts" to amphibians despite pre-construction surveys and exclusion fencing required by MM BIO-8. Nor is there substantial evidence that the one-way passages would result in a substantial reduction of the already less than significant impacts. There have been no amphibians observed in the project area during any of the surveys performed at the project site, and no yellow-legged frogs observed in Sheehy Creek. It is unlikely that amphibians would migrate from the riparian corridor onto the project area in substantial numbers due to the lack of fossorial mammal burrows or cracks in the ground suitable for estivation, because of the history of disking. Pre-construction surveys required by MM BIO-8, as well as exclusion fencing and installation of one-way passages, will reduce the likelihood of impacts to amphibians to less than significant. No additional response is required.

Reply: No survey has been performed for amphibians. The surveys performed included one reconnaissance survey in December and nine surveys purportedly for Swainson's

hawks (and burrowing owls and other raptors and nesting passerines and rare plants). Nobody surveyed for amphibians.

The rest of the Response consists of speculated reasons to dismiss my comment.

COMMENTS ON THE REVISED IS/MND

The Revised IS/MND makes no mention of the Pinecrest (2024) surveys. This omission leads me to suspect that the findings of Pinecrest (2024) were of no interest to the County. Pinecrest (2024) detected multiple special-status species, and these discoveries warranted analysis in the Revised IS/MND.

The Revised IS/MND (p. 9) continues to mischaracterize the existing environmental setting with its statement, "The development area is vacant and has been graded over the years for weed abatement." In fact, the project site has not been graded; it has been disked. Disking is much less harmful to biota than is grading.

At p. 10 the Revised IS/MND reports, "No special-status plant species were observed during the survey performed at the site in December 2022." It also claims, "A wildlife and botanical survey was conducted at the site on December 8, 2022, at 11:00 AM. FCS confirmed the project area does not contain significant natural biological communities or habitat for special status species due to the history of disking and lack of vegetation present currently." In fact, FCS confirmed no such thing. FCS's survey on one day in December was ill-timed and ill-suited for making any sort of absence determination related to special-status species of plants or wildlife. December was the wrong time of year for detecting special-status species or wildlife, especially Swainson's hawks which are in Mexico in December. The claim was also refuted multiple times over by the follow-on surveys by Pinecrest (2024) and by me.

The Revised IS/MND (p. 10) claims, "The recreated reach of Sheehy Creek that runs along the northern property boundary is not in the project area and would be entirely avoided." However, it would be impossible to avoid impacts to the biota of Sheehy Creek by constructing warehouses and their parking lots right up to the transition zone between the uplands and the riparian environment of Sheehy Creek. All the wildlife that require both environments would be harmed by the project.

The Revised IS/MND (p. 10) claims, "No evidence of wildlife corridors, raptor nests, wildlife dens, burrows or other unique or sensitive biological habitats or resources are located on site. As such, there would be no loss of significant wildlife or other sensitive habitat." Again, these claims were refuted by surveys performed by Pinecrest (2024) and by me. As for wildlife movement, thousands of birds cross the site daily, but they do so early in the morning and late in the evening when FCS did not survey.

Thank you for your attention,



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Shawn Smallwood, Ph.D.

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Curriculum Vitae

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Born May 3, 1963 in Sacramento, California. Married, father of two.

Ecologist

Expertise

- Finding solutions to controversial problems related to wildlife interactions with human industry, infrastructure, and activities;
- Wildlife monitoring and field study using GPS, thermal imaging, behavior surveys;
- Using systems analysis and experimental design principles to identify meaningful ecological patterns that inform management decisions.

Education

Ph.D. Ecology, University of California, Davis. September 1990.
M.S. Ecology, University of California, Davis. June 1987.
B.S. Anthropology, University of California, Davis. June 1985.
Corcoran High School, Corcoran, California. June 1981.

Experience

- 480 professional publications, including:
- 83 peer reviewed publications
- 24 in non-reviewed proceedings
- 371 reports, declarations, posters and book reviews
- 8 in mass media outlets
- 87 public presentations of research results

Editing for scientific journals: Guest Editor, *Wildlife Society Bulletin*, 2012-2013, of invited papers representing international views on the impacts of wind energy on wildlife and how to mitigate the impacts. Associate Editor, *Journal of Wildlife Management*, March 2004 to 30 June 2007. Editorial Board Member, *Environmental Management*, 10/1999 to 8/2004. Associate Editor, *Biological Conservation*, 9/1994 to 9/1995.

Member, Alameda County Scientific Review Committee (SRC), August 2006 to April 2011. The five-member committee investigated causes of bird and bat collisions in the Altamont Pass Wind Resource Area, and recommended mitigation and monitoring measures. The SRC

reviewed the science underlying the Alameda County Avian Protection Program, and advised the County on how to reduce wildlife fatalities.

Consulting Ecologist, 2004-2007, California Energy Commission (CEC). Provided consulting services as needed to the CEC on renewable energy impacts, monitoring and research, and produced several reports. Also collaborated with Lawrence-Livermore National Lab on research to understand and reduce wind turbine impacts on wildlife.

Consulting Ecologist, 1999-2013, U.S. Navy. Performed endangered species surveys, hazardous waste site monitoring, and habitat restoration for the endangered San Joaquin kangaroo rat, California tiger salamander, California red-legged frog, California clapper rail, western burrowing owl, salt marsh harvest mouse, and other species at Naval Air Station Lemoore; Naval Weapons Station, Seal Beach, Detachment Concord; Naval Security Group Activity, Skaggs Island; National Radio Transmitter Facility, Dixon; and, Naval Outlying Landing Field Imperial Beach.

Part-time Lecturer, 1998-2005, California State University, Sacramento. Instructed Mammalogy, Behavioral Ecology, and Ornithology Lab, Contemporary Environmental Issues, Natural Resources Conservation.

Senior Ecologist, 1999-2005, BioResource Consultants. Designed and implemented research and monitoring studies related to avian fatalities at wind turbines, avian electrocutions on electric distribution poles across California, and avian fatalities at transmission lines.

Chairman, Conservation Affairs Committee, The Wildlife Society--Western Section, 1999-2001. Prepared position statements and led efforts directed toward conservation issues, including travel to Washington, D.C. to lobby Congress for more wildlife conservation funding.

Systems Ecologist, 1995-2000, Institute for Sustainable Development. Headed ISD's program on integrated resources management. Developed indicators of ecological integrity for large areas, using remotely sensed data, local community involvement and GIS.

Associate, 1997-1998, Department of Agronomy and Range Science, University of California, Davis. Worked with Shu Geng and Mingua Zhang on several studies related to wildlife interactions with agriculture and patterns of fertilizer and pesticide residues in groundwater across a large landscape.

Lead Scientist, 1996-1999, National Endangered Species Network. Informed academic scientists and environmental activists about emerging issues regarding the Endangered Species Act and other environmental laws. Testified at public hearings on endangered species issues.

Ecologist, 1997-1998, Western Foundation of Vertebrate Zoology. Conducted field research to determine the impact of past mercury mining on the status of California red-legged frogs in Santa Clara County, California.

Senior Systems Ecologist, 1994-1995, EIP Associates, Sacramento, California. Provided consulting services in environmental planning, and quantitative assessment of land units for their

conservation and restoration opportunities basedon ecological resource requirements of 29 special-status species. Developed ecological indicators for prioritizing areas within Yolo County to receive mitigation funds for habitat easements and restoration.

Post-Graduate Researcher, 1990-1994, Department of Agronomy and Range Science, *U.C. Davis*. Under Dr. Shu Geng's mentorship, studied landscape and management effects on temporal and spatial patterns of abundance among pocket gophers and species of Falconiformes and Carnivora in the Sacramento Valley. Managed and analyzed a data base of energy use in California agriculture. Assisted with landscape (GIS) study of groundwater contamination across Tulare County, California.

Work experience in graduate school: Co-taught Conservation Biology with Dr. Christine Schonewald, 1991 & 1993, UC Davis Graduate Group in Ecology; Reader for Dr. Richard Coss's course on Psychobiology in 1990, UC Davis Department of Psychology; Research Assistant to Dr. Walter E. Howard, 1988-1990, UC Davis Department of Wildlife and Fisheries Biology, testing durable baits for pocket gopher management in forest clearcuts; Research Assistant to Dr. Terrell P. Salmon, 1987-1988, UC Wildlife Extension, Department of Wildlife and Fisheries Biology, developing empirical models of mammal and bird invasions in North America, and a rating system for priority research and control of exotic species based on economic, environmental and human health hazards in California. Student Assistant to Dr. E. Lee Fitzhugh, 1985-1987, UC Cooperative Extension, Department of Wildlife and Fisheries Biology, developing and implementing statewide mountain lion track count for long-term monitoring.

Fulbright Research Fellow, Indonesia, 1988. Tested use of new sampling methods for numerical monitoring of Sumatran tiger and six other species of endemic felids, and evaluated methods used by other researchers.

Projects

Repowering wind energy projects through careful siting of new wind turbines using map-based collision hazard models to minimize impacts to volant wildlife. Funded by wind companies (principally NextEra Renewable Energy, Inc.), California Energy Commission and East Bay Regional Park District, I have collaborated with a GIS analyst and managed a crew of five field biologists performing golden eagle behavior surveys and nocturnal surveys on bats and owls. The goal is to quantify flight patterns for development of predictive models to more carefully site new wind turbines in repowering projects. Focused behavior surveys began May 2012 and continue. Collision hazard models have been prepared for seven wind projects, three of which were built. Planning for additional repowering projects is underway.

Test avian safety of new mixer-ejector wind turbine (MEWT). Designed and implemented a before-after, control-impact experimental design to test the avian safety of a new, shrouded wind turbine developed by Ogin Inc. (formerly known as FloDesign Wind Turbine Corporation). Supported by a $718,000 grant from the California Energy Commission's Public Interest Energy Research program and a 20% match share contribution from Ogin, I managed a crew of seven field biologists who performed periodic fatality searches and behavior surveys, carcass detection trials, nocturnal behavior surveys using a thermal camera, and spatial analyses with the collaboration of a GIS

analyst. Field work began 1 April 2012 and ended 30 March 2015 without Ogin installing its MEWTs, but we still achieved multiple important scientific advances.

Reduce avian mortality due to wind turbines at Altamont Pass. Studied wildlife impacts caused by 5,400 wind turbines at the world's most notorious wind resource area. Studied how impacts are perceived by monitoring and how they are affected by terrain, wind patterns, food resources, range management practices, wind turbine operations, seasonal patterns, population cycles, infrastructure management such as electric distribution, animal behavior and social interactions.

Reduce avian mortality on electric distribution poles. Directed research toward reducing bird electrocutions on electric distribution poles, 2000-2007. Oversaw 5 founds of fatality searches at 10,000 poles from Orange County to Glenn County, California, and produced two large reports.

Cook *et al*. v. Rockwell International *et al*., No. 90-K-181 (D. Colorado). Provided expert testimony on the role of burrowing animals in affecting the fate of buried and surface-deposited radioactive and hazardous chemical wastes at the Rocky Flats Plant, Colorado. Provided expert reports based on four site visits and an extensive document review of burrowing animals. Conducted transect surveys for evidence of burrowing animals and other wildlife on and around waste facilities. Discovered substantial intrusion of waste structures by burrowing animals. I testified in federal court in November 2005, and my clients were subsequently awarded a $553,000,000 judgment by a jury. After appeals the award was increased to two billion dollars.

Hanford Nuclear Reservation Litigation. Provided expert testimony on the role of burrowing animals in affecting the fate of buried radioactive wastes at the Hanford Nuclear Reservation, Washington. Provided three expert reports based on three site visits and extensive document review. Predicted and verified a certain population density of pocket gophers on buried waste structures, as well as incidence of radionuclide contamination in body tissue. Conducted transect surveys for evidence of burrowing animals and other wildlife on and around waste facilities. Discovered substantial intrusion of waste structures by burrowing animals.

Expert testimony and declarations on proposed residential and commercial developments, gas-fired power plants, wind, solar and geothermal projects, water transfers and water transfer delivery systems, endangered species recovery plans, Habitat Conservation Plans and Natural Communities Conservation Programs. Testified before multiple government agencies, Tribunals, Boards of Supervisors and City Councils, and participated with press conferences and depositions. Prepared expert witness reports and court declarations, which are summarized under Reports (below).

Protocol-level surveys for special-status species. Used California Department of Fish and Wildlife and US Fish and Wildlife Service protocols to search for California red-legged frog, California tiger salamander, arroyo southwestern toad, blunt-nosed leopard lizard, western pond turtle, giant kangaroo rat, San Joaquin kangaroo rat, San Joaquin kit fox, western burrowing owl, Swainson's hawk, Valley elderberry longhorn beetle and other special-status species.

Conservation of San Joaquin kangaroo rat. Performed research to identify factors responsible for the decline of this endangered species at Lemoore Naval Air Station, 2000-2013, and implemented habitat enhancements designed to reverse the trend and expand the population.

Impact of West Nile Virus on yellow-billed magpies. Funded by Sacramento-Yolo Mosquito and Vector Control District, 2005-2008, compared survey results pre- and post-West Nile Virus epidemic for multiple bird species in the Sacramento Valley, particularly on yellow-billed magpie and American crow due to susceptibility to WNV.

Workshops on HCPs. Assisted Dr. Michael Morrison with organizing and conducting a 2-day workshop on Habitat Conservation Plans, sponsored by Southern California Edison, and another 1-day workshop sponsored by PG&E. These Workshops were attended by academics, attorneys, and consultants with HCP experience. We guest-edited a Proceedings published in Environmental Management.

Mapping of biological resources along Highways 101, 46 and 41. Used GPS and GIS to delineate vegetation complexes and locations of special-status species along 26 miles of highway in San Luis Obispo County, 14 miles of highway and roadway in Monterey County, and in a large area north of Fresno, including within reclaimed gravel mining pits.

GPS mapping and monitoring at restoration sites and at Caltrans mitigation sites. Monitored the success of elderberry shrubs at one location, the success of willows at another location, and the response of wildlife to the succession of vegetation at both sites. Also used GPS to monitor the response of fossorial animals to yellow star-thistle eradication and natural grassland restoration efforts at Bear Valley in Colusa County and at the decommissioned Mather Air Force Base in Sacramento County.

Mercury effects on Red-legged Frog. Assisted Dr. Michael Morrison and US Fish and Wildlife Service in assessing the possible impacts of historical mercury mining on the federally listed California red-legged frog in Santa Clara County. Also measured habitat variables in streams.

Opposition to proposed No Surprises rule. Wrote a white paper and summary letter explaining scientific grounds for opposing the incidental take permit (ITP) rules providing ITP applicants and holders with general assurances they will be free of compliance with the Endangered Species Act once they adhere to the terms of a "properly functioning HCP." Submitted 188 signatures of scientists and environmental professionals concerned about No Surprises rule US Fish and Wildlife Service, National Marine Fisheries Service, all US Senators.

Natomas Basin Habitat Conservation Plan alternative. Designed narrow channel marsh to increase the likelihood of survival and recovery in the wild of giant garter snake, Swainson's hawk and Valley Elderberry Longhorn Beetle. The design included replication and interspersion of treatments for experimental testing of critical habitat elements. I provided a report to Northern Territories, Inc.

Assessments of agricultural production system and environmental technology transfer to China. Twice visited China and interviewed scientists, industrialists, agriculturalists, and the Directors of the Chinese Environmental Protection Agency and the Department of Agriculture to assess the need and possible pathways for environmental clean-up technologies and trade opportunities between the US and China.

Yolo County Habitat Conservation Plan. Conducted landscape ecology study of Yolo County to spatially prioritize allocation of mitigation efforts to improve ecosystem functionality within the

County from the perspective of 29 special-status species of wildlife and plants. Used a hierarchically structured indicators approach to apply principles of landscape and ecosystem ecology, conservation biology, and local values in rating land units. Derived GIS maps to help guide the conservation area design, and then developed implementation strategies.

Mountain lion track count. Developed and conducted a carnivore monitoring program throughout California since 1985. Species counted include mountain lion, bobcat, black bear, coyote, red and gray fox, raccoon, striped skunk, badger, and black-tailed deer. Vegetation and land use are also monitored. Track survey transect was established on dusty, dirt roads within randomly selected quadrats.

Sumatran tiger and other felids. Upon award of Fulbright Research Fellowship, I designed and initiated track counts for seven species of wild cats in Sumatra, including Sumatran tiger, fishing cat, and golden cat. Spent four months on Sumatra and Java in 1988, and learned Bahasa Indonesia, the official Indonesian language.

Wildlife in agriculture. Beginning as post-graduate research, I studied pocket gophers and other wildlife in 40 alfalfa fields throughout the Sacramento Valley, and I surveyed for wildlife along a 200 mile road transect since 1989 with a hiatus of 1996-2004. The data are analyzed using GIS and methods from landscape ecology, and the results published and presented orally to farming groups in California and elsewhere. I also conducted the first study of wildlife in cover crops used on vineyards and orchards.

Agricultural energy use and Tulare County groundwater study. Developed and analyzed a data base of energy use in California agriculture, and collaborated on a landscape (GIS) study of groundwater contamination across Tulare County, California.

Pocket gopher damage in forest clear-cuts. Developed gopher sampling methods and tested various poison baits and baiting regimes in the largest-ever field study of pocket gopher management in forest plantations, involving 68 research plots in 55 clear-cuts among 6 National Forests in northern California.

Risk assessment of exotic species in North America. Developed empirical models of mammal and bird species invasions in North America, as well as a rating system for assigning priority research and control to exotic species in California, based on economic, environmental, and human health hazards.

Peer Reviewed Publications

Smallwood, K. S. and M. L. Morrison. 2018. Nest-site selection in a high-density colony of burrowing owls. Journal of Raptor Research 52:454-470.

Smallwood, K. S., D. A. Bell, E. L. Walther, E. Leyvas, S. Standish, J. Mount, B. Karas. 2018. Estimating wind turbine fatalities using integrated detection trials. Journal of Wildlife Management 82:1169-1184.

Smallwood, K. S. 2017. Long search intervals under-estimate bird and bat fatalities caused by

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Smallwood, K.S. and M.L. Morrison. 1997. Alternate mitigation strategy for incidental take of giant garter snake and Swainson's hawk as part of the Natomas Basin Habitat Conservation Plan. Pages 6-9 and *iii* illustrations in W.D. Carrier, K.S. Smallwood and M.L. Morrison, Natomas Basin Habitat Conservation Plan: Narrow channel marsh alternative wetland mitigation. Northern Territories, Inc., Sacramento.

Smallwood, K.S. 1996. Assessment of the BIOPORT model's parameter values for pocket gopher burrowing characteristics. Report to Berger & Montague, P.C. and Roy S. Haber, P.C., Philadelphia. (peer reviewed).

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Smallwood, K.S., and R. Leidy. 1996. Wildlife and Their Management Under the Martell SYP. Report to Georgia Pacific, Corporation, Martel, CA. 30 pp.

EIP Associates. 1995. Yolo County Habitat Conservation Plan Biological Resources Report. Yolo County Planning and Development Department, Woodland, California.

Smallwood, K.S. and S. Geng. 1995. Analysis of the 1987 California Farm Cost Survey and recommendations for future survey. Program on Workable Energy Regulation, University-wide Energy Research Group, University of California.

Smallwood, K.S., S. Geng, and W. Idzerda. 1992. Final report to PG&E: Analysis of the 1987 California Farm Cost Survey and recommendations for future survey. Pacific Gas & Electric Company, San Ramon, California. 24 pp.

Fitzhugh, E.L. and K.S. Smallwood. 1987. Methods Manual – A statewide mountain lion population index technique. California Department of Fish and Game, Sacramento.

Salmon, T.P. and K.S. Smallwood. 1989. Final Report – Evaluating exotic vertebrates as pests to California agriculture. California Department of Food and Agriculture, Sacramento.

Smallwood, K.S. and W. A. Erickson (written under supervision of W.E. Howard, R.E. Marsh, and R.J. Laacke). 1990. Environmental exposure and fate of multi-kill strychnine gopher baits. Final Report to USDA Forest Service –NAPIAP, Cooperative Agreement PSW-89-0010CA.

Fitzhugh, E.L., K.S. Smallwood, and R. Gross. 1985. Mountain lion track count, Marin County, 1985. Report on file at Wildlife Extension, University of California, Davis.

Comments on Environmental Documents

I was retained or commissioned to comment on environmental planning and review documents, including:

- The Villages of Lakeview EIR (2017; 28 pp);
- Notes on Proposed Study Options for Trail Impacts on Northern Spotted Owl (2017; 4 pp);
- San Gorgonio Crossings EIR (2017; 22 pp);
- Replies to responses on Jupiter Project IS and MND (2017; 12 pp);
- MacArthur Transit Village Project Modified 2016 CEQA Analysis (2017; 12 pp);
- Central SoMa Plan DEIR (2017; 14 pp);
- Colony Commerce Center Specific Plan DEIR (2016; 16 pp);
- Fairway Trails Improvements MND (2016; 13 pp);
- Review of Avian-Solar Science Plan (2016; 28 pp);
- Replies to responses on Initial Study for Pyramid Asphalt (2016; 5 pp);
- Initial Study for Pyramid Asphalt (2016; 4 pp);
- Agua Mansa Distribution Warehouse Project Initial Study (2016; 14 pp);
- Santa Anita Warehouse IS and MND (2016; 12 pp);
- CapRock Distribution Center III DEIR (2016: 12 pp);
- Orange Show Logistics Center Initial Study and MND (2016; 9 pp);
- City of Palmdale Oasis Medical Village Project IS and MND (2016; 7 pp);
- Comments on proposed rule for incidental eagle take (2016, 49 pp);
- Grapevine Specific and Community Plan FEIR (2016; 25 pp);
- Grapevine Specific and Community Plan DEIR (2016; 15 pp);
- Clinton County Zoning Ordinance for Wind Turbine siting (2016);
- Hallmark at Shenandoah Warehouse Project Initial Study (2016; 6 pp);
- Tri-City Industrial Complex Initial Study (2016; 5 pp);
- Hidden Canyon Industrial Park Plot Plan 16-PP-02 (2016; 12 pp);
- Kimball Business Park DEIR (2016; 10 pp);
- Jupiter Project IS and MND (2016; 9 pp);
- Revised Draft Giant Garter Snake Recovery Plan of 2015 (2016, 18 pp);
- Palo Verde Mesa Solar Project Draft Environmental Impact Report (2016; 27 pp);

- Reply Witness Statement on Fairview Wind Project, Ontario, Canada (2016; 14 pp);
- Fairview Wind Project, Ontario, Canada (2016; 41 pp);
- Supplementary Reply Witness Statement Amherst Island Wind Farm, Ontario (2015, 38 pp);
- Witness Statement on Amherst Island Wind Farm, Ontario (2015, 31 pp);
- Second Reply Witness Statement on White Pines Wind Farm, Ontario (2015, 6 pp);
- Reply Witness Statement on White Pines Wind Farm, Ontario (2015, 10 pp);
- Witness Statement on White Pines Wind Farm, Ontario (2015, 9 pp);
- Proposed Section 24 Specific Plan Agua Caliente Band of Cahuilla Indians DEIS (2015, 9 pp);
- Replies to comments 24 Specific Plan Agua Caliente Band of Cahuilla Indians FEIS (2015, 6 pp);
- Willow Springs Solar Photovoltaic Project DEIR (2015; 28 pp);
- Sierra Lakes Commerce Center Project DEIR (2015, 9 pp);
- Columbia Business Center MND (2015; 8 pp);
- West Valley Logistics Center Specific Plan DEIR (2015, 10 pp);
- World Logistic Center Specific Plan FEIR (2015, 12 pp);
- Bay Delta Conservation Plan EIR/EIS (2014, 21 pp);
- Addison Wind Energy Project DEIR (2014, 32 pp);
- Response to Comments on the Addison Wind Energy Project DEIR (2014, 15 pp);
- Addison and Rising Tree Wind Energy Project FEIR (2014, 12 pp);
- Alta East Wind Energy Project FEIS (2013, 23 pp);
- Blythe Solar Power Project Staff Assessment, California Energy Commission (2013, 16 pp);
- Clearwater and Yakima Solar Projects DEIR (2013, 9 pp);
- Cuyama Solar Project DEIR (2014, 19 pp);
- Draft Desert Renewable Energy Conservation Plan (DRECP) EIR/EIS (2015, 49 pp);
- Kingbird Solar Photovoltaic Project EIR (2013, 19 pp);
- Lucerne Valley Solar Project Initial Study & Mitigated Negative Declaration (2013, 12 pp);
- Palen Solar Electric Generating System Final Staff Assessment of California Energy Commission, (2014, 20 pp);
- Rebuttal testimony on Palen Solar Energy Generating System (2014, 9 pp);
- Rising Tree Wind Energy Project DEIR (2014, 32 pp);
- Response to Comments on the Rising Tree Wind Energy Project DEIR (2014, 15 pp);
- Soitec Solar Development Project Draft PEIR (2014, 18 pp);
- Comment on the Biological Opinion (08ESMF-00-2012-F-0387) of Oakland Zoo expansion on Alameda whipsnake and California red-legged frog (2014; 3 pp);
- West Antelope Solar Energy Project Initial Study and Negative Declaration (2013, 18 pp);
- Willow Springs Solar Photovoltaic Project DEIR (2015, 28 pp);
- Alameda Creek Bridge Replacement Project DEIR (2015, 10 pp);
- Declaration on Tule Wind project FEIR/FEIS (2013; 24 pp);
- Sunlight Partners LANDPRO Solar Project Mitigated Negative Declaration (2013; 11 pp);
- Declaration in opposition to BLM fracking (2013; 5 pp);
- Rosamond Solar Project Addendum EIR (2013; 13 pp);
- Pioneer Green Solar Project EIR (2013; 13 pp);
- Reply to Staff Responses to Comments on Soccer Center Solar Project Mitigated Negative

Declaration (2013; 6 pp);
- Soccer Center Solar Project Mitigated Negative Declaration (2013; 10 pp);
- Plainview Solar Works Mitigated Negative Declaration (2013; 10 pp);
- Reply to the County Staff's Responses on comments to Imperial Valley Solar Company 2 Project (2013; 10 pp);
- Imperial Valley Solar Company 2 Project (2013; 13 pp);
- FRV Orion Solar Project DEIR (PP12232) (2013; 9 pp);
- Casa Diablo IV Geothermal Development Project (3013; 6 pp);
- Reply to Staff Responses to Comments on Casa Diablo IV Geothermal Development Project (2013; 8 pp);
- FEIS prepared for Alta East Wind Project (2013; 23 pp);
- Metropolitan Air Park DEIR, City of San Diego (2013;);
- Davidon Homes Tentative Subdivision Map and Rezoning Project DEIR (2013; 9 pp);
- Analysis of Biological Assessment of Oakland Zoo Expansion Impacts on Alameda Whipsnake (2013; 10 pp);
- Declaration on Campo Verde Solar project FEIR (2013; 11pp);
- Neg Dec comments on Davis Sewer Trunk Rehabilitation (2013; 8 pp);
- Declaration on North Steens Transmission Line FEIS (2012; 62 pp);
- City of Lancaster Revised Initial Study for Conditional Use Permits 12-08 and 12-09, Summer Solar and Springtime Solar Projects (2012; 8 pp);
- J&J Ranch, 24 Adobe Lane Environmental Review (2012; 14 pp);
- Reply to the County Staff's Responses on comments to Hudson Ranch Power II Geothermal Project and the Simbol Calipatria Plant II (2012; 8 pp);
- Hudson Ranch Power II Geothermal Project and the Simbol Calipatria Plant II (2012; 9 pp);
- Desert Harvest Solar Project EIS (2012; 15 pp);
- Solar Gen 2 Array Project DEIR (2012; 16 pp);
- Ocotillo Sol Project EIS (2012; 4 pp);
- Beacon Photovoltaic Project DEIR (2012; 5 pp);
- Declaration on Initial Study and Proposed Negative Declaration for the Butte Water District 2012 Water Transfer Program (2012; 11 pp);
- Mount Signal and Calexico Solar Farm Projects DEIR (2011; 16 pp);
- City of Elk Grove Sphere of Influence EIR (2011; 28 pp);
- Comment on Sutter Landing Park Solar Photovoltaic Project MND (2011; 9 pp);
- Statement of Shawn Smallwood, Ph.D. Regarding Proposed Rabik/Gudath Project, 22611 Coleman Valley Road, Bodega Bay (CPN 10-0002) (2011; 4 pp);
- Declaration of K. Shawn Smallwood on Biological Impacts of the Ivanpah Solar Electric Generating System (ISEGS) (2011; 9 pp);
- Comments on Draft Eagle Conservation Plan Guidance (2011; 13 pp);
- Comments on Draft EIR/EA for Niles Canyon Safety Improvement Project (2011; 16 pp);
- Declaration of K. Shawn Smallwood, Ph.D., on Biological Impacts of the Route 84 Safety Improvement Project (2011; 7 pp);
- Rebuttal Testimony of Witness #22, K. Shawn Smallwood, Ph.D, on Behalf of Intervenors Friends of The Columbia Gorge & Save Our Scenic Area (2010; 6 pp);
- Prefiled Direct Testimony of Witness #22, K. Shawn Smallwood, Ph.D, on Behalf of

Intervenors Friends of the Columbia Gorge & Save Our Scenic Area. Comments on Whistling Ridge Wind Energy Power Project DEIS, Skamania County, Washington (2010; 41 pp);

- Evaluation of Klickitat County's Decisions on the Windy Flats West Wind Energy Project (2010; 17 pp);
- St. John's Church Project Draft Environmental Impact Report (2010; 14 pp.);
- Initial Study/Mitigated Negative Declaration for Results Radio Zone File #2009-001 (2010; 20 pp);
- Rio del Oro Specific Plan Project Final Environmental Impact Report (2010;12 pp);
- Answers to Questions on 33% RPS Implementation Analysis Preliminary Results Report (2009: 9 pp);
- SEPA Determination of Non-significance regarding zoning adjustments for Skamania County, Washington. Second Declaration to Friends of the Columbia Gorge, Inc. and Save Our Scenic Area (Dec 2008; 17 pp);
- Comments on Draft 1A Summary Report to CAISO (2008; 10 pp);
- County of Placer's Categorical Exemption of Hilton Manor Project (2009; 9 pp);
- Protest of CARE to Amendment to the Power Purchase and Sale Agreement for Procurement of Eligible Renewable Energy Resources Between Hatchet Ridge Wind LLC and PG&E (2009; 3 pp);
- Tehachapi Renewable Transmission Project EIR/EIS (2009; 142 pp);
- Delta Shores Project EIR, south Sacramento (2009; 11 pp + addendum 2 pp);
- Declaration of Shawn Smallwood in Support of Care's Petition to Modify D.07-09-040 (2008; 3 pp);
- The Public Utility Commission's Implementation Analysis December 16 Workshop for the Governor's Executive Order S-14-08 to implement a 33% Renewable Portfolio Standard by 2020 (2008; 9 pp);
- The Public Utility Commission's Implementation Analysis Draft Work Plan for the Governor's Executive Order S-14-08 to implement a 33% Renewable Portfolio Standard by 2020 (2008; 11 pp);
- Draft 1A Summary Report to California Independent System Operator for Planning Reserve Margins (PRM) Study (2008; 7 pp.);
- SEPA Determination of Non-significance regarding zoning adjustments for Skamania County, Washington. Declaration to Friends of the Columbia Gorge, Inc. and Save Our Scenic Area (Sep 2008; 16 pp);
- California Energy Commission's Preliminary Staff Assessment of the Colusa Generating Station (2007; 24 pp);
- Rio del Oro Specific Plan Project Recirculated Draft Environmental Impact Report (2008: 66 pp);
- Replies to Response to Comments Re: Regional University Specific Plan Environmental Impact Report (2008; 20 pp);
- Regional University Specific Plan Environmental Impact Report (2008: 33 pp.);
- Clark Precast, LLC's "Sugarland" project, Negative Declaration (2008: 15 pp.);
- Cape Wind Project Draft Environmental Impact Statement (2008; 157 pp.);
- Yuba Highlands Specific Plan (or Area Plan) Environmental Impact Report (2006; 37 pp.);
- Replies to responses to comments on Mitigated Negative Declaration of the proposed

Mining Permit (MIN 04-01) and Modification of Use Permit 96-02 at North Table Mountain (2006; 5 pp);

- Mitigated Negative Declaration of the proposed Mining Permit (MIN 04-01) and Modification of Use Permit 96-02 at North Table Mountain (2006; 15 pp);
- Windy Point Wind Farm Environmental Review and EIS (2006; 14 pp and 36 Powerpoint slides in reply to responses to comments);
- Shiloh I Wind Power Project EIR (2005; 18 pp);
- Buena Vista Wind Energy Project Notice of Preparation of EIR (2004; 15 pp);
- Negative Declaration of the proposed Callahan Estates Subdivision (2004; 11 pp);
- Negative Declaration of the proposed Winters Highlands Subdivision (2004; 9 pp);
- Negative Declaration of the proposed Winters Highlands Subdivision (2004; 13 pp);
- Negative Declaration of the proposed Creekside Highlands Project, Tract 7270 (2004; 21 pp);
- On the petition California Fish and Game Commission to list the Burrowing Owl as threatened or endangered (2003; 10 pp);
- Conditional Use Permit renewals from Alameda County for wind turbine operations in the Altamont Pass Wind Resource Area (2003; 41 pp);
- UC Davis Long Range Development Plan of 2003, particularly with regard to the Neighborhood Master Plan (2003; 23 pp);
- Anderson Marketplace Draft Environmental Impact Report (2003: 18 pp + 3 plates of photos);
- Negative Declaration of the proposed expansion of Temple B'nai Tikyah (2003: 6 pp);
- Antonio Mountain Ranch Specific Plan Public Draft EIR (2002: 23 pp);
- Response to testimony of experts at the East Altamont Energy Center evidentiary hearing on biological resources (2002: 9 pp);
- Revised Draft Environmental Impact Report, The Promenade (2002: 7 pp);
- Recirculated Initial Study for Calpine's proposed Pajaro Valley Energy Center (2002: 3 pp);
- UC Merced -- Declaration of Dr. Shawn Smallwood in support of petitioner's application for temporary restraining order and preliminary injunction (2002: 5 pp);
- Replies to response to comments in Final Environmental Impact Report, Atwood Ranch Unit III Subdivision (2003: 22 pp);
- Draft Environmental Impact Report, Atwood Ranch Unit III Subdivision (2002: 19 pp + 8 photos on 4 plates);
- California Energy Commission Staff Report on GWF Tracy Peaker Project (2002: 17 pp + 3 photos; follow-up report of 3 pp);
- Initial Study and Negative Declaration, Silver Bend Apartments, Placer County (2002: 13 pp);
- UC Merced Long-range Development Plan DEIR and UC Merced Community Plan DEIR (2001: 26 pp);
- Initial Study, Colusa County Power Plant (2001: 6 pp);
- Comments on Proposed Dog Park at Catlin Park, Folsom, California (2001: 5 pp + 4 photos);
- Pacific Lumber Co. (Headwaters) Habitat Conservation Plan and Environmental Impact Report (1998: 28 pp);
- Final Environmental Impact Report/Statement for Issuance of Take authorization for listed

species within the MSCP planning area in San Diego County, California (Fed. Reg. 62 (60): 14938, San Diego Multi-Species Conservation Program) (1997: 10 pp);
- Permit (PRT-823773) Amendment for the Natomas Basin Habitat Conservation Plan, Sacramento, CA (Fed. Reg. 63 (101): 29020-29021) (1998);
- Draft Recovery Plan for the Giant Garter Snake (*Thamnophis gigas*). (Fed. Reg. 64(176): 49497-49498) (1999: 8 pp);
- Review of the Draft Recovery Plan for the Arroyo Southwestern Toad (*Bufo microscaphus californicus*) (1998);
- Ballona West Bluffs Project Environmental Impact Report (1999: oral presentation);
- California Board of Forestry's proposed amended Forest Practices Rules (1999);
- Negative Declaration for the Sunset Skyranch Airport Use Permit (1999);
- Calpine and Bechtel Corporations' Biological Resources Implementation and Monitoring Program (BRMIMP) for the Metcalf Energy Center (2000: 10 pp);
- California Energy Commission's Final Staff Assessment of the proposed Metcalf Energy Center (2000);
- US Fish and Wildlife Service Section 7 consultation with the California Energy Commission regarding Calpine and Bechtel Corporations' Metcalf Energy Center (2000: 4 pp);
- California Energy Commission's Preliminary Staff Assessment of the proposed Metcalf Energy Center (2000: 11 pp);
- Site-specific management plans for the Natomas Basin Conservancy's mitigation lands, prepared by Wildlands, Inc. (2000: 7 pp);
- Affidavit of K. Shawn Smallwood in Spirit of the Sage Council, et al. (Plaintiffs) vs. Bruce Babbitt, Secretary, U.S. Department of the Interior, et al. (Defendants), Injuries caused by the No Surprises policy and final rule which codifies that policy (1999: 9 pp).

Comments on other Environmental Review Documents:

- Proposed Regulation for California Fish and Game Code Section 3503.5 (2015: 12 pp);
- Statement of Overriding Considerations related to extending Altamont Winds, Inc.'s Conditional Use Permit PLN2014-00028 (2015; 8 pp);
- Draft Program Level EIR for Covell Village (2005; 19 pp);
- Bureau of Land Management Wind Energy Programmatic EIS Scoping document (2003: 7 pp.);
- NEPA Environmental Analysis for Biosafety Level 4 National Biocontainment Laboratory (NBL) at UC Davis (2003: 7 pp);
- Notice of Preparation of UC Merced Community and Area Plan EIR, on behalf of The Wildlife Society—Western Section (2001: 8 pp.);
- Preliminary Draft Yolo County Habitat Conservation Plan (2001; 2 letters totaling 35 pp.);
- Merced County General Plan Revision, notice of Negative Declaration (2001: 2 pp.);
- Notice of Preparation of Campus Parkway EIR/EIS (2001: 7 pp.);
- Draft Recovery Plan for the bighorn sheep in the Peninsular Range (*Ovis candensis*) (2000);
- Draft Recovery Plan for the California Red-legged Frog (*Rana aurora draytonii*), on behalf of The Wildlife Society—Western Section (2000: 10 pp.);
- Sierra Nevada Forest Plan Amendment Draft Environmental Impact Statement, on behalf of The Wildlife Society—Western Section (2000: 7 pp.);

- State Water Project Supplemental Water Purchase Program, Draft Program EIR (1997);
- Davis General Plan Update EIR (2000);
- Turn of the Century EIR (1999: 10 pp);
- Proposed termination of Critical Habitat Designation under the Endangered Species Act (Fed. Reg. 64(113): 31871-31874) (1999);
- NOA Draft Addendum to the Final Handbook for Habitat Conservation Planning and Incidental Take Permitting Process, termed the HCP 5-Point Policy Plan (Fed. Reg. 64(45): 11485 - 11490) (1999; 2 pp + attachments);
- Covell Center Project EIR and EIR Supplement (1997).

Position Statements I prepared the following position statements for the Western Section of The Wildlife Society, and one for nearly 200 scientists:

- Recommended that the California Department of Fish and Game prioritize the extermination of the introduced southern water snake in northern California. The Wildlife Society--Western Section (2001);
- Recommended that The Wildlife Society—Western Section appoint or recommend members of the independent scientific review panel for the UC Merced environmental review process (2001);
- Opposed the siting of the University of California's 10th campus on a sensitive vernal pool/grassland complex east of Merced. The Wildlife Society--Western Section (2000);
- Opposed the legalization of ferret ownership in California. The Wildlife Society--Western Section (2000);
- Opposed the Proposed "No Surprises," "Safe Harbor," and "Candidate Conservation Agreement" rules, including permit-shield protection provisions (Fed. Reg. Vol. 62, No. 103, pp. 29091-29098 and No. 113, pp. 32189-32194). This statement was signed by 188 scientists and went to the responsible federal agencies, as well as to the U.S. Senate and House of Representatives.

Posters at Professional Meetings

Leyvas, E. and K. S. Smallwood. 2015. Rehabilitating injured animals to offset and rectify wind project impacts. Conference on Wind Energy and Wildlife Impacts, Berlin, Germany, 9-12 March 2015.

Smallwood, K. S., J. Mount, S. Standish, E. Leyvas, D. Bell, E. Walther, B. Karas. 2015. Integrated detection trials to improve the accuracy of fatality rate estimates at wind projects. Conference on Wind Energy and Wildlife Impacts, Berlin, Germany, 9-12 March 2015.

Smallwood, K. S. and C. G. Thelander. 2005. Lessons learned from five years of avian mortality research in the Altamont Pass WRA. AWEA conference, Denver, May 2005.

Neher, L., L. Wilder, J. Woo, L. Spiegel, D. Yen-Nakafugi, and K.S. Smallwood. 2005. Bird's eye view on California wind. AWEA conference, Denver, May 2005.

Smallwood, K. S., C. G. Thelander and L. Spiegel. 2003. Toward a predictive model of avian

fatalities in the Altamont Pass Wind Resource Area. Windpower 2003 Conference and Convention, Austin, Texas.

Smallwood, K.S. and Eva Butler. 2002. Pocket Gopher Response to Yellow Star-thistle Eradication as part of Grassland Restoration at Decommissioned Mather Air Force Base, Sacramento County, California. White Mountain Research Station Open House, Barcroft Station.

Smallwood, K.S. and Michael L. Morrison. 2002. Fresno kangaroo rat (*Dipodomys nitratoides*) Conservation Research at Resources Management Area 5, Lemoore Naval Air Station. White Mountain Research Station Open House, Barcroft Station.

Smallwood, K.S. and E.L. Fitzhugh. 1989. Differentiating mountain lion and dog tracks. Third Mountain Lion Workshop, Prescott, AZ.

Smith, T. R. and K. S. Smallwood. 2000. Effects of study area size, location, season, and allometry on reported *Sorex* shrew densities. Annual Meeting of the Western Section of The Wildlife Society.

Presentations at Professional Meetings and Seminars

Repowering the Altamont Pass. Altamont Symposium, The Wildlife Society – Western Section, 5 February 2017.

Developing methods to reduce bird mortality in the Altamont Pass Wind Resource Area, 1999-2007. Altamont Symposium, The Wildlife Society – Western Section, 5 February 2017.

Conservation and recovery of burrowing owls in Santa Clara Valley. Santa Clara Valley Habitat Agency, Newark, California, 3 February 2017.

Mitigation of Raptor Fatalities in the Altamont Pass Wind Resource Area. Raptor Research Foundation Meeting, Sacramento, California, 6 November 2015.

From burrows to behavior: Research and management for burrowing owls in a diverse landscape. California Burrowing Owl Consortium meeting, 24 October 2015, San Jose, California.

The Challenges of repowering. Keynote presentation at Conference on Wind Energy and Wildlife Impacts, Berlin, Germany, 10 March 2015.

Research Highlights Altamont Pass 2011-2015. Scientific Review Committee, Oakland, California, 8 July 2015.

Siting wind turbines to minimize raptor collisions: Altamont Pass Wind Resource Area. US Fish and Wildlife Service Golden Eagle Working Group, Sacramento, California, 8 January 2015.

Evaluation of nest boxes as a burrowing owl conservation strategy. Sacramento Chapter of the Western Section, The Wildlife Society. Sacramento, California, 26 August 2013.

Predicting collision hazard zones to guide repowering of the Altamont Pass. Conference on wind

power and environmental impacts. Stockholm, Sweden, 5-7 February 2013.

Impacts of Wind Turbines on Wildlife. California Council for Wildlife Rehabilitators, Yosemite, California, 12 November 2012.

Impacts of Wind Turbines on Birds and Bats. Madrone Audubon Society, Santa Rosa, California, 20 February 2012.

Comparing Wind Turbine Impacts across North America. California Energy Commission Staff Workshop: Reducing the Impacts of Energy Infrastructure on Wildlife, 20 July 2011.

Siting Repowered Wind Turbines to Minimize Raptor Collisions. California Energy Commission Staff Workshop: Reducing the Impacts of Energy Infrastructure on Wildlife, 20 July 2011.

Siting Repowered Wind Turbines to Minimize Raptor Collisions. Alameda County Scientific Review Committee meeting, 17 February 2011

Comparing Wind Turbine Impacts across North America. Conference on Wind energy and Wildlife impacts, Trondheim, Norway, 3 May 2011.

Update on Wildlife Impacts in the Altamont Pass Wind Resource Area. Raptor Symposium, The Wildlife Society—Western Section, Riverside, California, February 2011.

Siting Repowered Wind Turbines to Minimize Raptor Collisions. Raptor Symposium, The Wildlife Society - Western Section, Riverside, California, February 2011.

Wildlife mortality caused by wind turbine collisions. Ecological Society of America, Pittsburgh, Pennsylvania, 6 August 2010.

Map-based repowering and reorganization of a wind farm to minimize burrowing owl fatalities. California burrowing Owl Consortium Meeting, Livermore, California, 6 February 2010.

Environmental barriers to wind power. Getting Real About Renewables: Economic and Environmental Barriers to Biofuels and Wind Energy. A symposium sponsored by the Environmental & Energy Law & Policy Journal, University of Houston Law Center, Houston, 23 February 2007.

Lessons learned about bird collisions with wind turbines in the Altamont Pass and other US wind farms. Meeting with Japan Ministry of the Environment and Japan Ministry of the Economy, Wild Bird Society of Japan, and other NGOs Tokyo, Japan, 9 November 2006.

Lessons learned about bird collisions with wind turbines in the Altamont Pass and other US wind farms. Symposium on bird collisions with wind turbines. Wild Bird Society of Japan, Tokyo, Japan, 4 November 2006.

Responses of Fresno kangaroo rats to habitat improvements in an adaptive management framework. California Society for Ecological Restoration (SERCAL) 13th Annual Conference, UC Santa

Barbara, 27 October 2006.

Fatality associations as the basis for predictive models of fatalities in the Altamont Pass Wind Resource Area. EEI/APLIC/PIER Workshop, 2006 Biologist Task Force and Avian Interaction with Electric Facilities Meeting, Pleasanton, California, 28 April 2006.

Burrowing owl burrows and wind turbine collisions in the Altamont Pass Wind Resource Area. The Wildlife Society - Western Section Annual Meeting, Sacramento, California, February 8, 2006.

Mitigation at wind farms. Workshop: Understanding and resolving bird and bat impacts. American Wind Energy Association and Audubon Society. Los Angeles, CA. January 10 and 11, 2006.

Incorporating data from the California Wildlife Habitat Relationships (CWHR) system into an impact assessment tool for birds near wind farms. Shawn Smallwood, Kevin Hunting, Marcus Yee, Linda Spiegel, Monica Parisi. Workshop: Understanding and resolving bird and bat impacts. American Wind Energy Association and Audubon Society. Los Angeles, CA. January 10 and 11, 2006.

Toward indicating threats to birds by California's new wind farms. California Energy Commission, Sacramento, May 26, 2005.

Avian collisions in the Altamont Pass. California Energy Commission, Sacramento, May 26, 2005.

Ecological solutions for avian collisions with wind turbines in the Altamont Pass Wind Resource Area. EPRI Environmental Sector Council, Monterey, California, February 17, 2005.

Ecological solutions for avian collisions with wind turbines in the Altamont Pass Wind Resource Area. The Wildlife Society—Western Section Annual Meeting, Sacramento, California, January 19, 2005.

Associations between avian fatalities and attributes of electric distribution poles in California. The Wildlife Society - Western Section Annual Meeting, Sacramento, California, January 19, 2005.

Minimizing avian mortality in the Altamont Pass Wind Resources Area. UC Davis Wind Energy Collaborative Forum, Palm Springs, California, December 14, 2004.

Selecting electric distribution poles for priority retrofitting to reduce raptor mortality. Raptor Research Foundation Meeting, Bakersfield, California, November 10, 2004.

Responses of Fresno kangaroo rats to habitat improvements in an adaptive management framework. Annual Meeting of the Society for Ecological Restoration, South Lake Tahoe, California, October 16, 2004.

Lessons learned from five years of avian mortality research at the Altamont Pass Wind Resources Area in California. The Wildlife Society Annual Meeting, Calgary, Canada, September 2004.

The ecology and impacts of power generation at Altamont Pass. Sacramento Petroleum Association,

Sacramento, California, August 18, 2004.

Burrowing owl mortality in the Altamont Pass Wind Resource Area. California Burrowing Owl Consortium meeting, Hayward, California, February 7, 2004.

Burrowing owl mortality in the Altamont Pass Wind Resource Area. California Burrowing Owl Symposium, Sacramento, November 2, 2003.

Raptor Mortality at the Altamont Pass Wind Resource Area. National Wind Coordinating Committee, Washington, D.C., November 17, 2003.

Raptor Behavior at the Altamont Pass Wind Resource Area. Annual Meeting of the Raptor Research Foundation, Anchorage, Alaska, September, 2003.

Raptor Mortality at the Altamont Pass Wind Resource Area. Annual Meeting of the Raptor Research Foundation, Anchorage, Alaska, September, 2003.

California mountain lions. Ecological & Environmental Issues Seminar, Department of Biology, California State University, Sacramento, November, 2000.

Intra- and inter-turbine string comparison of fatalities to animal burrow densities at Altamont Pass. National Wind Coordinating Committee, Carmel, California, May, 2000.

Using a Geographic Positioning System (GPS) to map wildlife and habitat. Annual Meeting of the Western Section of The Wildlife Society, Riverside, CA, January, 2000.

Suggested standards for science applied to conservation issues. Annual Meeting of the Western Section of The Wildlife Society, Riverside, CA, January, 2000.

The indicators framework applied to ecological restoration in Yolo County, California. Society for Ecological Restoration, September 25, 1999.

Ecological restoration in the context of animal social units and their habitat areas. Society for Ecological Restoration, September 24, 1999.

Relating Indicators of Ecological Health and Integrity to Assess Risks to Sustainable Agriculture and Native Biota. International Conference on Ecosystem Health, August 16, 1999.

A crosswalk from the Endangered Species Act to the HCP Handbook and real HCPs. Southern California Edison, Co. and California Energy Commission, March 4-5, 1999.

Mountain lion track counts in California: Implications for Management. Ecological & Environmental Issues Seminar, Department of Biological Sciences, California State University, Sacramento, November 4, 1998.

“No Surprises” -- Lack of science in the HCP process. California Native Plant Society Annual Conservation Conference, The Presidio, San Francisco, September 7, 1997.

In Your Interest. A half hour weekly show aired on Channel 10 Television, Sacramento. In this episode, I served on a panel of experts discussing problems with the implementation of the Endangered Species Act. Aired August 31, 1997.

Spatial scaling of pocket gopher (*Geomyidae*) density. Southwestern Association of Naturalists 44th Meeting, Fayetteville, Arkansas, April 10, 1997.

Estimating prairie dog and pocket gopher burrow volume. Southwestern Association of Naturalists 44th Meeting, Fayetteville, Arkansas, April 10, 1997.

Ten years of mountain lion track survey. Fifth Mountain Lion Workshop, San Diego, February 27, 1996.

Study and interpretive design effects on mountain lion density estimates. Fifth Mountain Lion Workshop, San Diego, February 27, 1996.

Small animal control. Session moderator and speaker at the California Farm Conference, Sacramento, California, Feb. 28, 1995.

Small animal control. Ecological Farming Conference, Asylomar, California, Jan. 28, 1995.

Habitat associations of the Swainson's Hawk in the Sacramento Valley's agricultural landscape. 1994 Raptor Research Foundation Meeting, Flagstaff, Arizona.

Alfalfa as wildlife habitat. Seed Industry Conference, Woodland, California, May 4, 1994.

Habitats and vertebrate pests: impacts and management. Managing Farmland to Bring Back Game Birds and Wildlife to the Central Valley. Yolo County Resource Conservation District, U.C. Davis, February 19, 1994.

Management of gophers and alfalfa as wildlife habitat. Orland Alfalfa Production Meeting and Sacramento Valley Alfalfa Production Meeting, February 1 and 2, 1994.

Patterns of wildlife movement in a farming landscape. Wildlife and Fisheries Biology Seminar Series: Recent Advances in Wildlife, Fish, and Conservation Biology, U.C. Davis, Dec. 6, 1993.

Alfalfa as wildlife habitat. California Alfalfa Symposium, Fresno, California, Dec. 9, 1993.

Management of pocket gophers in Sacramento Valley alfalfa. California Alfalfa Symposium, Fresno, California, Dec. 8, 1993.

Association analysis of raptors in a farming landscape. Plenary speaker at Raptor Research Foundation Meeting, Charlotte, North Carolina, Nov. 6, 1993.

Landscape strategies for biological control and IPM. Plenary speaker, International Conference on Integrated Resource Management and Sustainable Agriculture, Beijing, China, Sept. 11, 1993.

Landscape Ecology Study of Pocket Gophers in Alfalfa. Alfalfa Field Day, U.C. Davis, July 1993.

Patterns of wildlife movement in a farming landscape. Spatial Data Analysis Colloquium, U.C. Davis, August 6, 1993.

Sound stewardship of wildlife. Veterinary Medicine Seminar: Ethics of Animal Use, U.C. Davis. May 1993.

Landscape ecology study of pocket gophers in alfalfa. Five County Grower's Meeting, Tracy, California. February 1993.

Turbulence and the community organizers: The role of invading species in ordering a turbulent system, and the factors for invasion success. Ecology Graduate Student Association Colloquium, U.C. Davis. May 1990.

Evaluation of exotic vertebrate pests. Fourteenth Vertebrate Pest Conference, Sacramento, California. March 1990.

Analytical methods for predicting success of mammal introductions to North America. The Western Section of the Wildlife Society, Hilo, Hawaii. February 1988.

A state-wide mountain lion track survey. Sacramento County Dept Parks and Recreation. April 1986.

The mountain lion in California. Davis Chapter of the Audubon Society. October 1985.

Ecology Graduate Student Seminars, U.C. Davis, 1985-1990: Social behavior of the mountain lion; Mountain lion control; Political status of the mountain lion in California.

Other forms of Participation at Professional Meetings

- Scientific Committee, Conference on Wind energy and Wildlife impacts, Berlin, Germany, March 2015.

- Scientific Committee, Conference on Wind energy and Wildlife impacts, Stockholm, Sweden, February 2013.

- Workshop co-presenter at Birds & Wind Energy Specialist Group (BAWESG) Information sharing week, Bird specialist studies for proposed wind energy facilities in South Africa, Endangered Wildlife Trust, Darling, South Africa, 3-7 October 2011.

- Scientific Committee, Conference on Wind energy and Wildlife impacts, Trondheim, Norway, 2-5 May 2011.

- Chair of Animal Damage Management Session, The Wildlife Society, Annual Meeting, Reno, Nevada, September 26, 2001.

- Chair of Technical Session: Human communities and ecosystem health: Comparing perspectives and making connection. Managing for Ecosystem Health, International Congress on Ecosystem Health, Sacramento, CA August 15-20, 1999.

- Student Awards Committee, Annual Meeting of the Western Section of The Wildlife Society, Riverside, CA, January, 2000.

- Student Mentor, Annual Meeting of the Western Section of The Wildlife Society, Riverside, CA, January, 2000.

Printed Mass Media

Smallwood, K.S., D. Mooney, and M. McGuinness. 2003. We must stop the UCD biolab now. Op-Ed to the Davis Enterprise.

Smallwood, K.S. 2002. Spring Lake threatens Davis. Op-Ed to the Davis Enterprise.

Smallwood, K.S. Summer, 2001. Mitigation of habitation. The Flatlander, Davis, California.

Entrikan, R.K. and K.S. Smallwood. 2000. Measure O: Flawed law would lock in new taxes. Op-Ed to the Davis Enterprise.

Smallwood, K.S. 2000. Davis delegation lobbies Congress for Wildlife conservation. Op-Ed to the Davis Enterprise.

Smallwood, K.S. 1998. Davis Visions. The Flatlander, Davis, California.

Smallwood, K.S. 1997. Last grab for Yolo's land and water. The Flatlander, Davis, California.

Smallwood, K.S. 1997. The Yolo County HCP. Op-Ed to the Davis Enterprise.

Radio/Television

PBS News Hour,

FOX News, Energy in America: Dead Birds Unintended Consequence of Wind Power Development, August 2011.

KXJZ Capital Public Radio -- Insight (Host Jeffrey Callison). Mountain lion attacks (with guest Professor Richard Coss). 23 April 2009;

KXJZ Capital Public Radio -- Insight (Host Jeffrey Callison). Wind farm Rio Vista Renewable Power. 4 September 2008;

KQED QUEST Episode #111. Bird collisions with wind turbines. 2007;

KDVS Speaking in Tongues (host Ron Glick), Yolo County HCP: 1 hour. December 27, 2001;

KDVS Speaking in Tongues (host Ron Glick), Yolo County HCP: 1 hour. May 3, 2001;

KDVS Speaking in Tongues (host Ron Glick), Yolo County HCP: 1 hour. February 8, 2001;

KDVS Speaking in Tongues (host Ron Glick & Shawn Smallwood), California Energy Crisis: 1 hour. Jan. 25, 2001;

KDVS Speaking in Tongues (host Ron Glick), Headwaters Forest HCP: 1 hour. 1998;

Davis Cable Channel (host Gerald Heffernon), Burrowing owls in Davis: half hour. June, 2000;

Davis Cable Channel (hosted by Davis League of Women Voters), Measure O debate: 1 hour. October, 2000;

KXTV 10, In Your Interest, The Endangered Species Act: half hour. 1997.

Reviews of Journal Papers (Scientific journals for whom I've provided peer review)

Journal	**Journal**
American Naturalist	Journal of Animal Ecology
Journal of Wildlife Management	Western North American Naturalist
Auk	Journal of Raptor Research
Biological Conservation	National Renewable Energy Lab reports
Canadian Journal of Zoology	Oikos
Ecosystem Health	The Prairie Naturalist
Environmental Conservation	Restoration Ecology
Environmental Management	Southwestern Naturalist
Functional Ecology	The Wildlife Society--Western Section Trans.
Journal of Zoology (London)	Proc. Int. Congress on Managing for Ecosystem Health
Journal of Applied Ecology	Transactions in GIS
Ecology	Tropical Ecology
Wildlife Society Bulletin	Peer J
Biological Control	The Condor

Committees

- Scientific Review Committee, Alameda County, Altamont Pass Wind Resource Area
- Ph.D. Thesis Committee, Steve Anderson, University of California, Davis
- MS Thesis Committee, Marcus Yee, California State University, Sacramento

Other Professional Activities or Products

Testified in Federal Court in Denver during 2005 over the fate of radio-nuclides in the soil at Rocky Flats Plant after exposure to burrowing animals. My clients won a judgment of $553,000,000. I have also testified in many other cases of litigation under CEQA, NEPA, the Warren-Alquist Act, and other environmental laws. My clients won most of the cases for which I testified.

Testified before Environmental Review Tribunals in Ontario, Canada regarding proposed White Pines, Amherst Island, and Fairview Wind Energy projects.

Testified in Skamania County Hearing in 2009 on the potential impacts of zoning the County for development of wind farms and hazardous waste facilities.

Testified in deposition in 2007 in the case of O'Dell et al. vs. FPL Energy in Houston, Texas.

Testified in Klickitat County Hearing in 2006 on the potential impacts of the Windy Point Wind Farm.

Memberships in Professional Societies

The Wildlife Society
Raptor Research Foundation

Honors and Awards

Fulbright Research Fellowship to Indonesia, 1987
J.G. Boswell Full Academic Scholarship, 1981 college of choice
Certificate of Appreciation, The Wildlife Society—Western Section, 2000, 2001
Northern California Athletic Association Most Valuable Cross Country Runner, 1984
American Legion Award, Corcoran High School, 1981, and John Muir Junior High, 1977
CIF Section Champion, Cross Country in 1978
CIF Section Champion, Track & Field 2 mile run in 1981
National Junior Record, 20 kilometer run, 1982
National Age Group Record, 1500 meter run, 1978

Community Activities

District 64 Little League Umpire, 2003-2007
Dixon Little League Umpire, 2006-07
Davis Little League Chief Umpire and Board member, 2004-2005
Davis Little League Safety Officer, 2004-2005
Davis Little League Certified Umpire, 2002-2004
Davis Little League Scorekeeper, 2002
Davis Visioning Group member
Petitioner for Writ of Mandate under the California Environmental Quality Act against City of Woodland decision to approve the Spring Lake Specific Plan, 2002
Served on campaign committees for City Council candidates

Representative Clients/Funders

Law Offices of Stephan C. Volker
Blum Collins, LLP
Eric K. Gillespie Professional Corporation
Law Offices of Berger & Montague
Lozeau | Drury LLP
Law Offices of Roy Haber
Law Offices of Edward MacDonald
Law Office of John Gabrielli
Law Office of Bill Kopper
Law Office of Donald B. Mooney
Law Office of Veneruso & Moncharsh
Law Office of Steven Thompson
Law Office of Brian Gaffney
California Wildlife Federation
Defenders of Wildlife
Sierra Club
National Endangered Species Network
Spirit of the Sage Council
The Humane Society
Hagens Berman LLP
Environmental Protection Information Center
Goldberg, Kamin & Garvin, Attorneys at Law
Californians for Renewable Energy (CARE)
Seatuck Environmental Association
Friends of the Columbia Gorge, Inc.
Save Our Scenic Area
Alliance to Protect Nantucket Sound
Friends of the Swainson's Hawk
Alameda Creek Alliance
Center for Biological Diversity
California Native Plant Society
Endangered Wildlife Trust
and BirdLife South Africa
AquAlliance
Oregon Natural Desert Association
Save Our Sound
G3 Energy and Pattern Energy
Emerald Farms
Pacific Gas & Electric Co.
Southern California Edison Co.
Georgia-Pacific Timber Co.
Northern Territories Inc.
David Magney Environmental Consulting
Wildlife History Foundation
NextEra Energy Resources, LLC
Ogin, Inc.
EDF Renewables
National Renewable Energy Lab
Altamont Winds LLC
Salka Energy
Comstocks Business (magazine)
BioResource Consultants
Tierra Data
Black and Veatch
Terry Preston, Wildlife Ecology Research Center
EcoStat, Inc.
US Navy
US Department of Agriculture
US Forest Service
US Fish & Wildlife Service
US Department of Justice
California Energy Commission
California Office of the Attorney General
California Department of Fish & Wildlife
California Department of Transportation
California Department of Forestry
California Department of Food & Agriculture
Ventura County Counsel
County of Yolo
Tahoe Regional Planning Agency
Sustainable Agriculture Research & Education Program
Sacramento-Yolo Mosquito and Vector Control District
East Bay Regional Park District
County of Alameda
Don & LaNelle Silverstien
Seventh Day Adventist Church
Escuela de la Raza Unida
Susan Pelican and Howard Beeman
Residents Against Inconsistent Development, Inc.
Bob Sarvey
Mike Boyd
Hillcroft Neighborhood Fund
Joint Labor Management Committee, Retail Food Industry
Lisa Rocca
Kevin Jackson
Dawn Stover and Jay Letto
Nancy Havassy
Catherine Portman (for Brenda Cedarblade)
Ventus Environmental Solutions, Inc.
Panorama Environmental, Inc.
Adams Broadwell Professional Corporation

Representative special-status species experience

Common name	Species name	Description
Field experience		
California red-legged frog	*Rana aurora draytonii*	Protocol searches; Many detections
Foothill yellow-legged frog	*Rana boylii*	Presence surveys; Many detections
Western spadefoot	*Spea hammondii*	Presence surveys; Few detections
California tiger salamander	*Ambystoma californiense*	Protocol searches; Many detections
Coast range newt	*Taricha torosa torosa*	Searches and multiple detections
Blunt-nosed leopard lizard	*Gambelia sila*	Detected in San Luis Obispo County
California horned lizard	*Phrynosoma coronatum frontale*	Searches; Many detections
Western pond turtle	*Clemmys marmorata*	Searches; Many detections
San Joaquin kit fox	*Vulpes macrotis mutica*	Protocol searches; detections
Sumatran tiger	*Panthera tigris*	Track surveys in Sumatra
Mountain lion	*Puma concolor californicus*	Research and publications
Point Arena mountain beaver	*Aplodontia rufa nigra*	Remote camera operation
Giant kangaroo rat	*Dipodomys ingens*	Detected in Cholame Valley
San Joaquin kangaroo rat	*Dipodomys nitratoides*	Monitoring & habitat restoration
Monterey dusky-footed woodrat	*Neotoma fuscipes luciana*	Non-target captures and mapping of dens
Salt marsh harvest mouse	*Reithrodontomys raviventris*	Habitat assessment, monitoring
Salinas harvest mouse	*Reithrodontomys megalotus distichlus*	Captures; habitat assessment
Bats		Thermal imaging surveys
California clapper rail	*Rallus longirostris*	Surveys and detections
Golden eagle	*Aquila chrysaetos*	Numerical & behavioral surveys
Swainson's hawk	*Buteo swainsoni*	Numerical & behavioral surveys
Northern harrier	*Circus cyaeneus*	Numerical & behavioral surveys
White-tailed kite	*Elanus leucurus*	Numerical & behavioral surveys
Loggerhead shrike	*Lanius ludovicianus*	Large area surveys
Least Bell's vireo	*Vireo bellii pusillus*	Detected in Monterey County
Willow flycatcher	*Empidonax traillii extimus*	Research at Sierra Nevada breeding sites
Burrowing owl	*Athene cunicularia hypugia*	Numerical & behavioral surveys
Valley elderberry longhorn beetle	*Desmocerus californicus dimorphus*	Monitored success of relocation and habitat restoration
Analytical		
Arroyo southwestern toad	*Bufo microscaphus californicus*	Research and report.
Giant garter snake	*Thamnophis gigas*	Research and publication
Northern goshawk	*Accipiter gentilis*	Research and publication
Northern spotted owl	*Strix occidentalis*	Research and reports
Alameda whipsnake	*Masticophis lateralis euryxanthus*	Expert testimony

EXHIBIT C

SMITH ENGINEERING & MANAGEMENT

November 30, 2025

Ms. Alaura McGuire
Adams Broadwell Joseph & Cardozo
601 Gateway Boulevard, Suite 1000
South San Francisco, CA 94080-7037

Subject: E & P Technology Way – Building A & B ISMND

P24006

Dear Ms. McGuire:

Per your request, I reviewed the Revised Initial Study Mitigated Negative Declaration (the "RISMND") and December 3, 2025 Planning Commission Staff Report for the E & P Technology Way – Building A & B Project (the "Project") in the County of Napa (the "County"). My review is with respect to transportation and circulation considerations. I previously reviewed and commented on the original ISMND for the Project in a letter dated November 12, 2024.

My qualifications to perform this review were thoroughly documented in that letter of November 12, 2024 and my professional resume was attached thereto.

My current comments follow.

Our November 2024 comments on the original ISMND identified the fact that the Transportation element and the supporting Appendix G Transportation Impact Study improperly segmented the Project for purposes of the required Vehicle Miles Traveled ("VMT") analysis. "Project "segmentation" or "piecemealing is improper under CEQA.

The comment pointed out that the original ISMND at pages 1 and 2 identifies the proposed development as a single project comprised of 2 components, a winery ("Building A") and a warehouse ("Building B"). Moreover, the air quality and public health analysis in the original ISMND at pages 7-8 estimates "the project is anticipated to generate 218 total weekday trips. However, the Transportation Section, at page 26, does not consider the VMT of the Project as a whole as

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required by CEQA. Instead, it and its Appendix G Transportation Impact Study independently evaluates the winery in Building A as having an average of 71 daily trips during non-harvest months and 104 trips per day during harvest months. Based on the trip calculations for Building A alone, the original ISMND states no further VMT analysis is required under the OPR guidance "that, absent substantial evidence otherwise, the addition of 110 or fewer daily trips could be presumed to have a less than significant VMT impact."

The original ISMND at page 27 determines that the Building B warehouse would generate 114 trips per day, which would exceed the 110 trip threshold, and requires the implementation of a Transportation Demand Management Plan (MM TRANS-1). Segmenting the transportation analysis for Building A from Building B is clear piecemealing and violates CEQA. Building A and Building B, i.e., the Project as a whole, would have an estimated 218 daily trips, which is well more than the 110 daily trip maximum for presumption of a less than significant VMT impact.

Our 2024 comment concluded that the Project's impact on VMT must be analyzed for the whole of the action and since the Project as a whole would exceed the threshold, there would be a significant and unavoidable impact on VMT. Mitigation measure(s) are necessary to reduce these significant impacts on VMT for the Project as a whole (that is, on both Buildings A and B) to less than significant levels.

The current Revised ISMND makes no changes in response to these comments. Instead, Response-To-Comment NSRRD2-85 acknowledges there is piecemealing, arguing that, despite the ISMND citations above treating them as a single Project, the buildings are on separate parcels intended to be owned and managed separately. It also argues the Transportation Impact Study (Appendix G) considers the buildings cumulatively in the traffic operations analysis, although this is irrelevant since it is not true of the VMT analysis. Finally, the Response concedes that if the County was concerned about the piecemealing issue, it could impose the same TDM Plan VMT mitigation requirements on Building A as is proposed for Building B. However, the revised ISMND includes no reflection of adopting this suggestion. Hence, Building A's contribution to excessive VMT is unmitigated.

The response also fails to adequately address the concern for the lack of quantification of the traffic and VMT of the individual clients who, the project description states, will visit the site on occasion to hold meetings with members of the wine trade, such as their distributors, restaurants, wine shop owners and similar types of wine buyers." The revised ISMND and its Appendix G still provides no information about how frequently such gatherings would occur and the numbers of attendees.

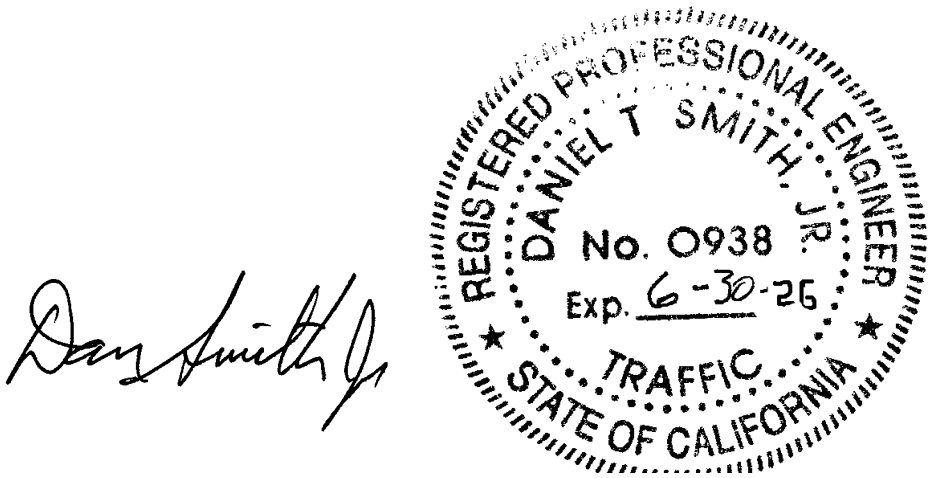
The revised ISMND and the response to comment also provide no coherent reply to the comment that if 44 parking spaces are provided for office workers at Building B, this implies an office work force and operation that is far greater than one that could be considered ancillary to a warehousing operation and its trip generation should not be assumed to be reflected in the normal Warehouse trip generation rate.

Conclusion

Because of these flaws in the response to comment and the revised ISMND, the ISMND remains unsuitable for certification.

Sincerely,

Smith Engineering & Management
A California Corporation



Daniel T. Smith Jr., P.E.
President

SMITH ENGINEERING & MANAGEMENT

DANIEL T. SMITH, Jr.
President

EDUCATION

Bachelor of Science, Engineering and Applied Science, Yale University, 1967
Master of Science, Transportation Planning, University of California, Berkeley, 1968

PROFESSIONAL REGISTRATION

California No. 21913 (Civil) Nevada No. 7969 (Civil) Washington No. 29337 (Civil)
California No. 938 (Traffic) Arizona No. 22131 (Civil)

PROFESSIONAL EXPERIENCE

Smith Engineering & Management, 1993 to present. President.
DKS Associates, 1979 to 1993. Founder, Vice President, Principal Transportation Engineer.
De Leuw, Cather & Company, 1968 to 1979. Senior Transportation Planner.
Personal specialties and project experience include:

Litigation Consulting. Provides consultation, investigations and expert witness testimony in highway design, transit design and traffic engineering matters including condemnations involving transportation access issues; traffic accidents involving highway design or traffic engineering factors; land use and development matters involving access and transportation impacts; parking and other traffic and transportation matters.

Urban Corridor Studies/Alternatives Analysis. Principal-in-charge for State Route (SR) 102 Feasibility Study, a 35-mile freeway alignment study north of Sacramento. Consultant on I-280 Interstate Transfer Concept Program, San Francisco, an AA/EIS for completion of I-280, demolition of Embarcadero freeway, substitute light rail and commuter rail projects. Principal-in-charge, SR 238 corridor freeway/expressway design/environmental study, Hayward (Calif.) Project manager, Sacramento Northeast Area multi-modal transportation corridor study. Transportation planner for I-80N West Terminal Study, and Harbor Drive Traffic Study, Portland, Oregon. Project manager for design of surface segment of Woodward Corridor LRT, Detroit, Michigan. Directed staff on I-80 National Strategic Corridor Study (Sacramento-San Francisco), US 101-Sonoma freeway operations study, SR 92 freeway operations study, I-880 freeway operations study, SR 152 alignment studies, Sacramento RTD light rail systems study, Tasman Corridor LRT AA/EIS, Fremont-Warm Springs BART extension plan/EIR, SRs 70/99 freeway alternatives study, and Richmond Parkway (SR 93) design study.

Area Transportation Plans. Principal-in charge for transportation element of City of Los Angeles General Plan Framework, shaping nations largest city two decades into 21'st century. Project manager for the transportation element of 300-acre Mission Bay development in downtown San Francisco. Mission Bay involves 7 million gsf office/commercial space, 8,500 dwelling units, and community facilities. Transportation features include relocation of commuter rail station; extension of MUNI-Metro LRT; a multi-modal terminal for LRT, commuter rail and local bus; removal of a quarter mile elevated freeway; replacement by new ramps and a boulevard; an internal roadway network overcoming constraints imposed by an internal tidal basin; freeway structures and rail facilities; and concept plans for 20,000 structured parking spaces. Principal-in-charge for circulation plan to accommodate 9 million gsf of office/commercial growth in downtown Bellevue (Wash.). Principal-in-charge for 64 acre, 2 million gsf multi-use complex for FMC adjacent to San Jose International Airport. Project manager for transportation element of Sacramento Capitol Area Plan for the state governmental complex, and for Downtown Sacramento Redevelopment Plan. Project manager for Napa (Calif.) General Plan Circulation Element and Downtown Riverfront Redevelopment Plan, on parking program for downtown Walnut Creek, on downtown transportation plan for San Mateo and redevelopment plan for downtown Mountain View (Calif.), for traffic circulation and safety plans for California cities of Davis, Pleasant Hill and Hayward, and for Salem, Oregon.

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Transportation Centers. Project manager for Daly City Intermodal Study which developed a $7 million surface bus terminal, traffic access, parking and pedestrian circulation improvements at the Daly City BART station plus development of functional plans for a new BART station at Colma. Project manager for design of multi-modal terminal (commuter rail, light rail, bus) at Mission Bay, San Francisco. In Santa Clarita Long Range Transit Development Program, responsible for plan to relocate system's existing timed-transfer hub and development of three satellite transfer hubs. Performed airport ground transportation system evaluations for San Francisco International, Oakland International, Sea-Tac International, Oakland International, Los Angeles International, and San Diego Lindberg.

Campus Transportation. Campus transportation planning assignments for UC Davis, UC Berkeley, UC Santa Cruz and UC San Francisco Medical Center campuses; San Francisco State University; University of San Francisco; and the University of Alaska and others. Also developed master plans for institutional campuses including medical centers, headquarters complexes and research & development facilities.

Special Event Facilities. Evaluations and design studies for football/baseball stadiums, indoor sports arenas, horse and motor racing facilities, theme parks, fairgrounds and convention centers, ski complexes and destination resorts throughout western United States.

Parking. Parking programs and facilities for large area plans and individual sites including downtowns, special event facilities, university and institutional campuses and other large site developments; numerous parking feasibility and operations studies for parking structures and surface facilities; also, resident preferential parking .

Transportation System Management & Traffic Restraint. Project manager on FHWA program to develop techniques and guidelines for neighborhood street traffic limitation. Project manager for Berkeley, (Calif.), Neighborhood Traffic Study, pioneered application of traffic restraint techniques in the U.S. Developed residential traffic plans for Menlo Park, Santa Monica, Santa Cruz, Mill Valley, Oakland, Palo Alto, Piedmont, San Mateo County, Pasadena, Santa Ana and others. Participated in development of photo/radar speed enforcement device and experimented with speed humps. Co-author of Institute of Transportation Engineers reference publication on neighborhood traffic control.

Bicycle Facilities. Project manager to develop an FHWA manual for bicycle facility design and planning, on bikeway plans for Del Mar, (Calif.), the UC Davis and the City of Davis. Consultant to bikeway plans for Eugene, Oregon, Washington, D.C., Buffalo, New York, and Skokie, Illinois. Consultant to U.S. Bureau of Reclamation for development of hydraulically efficient, bicycle safe drainage inlets. Consultant on FHWA research on effective retrofits of undercrossing and overcrossing structures for bicyclists, pedestrians, and handicapped.

MEMBERSHIPS

Institute of Transportation Engineers Transportation Research Board

PUBLICATIONS AND AWARDS

Residential Street Design and Traffic Control, with W. Homburger *et al*. Prentice Hall, 1989.

Co-recipient, Progressive Architecture Citation, *Mission Bay Master Plan*, with I.M. Pei WRT Associated, 1984.

Residential Traffic Management, State of the Art Report, U.S. Department of Transportation, 1979.

Improving The Residential Street Environment, with Donald Appleyard et al., U.S. Department of Transportation, 1979.

Strategic Concepts in Residential Neighborhood Traffic Control, International Symposium on Traffic Control Systems, Berkeley, California, 1979.

Planning and Design of Bicycle Facilities: Pitfalls and New Directions, Transportation Research Board, Research Record 570, 1976.

Co-recipient, Progressive Architecture Award, *Livable Urban Streets, San Francisco Bay Area and London*, with Donald Appleyard, 1979.

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Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities

STATE OF CALIFORNIA
CALIFORNIA NATURAL RESOURCES AGENCY
DEPARTMENT OF FISH AND WILDLIFE

DATE: March 20, 2018*

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1. INTRODUCTION AND PURPOSE

The conservation of special status native plants and their habitats, as well as sensitive natural communities, is integral to maintaining biological diversity. The purpose of these protocols is to facilitate a consistent and systematic approach to botanical field surveys and assessments of special status plants and sensitive natural communities so that reliable information is produced and the potential for locating special status plants and sensitive natural communities is maximized. These protocols may also help those who prepare and review environmental documents determine when botanical field surveys are needed, how botanical field surveys may be conducted, what information to include in a botanical survey report, and what qualifications to consider for botanical field surveyors. These protocols are meant to help people meet California Environmental Quality Act (CEQA)[1] requirements for adequate disclosure of potential impacts to plants and sensitive natural communities. These protocols may be used in conjunction with protocols formulated by other agencies, for example, those developed by the U.S. Army Corps of Engineers to delineate jurisdictional wetlands[2] or by the U.S. Fish and Wildlife Service to survey for the presence of special status plants.[3]

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* Minor editorial revisions were made to this document on February 3, 2021

1 Available at: https://files.resources.ca.gov/ceqa/

2 Available at: https://www.usace.army.mil/Missions/Civil-Works/Regulatory-Program-and-Permits/techbio/

3 U.S. Fish and Wildlife Service Survey Guidelines: https://www.fws.gov/sacramento/es/Survey-Protocols-Guidelines/

Department of Fish and Wildlife Trustee and Responsible Agency Mission

The mission of the California Department of Fish and Wildlife (CDFW) is to manage California's diverse wildlife and native plant resources, and the habitats upon which they depend, for their ecological values and for their use and enjoyment by the public. CDFW has jurisdiction over the conservation, protection, and management of wildlife, native plants, and habitat necessary to maintain biologically sustainable populations (Fish & G. Code, § 1802). CDFW, as trustee agency under CEQA Guidelines section 15386, provides expertise in reviewing and commenting on environmental documents and provides protocols regarding potential negative impacts to those resources held in trust for the people of California.

Certain species are in danger of extinction because their habitats have been severely reduced in acreage, are threatened with destruction or adverse modification, or because of a combination of these and other factors. The California Endangered Species Act (CESA) and Native Plant Protection Act (NPPA) provide additional protections for such species, including take prohibitions (Fish & G. Code, § 2050 *et seq.*; Fish & G. Code, § 1908). As a responsible agency, CDFW has the authority to issue permits for the take of species listed under CESA and NPPA if the take is incidental to an otherwise lawful activity; CDFW has determined that the impacts of the take have been minimized and fully mitigated; and the take would not jeopardize the continued existence of the species (Fish & G. Code, § 2081, subd. (b); Cal. Code Regs., tit. 14 § 786.9, subd. (b)). Botanical field surveys are one of the preliminary steps to detect special status plant species and sensitive natural communities that may be impacted by a project.

Definitions

Botanical field surveys provide information used to determine the potential environmental effects of proposed projects on special status plants and sensitive natural communities as required by law (e.g., CEQA, CESA, and federal Endangered Species Act (ESA)).

Special status plants, for the purposes of this document, include all plants that meet one or more of the following criteria:

- Listed or proposed for listing as threatened or endangered under the ESA or candidates for possible future listing as threatened or endangered under the ESA (50 C.F.R., § 17.12).
- Listed or candidates for listing by the State of California as threatened or endangered under CESA (Fish & G. Code, § 2050 et seq.).[4] In CESA, “endangered species” means a native species or subspecies of plant which is in serious danger of becoming extinct throughout all, or a significant portion, of its range due to one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, or disease (Fish & G. Code, § 2062). “Threatened species” means a native species or subspecies of plant that,

[4] Refer to current online published lists available at: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=109390&inline

although not presently threatened with extinction, is likely to become an endangered species in the foreseeable future in the absence of the special protection and management efforts required by CESA (Fish & G. Code, § 2067). "Candidate species" means a native species or subspecies of plant that the California Fish and Game Commission has formally noticed as being under review by CDFW for addition to either the list of endangered species or the list of threatened species, or a species for which the California Fish and Game Commission has published a notice of proposed regulation to add the species to either list (Fish & G. Code, § 2068).

- Listed as rare under the California Native Plant Protection Act (Fish & G. Code, § 1900 et seq.). A plant is rare when, although not presently threatened with extinction, the species, subspecies, or variety is found in such small numbers throughout its range that it may be endangered if its environment worsens (Fish & G. Code, § 1901).
- Meet the definition of endangered, rare, or threatened species under CEQA Guidelines section 15380, subdivisions (b) and (d), which may include:
    - Plants tracked by the California Natural Diversity Database (CNDDB) as California Rare Plant Rank (CRPR) 1 or 2;[5] and
    - Plants that may warrant consideration on the basis of declining trends, recent taxonomic information, or other factors. This includes plants tracked by the CNDDB as CRPR 3 or 4.[6]
- Considered locally significant plants, that is, plants that are not rare from a statewide perspective but are rare or uncommon in a local context such as within a county or region (CEQA Guidelines, § 15125, subd. (c)), or as designated in local or regional plans, policies, or ordinances (CEQA Guidelines, Appendix G). Examples include plants that are at the outer limits of their known geographic range or plants occurring on an atypical soil type.

Sensitive natural communities are communities that are of limited distribution statewide or within a county or region and are often vulnerable to environmental effects of projects. These communities may or may not contain special status plants or their habitat. CDFW's *List of California Terrestrial Natural Communities*[7] is based on the best available information, and indicates which natural communities are considered sensitive at the current stage of the California vegetation classification effort. See the Vegetation

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5 See CNDDB's Special Vascular Plants, Bryophytes, and Lichens List for plant taxa with a CRPR of 1 or 2: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=109383&inline

6 CRPR 3 plants (plants about which more information is needed) and CRPR 4 plants (plants of limited distribution) may warrant consideration under CEQA Guidelines section 15380. Impacts to CRPR 3 plants may warrant consideration under CEQA if sufficient information is available to assess potential impacts to such plants. Impacts to CRPR 4 plants may warrant consideration under CEQA if cumulative impacts to such plants are significant enough to affect their overall rarity. Data on CRPR 3 and 4 plants should be submitted to CNDDB. Such data aids in determining and revising the CRPR of plants. See CNDDB's Special Vascular Plants, Bryophytes, and Lichens List for plant taxa with a CRPR of 3 or 4: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=109383&inline

7 Available at: https://wildlife.ca.gov/Data/VegCAMP/Natural-Communities#natural communities lists

Classification and Mapping Program (VegCAMP) website for additional information on natural communities and vegetation classification.[8]

2. BOTANICAL FIELD SURVEYS

Evaluate the need for botanical field surveys prior to the commencement of any activities that may modify vegetation, such as clearing, mowing, or ground-breaking activities. It is appropriate to conduct a botanical field survey when:

- Natural (or naturalized) vegetation occurs in an area that may be directly or indirectly affected by a project (project area), and it is unknown whether or not special status plants or sensitive natural communities occur in the project area;
- Special status plants or sensitive natural communities have historically been identified in a project area; or
- Special status plants or sensitive natural communities occur in areas with similar physical and biological properties as a project area.

Survey Objectives

Conduct botanical field surveys in a manner which maximizes the likelihood of locating special status plants and sensitive natural communities that may be present. Botanical field surveys should be floristic in nature, meaning that every plant taxon that occurs in the project area is identified to the taxonomic level necessary to determine rarity and listing status. “Focused surveys” that are limited to habitats known to support special status plants or that are restricted to lists of likely potential special status plants are not considered floristic in nature and are not adequate to identify all plants in a project area to the level necessary to determine if they are special status plants.

For each botanical field survey conducted, include a list of all plants and natural communities detected in the project area. More than one field visit is usually necessary to adequately capture the floristic diversity of a project area. An indication of the prevalence (estimated total numbers, percent cover, density, etc.) of the special status plants and sensitive natural communities in the project area is also useful to assess the significance of a particular plant population or natural community.

Survey Preparation

Before botanical field surveys are conducted, the botanical field surveyors should compile relevant botanical information in the general project area to provide a regional context. Consult the CNDDB[9] and BIOS[10] for known occurrences of special status plants and sensitive natural communities in the project area prior to botanical field surveys. Generally, identify vegetation and habitat types potentially occurring in the project area based on biological and physical properties (e.g., soils) of the project area

[8] Available at: https://www.wildlife.ca.gov/Data/VegCAMP
[9] Available at: https://www.wildlife.ca.gov/Data/CNDDB
[10] Available at: https://www.wildlife.ca.gov/Data/BIOS

and surrounding ecoregion.[11] Then, develop a list of special status plants and sensitive natural communities with the potential to occur within the vegetation and habitat types identified. The list of special status plants with the potential to occur in the project area can be created with the help of the CNDDB QuickView Tool[12] which allows the user to generate lists of CNDDB-tracked elements that occur within a particular U.S. Geological Survey 7.5' topographic quad, surrounding quads, and counties within California. Resulting lists should only be used as a tool to facilitate the use of reference sites, with the understanding that special status plants and sensitive natural communities in a project area may not be limited to those on the list. Botanical field surveys and subsequent reporting should be comprehensive and floristic in nature and not restricted to or focused only on a list. Include in the botanical survey report the list of potential special status plants and sensitive natural communities that was created, and the list of references used to compile the background botanical information for the project area.

Survey Extent

Botanical field surveys should be comprehensive over the entire project area, including areas that will be directly or indirectly impacted by the project. Adjoining properties should also be surveyed where direct or indirect project effects could occur, such as those from fuel modification, herbicide application, invasive species, and altered hydrology. Surveys restricted to known locations of special status plants may not identify all special status plants and sensitive natural communities present, and therefore do not provide a sufficient level of information to determine potential impacts.

Field Survey Method

Conduct botanical field surveys using systematic field techniques in all habitats of the project area to ensure thorough coverage. The level of effort required per given area and habitat is dependent upon the vegetation and its overall diversity and structural complexity, which determines the distance at which plants can be identified. Conduct botanical field surveys by traversing the entire project area to ensure thorough coverage, documenting all plant taxa observed. Parallel survey transects may be necessary to ensure thorough survey coverage in some habitats. The level of effort should be sufficient to provide comprehensive reporting. Additional time should be allocated for plant identification in the field.

Timing and Number of Visits

Conduct botanical field surveys in the field at the times of year when plants will be both evident and identifiable. Usually this is during flowering or fruiting. Space botanical field survey visits throughout the growing season to accurately determine what plants exist in the project area. This usually involves multiple visits to the project area (e.g., in early, mid, and late-season) to capture the floristic diversity at a level necessary to determine

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[11] Ecological Subregions of the United States, available at: http://www.fs.fed.us/land/pubs/ecoregions/toc.html

[12] Available at: https://www.wildlife.ca.gov/Data/CNDDB/Maps-and-Data. When creating a list of special status plants with the potential to occur in a project area, special care should be taken to search all quads with similar geology, habitats, and vegetation to those found in the project area.

if special status plants are present.[13] The timing and number of visits necessary to determine if special status plants are present is determined by geographic location, the natural communities present, and the weather patterns of the year(s) in which botanical field surveys are conducted.

Reference Sites

When special status plants are known to occur in the type(s) of habitat present in a project area, observe reference sites (nearby accessible occurrences of the plants) to determine whether those special status plants are identifiable at the times of year the botanical field surveys take place and to obtain a visual image of the special status plants, associated habitat, and associated natural communities.

Use of Existing Surveys

For some project areas, floristic inventories or botanical survey reports may already exist. Additional botanical field surveys may be necessary for one or more of the following reasons:

- Botanical field surveys are not current;[14]
- Botanical field surveys were conducted in natural systems that commonly experience year to year fluctuations such as periods of drought or flooding (e.g., vernal pool habitats or riverine systems);
- Botanical field surveys did not cover the entire project area;
- Botanical field surveys did not occur at the appropriate times of year;
- Botanical field surveys were not conducted for a sufficient number of years to detect plants that are not evident and identifiable every year (e.g., geophytes, annuals, and some short-lived plants);
- Botanical field surveys did not identify all plants in the project area to the taxonomic level necessary to determine rarity and listing status;
- Fire history, land use, or the physical or climatic conditions of the project area have changed since the last botanical field survey was conducted;
- Changes in vegetation or plant distribution have occurred since the last botanical field surveys were conducted, such as those related to habitat alteration, fluctuations in abundance, invasive species, seed bank dynamics, or other factors; or

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[13] U.S. Fish and Wildlife Service Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed and Candidate Plants available at: https://www.fws.gov/sacramento/es/Survey-Protocols-Guidelines/

[14] Habitats, such as grasslands or desert plant communities that have annual and short-lived perennial plants as major floristic components, may require multiple annual surveys to fully capture baseline conditions. In habitats dominated by long-lived perennial plants, such as forests, surveys that were not conducted within the previous five years may not adequately represent the current baseline conditions and should be re-conducted.

- Recent taxonomic studies, status reviews or other scientific information has resulted in a revised understanding of the special status plants with potential to occur in the project area.

Negative Surveys

Adverse conditions from yearly weather patterns may prevent botanical field surveyors from determining the presence of, or accurately identifying, some special status plants in the project area. Disease, drought, predation, fire, herbivory, or other disturbance may also preclude the presence or identification of special status plants in any given year. Discuss all adverse conditions in the botanical survey report.[15]

The failure to locate a known special status plant occurrence during one field season does not constitute evidence that the plant occurrence no longer exists at a location, particularly if adverse conditions are present. For example, botanical field surveys over a number of years may be necessary if the special status plant is an annual or short-lived plant having a persistent, long-lived seed bank and populations of the plant are known to not germinate every year. Visiting the project area in more than one year increases the likelihood of detecting special status plants, particularly if conditions change. To further substantiate negative findings for a known occurrence, a visit to a nearby reference site may help ensure that the timing of botanical field surveys was appropriate.

3. REPORTING AND DATA COLLECTION

Adequate information about special status plants and sensitive natural communities present in a project area will enable reviewing agencies and the public to effectively assess potential impacts to special status plants and sensitive natural communities and will guide the development of avoidance, minimization, and mitigation measures. The information necessary to assess impacts to special status plants and sensitive natural communities is described below. For comprehensive, systematic botanical field surveys where no special status plants or sensitive natural communities were found, reporting and data collection responsibilities for botanical field surveyor remain as described below, excluding specific occurrence information.

Special Status Plant and Sensitive Natural Community Observations

Record the following information for locations of each special status plant and sensitive natural community detected during a botanical field survey of a project area.

- The specific geographic locations where the special status plants and sensitive natural communities were found. Preferably this will be done by use of global positioning system (GPS) and include the datum[16] in which the spatial data was

[15] U.S. Fish and Wildlife Service Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed and Candidate Plants available at: https://www.fws.gov/sacramento/es/Survey-Protocols-Guidelines/

[16] NAD83, NAD27 or WGS84

collected and any uncertainty or error associated with the data. If GPS is not available, a detailed map (1:24,000 or larger) showing locations and boundaries of each special status plant population and sensitive natural community in relation to the project area is acceptable. Mark occurrences and boundaries as accurately as possible;

- The site-specific characteristics of occurrences, such as associated species, habitat and microhabitat, structure of vegetation, topographic features, soil type, texture, and soil parent material. If a special status plant is associated with a wetland, provide a description of the direction of flow and integrity of surface or subsurface hydrology and adjacent off-site hydrological influences as appropriate;
- The number of individuals in each special status plant population as counted (if population is small) or estimated (if population is large);
- If applicable, information about the percentage of each special status plant in each life stage such as seedling, vegetative, flowering, and fruiting;
- The density of special status plants, identifying areas of relatively high, medium and low density of each special status plant in the project area; and
- Digital images of special status plants and sensitive natural communities in the project area, with diagnostic features.

Special Status Plant and Sensitive Natural Community Documentation

When a special status plant is located, data must be submitted to the CNDDB. Data may be submitted in a variety of formats depending on the amount and type of data that is collected.[17] The most common way to submit data is the Online CNDDB Field Survey Form,[18] or equivalent written report, accompanied by geographic locality information (GPS coordinates, GIS shapefiles, KML files, topographic map, etc.). Data submitted in digital form must include the datum[19] in which it was collected.

If a sensitive natural community is found in a project area, document it with a Combined Vegetation Rapid Assessment and Relevé Field Form[20] and submit the form to VegCAMP.[21]

Voucher Collection

Voucher specimens provide verifiable documentation of special status plant presence and identification and a scientific record. This information is vital to conservation efforts and valuable for scientific research. Collection of voucher specimens should be

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17 See https://www.wildlife.ca.gov/Data/CNDDB/Submitting-Data for information on acceptable data submission formats.

18 Available at: https://www.wildlife.ca.gov/Data/CNDDB/Submitting-Data

19 NAD83, NAD27 or WGS84

20 Available at: https://www.wildlife.ca.gov/Data/VegCAMP/Natural-Communities/Submit

21 Combined Vegetation Rapid Assessment and Releve Field Forms can be emailed to VegCAMP staff. Contact information available at: https://www.wildlife.ca.gov/Data/VegCAMP

conducted in a manner that is consistent with conservation ethics, and in accordance with applicable state and federal permit requirements (e.g., scientific, educational, or management permits pursuant to Fish & G. Code, § 2081, subd. (a)). Voucher collections of special status plants (or possible special status plants) should only be made when such actions would not jeopardize the continued existence of the population. A plant voucher collecting permit[22] is required from CDFW prior to the take or possession of a state-listed plant for voucher collection purposes, and the permittee must comply with all permit conditions.

Voucher specimens should be deposited in herbaria that are members of the Consortium of California Herbaria[23] no later than 120 days after the collections have been made. Digital imagery can be used to supplement plant identification and document habitat. Record all relevant collector names and permit numbers on specimen labels (if applicable).

Botanical Survey Reports

Botanical survey reports provide an important record of botanical field survey results and project area conditions. Botanical survey reports containing the following information should be prepared whenever botanical field surveys take place, and should also be submitted with project environmental documents:

Project and location description

- A description of the proposed project;
- A detailed map of the project area that identifies topographic and landscape features and includes a north arrow and bar scale;
- A vegetation map of the project area using Survey of California Vegetation Classification and Mapping Standards[24] at a thematic and spatial scale that allows the display of all sensitive natural communities;
- A soil map of the project area; and
- A written description of the biological setting, including all natural communities; geological and hydrological characteristics; and land use or management history.

Detailed description of survey methodology and results

- Names and qualifications of botanical field surveyor(s);
- Dates of botanical field surveys (indicating the botanical field surveyor(s) that surveyed each area on each survey date), and total person-hours spent;
- A discussion of the survey preparation methodology;
- A list of special status plants and sensitive natural communities with potential to

[22] Applications available at: https://www.wildlife.ca.gov/Conservation/Plants/Permits

[23] A list of Consortium of California Herbaria participants is available at: http://ucjeps.berkeley.edu/consortium/participants.html

[24] Available at: https://www.wildlife.ca.gov/data/vegcamp/publications-and-protocols

occur in the region;

- Description(s) of reference site(s), if visited, and the phenological development of special status plant(s) at those reference sites;
- A description and map of the area surveyed relative to the project area;
- A list of all plant taxa occurring in the project area, with all taxa identified to the taxonomic level necessary to determine whether or not they are a special status plant;
- Detailed data and maps for all special status plants and sensitive natural communities detected. Information specified above under the headings "Special Status Plant and Sensitive Natural Community Observations," and "Special Status Plant and Sensitive Natural Community Documentation," should be provided for the locations of each special status plant and sensitive natural community detected. Copies of all California Native Species Field Survey Forms and Combined Vegetation Rapid Assessment and Relevé Field Forms should be sent to the CNDDB and VegCAMP, respectively, and included in the project environmental document as an Appendix;[25]
- A discussion of the potential for a false negative botanical field survey;
- A discussion of how climatic conditions may have affected the botanical field survey results;
- A discussion of how the timing of botanical field surveys may affect the comprehensiveness of botanical field surveys;
- Any use of existing botanical field surveys and a discussion of their applicability to the project;
- The deposition locations of voucher specimens, if collected; and
- A list of references used, including persons contacted and herbaria visited.

Assessment of potential project impacts

- A discussion of the significance of special status plant populations in the project area considering nearby populations and total range and distribution;
- A discussion of the significance of sensitive natural communities in the project area considering nearby occurrences and natural community distribution;
- A discussion of project related direct, indirect, and cumulative impacts to special status plants and sensitive natural communities;
- A discussion of the degree and immediacy of all threats to special status plants and sensitive natural communities, including those from invasive species;
- A discussion of the degree of impact, if any, of the project on unoccupied,

[25] It is not necessary to submit entire environmental documents to the CNDDB.

potential habitat for special status plants; and

- Recommended measures to avoid, minimize, or mitigate impacts to special status plants and sensitive natural communities.

4. BOTANICAL FIELD SURVEYOR QUALIFICATIONS

Botanical field surveyors should possess the following qualifications:

- Knowledge of plant taxonomy and natural community ecology;
- Familiarity with plants of the region, including special status plants;
- Familiarity with natural communities of the region, including sensitive natural communities;
- Experience with the CNDDB, BIOS, and Survey of California Vegetation Classification and Mapping Standards;
- Experience conducting floristic botanical field surveys as described in this document, or experience conducting such botanical field surveys under the direction of an experienced botanical field surveyor;
- Familiarity with federal, state, and local statutes and regulations related to plants and plant collecting; and
- Experience analyzing the impacts of projects on native plant species and sensitive natural communities.

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This document is available online at: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=18959&inline

SPECIAL ANIMALS LIST

October 2025

State of California

Natural Resources Agency

Department of Fish and Wildlife

Biogeographic Data Branch

California Natural Diversity Database (CNDDB)

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Special Animals

"Special Animals" is a broad term used to refer to all the animal taxa tracked by the California Department of Fish and Wildlife's (CDFW) California Natural Diversity Database (CNDDB), regardless of their legal or protection status. This list is also referred to as the list of "species at risk" or "special status species." The Special Animals List includes species, subspecies, Distinct Population Segments (DPS), or Evolutionarily Significant Units (ESU) where at least one of the following conditions applies:

- Officially listed or proposed for listing under state and/or federal endangered species acts
- Taxa considered by the Department of Fish and Wildlife to be a Species of Special Concern (SSC)
- Taxa which meet the criteria for listing, even if not currently included on any list, as described in Section 15380 of the California Environmental Quality Act Guidelines
- Taxa that are biologically rare, very restricted in distribution, or declining throughout their range, but not currently threatened with extirpation
- Population(s) in California that may be peripheral to the major portion of a taxon's range but are threatened with extirpation in California
- Taxa closely associated with a habitat that is declining in California at a significant rate (e.g., wetlands, riparian, vernal pools, old growth forests, desert aquatic systems, native grasslands, valley shrubland habitats, etc.)
- Taxa designated as a special status, sensitive, or declining species by other state or federal agencies, or a non-governmental organization (NGO), and determined by the CNDDB to be rare, restricted, declining, or threatened across their range in California

The Special Animals List contains taxa that are actively inventoried, tracked, and mapped by the CNDDB, as well as taxa for which mapped data may not yet be incorporated into CNDDB user products. For the latter taxa, information at the county

and 7.5-minute USGS quadrangle level can be accessed via the CNDDB QuickView Tool.

Taxa with a "Yes" in the "End Notes?" column have additional information in the End Notes section at the back of the list.

Additional information about the California Natural Diversity Database is available on the CNDDB website.

Information on other CDFW resource management programs is available on the Department's Conservation and Management of Wildlife and Habitat website.

The CDFW Wildlife Diversity Program provides additional information on wildlife habitat, threats, and survey guidelines.

NatureServe Element Ranking

The California Natural Diversity Database program is a member of the NatureServe Network of natural heritage programs and uses the same conservation status methodology as other network programs. The ranking system was originally developed by The Nature Conservancy and is now maintained and recently revised by NatureServe. It includes a **Global rank** (G-rank), describing the status for a given taxon over its entire distribution, and a **State rank** (S-rank), describing the status for the taxon over its state distribution. For subspecies and varieties, there is also a "T" rank describing the global rank for the infraspecific taxon. The next page of this document details the criteria used to assign element ranks, from G1 to G5 for the Global rank and from S1 to S5 for the State rank. Procedurally, state programs such as the CNDDB develop the State ranks. The Global ranks are determined collaboratively among the Heritage Programs for the states/provinces containing the species. NatureServe then checks for consistency and logical errors at the national level. Because the units of conservation may include non-taxonomic biological entities such as populations or ecological communities, NatureServe refers to the targets of biological conservation as "elements" rather than taxa.

An element rank is assigned using standard criteria and rank definitions. This standardization makes the ranks comparable between organisms and across political boundaries. NatureServe has developed a "rank calculator" to help increase repeatability and transparency of the ranking process. The three main categories that are taken into consideration when assigning an element rank are rarity, threats, and trends. Within these three categories, various factors are considered, including:

- Range extent, area of occupancy, population size, total number of occurrences, and number of good occurrences (ranked A or B). Environmental specificity can also be used if other information is lacking.
- Overall threat impact as well as intrinsic vulnerability (if threats are unknown).
- Long-term and short-term trends.

Detailed information on this element ranking methodology can be found on the NatureServe Conservation Status Assessment website.

Listed below are definitions for interpreting global and state conservation status ranks. An element's ranking status may be adjusted up or down depending upon the considerations above.

Global Ranking

The global rank (G-rank) is a reflection of the overall status of an element throughout its global range.

- **GX: Presumed Extinct** – Not located despite intensive searches and virtually no likelihood of rediscovery.
- **GH: Possibly Extinct** – Known from only historical occurrences but still some hope of rediscovery. Examples of evidence include (1) that a species has not been documented in approximately 20-40 years despite some searching and/or some evidence of significant habitat loss or degradation; (2) that a species has been searched for unsuccessfully, but not thoroughly enough to presume that it is extinct throughout its range.
- **G1: Critically Imperiled** – At very high risk of extinction due to very restricted range, very few populations or occurrences, very steep declines, very severe threats, or other factors.
- **G2: Imperiled** – At high risk of extinction due to restricted range, few populations or occurrences, steep declines, severe threats, or other factors.
- **G3: Vulnerable** – At moderate risk of extinction due to a fairly restricted range, relatively few populations or occurrences, recent and widespread declines, threats, or other factors.
- **G4: Apparently Secure** – At fairly low risk of extinction due to an extensive range and/or many populations or occurrences, but with possible cause for some concern as a result of local recent declines, threats, or other factors.

- **G5: Secure** – At very low risk of extinction due to a very extensive range, abundant populations or occurrences, and little to no concern from declines or threats.
- **GNR: Unranked** – Global rank not yet assessed.

State Ranking

The state rank (S-rank) is assigned in much the same way as the global rank, but state ranks refer to the imperilment status only within California's state boundaries.

- **SX: Presumed Extirpated** – Species is believed to be extirpated from the state Not located despite intensive searches of historical sites and other appropriate habitat, and virtually no likelihood that it will be rediscovered
- **SH: Possibly Extirpated** – Known from only historical records but still some hope of rediscovery. There is evidence that the species may no longer be present in the state, but not enough to state this with certainty. Examples of such evidence include (1) that a species has not been documented in approximately 20-40 years despite some searching and/or some evidence of significant habitat loss or degradation; (2) that a species has been searched for unsuccessfully, but not thoroughly enough to presume that it is no longer present in the jurisdiction.
- **S1: Critically Imperiled** – At very high risk of extirpation in the state due to very restricted range, very few populations or occurrences, very steep declines, severe threats, or other factors.
- **S2: Imperiled** – At high risk of extirpation in the state due to restricted range, few populations or occurrences, steep declines, severe threats, or other factors.
- **S3: Vulnerable** – At moderate risk of extirpation in the state due to a fairly restricted range, relatively few populations or occurrences, recent and widespread declines, threats, or other factors.
- **S4: Apparently Secure** – At a fairly low risk of extirpation in the state due to an extensive range and/or many populations or occurrences, but with possible cause for some concern as a result of local recent declines, threats, or other factors.

- **S5: Secure** – At very low or no risk of extirpation in the state due to a very extensive range, abundant populations or occurrences, and little to no concern from declines or threats.
- **SNR: Unranked** – State rank not yet assessed.

Additional Notes on NatureServe Ranks

- Rank Qualifiers
    1. Taxa which are subspecies receive a taxon rank (**T-rank**) in addition to the G-rank. Whereas the G-rank reflects the condition of the entire species, the T-rank reflects the global status of just the subspecies. For example, the Point Reyes mountain beaver, *Aplodontia rufa* ssp. *phaea*, is ranked G5T2. The G-rank refers to the whole species, i.e., *Aplodontia rufa*; the T-rank refers only to the global condition of ssp. *phaea*.
    2. **C = Captive or Cultivated Only** — taxon at present is presumed or possibly extinct or eliminated in the wild across their entire native range but is extant in cultivation, in captivity, as a naturalized population (or populations) outside their native range, or as a reintroduced population not yet established. The “C” modifier is only used at a global level and not at a state level. Possible ranks are GXC or GHC.
    3. **Q = Questionable taxonomy** that may reduce conservation priority — Distinctiveness of this entity as a taxon at the current level is questionable; resolution of this uncertainty may result in change from a species to a subspecies or hybrid, or inclusion of this taxon in another taxon, with the resulting taxon having a lower-priority (numerically higher) conservation status rank. The “Q” modifier is only used at the global level, not at the state level.
- Uncertainty about the status of an element is expressed in two major ways:
    1. By expressing the ranks as a **range** of values: e.g., S2S3 indicates the rank is somewhere between S2 and S3.
    2. By adding a “**?**” to the rank: e.g., S2?; this represents more certainty than S2S3, but less certainty than S2.

- Other considerations used when ranking a species include the pattern of distribution of the element on the landscape, fragmentation of the population, and historical extent as compared to its modern range. It is important to take an overall view when ranking sensitive elements rather than simply counting element occurrences.

Animal Element Occurrences and Mapping

What is an Element Occurrence?

An Element Occurrence (EO) is a location where a given element has been documented to occur. It is a concept developed and applied within the NatureServe natural heritage network. An EO is not a population, but may indicate that a population is present in that area; likewise, a single population may be represented by more than one EO. An EO is based upon the source documents available at the time of mapping. Both the mapped feature and the text portion of EOs are updated as new information becomes available.

Element Occurrence Definitions Vary by Taxa

The EO definition refers to the types of information mapped. For most animal taxa, the CNDDB is interested in information that indicates the presence of a resident population. However, for many migratory birds, the CNDDB only tracks detections of nest sites or behaviors indicating reproduction is occurring at the site. Details about avian detections are available in the Submitting Avian Detections document. For other taxa where CNDDB tracks only a certain part of the range or life history, the area or life stage is indicated on the list under the “Comment” column.

Mapping Conventions

Information in CNDDB is mapped to balance precision and uncertainty, based upon the source materials used to determine the location of the Element Occurrence. Data with precise location information are mapped with 80m-radius circles or specific polygons. Data with vague location information are mapped with non-specific circular features or non-specific polygons. Non-specific features indicate that the species was found somewhere within the mapped area, but the exact location was unknown. Generally, observations/collections within ¼ mile and/or within continuous habitat are combined into a single EO.

Taxonomic Standards

Taxonomic References and Sources of Additional Information

The CNDDB follows current published taxonomy for animals as recognized by the scientific organizations listed below. The CNDDB reviews publications that propose new taxonomy and nomenclature for CNDDB-tracked species and evaluates whether these proposals are recognized by the larger scientific community. The CNDDB makes every effort to use the best available science in the taxonomy used, but different experts may recognize different names for some time after a taxonomic change is proposed. In these cases, the CNDDB will generally use the preexisting nomenclature until a change is formally recognized beyond the initial publication. In addition, the CNDDB recognizes some taxa identified by experts on the California fauna where these taxa may not be recognized by national biological societies. Generally, the taxonomy used by NatureServe is followed, with additional evaluation of taxonomy from the following sources:

- Reptiles and amphibians:
    - The Center for North American Herpetology
    - The Society for the Study of Amphibians and Reptiles
- Fishes:
    - Fricke, R., Eschmeyer, W. N. & R. van der Laan (eds) 2022. Eschmeyer's catalog of fishes: genera, species, references. Electronic version.
    - Jelks, H.L., S.J. Walsh, N.M. Burkhead, S. Contreras-Balderas, E. Díaz-Pardo, D.A. Hendrickson, J. Lyons, N.E. Mandrak, F. McCormick, J.S. Nelson, S.P. Platania, B.A. Porter, C.B. Renaud, J.J. Schmitter-Soto, E.B. Taylor, and M.L. Warren, Jr. 2008. Conservation status of imperiled North American freshwater and diadromous fishes. Fisheries 33(8):372-407.
    - Lawrence M. Page, Héctor Espinosa-Pérez, Lloyd T. Findley, Carter R. Gilbert, Robert N. Lea, Nicholas E. Mandrak, Richard L. Mayden, and Joseph S. Nelson. 2013. Common and scientific names of fishes from the

United States, Canada, and Mexico, 7th edition. American Fisheries Society, Special Publication 34. 243 pp.

    - Moyle, P. B. 2002. Inland fishes of California. University of California Press.

- Birds:
    - The checklist of the American Ornithologists' Union
- Mammals:
    - The American Society of Mammalogists
    - Bradley, R.D., L.K. Ammerman, R.J. Baker, L.C. Bradley, J.A. Cook, R.C. Dowler, C. Jones, D.J. Schimdly, F.B. Stangl Jr., R.A. Van Den Bussche, and B. Wursig. 2014. Revised checklist of North American mammals north of Mexico, 2014. Museum of Texas Tech University Occasional Papers 327:1-28.

Listing and Special Status Information

CALIFORNIA ENDANGERED SPECIES ACT (CESA) LISTING CODES: The listing status of each species is current as of the date of this list. The most current changes in listing status will be found in the "Endangered and Threatened Animals List," which the CNDDB updates and issues quarterly. Additional information can be found on the California Fish and Game Commission CESA web page.

- SE State listed as endangered
- ST State listed as threatened
- SC State candidate for listing as endangered or threatened

FEDERAL ENDANGERED SPECIES ACT (ESA) LISTING CODES: The listing status is current as of the date of this list. The most current changes in listing status will be found in the "Endangered and Threatened Animals List," which the CNDDB updates and issues quarterly. Federal listing actions are published in the Federal Register.

- FE Federally listed as endangered
- FT Federally listed as threatened
- FPE Federally proposed for listing as endangered
- FPT Federally proposed for listing as threatened
- FC Federal candidate species (former Category 1 candidates)

Section 4(c)(2)(A) of the Act requires the U.S. Fish and Wildlife Service and the National Marine Fisheries Service to conduct a review of listed species at least once every five years. Five year reviews are made available by the U.S. Fish and Wildlife Service and the National Marine Fisheries Service.

OTHER STATUS CODES: The status of species on the Special Animals List according to other conservation organizations is provided below. Taxa on these lists are reviewed for inclusion in the CNDDB Special Animals List, but are not automatically included. For example, taxa that are regionally rare within a portion of California may not be included, because they may be of lesser conservation concern across their full range in California.

- **American Fisheries Society (AFS):**
    1. Designations for freshwater and diadromous species were taken from the paper:
        - Jelks, H.L., S.J. Walsh, N.M. Burkhead, S. Contreras-Balderas, E. Díaz-Pardo, D.A. Hendrickson, J. Lyons, N.E. Mandrak, F. McCormick, J.S. Nelson, S.P. Platania, B.A. Porter, C.B. Renaud, J.J. Schmitter-Soto, E.B. Taylor, and M.L. Warren, Jr. 2008. Conservation status of imperiled North American freshwater and diadromous fishes. Fisheries 33(8):372-407.
    2. Designations for marine and estuarine species were taken from the paper:
        - Musick, J.A. et al. 2000. Marine, Estuarine, and Diadromous Fish Stocks at Risk of Extinction in North America (Exclusive of Pacific Salmonids). Fisheries 25(11):6-30.
- **Bureau of Land Management (BLM) Sensitive:** Bureau of Land Management Manual §6840 states that "BLM sensitive species are: (1) species listed or proposed for listing under the Endangered Species Act (ESA), and (2) species requiring special management consideration to promote their conservation and reduce the likelihood and need for future listing under the ESA, which are designated as Bureau sensitive by the State Director(s). All Federal candidate species, proposed species, and delisted species in the 5 years following delisting will be conserved as Bureau sensitive species." Downloadable copies of the California-BLM Special Status Animals and Sensitive Species Lists are available.
- **California Department of Forestry and Fire Protection (CDF) Sensitive:** California Department of Forestry and Fire Protection classifies "sensitive species" as those species that warrant special protection during timber operations. The list of "sensitive species" is given in §895.1 (Definitions) of the California Forest Practice Rules.
- **CDFW Fully Protected:** The classification of Fully Protected was the State's initial effort to identify and provide additional protection to those animals that were rare or faced possible extinction. Lists were created for fish, amphibians and reptiles, birds, and mammals. Most of the species on these lists have

subsequently been listed under the California and/or federal endangered species acts; the exceptions are white-tailed kite, golden eagle, trumpeter swan, northern elephant seal, and ringtail cat. The white-tailed kite, golden eagle, and ringtail cat are tracked in the CNDDB. The trumpeter swan and northern elephant seal are not tracked by the CNDDB. The Fish and Game Code sections dealing with Fully Protected species state that these species "...may not be taken or possessed at any time and no provision of this code or any other law shall be construed to authorize the issuance of permits or licenses to take any fully protected" species, although take may be authorized for necessary scientific research. This language arguably makes the "Fully Protected" designation the strongest and most restrictive regarding the "take" of these species. In 2003, code sections dealing with Fully Protected species were amended to allow the Department to authorize take resulting from recovery activities for state-listed species. More information on Fully Protected species and the take provisions can be found in the Fish and Game Code: birds at §3511, mammals at §4700, reptiles and amphibians at §5050, and fish at §5515). Additional information on Fully Protected fish can be found in the California Code of Regulations, Title 14, Division 1, Subdivision 1, Chapter 2, Article 4, §5.93. The category of Protected Amphibians and Reptiles in Title 14 has been repealed. Senate Bill no. 147 (July 2023) removed American peregrine falcon, brown pelican, and thicktail chub as fully protected species under the Fish & Game Code because they have been delisted-recovered under CESA or are considered extinct.

- **CDFW Species of Special Concern (SSC):** It is the goal and responsibility of the Department of Fish and Wildlife to maintain viable populations of all native species. To this end, the Department has designated certain vertebrate species as “Species of Special Concern” because declining population levels, limited ranges, and/or continuing threats have made them vulnerable to extinction. The goal of designating SSCs is to halt or reverse their decline by calling attention to their plight and addressing the issues of concern early enough to secure their long-term viability. Not all SSCs have declined equally; some species may be just starting to decline, while others may have already reached the point where they

meet the criteria for listing as a threatened or endangered under state and/or federal endangered species acts.

- **CDFW Watch List Species:** Watch list species are taxa that were previously SSCs but do not currently meet SSC criteria, and for which there is concern and a need for additional information to clarify status.
- **International Union for Conservation of Nature (IUCN) Red List of Threatened Species:** The IUCN assesses, on a global scale, the conservation status of species, subspecies, varieties, and even selected subpopulations in order to highlight taxa threatened with extinction, and therefore promote their conservation. Detailed information is available from the IUCN Red List Online. When the CNDDB tracks a subunit (such as subspecies, DPS, or ESU) that does not have an IUCN status, the CNDDB either:
    1. Applies the IUCN status of the parent entity to the CNDDB element if the IUCN status is Critical (CR), Endangered, (EN), or Vulnerable (VU)
    2. Does not apply the IUCN status of the parent entity to the CNDDB element if the IUCN status is Near Threatened (NT), Least Concern (LC), or Data Deficient (DD).
- **Marine Mammal Commission (MMC) Marine Mammal Species of Special Concern:** Section 202 of the Marine Mammal Protection Act (MMPA) directs the MMC, in consultation with its Committee of Scientific Advisors, to make recommendations to the Department of Commerce, the Department of the Interior, and other federal agencies on research and management actions needed to conserve species of marine mammals. To meet this charge, the Commission devotes special attention to particular species and populations that are vulnerable to various types of human-related activities, impacts, and contaminants. Such species may include marine mammals listed as endangered or threatened under the federal ESA or as depleted under the MMPA. In addition, the Commission often directs special attention to other species or populations of marine mammals not so listed whenever special conservation challenges arise that may affect them. More information on the MMPA and the list of species is

available from the MMC Marine Mammal Species and Populations of Concern website.

- **United States Forest Service (USFS) Sensitive:** The USDA Forest Service defines sensitive species as plant and animal species identified by a regional forester that are not listed or proposed for listing under the federal Endangered Species Act for which population viability is a concern, as evidenced by significant current or predicted downward trends in population numbers or density, or significant current or predicted downward trends in habitat capability that would reduce a species' existing distribution. Regional Foresters shall identify sensitive species occurring within the region. More information on California species can be found on the Pacific Southwest Region (Region 5) Plants and Animals site, including links to download the Regional Forester's Sensitive Animal Species List.
- **U.S. Fish and Wildlife Service (USFWS) Birds of Conservation Concern:** The goal of the Birds of Conservation Concern 2021 report is to accurately identify the migratory and non-migratory bird species (beyond those already designated as federally threatened or endangered) that represent highest conservation priorities and draw attention to species in need of conservation action.

Table of Special Status Code Abbreviations

Organization	Abbreviation
American Fisheries Society - Endangered	AFS_EN
American Fisheries Society - Threatened	AFS_TH
American Fisheries Society - Vulnerable	AFS_VU
Bureau of Land Management - Sensitive	BLM_S
Calif Dept of Forestry & Fire Protection - Sensitive	CDF_S
Calif Dept of Fish & Wildlife - Fully Protected	CDFW_FP
Calif Dept of Fish & Wildlife - Species of Special Concern	CDFW_SSC
Calif Dept of Fish & Wildlife - Watch List	CDFW_WL
IUCN - Critically Endangered	IUCN_CR
IUCN - Endangered	IUCN_EN
IUCN - Vulnerable	IUCN_VU
IUCN - Near Threatened	IUCN_NT
IUCN - Least Concern	IUCN_LC
IUCN - Data Deficient	IUCN_DD
Marine Mammal Commission - Species of Special Concern	MMC_SSC
U.S. Forest Service - Sensitive	USFS_S
U.S. Fish & Wildlife Service Birds of Conservation Concern	USFWS_BCC

Special Animals List

(928 taxa)

Last updated October 3, 2025

The remainder of this document contains the CNDDB's Special Animals List, current as of the date on the title page of this document.

Invertebrates

PELECYPODA (clams and mussels)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Anodonta californiensis	California floater		G3	S2?	None	None	USFS:S	Yes	
Anodonta oregonensis	Oregon floater		G5	S2?	None	None	IUCN:LC	Yes	
Gonidea angulata	western ridged mussel		G3	S2	None	None	IUCN:VU	Yes	
Margaritifera falcata	western pearlshell		G3G4	S1S2	None	None	IUCN:NT	Yes	
Pisidium ultramontanum	montane peaclam		G1	S1	None	None	IUCN:VU USFS:S	Yes	

GASTROPODA (snails, slugs, and abalones)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Ammonitella yatesii	tight coin (=Yates' snail)		G1	S1	None	None	IUCN:VU	Yes	
Ancotrema voyanum	hooded lancetooth		G1G2	S1S2	None	None		Yes	
Assiminea infima	Badwater snail		G1	S1	None	None	IUCN:VU	Yes	
Binneya notabilis	Santa Barbara shelled slug		G1	S1	None	None	IUCN:DD	Yes	
Colligyrus convexus	canary duskysnail		G2	S2	None	None		Yes	
Eremarionta immaculata	white desertsnail		G1	S1	None	None	IUCN:VU	Yes	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Eremarionta millepalmarum	Thousand Palms desertsnail		G1	S1	None	None	IUCN:VU	No	
Eremarionta morongoana	Morongo (=Colorado) desertsnail		G1G3	S1	None	None	IUCN:NT	Yes	
Eremarionta rowelli bakerensis	Baker's desertsnail		G3G4T1	S1	None	None	IUCN:DD	Yes	
Eremarionta rowelli mccoiana	California McCoy snail		G3G4T1	S1	None	None	IUCN:DD	Yes	
Fluminicola seminalis	nugget pebblesnail		G2	S3	None	None	IUCN:DD USFS:S	Yes	
Glyptostoma gabrielense	San Gabriel chestnut		G2	S3	None	None		Yes	
Haliotis corrugata	pink abalone		G3?	S2?	None	None	IUCN:CR	No	
Haliotis cracherodii	black abalone		G3	S2	Endangered	None	IUCN:CR	Yes	
Haliotis fulgens	green abalone		G3G4	S2	None	None	IUCN:CR	No	
Haliotis kamtschatkana	pinto abalone		G4	S2	None	None	IUCN:EN	No	
Haliotis sorenseni	white abalone		G1	S2	Endangered	None	IUCN:CR	No	
Haplotrema catalinense	Santa Catalina lancetooth		G1	S1	None	None		Yes	
Haplotrema duranti	ribbed lancetooth		G1G2	S1S2	None	None		Yes	
Helisoma newberryi	Great Basin rams-horn		G1	S1S2	None	None	USFS:S	Yes	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Helminthoglypta allynsmithi	Merced Canyon shoulderband		G1	S1	None	None	IUCN:VU	Yes	
Helminthoglypta arrosa monticola	mountain shoulderband		G2G3T1	S1	None	None		Yes	
Helminthoglypta arrosa pomoensis	Pomo bronze shoulderband		G2G3T1	S1	None	None	IUCN:DD	Yes	
Helminthoglypta callistoderma	Kern shoulderband		G1	S1	None	None	IUCN:EN	Yes	
Helminthoglypta coelata	mesa shoulderband		G1	S1	None	None	IUCN:VU	Yes	
Helminthoglypta concolor	whitefir shoulderband		G1G2	S1S2	None	None		Yes	
Helminthoglypta fontiphila	Soledad shoulderband		G1	S1	None	None		Yes	
Helminthoglypta greggi	Mohave shoulderband		G2	S2	None	None		Yes	
Helminthoglypta hertleini	Oregon shoulderband		G3Q	S1S2	None	None		Yes	
Helminthoglypta milleri	peak shoulderband		G1	S1	None	None		Yes	
Helminthoglypta mohaveana	Victorville shoulderband		G1	S1	None	None	IUCN:NT	Yes	
Helminthoglypta nickliniana awania	Peninsula coast range shoulderband		G3T1	S1	None	None	IUCN:DD	Yes	
Helminthoglypta nickliniana bridgesi	Bridges' coast range shoulderband		G3T1	S1S2	None	None	IUCN:DD	Yes	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Helminthoglypta sanctaecrucis	Limu shoulderband		G1	S1S2	None	None		Yes	
Helminthoglypta sequoicola consors	redwood shoulderband		G2T1	S1	None	None	IUCN:DD	Yes	
Helminthoglypta stiversiana williamsi	Williams' bronze shoulderband		G1G2T1	S1	None	None	IUCN:DD	Yes	
Helminthoglypta talmadgei	Trinity shoulderband		G2	S2	None	None		Yes	
Helminthoglypta taylori	westfork shoulderband		G1	S1	None	None		Yes	
Helminthoglypta traskii pacoimensis	Pacoima shoulderband		G1G2T1	S1	None	None		Yes	
Helminthoglypta traskii traskii	Trask shoulderband		G1G2T1	S2S3	None	None		Yes	
Helminthoglypta uvasana	Grapevine shoulderband		G1	S1	None	None		Yes	
Helminthoglypta vasquezi	Vasquez shoulderband		G1	S1	None	None		Yes	
Helminthoglypta walkeriana	Morro shoulderband		G2	S2	Threatened	None	IUCN:CR	Yes	
Herpeteros angelus	Soledad desertsnail		G1	S1	None	None		No	
Hesperarion plumbeus	leaden slug		G2	S1S2	None	None		Yes	
Ipnobius robustus	robust tryonia		G1	S1	None	None		Yes	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Juga acutifilosa	topaz juga		G2?	S2	None	None	IUCN:NT USFS:S	Yes	
Juga chacei	Chace juga		G1	S1	None	None	USFS:S	Yes	
Juga occata	scalloped juga		G1	S1	None	None	IUCN:EN USFS:S	Yes	
Juga orickensis	redwood juga		G2	S1S3	None	None		Yes	
Lanx alta	highcap lanx		G2G3	S3	None	None		Yes	
Lanx patelloides	kneecap lanx		G2?	S2	None	None	USFS:S	Yes	
Littorina subrotundata	Newcomb's littorine snail		G5	S1S2	None	None		No	
Megomphix californicus	Natural Bridge megomphix		G3	S3	None	None		Yes	
Micrarionta facta	Santa Barbara islandsnail		G1G2	S1S2	None	None	IUCN:VU	Yes	
Micrarionta feralis	San Nicolas islandsnail		G1	S1	None	None	IUCN:CR	Yes	
Micrarionta gabbii	San Clemente islandsnail		G1	S1	None	None	IUCN:VU	Yes	
Micrarionta opuntia	pricklypear islandsnail		G1	S1	None	None	IUCN:VU	Yes	
Monadenia callipeplus	downy sideband		G1?	S1S2	None	None		Yes	
Monadenia chaceana	Siskiyou shoulderband		G2G3	S2	None	None		Yes	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Monadenia churchi	Klamath sideband		G3	S3	None	None		Yes	
Monadenia circumcarinata	keeled sideband		G3	S3	None	None	BLM:S IUCN:VU	Yes	
Monadenia cristulata	crested sideband		G1?	S1S2	None	None		Yes	
Monadenia fidelis leonina	A terrestrial snail		G4G5T1T2	S1S2	None	None		Yes	
Monadenia fidelis pronotis	rocky coast Pacific sideband		G4G5T1	S1	None	None	IUCN:DD	Yes	
Monadenia infumata ochromphalus	yellow-based sideband		G2T1T2	S1S2	None	None		Yes	
Monadenia infumata setosa	Trinity bristle snail		G2T2	S2	None	Threatened	IUCN:VU	Yes	
Monadenia marmarotis	marble sideband		G1	S1	None	None		Yes	
Monadenia mormonum buttoni	Button's Sierra sideband		G2T1T2	S1S2	None	None	IUCN:DD	Yes	
Monadenia mormonum hirsuta	hirsute Sierra sideband		G2T1	S1	None	None	BLM:S IUCN:DD	Yes	
Monadenia troglodytes troglodytes	Shasta sideband		G2T2	S2	None	None	USFS:S	Yes	
Monadenia troglodytes wintu	Wintu sideband		G2T2	S2	None	None	USFS:S	Yes	
Monadenia tuolumneana	Tuolumne sideband		G1	S1	None	None	BLM:S	Yes	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Monadenia yosemitensis	Yosemite sideband		G1	S1S2	None	None		Yes	
Noyo intersessa	Ten Mile shoulderband		G2	S1S2	None	None		Yes	
Pomatiopsis binneyi	robust walker		G1	S1	None	None		Yes	
Pomatiopsis californica	Pacific walker		G1	S1	None	None	IUCN:DD	Yes	
Pomatiopsis chacei	marsh walker		G1	S2	None	None		Yes	
Pristiloma shepardae	Shepard's snail		G1	S1	None	None		Yes	
Pristinicola hemphilli	pristine pyrg		G3	S1	None	None	IUCN:DD USFS:S	Yes	
Prophysaon sp. 1	Klamath taildropper		G3	S3	None	None		Yes	Yes
Punctum hannai	Trinity Spot		G2	S1S2	None	None		Yes	
Pyrgulopsis aardahli	Benton Valley (=Aahrdahl's) springsnail		G1	S1	None	None		Yes	
Pyrgulopsis archimedis	Archimedes pyrg		G1G2	S1S2	None	None		Yes	
Pyrgulopsis cinerana	Ash Valley pyrg		G1G2	S1S2	None	None		Yes	
Pyrgulopsis diablensis	Diablo Range pyrg		G1	S1	None	None	IUCN:VU	Yes	
Pyrgulopsis eremica	Smoke Creek pyrg		G2	S2	None	None		Yes	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Pyrgulopsis falciglans	Likely pyrg		G1	S1	None	None		Yes	
Pyrgulopsis gibba	Surprise Valley pyrg		G3	S1S2	None	None		Yes	
Pyrgulopsis greggi	Kern River pyrg		G1	S1	None	None	IUCN:VU	Yes	
Pyrgulopsis lasseni	Willow Creek pyrg		G1G2	S1S2	None	None	USFS:S	Yes	
Pyrgulopsis longae	Long Valley pyrg		G1	S1	None	None		Yes	
Pyrgulopsis owensensis	Owens Valley springsnail		G1G2	S1S2	None	None	USFS:S	Yes	
Pyrgulopsis perturbata	Fish Slough springsnail		G1	S1	None	None		Yes	
Pyrgulopsis rupinicola	Sucker Springs pyrg		G1	S1	None	None		Yes	
Pyrgulopsis taylori	San Luis Obispo pyrg		G1	S1	None	None		Yes	
Pyrgulopsis ventricosa	Clear Lake pyrg		G1	S1	None	None	IUCN:CR	Yes	
Pyrgulopsis wongi	Wong's springsnail		G3	S2	None	None	IUCN:LC USFS:S	Yes	
Radiocentrum avalonense	Catalina mountainsnail		G1	S1	None	None	IUCN:CR	Yes	
Rothelix warnerfontis	Warner Springs shoulderband		G1	S1	None	None	USFS:S	Yes	
Sterkia clementina	San Clemente Island blunt-top snail		G2G3	S1S2	None	None	IUCN:NT	Yes	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Trilobopsis roperi	Shasta chaparral		G2	S1	None	None	USFS:S	Yes	
Trilobopsis tehamana	Tehama chaparral		G2	S1	None	None	USFS:S	Yes	
Tryonia imitator	mimic tryonia (=California brackishwater snail)		G2	S2	None	None	IUCN:DD	Yes	
Tryonia margae	Grapevine Springs elongate tryonia		G1	S1	None	None		Yes	
Tryonia rowlandsi	Grapevine Springs squat tryonia		G1	S1	None	None		Yes	
Vespericola karokorum	Karok hesperian		G2	S2	None	None	IUCN:DD	Yes	
Vespericola marinensis	Marin hesperian		G2	S2	None	None		Yes	
Vespericola pressleyi	Big Bar hesperian		G1	S1	None	None	USFS:S	Yes	
Vespericola scotti	Benson Gulch hesperian		G1	S1	None	None		Yes	
Vespericola shasta	Shasta hesperian		G3	S3	None	None	USFS:S	Yes	
Vespericola sierranus	Siskiyou hesperian		G3	S1S2	None	None		Yes	
Xerarionta intercisa	horseshoe snail		G1	S1	None	None	IUCN:VU	Yes	
Xerarionta redimita	wreathed cactussnail		G1G2	S1	None	None	IUCN:VU	Yes	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Xerarionta tryoni	Bicolor cactussnail		G1	S1	None	None	IUCN:VU	Yes	

ARACHNIDA (spiders and relatives)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Aphrastochthonius grubbsi	Grubbs' Cave pseudoscorpion		G1	S1	None	None		Yes	
Aphrastochthonius similis	Carlow's Cave pseudoscorpion		G1	S1	None	None		Yes	
Archeolarca aalbui	Aalbu's Cave pseudoscorpion		G1	S1	None	None		Yes	
Banksula californica	Alabaster Cave harvestman		GH	SH	None	None		Yes	
Banksula galilei	Galile's cave harvestman		G1	S1	None	None		Yes	
Banksula grubbsi	Grubbs' cave harvestman		G1	S1	None	None		Yes	
Banksula incredula	incredible harvestman		G1	S1	None	None		Yes	
Banksula martinorum	Martins' cave harvestman		G1	S1	None	None		Yes	
Banksula melones	Melones Cave harvestman		G1	S1	None	None	IUCN:VU	Yes	
Banksula rudolphi	Rudolph's cave harvestman		G1	S1	None	None		Yes	
Banksula tuolumne	Tuolumne cave harvestman		G2	S1	None	None		Yes	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Banksula tutankhamen	King Tut Cave harvestman		G1	S1	None	None		Yes	
Calicina arida	San Benito harvestman		G1	S1	None	None		Yes	
Calicina breva	Stanislaus harvestman		G1	S1	None	None		Yes	
Calicina cloughensis	Clough Cave harvestman		G1	S1	None	None		Yes	
Calicina conifera	Crane Flat harvestman		G1	S1	None	None		Yes	
Calicina diminua	Marin blind harvestman		G1	S1	None	None		Yes	
Calicina dimorphica	Watts Valley harvestman		G1	S1	None	None		Yes	
Calicina macula	marbled harvestman		G1	S1	None	None		Yes	
Calicina mesaensis	Table Mountain harvestman		G1	S1	None	None		Yes	
Calicina minor	Edgewood blind harvestman		G1	S1	None	None		Yes	
Calicina piedra	Piedra harvestman		G1	S1	None	None		Yes	
Calileptoneta briggsi	Briggs' leptonetid spider		G1	S1	None	None		Yes	
Calileptoneta oasa	Andreas Canyon leptonetid spider		G1	S1	None	None		Yes	
Calileptoneta ubicki	Ubick's leptonetid spider		G1	S1	None	None		Yes	
Calileptoneta wapiti	Mendocino leptonetid spider		G1	S1	None	None		Yes	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Fissilicreagris imperialis	Empire Cave pseudoscorpion		G1	S1	None	None	IUCN:VU	Yes	
Hubbardia idria	Idria short-tailed whipscorpion		G1	S1	None	None		Yes	
Hubbardia secoensis	Arroyo Seco short-tailed whipscorpion		G1	S1	None	None		Yes	
Hubbardia shoshonensis	Shoshone Cave whip-scorpion		G1	S1	None	None	BLM:S	Yes	Yes
Larca laceyi	Lacey's Cave pseudoscorpion		G1	S1	None	None		Yes	
Meta dolloff	Dolloff Cave spider		G3	S3	None	None	IUCN:VU	Yes	
Microcina edgewoodensis	Edgewood Park micro-blind harvestman		G1	S1	None	None		Yes	
Microcina homi	Hom's micro-blind harvestman		G1	S2	None	None		Yes	
Microcina jungi	Jung's micro-blind harvestman		G1	S1	None	None		Yes	
Microcina leei	Lee's micro-blind harvestman		G1	S1	None	None		Yes	
Microcina lumi	Lum's micro-blind harvestman		G1	S1	None	None		Yes	
Microcina tiburona	Tiburon micro-blind harvestman		G2	S2	None	None		Yes	
Neochthonius imperialis	Empire Cave pseudoscorpion		G1	S1	None	None		Yes	
Pseudogarypus orpheus	Music Hall Cave pseudoscorpion		G1	S1	None	None		Yes	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Socalchemmis gertschi	Gertsch's socalchemmis spider		G1	S1	None	None		Yes	
Socalchemmis icenoglei	Icenogle's socalchemmis spider		G1	S1	None	None		Yes	
Socalchemmis monterey	Monterey socalchemmis spider		G1	S1	None	None		Yes	
Talanites moodyae	Moody's gnaphosid spider		G2G3	S2S3	None	None		Yes	
Talanites ubicki	Ubick's gnaphosid spider		G1	S1	None	None		Yes	
Texella deserticola	Whitewater Canyon harvestman		G1	S1	None	None		Yes	
Texella kokoweef	Kokoweef Crystal Cave harvestman		G1	S1	None	None		Yes	
Texella shoshone	Shoshone Cave harvestman		G1	S1	None	None		Yes	

CRUSTACEA, Order Anostraca (fairy shrimp)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Artemia monica	Mono Lake brine shrimp		G3	S3	None	None		Yes	
Branchinecta campestris	pocket pouch fairy shrimp		G2	S1	None	None		Yes	
Branchinecta conservatio	Conservancy fairy shrimp		G2	S2	Endangered	None	IUCN:EN	Yes	
Branchinecta longiantenna	longhorn fairy shrimp		G2	S2	Endangered	None	IUCN:EN	Yes	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Branchinecta lynchi	vernal pool fairy shrimp		G3	S3	Threatened	None	IUCN:VU	Yes	
Branchinecta mesovallensis	midvalley fairy shrimp		G2	S2S3	None	None		Yes	
Branchinecta sandiegonensis	San Diego fairy shrimp		G2	S1	Endangered	None	IUCN:EN	Yes	
Linderiella occidentalis	California linderiella		G2G3	S2S3	None	None	IUCN:NT	Yes	
Linderiella santarosae	Santa Rosa Plateau fairy shrimp		G1G2	S1	None	None		Yes	
Streptocephalus woottoni	Riverside fairy shrimp		G1G2	S2	Endangered	None	IUCN:EN	Yes	

CRUSTACEA, Order Notostraca (tadpole shrimp)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Lepidurus packardi	vernal pool tadpole shrimp		G3	S3	Endangered	None	IUCN:EN	Yes	

CRUSTACEA, Order Diplostraca (water fleas)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Dumontia oregonensis	hairy water flea		G1G3	S1	None	None		Yes	

CRUSTACEA, Order Isopoda (isopods)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Bowmanasellus sequoiae	Sequoia cave isopod		G2	S2	None	None		Yes	
Caecidotea tomalensis	Tomales isopod		G2	S2S3	None	None		Yes	
Calasellus californicus	An isopod		G2	S3	None	None		Yes	
Calasellus longus	An isopod		G1	S1	None	None		Yes	

CRUSTACEA, Order Amphipoda (amphipods)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Hyalella muerta	Texas Spring amphipod		G1	S1	None	None		Yes	Yes
Hyalella sandra	Death Valley amphipod		G1	S1	None	None		Yes	Yes
Stygobromus cherylae	Barr's amphipod		G1	S1	None	None		Yes	
Stygobromus cowani	Cowan's amphipod		G1	S1	None	None		Yes	
Stygobromus gallawayae	Gallaway's amphipod		G1	S1	None	None		Yes	
Stygobromus gradyi	Grady's Cave amphipod		G1	S1	None	None	IUCN:VU	Yes	
Stygobromus grahami	Graham's Cave amphipod		G2	S2	None	None		Yes	
Stygobromus harai	Hara's Cave amphipod		G1	S1	None	None	IUCN:VU	Yes	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Stygobromus hyporheicus	hyporheic amphipod		G1	SX	None	None		Yes	
Stygobromus imperialis	Empire Cave amphipod		G1	S1	None	None		Yes	
Stygobromus lacicolus	Lake Tahoe amphipod		G1	S1	None	None		Yes	
Stygobromus mackenziei	Mackenzie's Cave amphipod		G1	S1	None	None	IUCN:VU	Yes	
Stygobromus myersae	Myer's amphipod		G1	S1S2	None	None		Yes	
Stygobromus mysticus	Secret Cave amphipod		G1	S1	None	None		Yes	
Stygobromus rudolphi	Rudolph's amphipod		G1	S1	None	None		Yes	
Stygobromus sheldoni	Sheldon's amphipod		G1	S1	None	None		Yes	
Stygobromus sierrensis	Sierra amphipod		G1	S1	None	None		Yes	
Stygobromus tahoensis	Lake Tahoe stygobromid		G1	S1	None	None		Yes	
Stygobromus trinus	Trinity County amphipod		G1	S1	None	None		Yes	
Stygobromus wengerorum	Wengerors' Cave amphipod		G1	S1	None	None	IUCN:VU	Yes	

CRUSTACEA, Order Decapoda (crayfish and shrimp)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Pacifastacus fortis	Shasta crayfish		G1	S1	Endangered	Endangered	IUCN:CR	Yes	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Pacifastacus leniusculus klamathensis	Klamath crayfish		G5T5	S4	None	None		No	
Syncaris pacifica	California freshwater shrimp		G2	S2	Endangered	Endangered	IUCN:EN	Yes	

INSECTA, Order Odonata (dragonflies and damselflies)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Ischnura gemina	San Francisco forktail damselfly		G2	S2	None	None	IUCN:EN	Yes	

INSECTA, Order Plecoptera (stoneflies)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Capnia lacustra	Lake Tahoe benthic stonefly		G1	S1	None	None		Yes	
Cosumnoperla hypocrena	Cosumnes stripetail		G2	S2	None	None		Yes	

INSECTA, Order Orthoptera (grasshoppers, katydids, and crickets)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Aglaothorax longipennis	Santa Monica shieldback katydid		G1G2	S1S2	None	None	IUCN:CR	Yes	
Ammopelmatus kelsoensis	Kelso jerusalem cricket		G1G2	S1S2	None	None	IUCN:VU	Yes	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Ammopelmatus muwu	Point Conception jerusalem cricket		G1	S1	None	None	IUCN:VU	Yes	
Idiostatus kathleenae	Pinnacles shieldback katydid		G1G2	S1S2	None	None		Yes	
Idiostatus middlekauffi	Middlekauff's shieldback katydid		G1G2	S1	None	None	IUCN:CR	Yes	
Macrobaenetes algodonensis	Algodones sand treader cricket		G1G2	S2	None	None		No	
Macrobaenetes kelsoensis	Kelso giant sand treader cricket		G2	S2	None	None	IUCN:VU	Yes	
Macrobaenetes valgum	Coachella giant sand treader cricket		G1G2	S2	None	None	IUCN:VU	Yes	
Pristoceuthophilus sp. 1	Samwell Cave cricket		G1G3	S1	None	None	IUCN:VU	Yes	
Psychomastax deserticola	desert monkey grasshopper		G2G3	S1	None	None	IUCN:VU	Yes	
Stenopelmatus cahuilaensis	Coachella Valley jerusalem cricket		G1G2	S2	None	None	IUCN:VU	Yes	
Tetrix sierrana	Sierra pygmy grasshopper		G1G2	S1	None	None	IUCN:VU	Yes	
Trimerotropis infantilis	Zayante band-winged grasshopper		G1	S1	Endangered	None	IUCN:EN	Yes	
Trimerotropis occidentiloides	Santa Monica grasshopper		G2	S2	None	None	IUCN:EN	Yes	
Trimerotropis occulens	Lompoc grasshopper		G1G2	S1S2	None	None	IUCN:EN	Yes	

INSECTA, Order Hemiptera (true bugs)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Ambrysus funebris	Nevares Spring naucorid bug		G1	S1	None	None		Yes	
Belostoma saratogae	Saratoga Springs belostoman bug		G1	S1	None	None		Yes	
Oravelia pege	Dry Creek cliff strider bug		G1	S1	None	None		Yes	
Pelocoris biimpressus	Amargosa naucorid bug		G1G3	S1S2	None	None		Yes	
Saldula usingeri	Wilbur Springs shorebug		G2	S2	None	None		Yes	

INSECTA, Order Neuroptera (lacewings)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Oliarces clara	cheeseweed owlfly (cheeseweed moth lacewing)		G1G3	S2	None	None		Yes	

INSECTA, Order Coleoptera (beetles)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Aegialia concinna	Ciervo aegilian scarab beetle		G1	S1	None	None	BLM:S IUCN:VU	Yes	
Agabus rumppi	Death Valley agabus diving beetle		G1G3	S1S2	None	None		Yes	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Agrilus harenus	Harenus jewel beetle		G1	S1	None	None		Yes	
Anomala carlsoni	Carlson's dune beetle		G1	S1	None	None		Yes	
Anomala hardyorum	Hardy's dune beetle		G1	S1	None	None		Yes	
Anthicus antiochensis	Antioch Dunes anthicid beetle		G3	S3	None	None		Yes	
Anthicus sacramento	Sacramento anthicid beetle		G4	S4	None	None	IUCN:EN	Yes	
Atractelmis wawona	Wawona riffle beetle		G3	S1S2	None	None		Yes	
Chaetarthria leechi	Leech's chaetarthrian water scavenger beetle		G1?	S1	None	None		Yes	
Cicindela hirticollis abrupta	Sacramento Valley tiger beetle		G5TH	SH	None	None		Yes	
Cicindela hirticollis gravida	sandy beach tiger beetle		G5T2	S2	None	None		Yes	
Cicindela latesignata	western beach tiger beetle		G2G3	S1	None	None		Yes	
Cicindela ohlone	Ohlone tiger beetle		G1	S1	Endangered	None		Yes	
Cicindela senilis frosti	senile tiger beetle		G2G3T1T3	S1	None	None		Yes	
Cicindela tranquebarica joaquinensis	San Joaquin tiger beetle		G5T1	S1	None	None		Yes	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Cicindela tranquebarica viridissima	greenest tiger beetle		G5T1	S1	None	None		Yes	
Coelus globosus	globose dune beetle		G1G2	S1S2	None	None	IUCN:VU	Yes	
Coelus gracilis	San Joaquin dune beetle		G1	S1	None	None	BLM:S IUCN:VU	Yes	
Coenonycha clementina	San Clemente Island coenonycha beetle		G1G2	S1S2	None	None		Yes	
Cyclocephala wandae	Wandae dune beetle		G1G2	S1	None	None		Yes	
Deltaspis ivae	marsh-elder long-horned beetle		G1	S1	None	None		Yes	
Desmocerus californicus dimorphus	valley elderberry longhorn beetle		G3T3	S3	Threatened	None		Yes	
Dinacoma caseyi	Casey's June beetle		G1	S1	Endangered	None		Yes	
Dubiraphia brunnescens	brownish dubiraphian riffle beetle		G1	S1	None	None		Yes	
Dubiraphia giulianii	Giuliani's dubiraphian riffle beetle		G1G3	S1S3	None	None		Yes	
Elaphrus viridis	Delta green ground beetle		G1	S1	Threatened	None	IUCN:CR	Yes	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Glaresis arenata	Kelso Dunes scarab glaresis beetle		G2	S2	None	None		Yes	
Habroscelimorpha gabbii	western tidal-flat tiger beetle		G2G4	S1	None	None		Yes	
*Hydrochara ricksecker*i	Ricksecker's water scavenger beetle		G2?	S2?	None	None		Yes	
Hydroporus leechi	Leech's skyline diving beetle		G3	S2S3	None	None		Yes	
Hydroporus simplex	simple hydroporus diving beetle		G3G4	S3S4	None	None		Yes	
Hygrotus curvipes	curved-foot hygrotus diving beetle		G2	S2	None	None		Yes	
Hygrotus fontinalis	travertine band-thigh diving beetle		G1	S1	None	None		Yes	
Juniperella mirabilis	juniper metallic wood-boring beetle		G2	S1	None	None		Yes	
Lepismadora algodones	Algodones sand jewel beetle		G1G2	S1S2	None	None		Yes	
Lichnanthe albipilosa	white sand bear scarab beetle		G1	S1	None	None		Yes	
Lichnanthe ursina	bumblebee scarab beetle		G2	S2	None	None		Yes	
Lytta hoppingi	Hopping's blister beetle		G1G2	S2	None	None		Yes	
Lytta insperata	Mojave Desert blister beetle		G1G2	S1S2	None	None		No	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Lytta moesta	moestan blister beetle		G2	S2	None	None		Yes	
Lytta molesta	molestan blister beetle		G2	S2	None	None		Yes	
Lytta morrisoni	Morrison's blister beetle		G1G2	S2	None	None		Yes	
Microcylloepus formicoideus	Furnace Creek riffle beetle		G1	S1	None	None		Yes	
Miloderes nelsoni	Nelson's miloderes weevil		G2	S2	None	None		Yes	
Nebria darlingtoni	South Forks ground beetle		G1	S1	None	None		Yes	
Nebria gebleri siskiyouensis	Siskiyou ground beetle		G4G5T4	S1S2	None	None		Yes	
Nebria sahlbergii triad	Trinity Alps ground beetle		G5T1	S1	None	None		Yes	
Ochthebius crassalus	wing shoulder minute moss beetle		G1G3	S1S3	None	None		No	
Ochthebius recticulus	Wilbur Springs minute moss beetle		G1	S1	None	None		Yes	
Onychobaris langei	Lange's El Segundo Dune weevil		G1	S1	None	None		Yes	
Optioservus canus	Pinnacles optioservus riffle beetle		G2	S1	None	None		Yes	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Palaeoxenus dohrni	Dohrn's elegant eucnemid beetle		G3?	S1S2	None	None		Yes	
Polyphylla anteronivea	Saline Valley snow-front June beetle		G2	S2	None	None		Yes	
Polyphylla barbata	Mount Hermon (=barbate) June beetle		G1	S2	Endangered	None		Yes	
Polyphylla erratica	Death Valley June beetle		G1G2	S1S2	None	None		Yes	
Polyphylla morroensis	Morro Bay June beetle		G1	S1	None	None		Yes	
Polyphylla nubila	Atascadero June beetle		G1	S1	None	None		Yes	
Prasinalia imperialis	Algodones white wax jewel beetle		G2	S2	None	None		No	
Pseudocotalpa andrewsi	Andrew's dune scarab beetle		G1	S1	None	None		Yes	
Scaphinotus behrensi	Behrens' snail-eating beetle		G2G4	S2S4	None	None		Yes	
Trachykele hartmani	serpentine cypress wood-boring beetle		G1	S1	None	None		Yes	
Trichinorhipis knulli	Knull's metallic wood-boring beetle		G1	S1	None	None		Yes	
Trigonoscuta brunnotesselata	brown tassel trigonoscuta weevil		G1G2	S1	None	None		Yes	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Trigonoscuta dorothea dorothea	Dorothy's El Segundo Dune weevil		G1T1	S1	None	None		Yes	
Trigonoscuta rothi algodones	Algodones dune weevil		G1G2T1	S1	None	None		No	
Trigonoscuta rothi imperialis	Imperial dune weevil		G1G2T1	S1	None	None		No	
Trigonoscuta rothi punctata	Punctate dune weevil		G1G2T1	S1	None	None		No	
Trigonoscuta rothi rothi	Roth's dune weevil		G1G2T1	S1	None	None		No	
Trigonoscuta sp.	Doyen's trigonoscuta dune weevil		G1Q	S1	None	None		Yes	Yes
Trigonoscuta stantoni	Santa Cruz Island shore weevil		G1	S1	None	None		Yes	
Vandykea tuberculata	serpentine cypress long-horned beetle		G1	S2	None	None		Yes	

INSECTA, Order Mecoptera (scorpionflies)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Orobittacus obscurus	gold rush hanging scorpionfly		G1	S1	None	None		Yes	

INSECTA, Order Diptera (flies)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Ablautus schlingeri	Oso Flaco robber fly		G2	S2	None	None		Yes	
Apiocera warneri	Glamis sand fly		G1G2	S1	None	None		Yes	
Brennania belkini	Belkin's dune tabanid fly		G1G2	S1S2	None	None	IUCN:VU	Yes	
Cophura hurdi	Antioch cophuran robberfly		GX	SX	None	None		Yes	
Efferia antiochi	Antioch efferian robberfly		G1G2	S1S2	None	None		Yes	
Efferia macroxipha	Glamis robberfly		G1G2	S2S3	None	None		Yes	
Metapogon hurdi	Hurd's metapogon robberfly		G1G2	S1S2	None	None		Yes	
Paracoenia calida	Wilbur Springs shore fly		G1	S1	None	None		Yes	
Rhaphiomidas terminatus abdominalis	Delhi Sands flower-loving fly		G1T1	S1	Endangered	None		Yes	
Rhaphiomidas terminatus terminatus	El Segundo flower-loving fly		G1T1	S1	None	None		Yes	
Rhaphiomidas trochilus	San Joaquin Valley giant flower-loving fly		G1	S1	None	None		Yes	

INSECTA, Order Lepidoptera (butterflies and moths)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Adela oplerella	Opler's longhorn moth		G2	S2	None	None		Yes	
Apodemia mormo langei	Lange's metalmark butterfly		G5T1	S1	Endangered	None		Yes	
Areniscythris brachypteris	Oso Flaco flightless moth		G2	S2	None	None		Yes	
Callophrys mossii bayensis	San Bruno elfin butterfly		G4T2	S2	Endangered	None		Yes	
Callophrys mossii hidakupa	San Gabriel Mountains elfin butterfly		G4T1T2	S1S2	None	None	USFS:S	Yes	
Callophrys mossii marinensis	Marin elfin butterfly		G4T1	S2	None	None		Yes	
Callophrys sheridanii comstocki	desert green hairstreak		G5T3T4	S1S2	None	None		No	
Callophrys thornei	Thorne's hairstreak		G3G4T2	S2	None	None	BLM:S	Yes	Yes
Carterocephalus palaemon magnus	Sonoma arctic skipper		G5T5	S1S3	None	None		Yes	
Cercyonis pegala carsonensis	Carson Valley wood nymph		G5T1T2	S1S2	None	None		No	
Chlosyne leanira elegans	Oso Flaco patch butterfly		G4G5T1T2	S1S2	None	None		Yes	
Coenonympha tullia yontockett	Yontocket satyr		G5T1T2	S1S2	None	None		Yes	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Danaus plexippus plexippus pop. 1	monarch - California overwintering population		G4T1T2Q	S2	Proposed Threatened	None	IUCN:EN USFS:S	Yes	
Euchloe hyantis andrewsi	Andrew's marble butterfly		G3G4T2	S2	None	None		Yes	
Eugnosta busckana	Busck's gallmoth		G1G3	S2S3	None	None		Yes	
Euphilotes allyni	El Segundo blue butterfly		G1?	S1	Endangered	None		Yes	
Euphilotes baueri	Bauer's dotted-blue		G2	S1S2	None	None	USFS:S	No	
Euphilotes enoptes smithi	Smith's blue butterfly		G5T2	S2	Endangered	None		Yes	
Euphilotes glaucon comstocki	Comstock's blue butterfly		G4T2?	S2	None	None		Yes	
Euphilotes mojave	Mojave dotted-blue		G3	S3	None	None		No	
Euphydryas editha bayensis	Bay checkerspot butterfly		G4G5T1	S3	Threatened	None		Yes	
Euphydryas editha monoensis	Mono checkerspot butterfly		G4G5T2	S1S2	None	None	USFS:S	Yes	
Euphydryas editha quino	quino checkerspot butterfly		G4G5T1T2	S1S2	Endangered	Candidate Endangered		Yes	
Euphyes vestris harbisoni	dun skipper		G5T1	S1S2	None	None		No	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Euproserpinus euterpe	Kern primrose sphinx moth		G1G2	S1	Threatened	None		Yes	Yes
Glaucopsyche lygdamus palosverdesensis	Palos Verdes blue butterfly		G5T1	S1	Endangered	None		Yes	
Hesperia miriamae longaevicola	White Mountains skipper		G2G3T1T2	S1	None	None		Yes	
Hesperopsis gracielae	MacNeill's sootywing		G2?	S1S2	None	None		No	
Icaricia icarioides albihalos	White Mountains icarioides blue butterfly		G5T2T3	S1	None	None		Yes	
Icaricia icarioides missionensis	Mission blue butterfly		G5T2	S2	Endangered	None		Yes	
Icaricia icarioides moroensis	Morro Bay blue butterfly		G5T2	S2	None	None		Yes	
Icaricia icarioides parapheres	Point Reyes blue butterfly		G5T1T2	S1	None	None		Yes	
Icaricia icarioides pheres	Pheres blue butterfly		G5TX	SX	None	None		Yes	
Icaricia saepiolus albomontanus	White Mountains saepiolus blue butterfly		G5T2	S1	None	None		Yes	
Icaricia saepiolus aureolus	San Gabriel Mountains blue butterfly		G5T1	S1	None	None	USFS:S	Yes	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Lycaena hermes	Hermes copper butterfly		G1	S1	Threatened	None	IUCN:VU USFS:S	Yes	
Lycaena rubidus incana	White Mountains copper		G4?T2T3	S1	None	None		No	
Panoquina errans	wandering (=saltmarsh) skipper		G4	S2	None	None	IUCN:NT	Yes	
Pelochrista hennei	Henne's eucosman moth		G1	S1	None	None		Yes	
Philotiella speciosa bohartorum	Boharts' blue butterfly		G3T1	S1	None	None		Yes	
Plebejus anna lotis	lotis blue butterfly		G4TH	SH	Endangered	None		Yes	
Plebulina emigdionis	San Emigdio blue butterfly		G1G2	S1S2	None	None	USFS:S	Yes	
Polites mardon	mardon skipper		G2	S1	None	None	USFS:S	Yes	
Polites sabuleti albamontana	White Mountains sandhill skipper		G4T2	S1S2	None	None		No	
Pseudocopaeodes eunus eunus	alkali skipper		G3T2	S2	None	None		No	
Pseudocopaeodes eunus obscurus	Carson wandering skipper		G3T1	S2	Endangered	None		Yes	
Pyrgus ruralis lagunae	Laguna Mountains skipper		G4G5T1	S1	Endangered	None		Yes	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Speyeria adiaste adiaste	unsilvered fritillary		G1G2T1	S1S2	None	None		Yes	
Speyeria callippe callippe	callippe silverspot butterfly		G5T1	S1	Endangered	None		Yes	
Speyeria egleis tehachapina	Tehachapi Mountain silverspot butterfly		G5T2	S2	None	None	USFS:S	Yes	
Speyeria nokomis carsonensis	Carson Valley silverspot		G3T1T2	S1	None	None		Yes	
Speyeria zerene behrensii	Behren's silverspot butterfly		G5T1	S1	Endangered	None		Yes	
Speyeria zerene hippolyta	Oregon silverspot butterfly		G5T1	S1	Threatened	None		Yes	
Speyeria zerene myrtleae	Myrtle's silverspot butterfly		G5T1	S1	Endangered	None		Yes	Yes
Speyeria zerene sonomensis	Sonoma zerene fritillary		G5T1	S1	None	None		Yes	

INSECTA, Order Trichoptera (caddisflies)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Cryptochia denningi	Denning's cryptic caddisfly		G1G2	S1S2	None	None		Yes	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Cryptochia excella	Kings Canyon cryptochian caddisfly		G1G2	S2S3	None	None		Yes	
Cryptochia shasta	confusion caddisfly		G1G2	S1	None	None		Yes	
Desmona bethula	amphibious caddisfly		G2G3	S2S3	None	None		Yes	
Diplectrona californica	California diplectronan caddisfly		G2	S1	None	None		Yes	
Ecclisomyia bilera	Kings Creek ecclysomyian caddisfly		G2	S2	None	None		Yes	
Farula praelonga	long-tailed caddisfly		G1G2	S1S2	None	None		Yes	
Goeracea oregona	Sagehen Creek goeracean caddisfly		G3	S1S2	None	None		Yes	
Lepidostoma ermanae	Cold Spring caddisfly		G1	S1	None	None		Yes	
Limnephilus atercus	Fort Dick limnephilus caddisfly		G3G4	S1S2	None	None		Yes	
Neothremma genella	golden-horned caddisfly		G1G2	S2S3	None	None		Yes	
Neothremma siskiyou	Siskiyou caddisfly		G1G2	S1	None	None		No	
Parapsyche extensa	King's Creek parapsyche caddisfly		G1	S1	None	None		Yes	
Rhyacophila lineata	Castle Crags rhyacophilan caddisfly		G1	S1	None	None		Yes	
Rhyacophila mosana	bilobed rhyacophilan caddisfly		G1Q	S1	None	None		Yes	
Rhyacophila spinata	spiny rhyacophilan caddisfly		G1G2	S3	None	None		Yes	

INSECTA, Order Hymenoptera (ants, bees, and wasps)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Andrena blennospermatis	Blennosperma vernal pool andrenid bee		G2	S1	None	None		Yes	
Andrena macswaini	An andrenid bee		G2	S2	None	None		Yes	
Andrena subapasta	An andrenid bee		G1G2	S1S2	None	None		Yes	
Argochrysis lassenae	Lassen cuckoo wasp		G2	S2	None	None		Yes	
Ashmeadiella chumashae	Channel Islands leaf-cutter bee		G2?	S3	None	None		Yes	
Bombus caliginosus	obscure bumble bee		G2G3	S1S2	None	None	IUCN:VU	Yes	
Bombus crotchii	Crotch's bumble bee		G2	S2	None	Candidate Endangered	IUCN:EN	Yes	Yes
Bombus franklini	Franklin's bumble bee		G1	SH	Endangered	Candidate Endangered	IUCN:CR	Yes	Yes
Bombus morrisoni	Morrison bumble bee		G3	S1S2	None	None	IUCN:VU	Yes	
Bombus occidentalis	western bumble bee		G3	S1	None	Candidate Endangered	IUCN:VU USFS:S	Yes	Yes
Bombus pensylvanicus	American bumble bee		G3G4	S2	None	None	IUCN:VU	Yes	
Bombus suckleyi	Suckley's cuckoo bumble bee		G2G3	S1	Proposed Endangered	Candidate Endangered	IUCN:CR	Yes	Yes
Ceratochrysis bradleyi	Bradley's cuckoo wasp		G1	S1	None	None		Yes	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Ceratochrysis gracilis	Piute Mountains cuckoo wasp		G1	S1	None	None		Yes	
Ceratochrysis longimala	Desert cuckoo wasp		G1	S1	None	None		Yes	
Ceratochrysis menkei	Menke's cuckoo wasp		G2	S2	None	None		Yes	
Chrysis tularensis	Tulare cuckoo wasp		G1G2	S2	None	None		Yes	
Cleptes humboldti	Humboldt cuckoo wasp		G1G2	S1S2	None	None		Yes	
Dufourea stagei	Stage's dufourine bee		G1G2	S1	None	None		Yes	
Eucerceris ruficeps	redheaded sphecid wasp		G1G3	S2	None	None		Yes	
Euparagia unidentata	Algodones euparagia		G1G2	S1S2	None	None		Yes	
Habropoda pallida	white faced bee		G3	S3	None	None		No	
Halictus harmonius	haromonius halictid bee		G3	S3	None	None		Yes	
Hedychridium argenteum	Riverside cuckoo wasp		G1G2	S1S2	None	None		Yes	
Hedychridium milleri	Borax Lake cuckoo wasp		G1	S1	None	None		Yes	
Lasioglossum channelense	Channel Island sweat bee		G3	S3	None	None		Yes	
Melitta californica	California mellitid bee		G4?	S2?	None	None		Yes	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Microbembex elegans	Algodones elegant sand wasp		G1G2	S1	None	None		Yes	
Minymischa ventura	Ventura cuckoo wasp		GU	SU	None	None		Yes	
Myrmosula pacifica	Antioch multilid wasp		GH	SH	None	None		Yes	
Neolarra alba	white cuckoo bee		GH	SH	None	None		Yes	
Paranomada californica	California cuckoo bee		G1	S1	None	None		Yes	
Parnopes borregoensis	Borrego parnopes cuckoo wasp		G1G2	S1S2	None	None		Yes	
Perdita algodones	Algodones perdita		G1	S1	None	None		Yes	
Perdita frontalis	Imperial Perdita		G1G2	S1S2	None	None		Yes	
Perdita hirticeps luteocincta	yellow-banded andrenid bee		GNRTX	SX	None	None		Yes	
Perdita scitula antiochensis	Antioch andrenid bee		G1T1	S2	None	None		Yes	
Perdita stephanomeriae	a miner bee		G2	S1S2	None	None		Yes	
Philanthus nasalis	Antioch specid wasp		G2	S2	None	None		Yes	
Protodufourea wasbaueri	Wasbauer's protodufourea bee		G1	S1	None	None		Yes	
Protodufourea zavortinki	Zavortink's protodufourea bee		G1	S1	None	None		Yes	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Rhopalolemma robertsi	Roberts' rhopalolemma bee		G1	S1	None	None		Yes	
Sedomaya glamisensis	Glamis night tiphiid		G1	S1	None	None		No	
Sphaeropthalma ecarinata	Glamis night mutillid		G1	S1	None	None		No	
Sphecodogastra antiochensis	Antioch Dunes halcitid bee		G1	S1	None	None		Yes	
Stictiella villegasi	Algodones sand wasp		G1	S1	None	None		No	
Trachusa gummifera	San Francisco Bay Area leaf-cutter bee		G1	S1	None	None		Yes	

Fishes

PETROMYZONTIDAE (lampreys)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Entosphenus folletti	northern California brook lamprey		G1G2	S1S2	None	None	CDFW:SSC	Yes	
Entosphenus lethophagus	Pit-Klamath brook lamprey		G3G4	S3	None	None	AFS:VU CDFW:SSC IUCN:LC	Yes	
Entosphenus similis	Klamath River lamprey		G3G4Q	S3	None	None	AFS:TH CDFW:SSC IUCN:NT USFS:S	Yes	
Entosphenus tridentatus	Pacific lamprey		G4	S3	None	None	AFS:VU BLM:S CDFW:SSC IUCN:LC USFS:S	Yes	
Entosphenus tridentatus ssp. 1	Goose Lake lamprey		G4T1	S1	None	None	AFS:VU CDFW:SSC USFS:S	Yes	
Lampetra ayresii	western river lamprey		G5	S3	None	None	AFS:VU CDFW:SSC IUCN:LC	No	
Lampetra hubbsi	Kern brook lamprey		G1G2	S1S2	None	None	AFS:TH CDFW:SSC IUCN:VU USFS:S	Yes	
Lampetra richardsoni	western brook lamprey		G4G5	S3S4	None	None	CDFW:SSC IUCN:LC USFS:S	Yes	

ACIPENSERIDAE (sturgeon)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Acipenser medirostris pop. 1	green sturgeon - southern DPS		G2T1	S1	Threatened	None	AFS:VU CDFW:SSC IUCN:EN	Yes	
Acipenser medirostris pop. 2	green sturgeon - northern DPS		G2T1	S1	None	None	AFS:VU CDFW:SSC IUCN:VU	Yes	
Acipenser transmontanus	white sturgeon		G3	S2	None	Candidate Threatened	AFS:EN CDFW:SSC IUCN:VU	No	

SALMONIDAE (trout and salmon)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Oncorhynchus clarkii	coast cutthroat trout		G4	S3	None	None	AFS:VU CDFW:SSC USFS:S	Yes	
Oncorhynchus gorbuscha	pink salmon		G5	S1	None	None		Yes	
Oncorhynchus henshawi henshawi	Lahontan cutthroat trout		GNRT3	S2	Threatened	None	AFS:TH CDFW:SSC	Yes	
Oncorhynchus henshawi seleniris	Paiute cutthroat trout		GNRT1T2	S1	Threatened	None	AFS:EN CDFW:SSC	Yes	
Oncorhynchus keta	chum salmon		G5	S1	None	None		No	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Oncorhynchus kisutch pop. 2	coho salmon - southern Oregon / northern California ESU		G5T2Q	S2	Threatened	Threatened	AFS:TH	Yes	Yes
Oncorhynchus kisutch pop. 4	coho salmon - central California coast ESU		G5T2Q	S2	Endangered	Endangered	AFS:EN	Yes	Yes
Oncorhynchus mykiss aguabonita	California golden trout		G5T1	S1	None	None	AFS:TH CDFW:SSC USFS:S	Yes	
Oncorhynchus mykiss aquilarum	Eagle Lake rainbow trout		G5T1	S1	None	None	AFS:TH CDFW:SSC USFS:S	Yes	
Oncorhynchus mykiss gilberti	Kern River rainbow trout		G5T1T2Q	S1	None	None	AFS:TH CDFW:SSC USFS:S	Yes	
Oncorhynchus mykiss irideus pop. 1	steelhead - Klamath Mountains Province DPS		G5T3Q	S2	None	None	CDFW:SSC USFS:S	No	Yes
Oncorhynchus mykiss irideus pop. 10	steelhead - southern California DPS		G5T1Q	S1	Endangered	Endangered	AFS:EN	Yes	Yes
Oncorhynchus mykiss irideus pop. 11	steelhead - Central Valley DPS		G5T2Q	S2	Threatened	None	AFS:TH CDFW:SSC	Yes	Yes
Oncorhynchus mykiss irideus pop. 48	steelhead - northern California DPS summer-run		G5T2Q	S2	Threatened	Endangered	AFS:TH	Yes	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Oncorhynchus mykiss irideus pop. 49	steelhead - northern California DPS winter-run		G5T3Q	S3	Threatened	None	AFS:TH CDFW:SSC	Yes	
Oncorhynchus mykiss irideus pop. 8	steelhead - central California coast DPS		G5T3Q	S3	Threatened	None	AFS:TH CDFW:SSC	Yes	Yes
Oncorhynchus mykiss irideus pop. 9	steelhead - south-central California coast DPS		G5T2Q	S2	Threatened	None	AFS:TH CDFW:SSC	Yes	Yes
Oncorhynchus mykiss ssp. 1	Goose Lake redband trout		G5T2Q	S2	None	None	AFS:VU CDFW:SSC USFS:S	Yes	
Oncorhynchus mykiss ssp. 2	McCloud River redband trout		G5T1T2	S1S2	None	None	AFS:VU CDFW:SSC USFS:S	Yes	
Oncorhynchus mykiss ssp. 3	Warner Valley redband trout		G5T2Q	S1?	None	None	AFS:VU USFS:S	No	
Oncorhynchus mykiss whitei	Little Kern golden trout		G5T2	S3	Threatened	None	AFS:EN CDFW:SSC	Yes	
Oncorhynchus tshawytscha pop. 11	chinook salmon - Central Valley spring-run ESU		G5T2Q	S2	Threatened	Threatened	AFS:TH	Yes	Yes
Oncorhynchus tshawytscha pop. 13	chinook salmon - Central Valley fall / late fall-run ESU		G5T3Q	S3	None	None	AFS:VU CDFW:SSC USFS:S	No	Yes
Oncorhynchus tshawytscha pop. 14	chinook salmon - southern Oregon/northern California coastal		G5T3Q	S2	Candidate	None	CDFW:SSC	No	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Oncorhynchus tshawytscha pop. 17	chinook salmon - California coastal ESU		G5T2Q	S2	Threatened	None	AFS:TH CDFW:SSC	Yes	Yes
Oncorhynchus tshawytscha pop. 30	chinook salmon - upper Klamath and Trinity Rivers ESU		G5T2Q	S2	Candidate	Threatened	CDFW:SSC USFS:S	Yes	
Oncorhynchus tshawytscha pop. 7	chinook salmon - Sacramento River winter-run ESU		G5T2Q	S2	Endangered	Endangered	AFS:EN	Yes	
Prosopium williamsoni	mountain whitefish		G5	S3	None	None	CDFW:SSC	Yes	
Salvelinus confluentus	bull trout		G3	SX	Threatened	Endangered	IUCN:VU	Yes	

OSMERIDAE (smelt)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Hypomesus transpacificus	Delta smelt		G1	S1	Threatened	Endangered	AFS:TH IUCN:CR	Yes	
Spirinchus thaleichthys	longfin smelt		G5	S1	None	Threatened	IUCN:LC	Yes	
Spirinchus thaleichthys pop. 2	longfin smelt - San Francisco Bay-Delta DPS		G5TNRQ	S1	Endangered	Threatened	IUCN:LC	Yes	
Thaleichthys pacificus	eulachon		G4	S1	Threatened	None	CDFW:SSC IUCN:LC	Yes	Yes

CYPRINIDAE (minnows and carp)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Gila coerulea	blue chub		G3G4	S2S3	None	None	CDFW:SSC IUCN:LC	Yes	
Gila elegans	bonytail		G1	S1	Endangered	Endangered	AFS:EN IUCN:CR	Yes	
Gila orcuttii	arroyo chub		G1	S2	None	None	AFS:VU CDFW:SSC IUCN:VU USFS:S	Yes	
Hesperoleucus mitrulus	northern roach		G2	S2	None	None	AFS:VU CDFW:SSC	Yes	
Hesperoleucus parvipinnis	Gualala roach		G3	S3	None	None	CDFW:SSC	Yes	
Hesperoleucus symmetricus serpentinus	Red Hills roach		GNRT1	S1	None	None	AFS:VU BLM:S CDFW:SSC	Yes	
Hesperoleucus symmetricus symmetricus	central California roach		GNRT3	S3	None	None	CDFW:SSC	Yes	
Hesperoleucus venustus navarroensis	northern coastal roach		GNRT3	S3	None	None	CDFW:SSC	Yes	
Hesperoleucus venustus subditus	southern coastal roach		GNRT2	S2	None	None	CDFW:SSC	Yes	
Hesperoleucus venustus x H. symmetricus	Clear Lake roach		G3	S3	None	None	CDFW:SSC	No	
Lavinia exilicauda chi	Clear Lake hitch		G4T1	S1	Proposed Threatened	Threatened	AFS:VU USFS:S	Yes	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Lavinia exilicauda exilicauda	Sacramento hitch		G4T3	S3	None	None	CDFW:SSC	No	
Lavinia exilicauda harengus	Monterey hitch		G4T3	S3	None	None	CDFW:SSC	Yes	
Mylopharodon conocephalus	hardhead		G3	S3	None	None	CDFW:SSC IUCN:LC USFS:S	Yes	
Pogonichthys macrolepidotus	Sacramento splittail		G3	S3	None	None	AFS:VU CDFW:SSC IUCN:LC	Yes	
Ptychocheilus lucius	Colorado pikeminnow		G1	SX	Endangered	Endangered	CDFW:FP IUCN:VU	Yes	
Rhinichthys gabrielino	Santa Ana speckled dace		G1	S1	Proposed Threatened	None	AFS:TH CDFW:SSC USFS:S	Yes	
Rhinichthys nevadensis caldera	Long Valley speckled dace		GNRT1	S1	Proposed Endangered	None	AFS:EN CDFW:SSC	Yes	
Rhinichthys nevadensis nevadensis	Amargosa speckled dace		GNRTNR	S2S3	None	None	AFS:TH BLM:S CDFW:SSC	Yes	Yes
Siphateles bicolor mohavensis	Mohave tui chub		G4T1	S1	Endangered	Endangered	AFS:EN CDFW:FP	Yes	
Siphateles bicolor pectinifer	Lahontan Lake tui chub		G4T3	S1S2	None	None	CDFW:SSC	Yes	
Siphateles bicolor snyderi	Owens tui chub		G4T1	S1	Endangered	Endangered	AFS:EN	Yes	
Siphateles bicolor ssp. 11	High Rock Springs tui chub		G4TX	SX	None	None		Yes	Yes

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Siphateles bicolor ssp. 12	Eagle Lake tui chub		G4T1T2	S1S2	None	None	CDFW:SSC	Yes	Yes
Siphateles bicolor ssp. 14	Pit River tui chub		G4T1T3	S1S3	None	None		No	Yes
Siphateles bicolor thalassinus	Goose Lake tui chub		G4T2T3	S2	None	None	AFS:TH CDFW:SSC	Yes	
Siphateles bicolor vaccaceps	Cow Head tui chub		G4T1	S1	None	None	AFS:EN BLM:S CDFW:SSC	Yes	

CATOSTOMIDAE (suckers)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Catostomus fumeiventris	Owens sucker		G3	S3	None	None	CDFW:SSC IUCN:LC	Yes	
Catostomus latipinnis	flannelmouth sucker		G3G4	S1	None	None	IUCN:LC	Yes	
Catostomus microps	Modoc sucker		G2G3	S2	Delisted	Endangered	AFS:EN CDFW:FP IUCN:NT	Yes	
Catostomus occidentalis lacusanserinus	Goose Lake sucker		G5T2Q	S1	None	None	AFS:VU CDFW:SSC USFS:S	Yes	
Catostomus rimiculus ssp. 1	Jenny Creek sucker		G5T2Q	S1	None	None	AFS:VU	No	
Catostomus snyderi	Klamath largescale sucker		G3	S3	None	None	AFS:TH CDFW:SSC IUCN:NT	Yes	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Chasmistes brevirostris	shortnose sucker		G1G2	S1	Endangered	Endangered	AFS:EN CDFW:FP IUCN:EN	Yes	
Deltistes luxatus	Lost River sucker		G2?	S2	Endangered	Endangered	AFS:EN CDFW:FP IUCN:EN	Yes	
Pantosteus lahontan	Lahontan mountain sucker		GNR	S2	None	None	CDFW:SSC	Yes	
Pantosteus santaanae	Santa Ana sucker		G1	S1	Threatened	None	AFS:TH CDFW:SSC IUCN:EN	Yes	
Xyrauchen texanus	razorback sucker		G1	S2	Endangered	Endangered	AFS:EN CDFW:FP IUCN:CR	Yes	

CYPRINODONTIDAE (killifishes)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Cyprinodon macularius	desert pupfish		G1	S1	Endangered	Endangered	AFS:EN IUCN:VU	Yes	
Cyprinodon nevadensis amargosae	Amargosa pupfish		G2T1T2	S1S2	None	None	AFS:VU BLM:S CDFW:SSC IUCN:VU	Yes	
Cyprinodon nevadensis nevadensis	Saratoga Springs pupfish		G2T1	S1	None	None	AFS:TH CDFW:SSC IUCN:VU	Yes	
Cyprinodon nevadensis shoshone	Shoshone pupfish		G2T1	S1	None	None	AFS:EN CDFW:SSC IUCN:VU	Yes	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Cyprinodon radiosus	Owens pupfish		G1	S2	Endangered	Endangered	AFS:EN CDFW:FP IUCN:EN	Yes	
Cyprinodon salinus milleri	Cottonball Marsh pupfish		G1T1Q	S1	None	Threatened	AFS:TH IUCN:EN	Yes	
Cyprinodon salinus salinus	Salt Creek pupfish		G1T1	S1	None	None	AFS:VU CDFW:SSC IUCN:EN	Yes	

GASTEROSTEIDAE (sticklebacks)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Gasterosteus aculeatus microcephalus	resident threespine stickleback	South of Pt. Conception only	G5T2T3	S2S3	None	None		No	
Gasterosteus aculeatus williamsoni	unarmored threespine stickleback		G5T1	S1	Endangered	Endangered	AFS:EN CDFW:FP	Yes	

CENTRARCHIDAE (sunfishes)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Archoplites interruptus	Sacramento perch	Within native range only	G1	S1	None	None	AFS:TH CDFW:SSC IUCN:EN	Yes	

EMBIOTOCIDAE (surfperches)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Hysterocarpus traskii lagunae	Clear Lake tule perch		G5T3	S3	None	None	CDFW:SSC	Yes	
Hysterocarpus traskii pomo	Russian River tule perch		G5T4	S4	None	None	AFS:VU CDFW:SSC	Yes	
Hysterocarpus traskii traskii	Sacramento-San Joaquin tule perch		G5T2T3	S2S3	None	None		No	

GOBIIDAE (gobies)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Eucyclogobius newberryi	tidewater goby		G3	S3	Endangered	None	AFS:EN CDFW:SSC IUCN:NT	Yes	

COTTIDAE (sculpins)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Cottus asper ssp.	Clear Lake prickly sculpin		G5T1	SNR	None	None	CDFW:SSC	No	
Cottus asperrimus	rough sculpin		G2	S2	None	Threatened	AFS:VU BLM:S CDFW:FP IUCN:NT	Yes	
Cottus gulosus	riffle sculpin		G5	S4	None	None	CDFW:SSC IUCN:LC	No	
Cottus klamathensis klamathensis	Upper Klamath marbled sculpin		G4T2	S1S2	None	None	CDFW:SSC	Yes	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Cottus klamathensis macrops	bigeye marbled sculpin		G4T2T3	S2S3	None	None	AFS:VU CDFW:SSC	Yes	
Cottus klamathensis polyporus	Lower Klamath marbled sculpin		G4T2T4	S2S4	None	None	CDFW:SSC	Yes	
Cottus perplexus	reticulate sculpin		G4	S2S3	None	None	IUCN:LC	No	

Amphibians

AMBYSTOMATIDAE (mole salamanders)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Ambystoma californiense pop. 1	California tiger salamander - central California DPS		G3T3	S3	Threatened	Threatened	CDFW:WL IUCN:VU	Yes	
Ambystoma californiense pop. 2	California tiger salamander - Santa Barbara County DPS		G3T2	S2	Endangered	Threatened	CDFW:WL IUCN:VU	Yes	
Ambystoma californiense pop. 3	California tiger salamander - Sonoma County DPS		G3T2	S2	Endangered	Threatened	CDFW:WL IUCN:VU	Yes	
Ambystoma macrodactylum croceum	Santa Cruz long-toed salamander		G5T1T2	S2	Endangered	Endangered	CDFW:FP	Yes	
Ambystoma macrodactylum sigillatum	southern long-toed salamander		G5T4	S2	None	None	CDFW:SSC	Yes	

DICAMPTODONTIDAE (giant salamanders)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Dicamptodon ensatus	California giant salamander		G2G3	S2S3	None	None	CDFW:SSC IUCN:NT	Yes	

RHYACOTRITONIDAE (Olympic salamanders)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Rhyacotriton variegatus	southern torrent salamander		G3?	S2S3	None	None	CDFW:SSC IUCN:LC USFS:S	Yes	

SALAMANDRIDAE (newts)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Taricha rivularis	red-bellied newt		G2	S2	None	None	CDFW:SSC IUCN:LC	Yes	
Taricha torosa	Coast Range newt	Monterey Co. & south only	G4	S4	None	None	CDFW:SSC	Yes	

PLETHODONTIDAE (lungless salamanders)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Aneides niger	Santa Cruz black salamander		G3	S3	None	None	CDFW:SSC	Yes	Yes
Batrachoseps altasierrae	Greenhorn Mountains slender salamander		G2	S2	None	None		Yes	
Batrachoseps bramei	Fairview slender salamander		G3	S3	None	None	USFS:S	Yes	
Batrachoseps campi	Inyo Mountains slender salamander		G3	S3	None	None	BLM:S CDFW:SSC IUCN:EN USFS:S	Yes	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Batrachoseps diabolicus	Hell Hollow slender salamander		G3	S3	None	None	IUCN:DD	No	
Batrachoseps gabrieli	San Gabriel slender salamander		G2G3	S2S3	None	None	IUCN:DD USFS:S	Yes	
Batrachoseps incognitus	San Simeon slender salamander		G2	S2	None	None	IUCN:DD USFS:S	No	
Batrachoseps kawia	Sequoia slender salamander		G2	S2	None	None	IUCN:DD	No	
Batrachoseps luciae	Santa Lucia slender salamander		G3	S3	None	None	IUCN:LC	No	
Batrachoseps major aridus	desert slender salamander		G4T1	S1	Endangered	Endangered		Yes	
Batrachoseps minor	lesser slender salamander		G1	S1	None	None	CDFW:SSC IUCN:DD USFS:S	Yes	
Batrachoseps pacificus	Channel Islands slender salamander		G3G4	S3S4	None	None	IUCN:LC	Yes	
Batrachoseps regius	Kings River slender salamander		G2G3	S2S3	None	None	IUCN:VU USFS:S	Yes	
Batrachoseps relictus	relictual slender salamander		G1	S1	Proposed Endangered	None	CDFW:SSC IUCN:DD USFS:S	Yes	Yes
Batrachoseps robustus	Kern Plateau salamander		G3	S3	None	None	IUCN:NT	Yes	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Batrachoseps simatus	Kern Canyon slender salamander		G2G3	S2S3	Proposed Threatened	Threatened	IUCN:VU USFS:S	Yes	
Batrachoseps stebbinsi	Tehachapi slender salamander		G2G3	S2	None	Threatened	BLM:S IUCN:VU	Yes	
Batrachoseps wakei	Arguello slender salamander		G1	S1	None	None		Yes	
Ensatina eschscholtzii croceater	yellow-blotched salamander		G5T3	S3	None	None	BLM:S CDFW:WL USFS:S	Yes	
Ensatina eschscholtzii klauberi	large-blotched salamander		G5T2?	S3	None	None	CDFW:WL USFS:S	Yes	
Hydromantes brunus	limestone salamander		G2G3	S2S3	None	Threatened	BLM:S CDFW:FP IUCN:VU USFS:S	Yes	
Hydromantes platycephalus	Mount Lyell salamander		G4	S4	None	None	CDFW:WL IUCN:LC	Yes	
Hydromantes shastae	Shasta salamander		G3	S3	None	Threatened	BLM:S IUCN:VU USFS:S	Yes	Yes
Plethodon asupak	Scott Bar salamander		G2G3	S3	None	Threatened	IUCN:VU	Yes	Yes
Plethodon elongatus	Del Norte salamander		G4	S3	None	None	CDFW:WL IUCN:NT	Yes	
Plethodon stormi	Siskiyou Mountains salamander		G3?	S3	None	Threatened	IUCN:EN USFS:S	Yes	

ASCAPHIDAE (tailed frogs)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Ascaphus truei	Pacific tailed frog		G4	S3S4	None	None	CDFW:SSC IUCN:LC	Yes	

SCAPHIOPODIDAE (spadefoot toads)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Scaphiopus couchii	Couch's spadefoot		G5	S2	None	None	BLM:S CDFW:SSC IUCN:LC	Yes	
Spea hammondii	western spadefoot		G2G3	S3S4	Proposed Threatened	None	BLM:S CDFW:SSC IUCN:NT	Yes	

BUFONIDAE (true toads)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Anaxyrus californicus	arroyo toad		G1G2	S2	Endangered	None	CDFW:SSC IUCN:EN	Yes	Yes
Anaxyrus canorus	Yosemite toad		G2	S2	Threatened	None	CDFW:SSC IUCN:EN USFS:S	Yes	Yes
Anaxyrus exsul	black toad		G1	S1	None	Threatened	BLM:S CDFW:FP IUCN:VU USFS:S	Yes	Yes
Incilius alvarius	Sonoran Desert toad		G5	SH	None	None	CDFW:SSC IUCN:LC	Yes	Yes

RANIDAE (true frogs)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Lithobates pipiens	northern leopard frog	Native populations only	G5	S2	None	None	CDFW:SSC IUCN:LC	Yes	Yes
Lithobates yavapaiensis	lowland leopard frog		G4	SX	None	None	BLM:S CDFW:SSC IUCN:LC	Yes	Yes
Rana aurora	northern red-legged frog		G4	S3	None	None	CDFW:SSC IUCN:LC USFS:S	Yes	Yes
Rana boylii pop. 1	foothill yellow-legged frog - north coast DPS		G3T4	S4	None	None	BLM:S CDFW:SSC USFS:S	Yes	
Rana boylii pop. 2	foothill yellow-legged frog - Feather River DPS		G3T2	S2	Threatened	Threatened	BLM:S USFS:S	Yes	
Rana boylii pop. 3	foothill yellow-legged frog - north Sierra DPS		G3T2	S2	None	Threatened	BLM:S USFS:S	Yes	
Rana boylii pop. 4	foothill yellow-legged frog - central coast DPS		G3T2	S2	Threatened	Endangered	BLM:S USFS:S	Yes	
Rana boylii pop. 5	foothill yellow-legged frog - south Sierra DPS		G3T2	S2	Endangered	Endangered	BLM:S USFS:S	Yes	
Rana boylii pop. 6	foothill yellow-legged frog - south coast DPS		G3T1	S1	Endangered	Endangered	BLM:S USFS:S	Yes	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Rana cascadae	Cascades frog		G3	S3	None	Candidate Endangered	CDFW:SSC IUCN:NT USFS:S	Yes	
Rana draytonii	California red-legged frog		G2G3	S2S3	Threatened	None	CDFW:SSC IUCN:VU	Yes	Yes
Rana muscosa	southern mountain yellow-legged frog		G1	S2	Endangered	Endangered	CDFW:WL IUCN:EN USFS:S	Yes	Yes
Rana pretiosa	Oregon spotted frog		G2	SH	Threatened	None	BLM:S CDFW:SSC IUCN:VU	Yes	
Rana sierrae	Sierra Nevada yellow-legged frog		G2	S2	Endangered	Threatened	CDFW:WL IUCN:EN USFS:S	Yes	Yes

Reptiles

CHELONIIDAE (sea turtles)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Chelonia mydas	green turtle		G3	S1	Threatened	None	IUCN:EN	Yes	

KINOSTERNIDAE (musk and mud turtles)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Kinosternon sonoriense	Sonoran mud turtle		G3	SH	None	None	CDFW:SSC IUCN:NT	Yes	

EMYDIDAE (box and water turtles)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Actinemys marmorata	northwestern pond turtle		G2	SNR	Proposed Threatened	None	BLM:S CDFW:SSC IUCN:VU USFS:S	Yes	
Actinemys pallida	southwestern pond turtle		G2	SNR	Proposed Threatened	None	BLM:S CDFW:SSC IUCN:VU USFS:S	Yes	

TESTUDINIDAE (land tortoises)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Gopherus agassizii	desert tortoise		G2G3	S2S3	Threatened	Endangered	IUCN:CR	Yes	

GEKKONIDAE (geckos)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Coleonyx switaki	barefoot banded gecko		G4	S3	None	Threatened	BLM:S IUCN:LC	Yes	
Coleonyx variegatus abbotti	San Diego banded gecko		G5T5	S1S2	None	None	CDFW:SSC	Yes	

CROTAPHYTIDAE (collared and leopard lizards)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Gambelia copeii	Cope's leopard lizard		G5	S1S2	None	None	CDFW:SSC IUCN:LC	Yes	
Gambelia sila	blunt-nosed leopard lizard		G1	S2	Endangered	Endangered	CDFW:FP IUCN:EN	Yes	

PHRYNOSOMATIDAE (spiny lizards)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Phrynosoma blainvillii	coast horned lizard		G4	S4	None	None	BLM:S CDFW:SSC IUCN:LC	Yes	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Phrynosoma mcallii	flat-tailed horned lizard		G3	S3	None	None	BLM:S CDFW:SSC IUCN:NT	Yes	
Sceloporus graciosus graciosus	northern sagebrush lizard		G5T5	S3	None	None	BLM:S	Yes	
Uma inornata	Coachella Valley fringe-toed lizard		G1	S1	Threatened	Endangered	IUCN:EN	Yes	
Uma notata	Colorado Desert fringe-toed lizard		G3	S2	None	None	BLM:S CDFW:SSC IUCN:NT	Yes	
Uma scoparia	Mojave fringe-toed lizard		G3G4	S3S4	None	None	BLM:S CDFW:SSC IUCN:LC	Yes	

XANTUSIIDAE (night lizards)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Xantusia gracilis	sandstone night lizard		G1	S2	None	None	CDFW:SSC IUCN:VU	Yes	
Xantusia riversiana	island night lizard		G3	S3	Delisted	None	IUCN:LC	Yes	
Xantusia vigilis sierrae	Sierra night lizard		G5T1	S1	None	None	CDFW:SSC USFS:S	Yes	Yes

SCINCIDAE (skinks)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Plestiodon skiltonianus interparietalis	Coronado skink		G5T5	S2S3	None	None	BLM:S CDFW:WL	Yes	

TEIIDAE (whiptails and relatives)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Aspidoscelis hyperythra	orange-throated whiptail		G5	S2S3	None	None	CDFW:WL IUCN:LC USFS:S	Yes	
Aspidoscelis tigris stejnegeri	coastal whiptail		G5T5	S3	None	None	CDFW:SSC	Yes	

ANGUIDAE (alligator lizards)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Elgaria panamintina	Panamint alligator lizard		G3	S3	None	None	BLM:S CDFW:SSC IUCN:VU USFS:S	Yes	

ANNIELLIDAE (legless lizards)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Anniella alexanderae	Temblor legless lizard		G1	S1	None	Candidate Endangered	CDFW:SSC	Yes	Yes
Anniella campi	Southern Sierra legless lizard		G1G2	S2	None	None	CDFW:SSC USFS:S	Yes	Yes

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Anniella grinnelli	Bakersfield legless lizard		G2G3	S2S3	None	None	CDFW:SSC	Yes	Yes
Anniella pulchra	Northern California legless lizard		G3	S2S3	None	None	CDFW:SSC USFS:S	Yes	Yes
Anniella spp.	California legless lizard		G3G4	S3S4	None	None	CDFW:SSC	Yes	Yes
Anniella stebbinsi	Southern California legless lizard		G3	S3	None	None	CDFW:SSC USFS:S	Yes	Yes

HELODERMATIDAE (venomous lizards)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Heloderma suspectum cinctum	banded Gila monster		G4T3	S1	None	None	BLM:S CDFW:SSC	Yes	Yes

BOIDAE (boas)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Charina umbratica	southern rubber boa		G2G3	S2	None	Threatened	IUCN:VU USFS:S	Yes	

COLUBRIDAE (egg-laying snakes)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Arizona elegans occidentalis	California glossy snake		G5T2	S2	None	None	CDFW:SSC	Yes	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Diadophis punctatus modestus	San Bernardino ringneck snake		G5T2T3	S2?	None	None	USFS:S	Yes	
Diadophis punctatus regalis	regal ringneck snake		G5TNR	S2	None	None	CDFW:SSC	Yes	
Diadophis punctatus similis	San Diego ringneck snake		G5T4	S2?	None	None	USFS:S	Yes	
Masticophis flagellum ruddocki	San Joaquin coachwhip		G5T2T3	S3	None	None	CDFW:SSC	Yes	
Masticophis fuliginosus	Baja California coachwhip		G5	S1S2	None	None	CDFW:SSC	Yes	
Masticophis lateralis euryxanthus	Alameda whipsnake		G4T2	S2	Threatened	Threatened		Yes	
Pituophis catenifer pumilus	Santa Cruz Island gophersnake		G5T1T2	S1?	None	None	CDFW:WL	No	
Salvadora hexalepis virgultea	coast patch-nosed snake		G5T4	S3	None	None	CDFW:SSC	Yes	

NATRICIDAE (live-bearing snakes)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Thamnophis gigas	giant gartersnake		G2	S2	Threatened	Threatened	IUCN:VU	Yes	
Thamnophis hammondii	two-striped gartersnake		G4	S3S4	None	None	BLM:S CDFW:SSC IUCN:LC USFS:S	Yes	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Thamnophis hammondii pop. 1	Santa Catalina gartersnake		G4T1?	S1	None	None		No	
Thamnophis sirtalis pop. 1	south coast gartersnake	Coastal plain from Ventura Co. to San Diego Co., from sea level to about 850 m.	G5T1T2	S1S2	None	None	CDFW:SSC	Yes	Yes
Thamnophis sirtalis tetrataenia	San Francisco gartersnake		G5T2Q	S2	Endangered	Endangered	CDFW:FP	Yes	

CROTALIDAE (pit vipers)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Crotalus ruber	red-diamond rattlesnake		G4	S3	None	None	CDFW:SSC IUCN:LC USFS:S	Yes	

Birds

ANATIDAE (ducks, geese, and swans)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Anser albifrons elgasi	tule greater white-fronted goose	Wintering	G5T3	S3	None	None	CDFW:SSC	No	
Aythya americana	redhead	Nesting	G5	S3	None	None	CDFW:SSC IUCN:LC	No	
Aythya valisineria	canvasback	Nesting	G5	S2	None	None	IUCN:LC	No	
Branta bernicla	brant	Wintering & staging	G5	S2	None	None	CDFW:SSC IUCN:LC	No	
Branta hutchinsii leucopareia	cackling (=Aleutian Canada) goose	Wintering	G5T3	S3	Delisted	None	CDFW:WL	Yes	
Bucephala islandica	Barrow's goldeneye	Nesting	G5	S1	None	None	CDFW:SSC IUCN:LC	No	
Dendrocygna bicolor	fulvous whistling-duck	Nesting	G5	S1	None	None	CDFW:SSC IUCN:LC	Yes	
Histrionicus histrionicus	harlequin duck	Nesting	G4	S2	None	None	CDFW:SSC IUCN:LC	Yes	

PHASIANIDAE (grouse and ptarmigan)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Bonasa umbellus	ruffed grouse		G5	S3S4	None	None	CDFW:WL IUCN:LC	Yes	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Centrocercus urophasianus	greater sage-grouse	Nesting & leks	G3	S2S3	Proposed Threatened	Candidate Endangered	BLM:S CDFW:SSC IUCN:NT USFS:S	Yes	Yes
Dendragapus fuliginosus howardi	Mount Pinos sooty grouse		G5T2T3	S3	None	None	CDFW:SSC	Yes	Yes
Tympanuchus phasianellus columbianus	Columbian sharp-tailed grouse		G5T3	SX	None	None	CDFW:SSC	No	

ODONTOPHORIDAE (partridge and quail)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Callipepla californica catalinensis	Catalina California quail		G5T2	S2	None	None	CDFW:SSC	No	

GAVIIDAE (loons)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Gavia immer	common loon	Nesting	G5	S1	None	None	CDFW:SSC IUCN:LC	No	

DIOMEDEIDAE (albatrosses)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Phoebastria albatrus	short-tailed albatross		G1	S1	Endangered	None	CDFW:SSC IUCN:VU	No	

HYDROBATIDAE (storm petrels)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Hydrobates furcatus	fork-tailed storm-petrel	Nesting colony	G5	S1	None	None	BLM:S CDFW:SSC IUCN:LC	Yes	
Hydrobates homochroa	ashy storm-petrel	Nesting colony	G2	S2	None	None	BLM:S CDFW:SSC IUCN:EN USFWS:BCC	Yes	
Hydrobates melania	black storm-petrel	Nesting colony	G3	S1	None	None	CDFW:SSC IUCN:LC USFWS:BCC	Yes	

PELECANIIDAE (pelicans)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Pelecanus erythrorhynchos	American white pelican	Nesting colony	G4	S1S2	None	None	CDFW:SSC IUCN:LC USFWS:BCC	Yes	
Pelecanus occidentalis californicus	California brown pelican	Nesting colony & communal roosts	G4T3T4	S3	Delisted	Delisted	BLM:S USFS:S	Yes	Yes

PHALACROCORACIDAE (cormorants)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Nannopterum auritum	double-crested cormorant	Nesting colony	G5	S4	None	None	CDFW:WL IUCN:LC	Yes	

ARDEIDAE (herons, egrets, and bitterns)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Ardea alba	great egret	Nesting colony	G5	S4	None	None	CDF:S IUCN:LC	Yes	
Ardea herodias	great blue heron	Nesting colony	G5	S4	None	None	CDF:S IUCN:LC	Yes	
Botaurus exilis	least bittern	Nesting	G4	S2	None	None	CDFW:SSC IUCN:LC	Yes	
Botaurus lentiginosus	American bittern		G5	S3S4	None	None	IUCN:LC	No	
Egretta thula	snowy egret	Nesting colony	G5	S4	None	None	IUCN:LC	Yes	
Nycticorax nycticorax	black-crowned night heron	Nesting colony	G5	S4	None	None	IUCN:LC	Yes	

THRESKIORNITHIDAE (ibises and spoonbills)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Plegadis chihi	white-faced ibis	Nesting colony	G5	S3S4	None	None	CDFW:WL IUCN:LC	Yes	

CICONIIDAE (storks)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Mycteria americana	wood stork		G4	S1	None	None	CDFW:SSC IUCN:LC	No	

CATHARTIDAE (New World vultures)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Gymnogyps californianus	California condor		G1	S2	Endangered	Endangered	CDF:S CDFW:FP IUCN:CR	Yes	

PANDIONIDAE (ospreys)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Pandion haliaetus	osprey	Nesting	G5	S4	None	None	CDF:S CDFW:WL IUCN:LC	Yes	

ACCIPITRIDAE (hawks, kites, harriers, and eagles)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Accipiter striatus	sharp-shinned hawk	Nesting	G5	S4	None	None	CDFW:WL IUCN:LC	Yes	
Aquila chrysaetos	golden eagle	Nesting and wintering	G5	S3	None	None	BLM:S CDF:S CDFW:FP CDFW:WL IUCN:LC	Yes	
Astur atricapillus	American goshawk	Nesting	G5	S3	None	None	BLM:S CDF:S CDFW:SSC USFS:S	Yes	
Astur cooperii	Cooper's hawk	Nesting	G5	S4	None	None	CDFW:WL IUCN:LC	Yes	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Buteo regalis	ferruginous hawk	Wintering	G4	S3S4	None	None	CDFW:WL IUCN:LC	Yes	
Buteo swainsoni	Swainson's hawk	Nesting	G5	S4	None	Threatened	BLM:S IUCN:LC	Yes	
Circus hudsonius	northern harrier	Nesting	G5	S3	None	None	CDFW:SSC IUCN:LC USFWS:BCC	Yes	Yes
Elanus leucurus	white-tailed kite	Nesting	G5	S3S4	None	None	BLM:S CDFW:FP IUCN:LC	Yes	
Haliaeetus leucocephalus	bald eagle	Nesting and wintering	G5	S3	Delisted	Endangered	BLM:S CDF:S CDFW:FP IUCN:LC USFS:S	Yes	
Parabuteo unicinctus	Harris' hawk	Nesting	G5	S1	None	None	CDFW:WL IUCN:LC	No	

FALCONIDAE (falcons)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Falco columbarius	merlin	Wintering	G5	S3S4	None	None	CDFW:WL IUCN:LC	Yes	
Falco mexicanus	prairie falcon	Nesting	G5	S4	None	None	CDFW:WL IUCN:LC	Yes	
Falco peregrinus anatum	American peregrine falcon	Nesting	G4T4	S3S4	Delisted	Delisted	CDF:S	Yes	Yes

RALLIDAE (rails, coots, and gallinules)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Coturnicops noveboracensis	yellow rail		G4	S2	None	None	CDFW:SSC IUCN:LC USFS:S USFWS:BCC	Yes	
Laterallus jamaicensis coturniculus	California black rail		G3T1	S2	None	Threatened	BLM:S CDFW:FP IUCN:EN	Yes	Yes
Rallus obsoletus levipes	light-footed Ridgway's rail		G3T1T2	S1	Endangered	Endangered	CDFW:FP	Yes	
Rallus obsoletus obsoletus	California Ridgway's rail		G3T1	S2	Endangered	Endangered	CDFW:FP	Yes	
Rallus obsoletus yumanensis	Yuma Ridgway's rail		G3T3	S1	Endangered	Threatened	CDFW:FP	Yes	

GRUIDAE (cranes)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Antigone canadensis canadensis	lesser sandhill crane	Wintering	G5T4	S4	None	None	CDFW:SSC	No	
Antigone canadensis tabida	greater sandhill crane	Nesting & wintering	G5T5	S2	None	Threatened	BLM:S CDFW:FP USFS:S	Yes	

CHARADRIIDAE (plovers and relatives)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Anarhynchus montanus	mountain plover	Wintering	G3	S2	None	None	BLM:S CDFW:SSC IUCN:NT USFWS:BCC	Yes	
Anarhynchus nivosus nivosus	western snowy plover	Nesting	G3T3	S3	Threatened	None	CDFW:SSC	Yes	Yes

SCOLOPACIDAE (sandpipers and relatives)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Numenius americanus	long-billed curlew	Nesting	G4	S2	None	None	CDFW:WL IUCN:LC	No	

LARIDAE (gulls and terns)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Chlidonias niger	black tern	Nesting colony	G4G5	S2	None	None	CDFW:SSC IUCN:LC USFWS:BCC	Yes	
Gelochelidon nilotica	gull-billed tern	Nesting colony	G5	S1	None	None	CDFW:SSC IUCN:LC USFWS:BCC	Yes	Yes
Hydroprogne caspia	Caspian tern	Nesting colony	G5	S4	None	None	IUCN:LC	Yes	Yes
Larus californicus	California gull	Nesting colony	G5	S4	None	None	CDFW:WL IUCN:LC USFWS:BCC	Yes	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Leucophaeus atricilla	laughing gull	Nesting colony	G5	S1	None	None	CDFW:WL IUCN:LC	No	
Rynchops niger	black skimmer	Nesting colony	G5	S2	None	None	CDFW:SSC IUCN:LC USFWS:BCC	Yes	
Sternula antillarum browni	California least tern	Nesting colony	G4T2T3Q	S2	Endangered	Endangered	CDFW:FP	Yes	Yes
Thalasseus elegans	elegant tern	Nesting colony	G4	S3	None	None	CDFW:WL IUCN:NT USFWS:BCC	No	Yes

ALCIDAE (auklets, puffins, and relatives)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Brachyramphus marmoratus	marbled murrelet	Nesting	G3	S2	Threatened	Endangered	CDF:S IUCN:EN	Yes	
Cerorhinca monocerata	rhinoceros auklet	Nesting colony	G5	S3	None	None	CDFW:WL IUCN:LC	Yes	
Fratercula cirrhata	tufted puffin	Nesting colony	G5	S1S2	None	None	CDFW:SSC IUCN:LC USFWS:BCC	Yes	
Ptychoramphus aleuticus	Cassin's auklet	Nesting colony	G4	S3	None	None	CDFW:SSC IUCN:NT USFWS:BCC	No	
Synthliboramphus scrippsi	Scripps's murrelet	Nesting colony	G2	S2	None	Threatened	BLM:S IUCN:VU USFWS:BCC	Yes	Yes

CUCULIDAE (cuckoos and relatives)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Coccyzus americanus occidentalis	western yellow-billed cuckoo	Nesting	G5T2T3	S1	Threatened	Endangered	BLM:S USFS:S	Yes	

STRIGIDAE (owls)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Asio flammeus	short-eared owl	Nesting	G5	S2	None	None	CDFW:SSC IUCN:LC USFWS:BCC	Yes	
Asio otus	long-eared owl	Nesting	G5	S3?	None	None	CDFW:SSC IUCN:LC USFWS:BCC	Yes	
Athene cunicularia	burrowing owl	Burrow sites & some wintering sites	G4	S2	None	Candidate Endangered	BLM:S CDFW:SSC IUCN:LC USFWS:BCC	Yes	Yes
Micrathene whitneyi	elf owl	Nesting	G4	S1	None	Endangered	BLM:S IUCN:LC	Yes	
Psiloscops flammeolus	flammulated owl	Nesting	G4	S2S4	None	None	IUCN:LC USFWS:BCC	Yes	
Strix nebulosa	great gray owl	Nesting	G5	S1	None	Endangered	CDF:S IUCN:LC USFS:S	Yes	
Strix occidentalis caurina	northern spotted owl		G3G4T3	S2	Threatened	Threatened	CDF:S	No	Yes

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Strix occidentalis occidentalis	California spotted owl		G3G4T2T3	S2	None	None	BLM:S CDFW:SSC USFS:S USFWS:BCC	No	Yes

APODIDAE (swifts)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Chaetura vauxi	Vaux's swift	Nesting	G5	S3	None	None	CDFW:SSC IUCN:LC USFWS:BCC	No	
Cypseloides niger	black swift	Nesting	G4	S3	None	None	CDFW:SSC IUCN:VU USFWS:BCC	Yes	

TROCHILIDAE (hummingbirds)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Calypte costae	Costa's hummingbird	Nesting	G5	S4	None	None	IUCN:LC USFWS:BCC	No	
Selasphorus rufus	rufous hummingbird	Nesting	G4	S1S2	None	None	IUCN:NT USFWS:BCC	No	

PICIDAE (woodpeckers)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Colaptes chrysoides	gilded flicker		G4	S2	None	Endangered	BLM:S IUCN:LC USFWS:BCC	Yes	
Melanerpes lewis	Lewis' woodpecker	Nesting	G4	S4	None	None	IUCN:LC USFWS:BCC	Yes	
Melanerpes uropygialis	Gila woodpecker		G5	S2	None	Endangered	BLM:S IUCN:LC USFWS:BCC	Yes	
Picoides arcticus	black-backed woodpecker		G5	S2	None	None	IUCN:LC	Yes	

TYRANNIDAE (tyrant flycatchers)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Contopus cooperi	olive-sided flycatcher	Nesting	G4	S3	None	None	CDFW:SSC IUCN:NT USFWS:BCC	Yes	
Empidonax traillii	willow flycatcher	Nesting	G5	S3	None	Endangered	IUCN:LC USFS:S	Yes	Yes
Empidonax traillii brewsteri	little willow flycatcher	Nesting	G5T3T4	S3	None	Endangered		Yes	Yes
Empidonax traillii extimus	southwestern willow flycatcher	Nesting	G5T2	S3	Endangered	Endangered		Yes	Yes
Myiarchus tyrannulus	brown-crested flycatcher	Nesting	G5	S3	None	None	CDFW:WL IUCN:LC	Yes	
Pyrocephalus rubinus	vermilion flycatcher	Nesting	G5	S2S3	None	None	CDFW:SSC IUCN:LC	Yes	

LANIIDAE (shrikes)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Lanius ludovicianus	loggerhead shrike	Nesting	G4	S4	None	None	CDFW:SSC IUCN:NT	Yes	
Lanius ludovicianus anthonyi	Island loggerhead shrike		G4T1	S1	None	None	CDFW:SSC	No	
Lanius ludovicianus mearnsi	San Clemente loggerhead shrike		G4T1Q	S2	Endangered	None	CDFW:SSC	Yes	Yes

VIREONIDAE (vireos)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Vireo bellii arizonae	Arizona Bell's vireo	Nesting	G5T4	S3	None	Endangered	BLM:S	Yes	Yes
Vireo bellii pusillus	least Bell's vireo	Nesting	G5T2	S3	Endangered	Endangered		Yes	Yes
Vireo huttoni unitti	Catalina Hutton's vireo		G5T2?	S2	None	None	CDFW:SSC	No	
Vireo vicinior	gray vireo	Nesting	G5	S2	None	None	BLM:S CDFW:SSC IUCN:LC USFS:S	Yes	

CORVIDAE (jays, crows, and magpies)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Aphelocoma californica cana	Eagle Mountain scrub-jay		G5T3	S3	None	None	CDFW:WL	No	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Aphelocoma insularis	Island scrub-jay		G1	S1	None	None	IUCN:NT USFWS:BCC	No	
Pica nuttalli	yellow-billed magpie	Nesting & communal roosts	G3G4	S3S4	None	None	IUCN:VU USFWS:BCC	No	

ALAUDIDAE (larks)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Eremophila alpestris actia	California horned lark		G5T4Q	S4	None	None	CDFW:WL IUCN:LC	Yes	

HIRUNDINIDAE (swallows)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Progne subis	purple martin	Nesting	G5	S3	None	None	CDFW:SSC IUCN:LC	Yes	
Riparia riparia	bank swallow	Nesting	G5	S3	None	Threatened	BLM:S IUCN:LC	Yes	

PARIDAE (titmice and relatives)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Poecile atricapillus	black-capped chickadee		G5	S3	None	None	CDFW:WL IUCN:LC	No	

TROGLODYTIDAE (wrens)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Campylorhynchus brunneicapillus sandiegensis	coastal cactus wren	San Diego & Orange Counties only	G5T3Q	S2	None	None	CDFW:SSC USFS:S USFWS:BCC	Yes	Yes
Cistothorus palustris clarkae	Clark's marsh wren		G5T2	S2	None	None	CDFW:SSC	No	
Thryomanes bewickii leucophrys	San Clemente Bewick's wren		G5TX	SX	None	None	CDFW:SSC	No	

POLIOPTILIDAE (gnatcatchers)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Polioptila californica californica	coastal California gnatcatcher		G4G5T3Q	S2	Threatened	None	CDFW:SSC	Yes	Yes
Polioptila melanura	black-tailed gnatcatcher		G5	S3S4	None	None	CDFW:WL IUCN:LC	Yes	

MIMIDAE (mockingbirds and thrashers)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Toxostoma bendirei	Bendire's thrasher		G4	S2	None	None	BLM:S CDFW:SSC IUCN:VU USFWS:BCC	Yes	
Toxostoma crissale	Crissal thrasher		G5	S2	None	None	BLM:S CDFW:SSC IUCN:LC	Yes	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Toxostoma lecontei	Le Conte's thrasher		G4	S3	None	None	BLM:S CDFW:SSC IUCN:LC USFWS:BCC	Yes	Yes

PASSERELLIDAE (sparrows)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Aimophila ruficeps canescens	southern California rufous-crowned sparrow		G5T3	S4	None	None	CDFW:WL	Yes	
Aimophila ruficeps obscura	Santa Cruz Island rufous-crowned sparrow		G5T2	S2	None	None	CDFW:SSC	No	
Ammodramus savannarum	grasshopper sparrow	Nesting	G5	S3	None	None	CDFW:SSC IUCN:LC	Yes	
Artemisiospiza belli belli	Bell's sparrow		G5T2T3	S3	None	None	CDFW:WL	Yes	
Artemisiospiza belli clementeae	San Clemente Bell's sparrow		G5T2Q	S2	Delisted	None	CDFW:SSC	Yes	Yes
Junco hyemalis caniceps	gray-headed junco	Nesting	G5T5	S1	None	None	CDFW:WL	Yes	
Melospiza melodia graminea	Channel Island song sparrow		G5T1	S1	None	None	CDFW:SSC USFWS:BCC	Yes	Yes
Melospiza melodia maxillaris	Suisun song sparrow		G5T3	S2	None	None	CDFW:SSC	Yes	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Melospiza melodia pop. 1	song sparrow ("Modesto" population)		G5T3?Q	S3?	None	None	CDFW:SSC	Yes	
Melospiza melodia pusillula	Alameda song sparrow		G5T2T3	S2	None	None	CDFW:SSC USFWS:BCC	Yes	
Melospiza melodia samuelis	San Pablo song sparrow		G5T2	S2	None	None	CDFW:SSC USFWS:BCC	Yes	
Melozone aberti	Abert's towhee		G4	S4	None	None	IUCN:LC	No	
Melozone crissalis eremophilus	Inyo California towhee		G4G5T2	S2	Threatened	Endangered		Yes	Yes
Passerculus sandwichensis alaudinus	Bryant's savannah sparrow		G5T3	S3	None	None	CDFW:SSC	No	
Passerculus sandwichensis beldingi	Belding's savannah sparrow		G5T3	S3	None	Endangered	USFWS:BCC	Yes	
Passerculus sandwichensis rostratus	large-billed savannah sparrow	Wintering	G5T2T3Q	S2	None	None	CDFW:SSC	No	
Pipilo maculatus clementae	San Clemente spotted towhee		G5T1T2	S3	None	None	CDFW:SSC	No	
Pooecetes gramineus affinis	Oregon vesper sparrow	Wintering	G5T2	S2	None	None	CDFW:SSC USFWS:BCC	No	
Spizella breweri	Brewer's sparrow	Nesting	G5	S4	None	None	IUCN:LC	Yes	

ICTERIIDAE (yellow-breasted chats)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Icteria virens	yellow-breasted chat	Nesting	G5	S4	None	None	CDFW:SSC IUCN:LC	Yes	

ICTERIDAE (blackbirds)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Agelaius phoeniceus aciculatus	Kern red-winged blackbird		G5T1	S1	None	None	CDFW:SSC	No	
Agelaius tricolor	tricolored blackbird	Nesting colony	G1G2	S2	None	Threatened	BLM:S CDFW:SSC IUCN:EN USFWS:BCC	Yes	
Xanthocephalus xanthocephalus	yellow-headed blackbird	Nesting	G5	S3	None	None	CDFW:SSC IUCN:LC	Yes	

PARULIDAE (wood-warblers)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Geothlypis trichas sinuosa	saltmarsh common yellowthroat		G5T3	S3	None	None	CDFW:SSC USFWS:BCC	Yes	Yes
Leiothlypis luciae	Lucy's warbler	Nesting	G5	S3	None	None	BLM:S CDFW:SSC IUCN:LC	Yes	
Leiothlypis virginiae	Virginia's warbler	Nesting	G5	S2	None	None	CDFW:WL IUCN:LC USFWS:BCC	Yes	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Setophaga petechia	yellow warbler	Nesting	G5	S3	None	None	CDFW:SSC IUCN:LC	Yes	Yes
Setophaga petechia sonorana	Sonoran yellow warbler	Nesting	G5T2T3	S2	None	None	CDFW:SSC	Yes	Yes

CARDINALIDAE (cardinals)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Cardinalis cardinalis	northern cardinal		G5	S1	None	None	CDFW:WL IUCN:LC	Yes	
Piranga flava	hepatic tanager	Nesting	G5	S1	None	None	CDFW:WL IUCN:LC	Yes	
Piranga rubra	summer tanager	Nesting	G5	S1	None	None	CDFW:SSC IUCN:LC	Yes	

FRINGILLIDAE (finches and relatives)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Spinus lawrencei	Lawrence's goldfinch	Nesting	G3G4	S4	None	None	IUCN:LC USFWS:BCC	Yes	

Mammals

SORICIDAE (shrews)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Sorex lyelli	Mount Lyell shrew		G3G4	S3S4	None	None	CDFW:SSC IUCN:LC	Yes	
Sorex ornatus relictus	Buena Vista Lake ornate shrew		G5T1	S1	Endangered	None	CDFW:SSC	Yes	
Sorex ornatus salarius	Monterey shrew		G5T1T2	S1S2	None	None	CDFW:SSC	Yes	
Sorex ornatus salicornicus	southern California saltmarsh shrew		G5T1?	S1	None	None	CDFW:SSC	Yes	
Sorex ornatus sinuosus	Suisun shrew		G5T1T2Q	S1S2	None	None	CDFW:SSC	Yes	
Sorex ornatus willetti	Santa Catalina shrew		G5T1	S1	None	None	CDFW:SSC	Yes	
Sorex vagrans halicoetes	salt-marsh wandering shrew		G5T1	S1	None	None	CDFW:SSC	Yes	
Sorex vagrans paludivagus	Monterey vagrant shrew		G5T1	S2	None	None		Yes	

TALPIDAE (moles)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Scapanus latimanus insularis	Angel Island mole		GNRT1	S2?	None	None		Yes	
Scapanus latimanus parvus	Alameda Island mole		GNRT1Q	SH	None	None	CDFW:SSC	Yes	

PHYLLOSTOMIDAE (leaf-nosed bats)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Choeronycteris mexicana	Mexican long-tongued bat		G3G4	S1	None	None	CDFW:SSC IUCN:NT	Yes	
Leptonycteris yerbabuenae	lesser long-nosed bat		G3	S1	Delisted	None	CDFW:SSC IUCN:NT	Yes	Yes
Macrotus californicus	California leaf-nosed bat		G3G4	S3	None	None	BLM:S CDFW:SSC IUCN:LC	Yes	

VESPERTILIONIDAE (evening bats)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Antrozous pallidus	pallid bat		G4	S3	None	None	BLM:S CDFW:SSC IUCN:LC USFS:S	Yes	
Corynorhinus townsendii	Townsend's big-eared bat		G4	S2	None	None	BLM:S CDFW:SSC IUCN:LC USFS:S	Yes	
Euderma maculatum	spotted bat		G4	S3	None	None	BLM:S CDFW:SSC IUCN:LC	Yes	
Lasionycteris noctivagans	silver-haired bat		G4	S3S4	None	None	IUCN:LC	Yes	
Lasiurus cinereus	hoary bat		G3G4	S4	None	None	IUCN:LC	Yes	
Lasiurus frantzii	western red bat		G4	S3	None	None	CDFW:SSC IUCN:LC	Yes	Yes

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Lasiurus xanthinus	western yellow bat		G4G5	S3	None	None	CDFW:SSC IUCN:LC	Yes	
Myotis ciliolabrum	western small-footed myotis		G5	S3	None	None	BLM:S IUCN:LC	Yes	
Myotis evotis	long-eared myotis		G5	S3	None	None	BLM:S IUCN:LC	Yes	
Myotis occultus	Arizona Myotis		G4G5	S1	None	None	CDFW:SSC IUCN:LC	Yes	
Myotis thysanodes	fringed myotis		G4	S3	None	None	BLM:S IUCN:LC USFS:S	Yes	
Myotis velifer	cave myotis		G4G5	S1	None	None	BLM:S CDFW:SSC IUCN:LC	Yes	
Myotis volans	long-legged myotis		G4G5	S3	None	None	IUCN:LC	Yes	
Myotis yumanensis	Yuma myotis		G5	S4	None	None	BLM:S IUCN:LC	Yes	

MOLOSSIDAE (free-tailed bats)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Eumops perotis californicus	western mastiff bat		G4G5T4	S3S4	None	None	BLM:S CDFW:SSC	Yes	
Nyctinomops femorosaccus	pocketed free-tailed bat		G5	S3	None	None	CDFW:SSC IUCN:LC	Yes	
Nyctinomops macrotis	big free-tailed bat		G5	S3	None	None	CDFW:SSC IUCN:LC	Yes	

OCHOTONIDAE (pikas)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Ochotona princeps schisticeps	gray-headed pika		G5T4	S2S4	None	None		Yes	

LEPORIDAE (rabbits and hares)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Brachylagus idahoensis	pygmy rabbit		G4	S3	None	None	BLM:S CDFW:SSC IUCN:LC USFS:S	Yes	
Lepus americanus klamathensis	Oregon snowshoe hare		G5T3T4Q	S2	None	None	CDFW:SSC	Yes	
Lepus americanus tahoensis	Sierra Nevada snowshoe hare		G5T3T4Q	S2	None	None	CDFW:SSC	Yes	
Lepus californicus bennettii	San Diego black-tailed jackrabbit		G5T3T4	S3S4	None	None		Yes	
Lepus townsendii townsendii	western white-tailed jackrabbit		G5T5	S3?	None	None	CDFW:SSC	Yes	
Sylvilagus bachmani riparius	riparian brush rabbit		GNRT2	S2	Endangered	Endangered		Yes	

APLODONTIIDAE (mountain beavers)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Aplodontia rufa californica	Sierra Nevada mountain beaver		G5T3T4	S2S3	None	None	CDFW:SSC IUCN:LC	Yes	Yes

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Aplodontia rufa humboldtiana	Humboldt mountain beaver		G5TNR	SNR	None	None		Yes	
Aplodontia rufa nigra	Point Arena mountain beaver		G5T1	S1	Endangered	None	CDFW:SSC IUCN:LC	Yes	Yes
Aplodontia rufa phaea	Point Reyes mountain beaver		G5T2	S2	None	None	CDFW:SSC IUCN:LC	Yes	Yes

SCIURIDAE (squirrels and relatives)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Ammospermophilus nelsoni	Nelson's (=San Joaquin) antelope squirrel		G2G3	S3	None	Threatened	BLM:S IUCN:EN	Yes	
Callospermophilus lateralis bernardinus	San Bernardino golden-mantled ground squirrel		G5T1	S1	None	None		Yes	
Glaucomys oregonensis californicus	San Bernardino flying squirrel		G5T1T2	S1S2	None	None	CDFW:SSC USFS:S	Yes	
Neotamias alpinus	Alpine chipmunk		G4	S3	None	None	IUCN:LC	Yes	
Neotamias panamintinus acrus	Kingston Mountain chipmunk		G4T1T2	S1S2	None	None		Yes	
Neotamias speciosus callipeplus	Mount Pinos chipmunk		G4T2	S2	None	None	USFS:S	Yes	
Neotamias speciosus speciosus	lodgepole chipmunk		G4T3T4	S2	None	None		Yes	
Urocitellus mollis	Piute ground squirrel		G5	S3	None	None	IUCN:LC	Yes	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Xerospermophilus mohavensis	Mohave ground squirrel		G3	S2	None	Threatened	BLM:S IUCN:NT	Yes	
Xerospermophilus tereticaudus chlorus	Palm Springs round-tailed ground squirrel		G5T2	S2	None	None	BLM:S CDFW:SSC	Yes	

GEOMYIDAE (pocket gophers)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Thomomys bottae operarius	Owens Lake pocket gopher		G5T1?	S1?	None	None		No	

HETEROMYIDAE (kangaroo rats, pocket mice, and kangaroo mice)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Chaetodipus californicus femoralis	Dulzura pocket mouse		G5T3	S3	None	None		Yes	
Chaetodipus fallax fallax	northwestern San Diego pocket mouse		G5T3T4	S3S4	None	None		Yes	
Chaetodipus fallax pallidus	pallid San Diego pocket mouse		G5T3T4	S3S4	None	None		Yes	
Dipodomys californicus eximius	Marysville California kangaroo rat		G3T1	S1	None	None	CDFW:SSC	Yes	
Dipodomys heermanni arenae	Lompoc kangaroo rat		G4T1T2	S1S2	None	None		No	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Dipodomys heermanni berkeleyensis	Berkeley kangaroo rat		G4T1	S2	None	None		Yes	
Dipodomys heermanni dixoni	Merced kangaroo rat		G4T2	S2	None	None		Yes	
Dipodomys heermanni goldmani	Salinas kangaroo rat		G4T2T3	S2S3	None	None		Yes	
Dipodomys heermanni heermanni	Heermann's kangaroo rat		G4T2	S2	None	None		No	
Dipodomys heermanni morroensis	Morro Bay kangaroo rat		G4TH	SH	Endangered	Endangered	CDFW:FP	Yes	
Dipodomys ingens	giant kangaroo rat		G1G2	S2	Endangered	Endangered	IUCN:EN	Yes	
Dipodomys merriami collinus	Earthquake Merriam's kangaroo rat		G5T2?	S2	None	None		Yes	
Dipodomys merriami parvus	San Bernardino kangaroo rat		G5T1	S1	Endangered	Endangered	CDFW:SSC	Yes	
Dipodomys merriami trinidadensis	Valle de la Trinidad kangaroo rat		G5T2T3Q	S2	None	None		Yes	
Dipodomys nitratoides brevinasus	short-nosed kangaroo rat		G2T1T2	S1S2	None	None	BLM:S CDFW:SSC IUCN:VU	Yes	
Dipodomys nitratoides exilis	Fresno kangaroo rat		G2TH	SH	Endangered	Endangered	IUCN:VU	Yes	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Dipodomys nitratoides nitratoides	Tipton kangaroo rat		G2T1T2	S2	Endangered	Endangered	IUCN:VU	Yes	
Dipodomys panamintinus argusensis	Argus Mountains kangaroo rat		G4T1T3	S1S3	None	None		Yes	
Dipodomys panamintinus panamintinus	Panamint kangaroo rat		G4T3	S3	None	None		Yes	
Dipodomys simulans	Dulzura kangaroo rat		G4	S3	None	None	IUCN:LC	Yes	
Dipodomys stephensi	Stephens' kangaroo rat		G2	S3	Threatened	Threatened	IUCN:VU	Yes	
Dipodomys venustus elephantinus	big-eared kangaroo rat		G2T2	S3	None	None		Yes	
Dipodomys venustus sanctiluciae	Santa Lucia Mountain kangaroo rat		G2T3	S3	None	None		Yes	
Dipodomys venustus venustus	Santa Cruz kangaroo rat		G2T1	S1	None	None		Yes	
Perognathus alticolus alticolus	white-eared pocket mouse		G2TH	SH	None	None	BLM:S CDFW:SSC IUCN:VU USFS:S	Yes	Yes
Perognathus alticolus inexpectatus	Tehachapi pocket mouse		G2T1T2	S1S2	None	None	CDFW:SSC IUCN:VU USFS:S	Yes	Yes

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Perognathus inornatus	San Joaquin pocket mouse		G3	S2S3	None	None	BLM:S IUCN:LC	Yes	Yes
Perognathus inornatus psammophilus	Salinas pocket mouse		G3T2?	S1	None	None	CDFW:SSC	Yes	
Perognathus longimembris bangsi	Palm Springs pocket mouse		G5T2	S1	None	None	BLM:S CDFW:SSC	Yes	
Perognathus longimembris brevinasus	Los Angeles pocket mouse		G5T2	S1S2	None	None	CDFW:SSC	Yes	
Perognathus longimembris internationalis	Jacumba pocket mouse		G5T2T3	S2	None	None	CDFW:SSC	Yes	
Perognathus longimembris pacificus	Pacific pocket mouse		G5T2	S2	Endangered	None	CDFW:SSC	Yes	
Perognathus longimembris salinensis	Saline Valley pocket mouse		G5T1	S1	None	None		No	
Perognathus longimembris tularensis	Tulare pocket mouse		G5T1	S1	None	None		No	
Perognathus mollipilosus xanthonotus	yellow-eared pocket mouse		GNRT2	S2	None	None	BLM:S	Yes	

CRICETIDAE (mice, rats, and voles)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Arborimus albipes	white-footed vole		G3G4	S2	None	None	CDFW:SSC IUCN:LC	Yes	
Arborimus pomo	Sonoma tree vole		G3	S3	None	None	CDFW:SSC IUCN:NT	Yes	
Microtus californicus halophilus	Monterey vole		G5T1	S2	None	None		Yes	
Microtus californicus mohavensis	Mohave river vole		G5T1	S1	None	None	CDFW:SSC	Yes	
Microtus californicus sanpabloensis	San Pablo vole		G5T1T2	S1S2	None	None	CDFW:SSC	Yes	
Microtus californicus scirpensis	Amargosa vole		G5T1	S1	Endangered	Endangered		Yes	
Microtus californicus stephensi	south coast marsh vole		G5T2T3	S2	None	None	CDFW:SSC	Yes	
Microtus californicus vallicola	Owens Valley vole		G5T3	S3	None	None	BLM:S CDFW:SSC	Yes	
Neotoma albigula venusta	Colorado Valley woodrat		G5T3T4	S1S2	None	None		Yes	
Neotoma fuscipes annectens	San Francisco dusky-footed woodrat		G5T2T3	S2S3	None	None	CDFW:SSC	Yes	
Neotoma fuscipes riparia	riparian (=San Joaquin Valley) woodrat		G5T1	S1	Endangered	None	CDFW:SSC	Yes	Yes

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Neotoma lepida intermedia	San Diego desert woodrat		G5T3T4	S3S4	None	None	CDFW:SSC	Yes	
Neotoma macrotis luciana	Monterey dusky-footed woodrat		G5T3	S3	None	None	BLM:S CDFW:SSC	Yes	
Onychomys torridus ramona	southern grasshopper mouse		G5T3	S3	None	None	CDFW:SSC	Yes	
Onychomys torridus tularensis	Tulare grasshopper mouse		G5T1T2	S1S2	None	None	BLM:S CDFW:SSC	Yes	
Peromyscus maniculatus anacapae	Anacapa Island deer mouse		G5T1T2	S1S2	None	None	CDFW:SSC	Yes	
Peromyscus maniculatus clementis	San Clemente deer mouse		G5T1T2	S1S2	None	None		No	
Reithrodontomys megalotis distichlis	Salinas harvest mouse		G5T1	S2	None	None		Yes	
Reithrodontomys megalotis santacruzae	Santa Cruz harvest mouse		G5T1Q	S1	None	None		Yes	Yes
Reithrodontomys raviventris	salt-marsh harvest mouse		G1G2	S3	Endangered	Endangered	CDFW:FP IUCN:EN	Yes	
Sigmodon arizonae plenus	Colorado River cotton rat		G5T2T3	S1S2	None	None	CDFW:SSC	Yes	
Sigmodon hispidus eremicus	Yuma hispid cotton rat		G5T2T3	S2	None	None	CDFW:SSC	Yes	

ERETHIZONTIDAE (New World porcupines)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Erethizon dorsatum	North American porcupine		G5	S3	None	None	IUCN:LC	Yes	

CANIDAE (foxes, wolves, and coyotes)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Canis lupus	gray wolf		G5	S1	Endangered	Endangered	IUCN:LC	Yes	
Urocyon littoralis catalinae	Santa Catalina Island fox		G3T1	S2	Threatened	Threatened		Yes	Yes
Urocyon littoralis clementae	San Clemente Island fox		G3T1	S2	None	Threatened		Yes	Yes
Urocyon littoralis dickeyi	San Nicolas Island fox		G3T1	S1	None	Threatened		Yes	Yes
Urocyon littoralis littoralis	San Miguel Island fox		G3T1	S1	Delisted	Threatened		Yes	Yes
Urocyon littoralis santacruzae	Santa Cruz Island fox		G3T1	S2	Delisted	Threatened		Yes	Yes
Urocyon littoralis santarosae	Santa Rosa Island fox		G3T1	S2	Delisted	Threatened		Yes	Yes
Vulpes macrotis mutica	San Joaquin kit fox		G4T2	S3	Endangered	Threatened		Yes	
Vulpes vulpes necator pop. 1	Sierra Nevada red fox - southern Cascades DPS		G5TNR	S1	None	Threatened	USFS:S	Yes	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Vulpes vulpes necator pop. 2	Sierra Nevada red fox - Sierra Nevada DPS		G5TNR	S1	Endangered	Threatened	USFS:S	Yes	
Vulpes vulpes patwin	Sacramento Valley red fox		G5T2	S2	None	None		No	

OTARIIDAE (sea lions and fur seals)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Arctocephalus townsendi	Guadalupe fur-seal		G2	S1	Threatened	Threatened	CDFW:FP IUCN:LC	Yes	
Callorhinus ursinus	northern fur-seal		G3	S1	None	None	IUCN:VU	Yes	
Eumetopias jubatus	Steller sea lion		G3	S2	Delisted	None	IUCN:NT MMC:SSC	Yes	

PROCYONIDAE (raccoons and ringtails)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Bassariscus astutus nevadensis	Nevada ringtail		G5TNR	SNR	None	None	CDFW:FP	No	
Bassariscus astutus octavus	southern California ringtail		G5T3	S3	None	None	CDFW:FP	No	
Bassariscus astutus raptor	northern California ringtail		G5TNR	SNR	None	None	CDFW:FP	No	
Bassariscus astutus willetti	Palo Verde Mountains ringtail		G5T2	S2	None	None	CDFW:FP	No	

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Bassariscus astutus yumanensis	Yuma ringtail		G5TU	S2	None	None	CDFW:FP	No	

MUSTELIDAE (weasels and relatives)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Enhydra lutris nereis	southern sea otter		G4T2	S3	Threatened	None	CDFW:FP IUCN:EN MMC:SSC	Yes	Yes
Gulo gulo	wolverine		G4	S1	Threatened	Threatened	CDFW:FP IUCN:LC USFS:S	Yes	
Lontra canadensis sonora	southwestern river otter		G5T1	SH	None	None	CDFW:SSC	Yes	Yes
Martes caurina	Pacific marten		G4G5	S3	None	None	IUCN:LC USFS:S	Yes	
Martes caurina humboldtensis	Humboldt marten		G4G5T1	S1	Threatened	Endangered	CDFW:SSC USFS:S	Yes	Yes
Martes caurina sierrae	Sierra marten		G4G5T3	S3	None	None	USFS:S	Yes	
Neogale frenata inyoensis	Inyo long-tailed weasel		G5T2Q	S2	None	None		No	
Neogale frenata xanthogenys	San Joaquin long-tailed weasel		G5T2T3	S3	None	None		No	
Pekania pennanti	Fisher		G5	S2S3	None	None	BLM:S CDFW:SSC IUCN:LC USFS:S	Yes	Yes

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Pekania pennanti pop. 2	Fisher - southern Sierra Nevada ESU		G5T1	S1	Endangered	Threatened	BLM:S CDFW:SSC USFS:S	Yes	
Taxidea taxus	American badger		G5	S3	None	None	CDFW:SSC IUCN:LC	Yes	

MEPHITIDAE (skunks)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Spilogale gracilis amphiala	Channel Islands spotted skunk		G5T3	S3	None	None	CDFW:SSC	Yes	

FELIDAE (cats and relatives)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Lynx rufus pallescens	pallid bobcat		G5T3?	S3?	None	None		No	
Puma concolor browni	Yuma mountain lion		G5T1T2Q	S1	None	None	CDFW:SSC	Yes	

CERVIDAE (deer, elk, and moose)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Cervus canadensis nannodes	tule elk		G4T3	S3	None	None		No	

ANTILOCAPRIDAE (pronghorn)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Antilocapra americana	pronghorn		G5	S3	None	None	IUCN:LC	No	

BOVIDAE (sheep and relatives)

Scientific Name	Common Name	Comments	Global Rank	State Rank	ESA	CESA	Other Status	Records in CNDDB?	End Notes?
Ovis canadensis nelsoni	desert bighorn sheep		G4T3	S3	None	None	BLM:S CDFW:FP USFS:S	Yes	Yes
Ovis canadensis nelsoni pop. 2	Peninsular bighorn sheep DPS		G4T3Q	S2	Endangered	Threatened	CDFW:FP	Yes	Yes
Ovis canadensis sierrae	Sierra Nevada bighorn sheep		G4T2	S2	Endangered	Endangered	CDFW:FP	Yes	

End Notes

Invertebrates

GASTROPODA (snails, slugs, and abalones)

Prophysaon sp. 1

Klamath taildropper

1) This entity is known to be unique morphologically and genetically (Frest & Johannes 2000, Wilke & Duncan 2004, Roth & Sadeghian 2006), but has not been formally described and some may reference it as part of the *Prophysaon coeruleum* species complex.

ARACHNIDA (spiders and relatives)

Hubbardia shoshonensis

Shoshone Cave whip-scorpion

1) BLM Sensitive list uses the scientific name *Trithyreus shoshonensis*.

CRUSTACEA, Order Amphipoda (amphipods)

Hyalella muerta

Texas Spring amphipod

1) First North American hypogean hyalellid.

Hyalella sandra

Death Valley amphipod

1) Population in Texas Springs is an accidental introduction. Population in Nevares Springs may be a new species.

INSECTA, Order Coleoptera (beetles)

Trigonoscuta sp.

Doyen's trigonoscuta dune weevil

1) Sometimes referred to as *Trigonoscuta doyeni*, which is an unpublished manuscript name.

INSECTA, Order Lepidoptera (butterflies and moths)

Callophrys thornei

Thorne's hairstreak

1) Formerly Mitoura thornei.

Euproserpinus euterpe

Kern primrose sphinx moth

1) Until its rediscovery in Kern County in 1974, this moth had been thought to be extinct. A second population was later found in San Luis Obispo County (Xerces Society 2005).

Speyeria zerene myrtleae

Myrtle's silverspot butterfly

1) The USFWS and others have not yet determined if the taxonomic expansion by Emmel and Emmel (1998) into *S. z. myrtleae* and *S. z. puntareyes* is warranted. The *Speyereia zerene* along the coast of Marin and Sonoma Counties are federally endangered under the subspecies concept in the 1992 listing.

INSECTA, Order Hymenoptera (ants, bees, and wasps)

Bombus crotchii

Crotch's bumble bee

1) Originally advanced to candidacy by the Fish and Game Commission in June 2019. The candidacy determination was challenged in court. Candidacy was temporarily stayed beginning February 2021 following an adverse trial court judgment. The Third District Court of Appeal reversed the trial court judgment. Candidacy was reinstated on September 30, 2022.

Bombus franklini

Franklin's bumble bee

1) Originally advanced to candidacy by the Fish and Game Commission in June 2019. The candidacy determination was challenged in court. Candidacy was temporarily stayed beginning February 2021 following an adverse trial court judgment. The Third District Court of Appeal reversed the trial court judgment. Candidacy was reinstated on September 30, 2022.

Bombus occidentalis

western bumble bee

1) Originally advanced to candidacy by the Fish and Game Commission in June 2019. The candidacy determination was challenged in court. Candidacy was temporarily stayed beginning February 2021 following an adverse trial court judgment. The Third District Court of Appeal reversed the trial court judgment. Candidacy was reinstated on September 30, 2022.

Bombus suckleyi

Suckley's cuckoo bumble bee

1) Originally advanced to candidacy by the Fish and Game Commission in June 2019. The candidacy determination was challenged in court. Candidacy was temporarily stayed beginning February 2021 following an adverse trial court judgment. The Third District Court of Appeal reversed the trial court judgment. Candidacy was reinstated on September 30, 2022.

Fishes

SALMONIDAE (trout and salmon)

Oncorhynchus kisutch pop. 2

coho salmon - southern Oregon / northern California ESU

1) Federal listing refers to populations between Cape Blanco, Oregon and Punta Gorda, Humboldt County, California.
2) State listing refers to populations between the Oregon border and Punta Gorda, Humboldt County, California.

Oncorhynchus kisutch pop. 4

coho salmon - central California coast ESU

1) Federal listing is limited to naturally spawning populations in streams between Punta Gorda, Humboldt County and the San Lorenzo River, Santa Cruz County.
2) State listing is limited to populations south of Punta Gorda, Humboldt County.

Oncorhynchus mykiss irideus pop. 1

steelhead - Klamath Mountains Province DPS

1) This ESU includes all naturally spawned populations residing in streams between the Elk River in Oregon and the Klamath River in California, inclusive.
2) CDFW SSC designation refers only to the California portion of the ESU and refers only to the summer-run.

Oncorhynchus mykiss irideus pop. 10

steelhead - southern California DPS

1) The federal designation refers to fish in the coastal basins from the Santa Maria River (inclusive), south to the U.S. - Mexico Border.

Oncorhynchus mykiss irideus pop. 11

steelhead - Central Valley DPS

1) Federal listing includes all runs in the Sacramento and San Joaquin rivers and their tributaries.

Oncorhynchus mykiss irideus pop. 8

steelhead - central California coast DPS

1) Federal listing includes all runs in coastal basins from the Russian River in Sonoma County, south to Soquel Creek in Santa Cruz County, inclusive. It includes the San Francisco and San Pablo Bay basins, but excludes the Sacramento-San Joaquin River basins.

Oncorhynchus mykiss irideus pop. 9

steelhead - south-central California coast DPS

1) Federal listing includes all runs in coastal basins from the Pajaro River south to, but not including, the Santa Maria River.
2) CDFW SSC designation refers to southern steelhead trout.

Oncorhynchus tshawytscha pop. 11

chinook salmon - Central Valley spring-run ESU

1) Federal listing refers to the Central Valley spring-run ESU. It includes populations spawning in the Sacramento River and its tributaries.

Oncorhynchus tshawytscha pop. 13

chinook salmon - Central Valley fall / late fall-run ESU

1) The Central Valley fall/late fall-run ESU refers to populations spawning in the Sacramento and San Joaquin rivers and their tributaries.
2) CDFW SSC designation refers only to the fall-run.

Oncorhynchus tshawytscha pop. 17

chinook salmon - California coastal ESU

1) Originally proposed as part of a larger Southern Oregon and California Coastal ESU. This new ESU was revised to include only naturally spawned coastal spring- and fall-run chinook salmon between Redwood Creek in Humboldt County and the Russian River in Sonoma County.

OSMERIDAE (smelt)

Thaleichthys pacificus

eulachon

1) The Federal Threatened status pertains to the "southern DPS" of eulachon that range from central British Columbia, Washington, Oregon, and northern California.

CYPRINIDAE (minnows and carp)

Rhinichthys nevadensis nevadensis

Amargosa speckled dace

1) Moyle et al. 2023 formally named/described the *Rhinichthys* complex in California and Nevada, and former Amargosa Canyon speckled dace (*R. osculus* ssp. 1) and Owens speckled dace (*R. osculus* ssp. 2) are combined as newly described Amargosa speckled dace (*R. nevadensis nevadensis*).

Siphateles bicolor ssp. 11

High Rock Springs tui chub

1) Formerly *Siphateles bicolor* ssp. 2, which did not account for other undescribed subspecies outside of CA.

Siphateles bicolor ssp. 12

Eagle Lake tui chub

1) Formerly *Siphateles bicolor* ssp. 1, which did not account for other undescribed subspecies outside of CA.

Siphateles bicolor ssp. 14

Pit River tui chub

1) Formerly *Siphateles bicolor* ssp. 3, which did not account for other undescribed subspecies outside of CA.

Amphibians

PLETHODONTIDAE (lungless salamanders)

Aneides niger

Santa Cruz black salamander

1) CDFW SSC status uses former subspecies concept of *Aneides flavipunctatus niger*.

Batrachoseps relictus

relictual slender salamander

1) Taxonomy follows Jockusch et al. 2012. Morphological and molecular diversification of slender salamanders (Caudata: Plethodontidae: *Batrachoseps*) in the southern Sierra Nevada of California with descriptions of two new species. Zootaxa 3190:1-30, which synonymized *Batrachoseps* sp. 1, Breckenridge Mountain slender salamander, with *B. relictus*.

Hydromantes shastae

Shasta salamander

1) *Hydromantes shastae* has been proposed to consist of cryptic genetic structuring that may warrant recognition of additional species named as *Hydromantes samweli* and *Hydromantes wintu* (Bingham et al. 2018, Bull. Mus. Comp. Zool. 161(10):403-427). Until formally reviewed by the Fish and Game Commission, all populations in the Shasta salamander complex are legally state threatened.

Plethodon asupak

Scott Bar salamander

1) Since this newly described species was formerly considered to be a subpopulation of *Plethodon stormi* (Mead et al. 2005), and since *Plethodon stormi* is listed as threatened under CESA, *Plethodon asupak* retains the designation as a threatened species under CESA (Calif. Regulatory Notice Register, No. 21-Z, p.916, 25 May 2007).

BUFONIDAE (true toads)

Anaxyrus californicus

arroyo toad

1) At the time of listing, arroyo toad was known as *Bufo microscaphus californicus*, a subspecies of southwestern toad. In 2001, it was determined to be its own species, *Bufo californicus*. Since then, many species in the genus *Bufo* were changed to the genus *Anaxyrus*, and now arroyo toad is known as *Anaxyrus californicus* (Frost et al. 2006).

Anaxyrus canorus

Yosemite toad

1) Formerly *Bufo canorus*; Frost et al. (2006. The Amphibian Tree of Life. Bulletin of the American Museum of Natural History 297: 1-370) placed this species in the genus *Anaxyrus* (Tschudi 1845).

Anaxyrus exsul

black toad

1) Formerly *Bufo canorus*; Frost et al. (2006. The Amphibian Tree of Life. Bulletin of the American Museum of Natural History 297: 1-370) placed this species in the genus *Anaxyrus* (Tschudi 1845).

Incilius alvarius

Sonoran Desert toad

1) Formerly *Bufo alvarius*. Between 2006-2009, the scientific name has been changed to *Cranopsis alvaria*, *Ollotis alvaria*, *Incilius alvarius*, back to *Ollotis alvarius*, and then back to *Incilius alvarius*. The common name has changed from Colorado River toad to Sonoran Desert toad.

RANIDAE (true frogs)

Lithobates pipiens

northern leopard frog

1) Formerly *Rana pipiens*; Frost et al. (2006. The Amphibian Tree of Life. Bulletin of the American Museum of Natural History 297: 1-370) placed this species in the genus *Lithobates* (Fitzinger 1843).

Lithobates yavapaiensis

lowland leopard frog

1) Formerly *Rana yavapaiensis*; Frost et al. (2006. The Amphibian Tree of Life. Bulletin of the American Museum of Natural History 297: 1-370) placed this species in the genus *Lithobates* (Fitzinger 1843).

Rana aurora

northern red-legged frog

1) An mtDNA study (Shaffer et al. 2004) concluded that *Rana aurora aurora* and *Rana aurora draytonii* should be recognized as separate species with a narrow zone of overlap

Rana draytonii

California red-legged frog

1) An mtDNA study (Shaffer et al. 2004) concluded that *Rana aurora aurora* and *Rana aurora draytonii* should be recognized as separate species with a narrow zone of overlap, and that the range of *draytonii* extends about 100 km further north in coastal California than previously thought.

Rana muscosa

southern mountain yellow-legged frog

1) Both federally recognized Distinct Population Segments (DPS) of the mountain yellow-legged frog (*Rana muscosa*) are currently Endangered (2021). The mountain yellow-legged frog – northern DPS is known from the southern Sierra Nevada; the mountain yellow-legged frog – southern DPS is known from the Transverse Ranges.

Rana sierrae

Sierra Nevada yellow-legged frog

1) Formerly *Rana muscosa*. *Rana muscosa* was split into *Rana sierrae*, the Sierra Nevada yellow-legged frog, found in the northern and central Sierra Nevada, and *Rana muscosa*, the southern mountain yellow-legged frog, found in the southern Sierra Nevada and southern California.

Reptiles

XANTUSIIDAE (night lizards)

Xantusia vigilis sierrae

Sierra night lizard

1) Formerly *Xantusia sierrae*; scientific name changed to reflect currently accepted subspecies concept.

ANNIELLIDAE (legless lizards)

Anniella alexanderae

Temblor legless lizard

1) Legless lizards (*Anniella* spp.) in California were traditionally considered one species, but are now considered five species (Pappenfuss and Parham, 2013). The prior (Jennings and Hayes, 1994) and current (Thompson et al. 2016) Species of Special Concern (SSC) projects evaluated the traditional single species taxon and determined all legless lizards in California to be an SSC. Therefore, the SSC status is carried over to the new taxon concepts until further SSC evaluation.

Anniella campi

Southern Sierra legless lizard

1) Legless lizards (*Anniella* spp.) in California were traditionally considered one species, but are now considered five species (Pappenfuss and Parham, 2013). The prior (Jennings and Hayes, 1994) and current (Thompson et al. 2016) Species of Special Concern (SSC) projects evaluated the traditional single species taxon and determined all legless lizards in California to be an SSC. Therefore, the SSC status is carried over to the new taxon concepts until further SSC evaluation.

Anniella grinnelli

Bakersfield legless lizard

1) Legless lizards (*Anniella* spp.) in California were traditionally considered one species, but are now considered five species (Pappenfuss and Parham, 2013). The prior (Jennings and Hayes, 1994) and current (Thompson et al. 2016) Species of Special Concern (SSC) projects evaluated the traditional single species taxon and determined all legless lizards in California to be an SSC. Therefore, the SSC status is carried over to the new taxon concepts until further SSC evaluation.

Anniella pulchra

Northern California legless lizard

1) Legless lizards (*Anniella* spp.) in California were traditionally considered one species, but are now considered five species (Pappenfuss and Parham, 2013). The prior (Jennings and Hayes, 1994) and current (Thompson et al. 2016) Species of Special Concern (SSC) projects evaluated the traditional single species taxon and determined all legless lizards in California to be an SSC. Therefore, the SSC status is carried over to the new taxon concepts until further SSC evaluation.

Anniella spp.

California legless lizard

1) This element represents California records of *Anniella* not yet assigned to new species within the *Anniella pulchra* complex. Legless lizards (*Anniella* spp.) in California were traditionally considered one species, but are now considered five species (Pappenfuss and Parham, 2013). CNDDB has assigned new species concepts to most, but not all, previously known and extant legless lizard occurrences. Where an occurrence of a legless lizard is not known to the species level, the general concept California legless lizard (*Anniella* spp.) will be applied until further evidence is available. All legless lizards in California are a Species of Special Concern (Thomson et al., 2016).

Anniella stebbinsi

Southern California legless lizard

1) Legless lizards (*Anniella* spp.) in California were traditionally considered one species, but are now considered five species (Pappenfuss and Parham, 2013). The prior (Jennings and Hayes, 1994) and current (Thompson et al. 2016) Species of Special Concern (SSC) projects evaluated the traditional single species taxon and determined all legless lizards in California to be an SSC. Therefore, the SSC status is carried over to the new taxon concepts until further SSC evaluation.

HELODERMATIDAE (venomous lizards)

Heloderma suspectum cinctum

banded Gila monster

1) BLM Sensitive designation refers to the full species.

NATRICIDAE (live-bearing snakes)

Thamnophis sirtalis pop. 1

south coast gartersnake

1) CDFW Species of Special Concern treats this population as a distinct taxon, though it is more commonly treated as a subpopulation of *Thamnophis sirtalis infernalis*, the California red-sided gartersnake.

Birds

PHASIANIDAE (grouse and ptarmigan)

Centrocercus urophasianus

greater sage-grouse

1) The federal proposal applies to the Bi-State DPS (Mono Basin of CA and NV; Mono, Alpine, and Inyo counties in California).

Dendragapus fuliginosus howardi

Mount Pinos sooty grouse

1) Formerly merged with *D. obscurus* as blue grouse, but separated on the basis of genetic evidence and differences in voice, behavior, and plumage.

PELECANIIDAE (pelicans)

Pelecanus occidentalis californicus

California brown pelican

1) Removed from Fully Protected list (Fish & Game Code §3511) in July 2023 by Senate Bill no. 147

ACCIPITRIDAE (hawks, kites, harriers, and eagles)

Circus hudsonius

northern harrier

1) Formerly considered conspecific with *Circus cyaneus*, but treated as separate on the basis of differences in morphology, plumage, and breeding habitat.

FALCONIDAE (falcons)

Falco peregrinus anatum

American peregrine falcon

1) Removed from Fully Protected list (Fish & Game Code §3511) in July 2023 by Senate Bill no. 147

RALLIDAE (rails, coots, and gallinules)

Laterallus jamaicensis coturniculus

California black rail

1) The IUCN designation of Near Threatened refers to the full species.

CHARADRIIDAE (plovers and relatives)

Anarhynchus nivosus nivosus

western snowy plover

1) Federal listing applies only to the Pacific coastal population.
2) CDFW SSC designation refers to both the coastal and interior populations.

LARIDAE (gulls and terns)

Gelochelidon nilotica

gull-billed tern

1) Taxonomy recently changed from *Sterna nilotica*.

Hydroprogne caspia

Caspian tern

1) Taxonomy recently changed from *Sterna caspia*.

Sternula antillarum browni

California least tern

1) Taxonomy recently changed from *Sterna antillarum browni*.

Thalasseus elegans

elegant tern

1) Taxonomy recently changed from *Sterna elegans*.

ALCIDAE (auklets, puffins, and relatives)

Synthliboramphus scrippsi

Scripps's murrelet

1) Formerly included in Xantus's murrelet as *Synthliboramphus hypoleucus scrippsi*. Now considered a full species.

STRIGIDAE (owls)

Athene cunicularia

burrowing owl

1) A burrow site = an observation of one or more owls at a burrow or evidence of recent occupation such as whitewash and feathers. Winter observations at a burrow are mapped. Winter observations with or without a burrow in San Francisco, Ventura, Sonoma, Marin, Napa, and Santa Cruz Counties are mapped.

Strix occidentalis caurina

northern spotted owl

1) There are no spotted owl EOs in the CNDDB. All spotted owl location information is maintained in a separate database (https://wildlife.ca.gov/Data/CNDDB/Spotted-Owl-Info). CNDDB subscribers can access these datasets from the same bookmark as the CNDDB layer in BIOS (https://www.wildlife.ca.gov/Data/BIOS).

Strix occidentalis occidentalis

California spotted owl

1) There are no spotted owl EOs in the CNDDB. All spotted owl location information is maintained in a separate database (https://wildlife.ca.gov/Data/CNDDB/Spotted-Owl-Info). CNDDB subscribers can access these datasets from the same bookmark as the CNDDB layer in BIOS (https://www.wildlife.ca.gov/Data/BIOS).
2) On 20230223, coastal-southern California DPS was federally proposed Endangered, and Sierra Nevada DPS was federally proposed Threatened.

TYRANNIDAE (tyrant flycatchers)

Empidonax traillii

willow flycatcher

1) State listing of the full species includes all subspecies.

Empidonax traillii brewsteri

little willow flycatcher

1) State listing of the full species includes all subspecies.

Empidonax traillii extimus

southwestern willow flycatcher

1) State listing of the full species includes all subspecies.

LANIIDAE (shrikes)

Lanius ludovicianus mearnsi

San Clemente loggerhead shrike

1) Subspecific identity of shrikes currently on San Clemente is uncertain. Mundy et al. (1997a, b) provided evidence *L. l. mearnsi* is genetically distinct from *L. l. gambeli* and *L. l. anthonyi*, whereas Patten and Campbell (2000) concluded, based on morphology, that the birds now on San Clemente are intergrades between *L. l. mearnsi* and *L. l. anthonyi*.

VIREONIDAE (vireos)

Vireo bellii arizonae

Arizona Bell's vireo

1) The IUCN designation of Near Threatened refers to the full species.

Vireo bellii pusillus

least Bell's vireo

1) The IUCN designation of Near Threatened refers to the full species.

TROGLODYTIDAE (wrens)

Campylorhynchus brunneicapillus sandiegensis

coastal cactus wren

1) CDFW Bird Species of Special Concern report uses the common name San Diego cactus wren.

POLIOPTILIDAE (gnatcatchers)

Polioptila californica californica

coastal California gnatcatcher

1) CDFW Bird Species of Special Concern report uses the common name Alta California gnatcatcher.

MIMIDAE (mockingbirds and thrashers)

Toxostoma lecontei

Le Conte's thrasher

1) CDFW SSC designation refers only to the San Joaquin population.
2) The BLM Sensitive designation refers to the San Joaquin Le Conte's thrasher, *Toxostoma lecontei macmillanorum*, although the subspecies concept is not universally recognized.

PASSERELLIDAE (sparrows)

Artemisiospiza belli clementeae

San Clemente Bell's sparrow

1) Subspecific validity uncertain. Recognized by AOU (1957), but not by Patten and Unitt (2002).

Melospiza melodia graminea

Channel Island song sparrow

1) Subspecific validity is uncertain. This subspecies when referred to as Santa Barbara song sparrow is extinct. However, the subspecies was merged by Patten (2001) with the San Miguel (*M. m. micronyx*), and San Clemente (*M. m. clementae*) song sparrows as the Channel Island song sparrow with the subspecific name *M. m. graminea*.

Melozone crissalis eremophilus

Inyo California towhee

1) Previously in the genus Pipilo.

PARULIDAE (wood-warblers)

Geothlypis trichas sinuosa

saltmarsh common yellowthroat

1) CDFW Bird Species of Special Concern report uses the common name San Francisco common yellowthroat

Setophaga petechia

yellow warbler

1) This element includes the subspecies *S. p. morcormi* and *S. p. brewsteri*, which are tracked under the full species, *S. petechia*, due to difficulty distinguishing them. *S. p. sonorana*, which nests in California only along the Colorado River, is tracked separately.

Setophaga petechia sonorana

Sonoran yellow warbler

1) Nests in California only along the Colorado River. Observations of yellow warblers from other regions are tracked as the full species, *S. petechia*.

Mammals

PHYLLOSTOMIDAE (leaf-nosed bats)

Leptonycteris yerbabuenae

lesser long-nosed bat

1) Federal listing uses the scientific name *Leptonycteris curasoae yerbabuenae*.

VESPERTILIONIDAE (evening bats)

Lasiurus frantzii

western red bat

1) Nomenclature changed from *Lasiurus blossevillii* to *Lasiurus frantzii* based on Baird et al. 2015, J. of Mammalogy 96(6):1255-1274.

APLODONTIIDAE (mountain beavers)

Aplodontia rufa californica

Sierra Nevada mountain beaver

1) The IUCN Least Concern designation refers to the full species.

Aplodontia rufa nigra

Point Arena mountain beaver

1) The IUCN Least Concern designation refers to the full species.

Aplodontia rufa phaea

Point Reyes mountain beaver

1) The IUCN Least Concern designation refers to the full species.

HETEROMYIDAE (kangaroo rats, pocket mice, and kangaroo mice)

Perognathus alticolus alticolus

white-eared pocket mouse

1) CDFW SSC, BLM Sensitive, and IUCN Endangered designations refer to the full species.

Perognathus alticolus inexpectatus

Tehachapi pocket mouse

1) CDFW SSC and IUCN Endangered designations refer to the full species.

Perognathus inornatus

San Joaquin pocket mouse

1) This element includes the subspecies *P. i. inornatus* and *P. i. neglectus*, which are tracked under the full species, *P. inornatus*, due to difficulty distinguishing them. *P. i. inornatus* generally occurs on the eastern side of the San Joaquin Valley, while *P. i. neglectus* generally occurs on the western side. *P. i. psammophilus*, which occurs only in the Salinas Valley, is tracked separately.

CRICETIDAE (mice, rats, and voles)

Neotoma fuscipes riparia

riparian (=San Joaquin Valley) woodrat

1) This species is currently undergoing taxonomic revision

Reithrodontomys megalotis santacruzae

Santa Cruz harvest mouse

1) Synonymous with *Reithrodontomys megalotus longicaudus*, Santa Cruz Island population.

CANIDAE (foxes, wolves, and coyotes)

Urocyon littoralis catalinae

Santa Catalina Island fox

1) The IUCN Near Threatened status refers to the full species.

Urocyon littoralis clementae

San Clemente Island fox

1) The IUCN Near Threatened status refers to the full species.

Urocyon littoralis dickeyi

San Nicolas Island fox

1) The IUCN Near Threatened status refers to the full species.

Urocyon littoralis littoralis

San Miguel Island fox

1) The IUCN Near Threatened status refers to the full species.

Urocyon littoralis santacruzae

Santa Cruz Island fox

1) The IUCN Near Threatened status refers to the full species.

Urocyon littoralis santarosae

Santa Rosa Island fox

1) The IUCN Near Threatened status refers to the full species.

MUSTELIDAE (weasels and relatives)

Enhydra lutris nereis

southern sea otter

1) The IUCN Endangered designation refers to the full species.

Lontra canadensis sonora

southwestern river otter

1) CDFW SSC status refers only to the subspecies *L. canadensis sonora*, which is known in California only from the Colorado River.

Martes caurina humboldtensis

Humboldt marten

1) Federal status refers to the coastal DPS of Pacific marten (*Martes caurina*)

Pekania pennanti

Fisher

1) In 2004, the West Coast DPS of fisher became a candidate for federal listing, and underwent numerous evaluations, proposed rules, and revisions in subsequent years. In 2020, the West Coast DPS was further divided into the Southern Sierra Nevada DPS and the Northern California/Southern Oregon DPS (which also includes Northern Sierra Nevada and Southern Oregon Cascades subpopulations which arose from reintroductions). State threatened and federal endangered statuses apply only to the Southern Sierra Nevada ESU/DPS. State listing defines the northern limit of the SSN ESU as the Merced River, while federal listing uses the Tuolumne River.

BOVIDAE (sheep and relatives)

Ovis canadensis nelsoni

desert bighorn sheep

1) Desert bighorn sheep (*O. c. nelsoni*) in the Peninsular Ranges are tracked as a metapopulation of the subspecies, Peninsular bighorn sheep DPS (*O. c. nelsoni* pop. 2)

2) Fully Protected with the exception of legal hunting conducted in compliance with California Code of Regulations 14 CCR 362.

Ovis canadensis nelsoni pop. 2

Peninsular bighorn sheep DPS

1) The subspecies peninsular bighorn sheep (*O. c. cremnobates*) has been synonymized with *O. c. nelsoni* (Wehausen & Ramey 1993). Peninsular bighorn sheep are now considered to be a metapopulation and are recognized as a federal Distinct Population Segment (DPS).

Raptors of California



The word "raptor" is the term used for a group of birds consisting of hawks, falcons, kites, eagles, vultures and owls. Raptors, also referred to as "birds of prey", are a valuable resource to the State of California, and therefore all raptors are protected under State law (See Fish and Game Code, Sections 3503, 3503.5, 3505 and 3513, and California Code of Regulation, Title 14, Sections 251.1, 652 and 783-786.6). There are over 30 species of raptors that inhabit California at some point in their life cycle.

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- Raptor Species of Special Concern
- State Threatened and Endangered Raptors
- Other California Raptors
- Related Information

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- Bald Eagle
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Other California Raptors

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- Sharp-shinned Hawk
- Ferruginous Hawk
- Osprey

- Harris' Hawk
- Merlin
- Peregrine Falcon
- Prairie Falcon
- Red-tailed Hawk
- Red-shouldered Hawk
- American Kestrel
- Broad-winged Hawk
- Rough-legged Hawk
- Great-horned Owl
- Barn Owl
- Screech Owl
- Barred Owl
- Turkey Vulture

Related Information

- Survey and Monitoring Protocols and Guidelines for Birds
- California and Nevada Golden Eagle Working Group
- Golden Eagle Science Team
- Northern Spotted Owl Interagency Working Group
- CDFW Collecting and Research Take Permits
- CDFW Timber Conservation Program
- CDFW Falconry License Information
- USFWS Wind Energy Eagle Incidental Take Permits

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Range Management Practices to Reduce Wind Turbine Impacts on Burrowing Owls and Other Raptors in the Altamont Pass Wind Resource Area, California

Report

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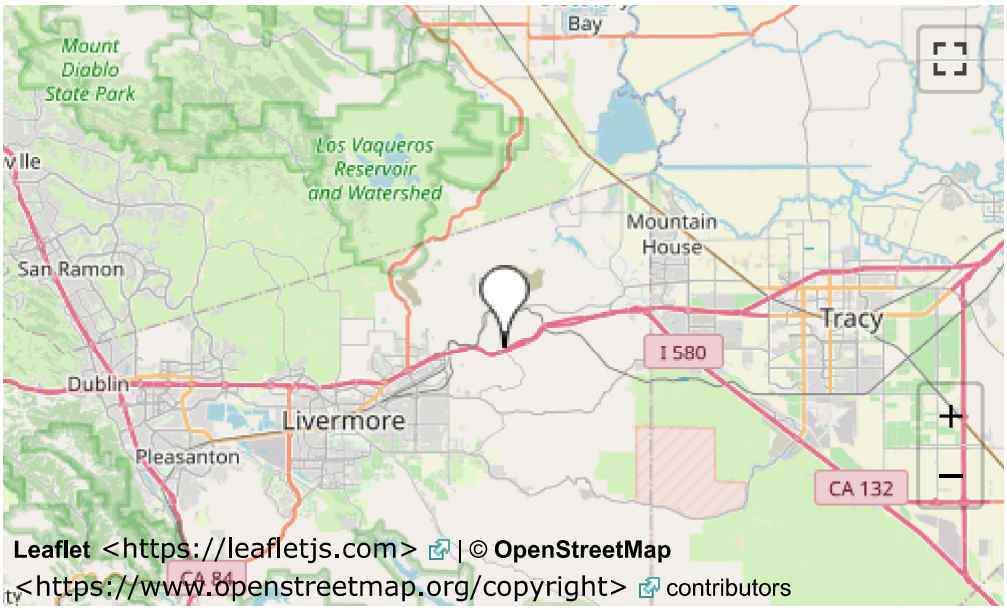
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Abstract

The East Bay Regional Park District studied the impacts of wind turbines on raptors at its properties in the Altamont Pass Wind Resource Area (APWRA). Several studies were conducted to provide information useful to reducing impacts to raptors due to construction or repowering of wind farms. The studies' objectives included determining whether vegetation height can be managed to affect the distribution of small mammals near wind turbines to reduce risk to raptors, determining the effectiveness of seasonal wind turbine shutdowns to reduce raptor collisions with wind turbines, relating burrowing owl population size to mortality, determining factors that affect raptor behavior and spatial distribution, estimating scavenger removal rates of bird carcasses, and assessing wind turbine repowering scenarios.



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U.S. Fish & Wildlife Service

Birds of Conservation Concern 2021

Migratory Bird Program



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Cover: Baird's Sparrow, Rick Bohn/USFWS

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Allen's Hummingbird, Brima Battle/USFWS

Executive Summary

The 1988 amendment to the Fish and Wildlife Conservation Act mandates the U.S. Fish and Wildlife Service (USFWS) to identify species, subspecies and populations (hereafter taxa) of all migratory nongame birds that without additional conservation action are likely to become candidates for listing under the Endangered Species Act (ESA) of 1973. The Birds of Conservation Concern 2021 (BCC 2021) is the most recent effort to carry out this mandate. The overall goal of this report is to identify those bird taxa (beyond those already designated as federally threatened or endangered) that represent the highest conservation priorities of the USFWS. The BCC 2021 is intended to stimulate coordinated, collaborative and proactive conservation actions among international, federal, state, tribal and private partners.

The geographic scope of this endeavor is the United States of America (USA) in its entirety, including island states, commonwealths and territories in the Pacific Ocean and Caribbean Sea and the marine areas delineated as territorial sea, contiguous zone and exclusive economic zone. The BCC 2021 encompasses four distinct geographic scales: 1) the Continental USA, including Alaska; 2) Pacific Ocean islands, including Hawaii; 3) Puerto Rico, the U.S. Virgin Islands and Navassa; and 4) continental Bird Conservation Regions (BCRs) and Marine Bird Conservation Regions (MBCRs), as defined by Bird Studies Canada and NABCI (2014). New to the BCC 2021 is the explicit inclusion of MBCRs.

Bird taxa considered for the BCC 2021 lists include nongame birds, gamebirds without hunting seasons or where harvest is minimal, and subsistence-hunted nongame birds in Alaska. Excluded from consideration for the BCC 2021 are bird species not protected under the Migratory Bird Treaties (Federal Register 2020a), taxa already listed as threatened or endangered under the ESA, or taxa that only occur irregularly or peripherally in the USA. Our conservation assessment was based on several factors, including population abundance and trends, threats on breeding and nonbreeding grounds, and size of breeding and nonbreeding ranges. The factor scores and associated thresholds used for identifying birds of conservation concern in the 2014 State of the Birds Watch List (Rosenberg et al. 2014) and the Avian Conservation Assessment Database (Partners in Flight 2019, Punjabi et al. 2019) served as the foundation on which we developed the BCC 2021 lists. Thus, we sought consistency of the BCC 2021 with priorities identified through these other efforts, noting that appropriate differences do occur due to the unique scope and mandate of the Birds of Conservation Concern. The BCC 2021 also represents the first time we tried to unify the assessment system among waterbirds, shorebirds and landbirds.

The BCC 2021 identifies 269 individual bird taxa of conservation concern. Of these, 135 taxa are of conservation concern at the Continental scale, 88 taxa at the BCR scale, 29 taxa on Puerto Rico and the Virgin Islands, and 35 taxa on Hawaii and the Pacific Islands; 18 taxa identified on the Continental/BCR lists are shared with either Puerto Rico and the Virgin Islands or Hawaii and the Pacific Islands. The number of taxa on the Hawaii/Pacific Island list appears deceptively low, because a high number of birds there are already listed under the ESA. The number of taxa listed within a BCR, which includes those identified as conservation concern at the Continental or BCR scales, ranges from 12 taxa in the Arctic Plains and Mountains to 49 taxa in Coastal California, with an average of 25.4 taxa per BCR. Among MBCRs, the number of taxa ranged from two taxa in the Chuckchi and Beaufort Seas to 13 taxa in the California Current, with an average of 7.4 taxa per MBCR.

Although the bird taxa included in the BCC 2021 are priorities for conservation action, this list makes no finding with regard to whether they warrant consideration for ESA listing. Our goal is to eliminate the need for additional ESA bird listings by implementing proactive management and conservation actions that sustain populations well above thresholds of endangerment. We recommend that these lists be consulted in accordance with Executive Order 13186, Responsibilities of Federal Agencies to Protect Migratory Birds. Many of the taxa identified herein are targets of ongoing conservation attention by national and international initiatives (e.g., Partners in Flight, U.S. Shorebird Conservation Partnership), Migratory Bird Joint Ventures, state and federal natural resource agencies, non-governmental organizations, and other partnerships.

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This edition of the BCC 2021 is dedicated to the original USFWS "Nongame 7" who retired since the previous publication of the Birds of Conservation Concern: Tara Zimmerman (Pacific Region), Bill Howe (Southwest Region), Steve Lewis (Midwest Region), Stephanie Jones (Mountain-Prairie Region), and Kent Wohl (Alaska Region). They all contributed significantly to past versions of the Birds of Conservation Concern and thereby supported the development of this report.

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Reddish Egret, Keenan Adams/USFWS

Introduction

A Congressional amendment to the Fish and Wildlife Conservation Act (16 U.S.C. 2901–2912) in 1988 directed the Secretary of Interior, through the U.S. Fish and Wildlife Service (USFWS), to "identify species, subspecies, and populations of all migratory nongame birds that, without additional conservation actions, are likely to become candidates for listing under the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531-1543)". The intent of the legislation was to stimulate coordinated and proactive conservation actions among federal, state and tribal governments, non-governmental organizations (NGOs), and private partners in the United States (USA) before birds require protection under the ESA. Even prior to the passage of this amendment, the USFWS was providing periodic assessments of migratory birds that might become candidates for listing under the ESA, generating the first list of migratory nongame birds of management concern in 1982 (U.S. Fish and Wildlife Service 1982). Since that time, five additional lists have been published (U.S. Department of the Interior 1990; U.S. Fish and Wildlife Service 1987, 1995, 2002, 2008).

The Birds of Conservation Concern 2021 (BCC 2021) presented here is the most recent effort by the USFWS to carry out the Fish and Wildlife Conservation Act's proactive conservation mandate and updates the Birds of Conservation Concern (BCC) 2008 (U.S. Fish and Wildlife Service 2008). Development of the BCC 2021 aligns with the USFWS mission of "working with others to conserve, protect, and enhance fish, wildlife, plants and their habitats for the continuing benefit of the American people" and meets the current USFWS objective to "guide the conservation, development, and management of the Nation's fish and wildlife resources". The overall goal of the BCC 2021 is to identify, by geography, those nongame migratory birds (beyond those already federally listed as threatened or endangered) in greatest need of conservation attention.

The philosophy underlying the BCC reports is that proactive bird conservation is critical at a time when continued human impacts will be intensified by effects of a changing climate. By investing in actions for designated BCC taxa, we can prevent further degradation to environments that we all share, improve the odds for successful long-term conservation, and avoid the complexities associated with federal ESA listing. Proactive conservation is recognized as being more cost-effective than the recovery efforts required once a bird is listed under the ESA (e.g., Drechsler et al. 2011).

Because it is mandated by law and produced by the USFWS, federal agencies, international NGOs and foreign governments view the BCC list as the official USA Government position on migratory nongame birds of conservation concern. The BCC list is also used to identify priority wetland birds for evaluating North American Wetlands Conservation Act proposals, used in scoring of Neotropical Migratory Bird Conservation Act proposals, and referenced in Executive Order 13186, Responsibilities of Federal Agencies to Protect Migratory Birds. To promote more consistency among organizations developing various lists of birds of conservation concern, the BCC 2021 closely followed the methods used to generate the Watch List for the 2014 State of the Birds (Rosenberg et al. 2014), 2016 Partners in Flight Landbird Conservation Plan (Rosenberg et al. 2016) and Avian Conservation Assessment Database (Partners in Flight 2019). However, the BCC 2021 differs somewhat from these lists because of its unique scope and mandate.



Cerulean Warbler, Jerry Oldenettel CC BY 2.0

Methods

Geographic Scope

The geographic scope of the BCC 2021 consists of the entirety of the lands and waters of the USA, including states, commonwealths, territories and other affiliations in the Caribbean Sea and Pacific Ocean. Also included in the geographic scope are marine boundaries defined as the territorial sea, contiguous zone and exclusive economic zone (see https://www.nauticalcharts.noaa.gov/csdl/mbound.htm). To facilitate use and interpretation of the BCC 2021, we organized the presentation into four geo-political and ecoregional groupings: 1) Continental USA, including Alaska; 2) Puerto Rico and the U.S. Virgin Islands, 3) Hawaii and the Pacific Islands, and 4) continental Bird Conservation Regions (BCRs) and Marine Bird Conservation Regions (MBCRs). Offshore jurisdictional waters associated with Hawaii and the Pacific Islands and Puerto Rico and the U.S. Virgin Islands are included in their respective regions. We decided to treat states, commonwealths, territories and other affiliations in the Caribbean Sea and Pacific Ocean separately because of the high endemism and high vulnerability of island avifauna (Kier et al. 2009). Descriptions of states, commonwealths, territories and other affiliations in the Caribbean Sea and Pacific Ocean are provided in Table 1, and BCRs and MBCRs are described in Table 2 and illustrated in Figure 1. For details on BCRs and MBCRs, please see Bird Studies Canada and NABCI (2014).

Birds Considered

The taxonomic scope for the BCC 2021 is bounded by the Migratory Bird Treaties that the USA has with Canada (1916), Mexico (1936), Japan (1972) and Russia (1976). The USFWS periodically updates the list of migratory birds covered by these treaties, which usually results from changes in taxonomy, status or distribution. The most recent published list of migratory birds (Federal Register 2020b) was used as the basis for developing the BCC 2021. Within this list, birds considered for inclusion in the BCC 2021 either do not have sport-hunting seasons in the USA or have sporting-hunting seasons where little harvest occurs (e.g., rails). Birds that are not sport-hunted in the lower 48 states but are hunted for subsistence in Alaska are also considered. Because the intent of BCC is to highlight potential candidate birds where ESA listing could be averted through proactive conservation attention, the BCC 2021 further excludes any species, subspecies or population of bird already listed as threatened or endangered under ESA. We also eliminated from consideration any bird that currently occurs as an accidental species in the USA per the AOU Checklist (1983) and subsequent updates, or that was introduced into the USA by humans (Federal Register 2005). Although there is a conservation benefit to protecting accidental species that may potentially expand their regular range into the U.S. in the future, additional conservation actions are not currently necessary and would have little effect on the present status of those species. We use the term "taxon" or "taxa" to refer to species, subspecies and delineated populations of birds considered for the BCC 2021.

To present a more comprehensive perspective on the conservation status of birds within the jurisdictions of the USA, we provide additional information in Appendix 1 on taxa that do not fall within the scope of the BCC 2021 but were identified on the Watch Lists of the State of the Birds (Rosenberg et al. 2014) or in the Avian Conservation Assessment Database (Partners in Flight 2019); were listed as endangered or threatened under the ESA as of January 15, 2021; or are believed to be extinct. To our knowledge, a comprehensive presentation of all birds with an elevated conservation status within the USA was heretofore unavailable.

In general, common and scientific names of birds are presented at the species level, except where it is necessary to differentiate among taxa of a species that may occur in the USA but differ in their conservation status among geographic scales or populations (e.g., taxa listed under the ESA). Relevant taxa of island populations are also identified. Geographic and other modifiers are used throughout the tables to aid in identifying such differentiation, particularly at the BCR and MBCR scales. Species-level classification generally follows the American Ornithologists' Union's Checklist of North American Birds, 7th Edition (1983), including changes and supplements through the 61st supplement in 2020 (Chesser et al. 2020). Subspecies and population classification and species classification in the Pacific Islands generally follows Clements et al. (2019), with some exceptions for shorebirds (see Andres et al. 2012).

Assessing Conservation Status

The BCC 2021 represents the first application of a unified approach to evaluate the conservation status of landbirds, shorebirds and waterbirds for the BCC — an approach greatly facilitated through the efforts to promote consistency during the development of the State of the Birds Watch List in 2014 (Rosenberg et al. 2014). Although the overall approach to evaluate conservation status across all

bird groups for the BCC 2021 is now more consistent than previous BCC assessments, data availability and quality still vary widely among taxonomic groups.

Scoring factors and criteria developed by Partners in Flight (Rosenberg et al. 2016, Panjabi et al. 2019) were the primary means for evaluating conservation status of landbirds, shorebirds, and waterbirds. For areas or taxa where it was not possible to directly apply this evaluation approach, we consulted State Wildlife Action Plans for American Samoa (Department of Marine and Wildlife Resources 2006, 2015), Guam (Guam Division of Aquatic and Wildlife Resources 2006), Hawaii (Hawai'i Department of Land and Natural Resources 2015), the Northern Mariana Islands (Liske-Clark 2015), Puerto Rico (Puerto Rico Department of Natural and Environmental Resources 2015), and the U.S. Virgin Islands (Platenberg and Valiulis 2018). We also consulted the IUCN Red List of Threatened Species (2019), particularly for seabirds.

The intent of the assessment for landbirds, shorebirds and waterbirds is to emphasize their conservation status relative to the entire USA. The conservation status of many landbirds reflects their global status, in the case of entire species that breed in, migrate through or winter in the USA. In contrast, most waterbirds and shorebirds tend to have cosmopolitan distributions, and their conservation at the species level includes populations occurring outside of the USA; therefore, we evaluated several species of shorebirds and waterbirds at the North American population scale. At the BCR and MBCR scales, we evaluated the conservation status of taxa relative to each region, to the degree available data and current understanding allowed.

Scores ranging from one to five were assigned to each of six assessment factors, which are presented below along with scoring criteria (see Panjabi et al. 2019 for details). Data on these six factors were recently updated for shorebirds (U.S. Shorebird Conservation Partnership 2016), landbirds (Partners in Flight 2019) and waterbirds (BirdLife International 2015; Wetlands International 2015; Partners in Flight 2019; L. Wires, unpublished data).



Black-footed Albatross pair, Dan Clark/USFWS

Population Size (PS).
The current estimated number of individuals of a taxon. The factor generally refers to the number of breeding adults but varies somewhat among taxonomic groups due to differing biology and estimation methods.

Score	Criterion
1	≥50,000,000 individuals
2	≥5,000,000 and <50,000,000 individuals
3	≥500,000 and <5,000,000 individuals
4	≥50,000 and <500,000 individuals
5	<50,000 individuals

Breeding Distribution (BD) and Nonbreeding Distribution (ND).
This factor is generally derived from maps developed by NatureServe (2015) and Birdlife International (2015). All range sizes are derived from two-dimensional polygons. For island-breeding seabirds, the breeding distribution generally refers to the size of their nesting islands and does not include pelagic foraging areas, which are hard to delineate for many taxa.

Score	Criterion
1	≥4,000,000 km2
2	≥1,000,000 and <4,000,000 km2
3	≥300,000 and <1,000,000 km2
4	≥80,000 and <300,000 km2
5	<80,000 km2

Breeding Threats (TB) and Nonbreeding Threats (TN).
Threats were evaluated based on the cumulative level of significance to the future viability of a taxon within the geographic region of interest. For taxa that are widely dispersed during migration (e.g., landbirds), TN primarily reflects threats during the boreal winter; for groups that aggregate during migration (e.g., shorebirds), TN reflects migration and wintering threats.

Score	Criterion
1	Future conditions are expected to significantly improve for the majority of the taxon.
2	Future conditions are expected to remain stable; no significant threats.
3	Slight to moderate decline in the future suitability of conditions is expected for the majority of the taxon.
4	Severe deterioration in the future suitability of conditions is expected for the majority of the taxon.
5	Extreme deterioration in the future suitability of conditions is expected.

Population Trend (PT).
Forty-year trends from the Breeding Bird Survey (Criterion 1; see https://www.mbr-pwrc.usgs.gov/) provided information on the majority of landbirds. For waterbirds and shorebirds, information was used from a variety of sources and was less comprehensive and quantitative (Criterion 2).

Score	Criterion 1	Criterion 2
1	change ≥ 50%; P ≤ 0.1	significant large increase
2	change 0 to 50%; P ≤ 0.1 change > 0%; P ≤ 0.33 change > -15%; P ≤ 0.33; reliable	significant small increase possible increase stable
3	P >0.33; unreliable or change ≤ -15%; P > 0.33; reliable change -15% to 0%; 0.1 < P < 0.33 change -15% to 0%; P ≤ 0.1	uncertain population change possible small decrease significant small decrease
4	change -15% to -50%; 0.1 < P < 0.33 change -15% to -50%; P ≤ 0.1 change ≤ -50%; 0.1 < P < 0.33	moderate decrease possible large decrease
5	change ≤ -50%; P ≤ 0.1	significant large decrease

Relative Density (RD).
Relative Density is an additional factor assessed at the BCR/MBCR scale but not at the continental scale. RD scores reflect the mean density of a taxa within a BCR/MBCR relative to density in the single BCR/MBCR in which the taxa occurs in its highest density (Panjabi et al. 2019). Nonbreeding season scores and those for MBCRs were often generated using expert opinion).

	Quantitative Criterion		Qualitative Criterion
Score	**Relative abundance**	**Relative frequency**	
0		BCR relative frequency < 1.5% of the maximum relative frequency	has occurred only irregularly, or strong evidence of regular occurrence is lacking
1	BCR relative abundance < 1% of the maximum relative abundance	BCR relative frequency 1.5-3.6% of maximum relative frequency	occurs regularly but in very small numbers or in only a very small part of the region in question
2	BCR relative abundance 1-10% of maximum relative abundance	BCR relative frequency 3.6-21.7% of maximum relative frequency	occurs in low mean abundance relative to the region(s) in which the taxa occurs in maximum density
3	BCR relative abundance 10-25% of maximum relative abundance	BCR relative frequency 21.7-44.6% of maximum relative frequency	occurs in moderate mean abundance relative to the region(s) in which the taxa occurs in maximum density
4	BCR relative abundance 25-50% of maximum relative abundance	BCR relative frequency 44.6-68.1% of maximum relative frequency	occurs in moderately high mean abundance relative to the region(s) in which the taxa occurs in maximum density
5	BCR relative abundance > 50% of maximum relative abundance	BCR relative frequency > 68.1% of maximum relative frequency	occurs in high mean abundance, similar to the region(s) in which the taxa occurs in maximum density

Identifying Birds of Conservation Concern
The following Combined Continental Scores (CCS) of factors and scoring thresholds, based primarily on Panjabi et al. (2019), were used to identify taxa of elevated conservation concern:

CCS(max) ≥ 14 or
CCS(max) = 13 and PT = 5, where

CCS(max) is the maximum score of either CCS(B) or CCS(N),
CCS(B) is Combined Continental Score (Breeding) = PS + BD + TB + PT, and
CCS(N) is Combined Continental Score (Nonbreeding) = PS + ND + TN + PT.

The above criteria are consistent with a breeding season Watch List designation at a North American continental scale (USA and Canada) in the recently published version of the Avian Conservation Assessment Database (Panjabi et al. 2019).

To be included as a Bird of Conservation Concern at the BCR or MBCR scale, a taxon had to meet the Watch List criteria above and had to occur regularly within the region at a manageable level (RD ≥ 2). Taxa breeding in a BCR were generally assessed using the quantitative criteria, whereas nonbreeding taxa were most often assessed using the qualitative criteria.

At the BCR scale, we identified additional taxa that did not meet the criteria for the BCC 2021 Continental list (Watch List) but were nonetheless of elevated conservation concern regionally. Taxa included as birds of conservation concern at the BCR scale had RD ≥ 2 and met the following scoring thresholds, based on the Partners in Flight action codes (Panjabi et al. 2019) at the regional scale:

1) TB or TN = 5 (Critical Recovery); or
2) TB or TN = 4 and PT = 5 (Immediate Management); or
3) Combined Regional Breeding Score (CRBS) ≥17, and
    a) TB or TN = 3 and PT ≥ 4 or (Management Attention)
    b) TB or TN = 4 and PT < 5 (Management Attention).

The CRBS is equivalent to the CCS(B) + RD. Inclusion of nonbreeding taxa at the BCR level was generally based on expert opinion, because BCR-scale nonbreeding scores are not yet incorporated into the Avian Conservation Assessment Database (Panjabi et al. 2019).

These regional criteria for the BCC 2021 were more stringent than the criteria used in the Avian Conservation Assessment Database to identify species of regional concern (Panjabi et al. 2019) but better address the overall mandate of the BCC. A few taxa below the species level were elevated to the Continental list due to continued concern expressed by partners or were subspecies unique to North America (e.g., Swallow-tailed Kite, Gray-headed Chickadee).

Results and Discussion

The BCC 2021 identifies 269 individual bird taxa of conservation concern (Appendix 1). Of these, 135 taxa are of conservation concern at the Continental scale, 88 taxa at the BCR scale, 29 taxa on Puerto Rico and the Virgin Islands and 35 taxa on Hawaii and the Pacific Islands; 18 taxa identified on the Continental/BCR lists are shared with either Puerto Rico and the Virgin Islands or Hawaii and the Pacific Islands (Table 3). The number of taxa on the Hawaii/Pacific Island list appears deceptively low, because a relatively high number of birds there are already listed under the ESA or are extinct (Appendix 2). A few of the taxa identified in the BCC 2021 are currently being considered for listing or de-listing under the ESA.

All major bird groups are represented in the BCC 2021, but shorebirds, seabirds and some landbirds have particularly high representation (Table 4). Of eligible taxa, 53% of shorebirds and 48% of seabirds met criteria for inclusion in the BCC 2021. Based on habitat designations of landbirds provided in Rosenberg et al. (2019), which apply to the Continental and BCR scales (Table 4), a high percentage of taxa inhabiting grasslands (54%) and aridlands (47%) were included in the BCC 2021, as were aerial insectivores (31%). Excluding aridland birds, the other groups experienced the greatest losses of individuals over the last fifty years (Rosenberg et al. 2019).



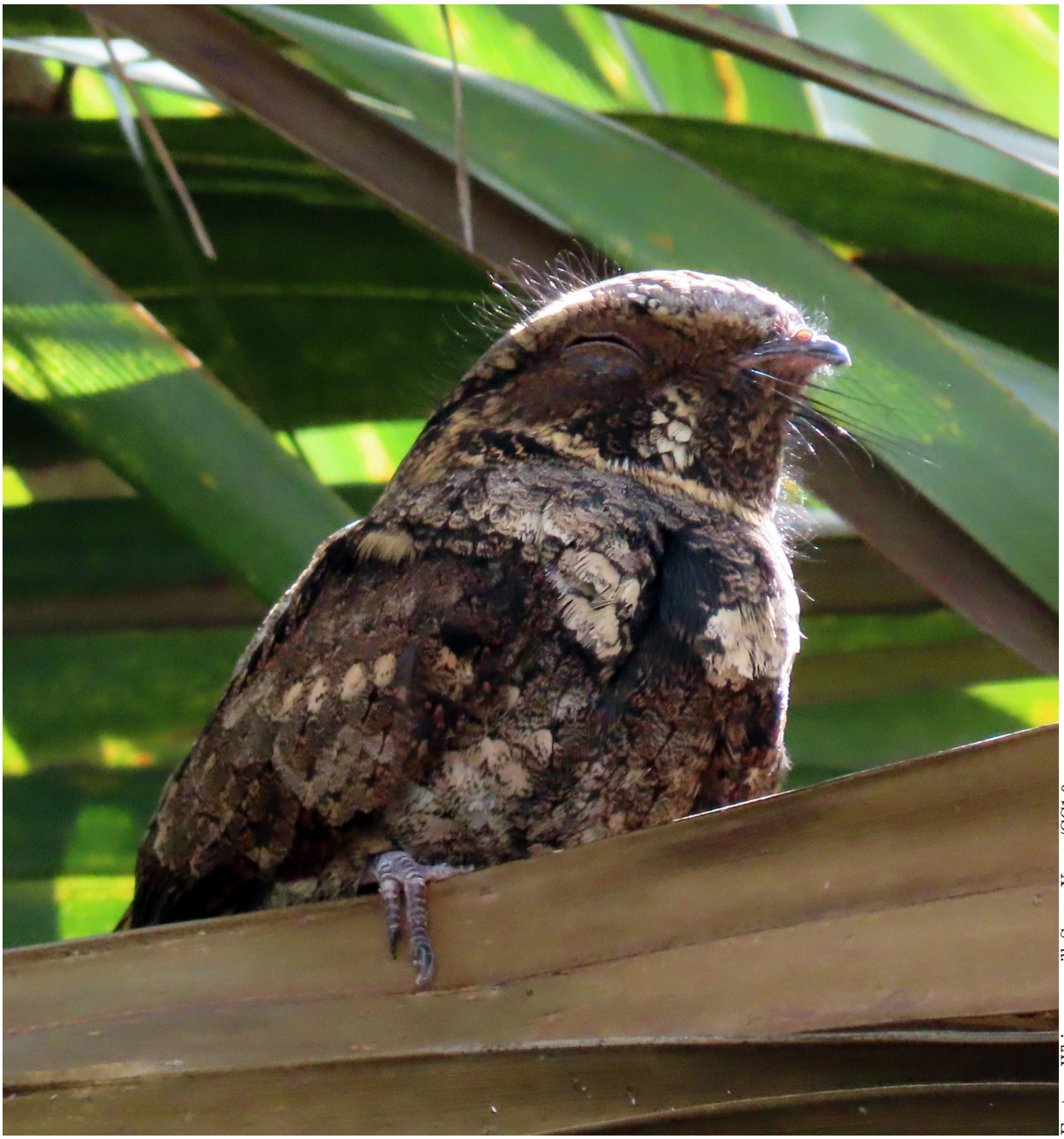
Wilson's Plover, Russ/CC BY 2.0

The BCR/MBCR lists incorporate the 135 taxa of Continental concern where they are considered to occur at manageable levels and include an additional 88 taxa of regional concern within specific BCRs or MBCRs. The number of taxa listed within a BCR ranges from 12 taxa in the Arctic Plains and Mountains to 49 taxa in Coastal California, with an average of 25.4 taxa per BCR (see Tables 5-10). Among MBCRs, the number of taxa ranged from two taxa in the Chuckchi and Beaufort Seas to 13 taxa in the California Current, with an average of 7.4 taxa per MBCR (see Tables 5, 6, 8 and 10).

The BCC 2021 is the latest update in a continuing effort to assess and prioritize migratory birds for conservation purposes (U.S. Department of the Interior 1990; U.S. Fish and Wildlife Service 1982, 1987, 1995, 2002, 2008). Overall, it is difficult to make meaningful comparisons among the lists over the years because of differences in the way each list was constructed. However, the 2021 and 2008 lists were most similar in the assessment approach, with the exception of inclusion of some taxa in 2008 not considered in 2021. Accounting for this difference, the number of taxa was essentially the same on the Continental list between years (133 versus 132 in 2008), had a small increase (8%) on Puerto Rico/Virgin Islands list (28 versus 26 in 2008), and a significant increase (52%) on the Hawaii/Pacific Islands list (35 versus 23 in 2008). Between years, nine taxa identified in the 2008 BCC were listed under the ESA in 2021, and three species de-listed during the period were included in BCC 2021. The increase in Hawaii and the Pacific Islands is attributed to a more thorough treatment of Pacific Islands beyond Hawaii and inclusion of more seabird taxa; additional nonbreeding seabird taxa occurring in continental USA waters were included on the Continental list. Similar numbers of taxa were identified at the BCR level in 2008 and 2021 (84 taxa versus 83). Notwithstanding these differences, a number of taxa identified in 2008 are not included in the BCC 2021, which reflects a real change in our understanding of current conservation status. We do not present USFWS Region lists in 2021 as we did in 2008 and recognize the current acceptance of BCRs and MBCRs as fundamental conservation planning and implementation units.

The State of the Birds produced in 2014 (North American Bird Conservation Initiative, U.S. Committee 2014) provides more details on how land-use change and other environmental threats affect birds in the major ecosystems in the USA, and a more recent analysis provides an overview of declines and losses of birds in North America (Rosenberg et al. 2019). As with the results presented in the BCC 2021, island birds, grassland birds, seabirds and shorebirds demonstrate the greatest conservation need. Although we did not build specific climate change scoring into the current assessment, the 2010 State of the Birds provided an overview of climate change effects on USA birds (North American Bird Conservation Initiative, U.S. Committee 2010). Future updates to the Birds of Conservation Concern might consider including measures of the potential effects of climate change.

Although all of the bird taxa included in the BCC 2021 are priorities for conservation action, this list makes no finding with regard to whether they warrant consideration for ESA listing. Our goal is to avert the need for additional ESA bird listings by implementing and coordinating implementation of proactive management and conservation actions. We recommend that these lists be consulted in accordance with Executive Order 13186, Responsibilities of Federal Agencies to Protect Migratory Birds. The BCC 2021 is intended to stimulate coordinated and collaborative proactive conservation actions among federal, state, tribal and private partners. Many of the taxa identified herein are targets of ongoing conservation attention by national and international initiatives (e.g., Partners in Flight, U.S. Shorebird Conservation Partnership), Migratory Bird Joint Ventures, state and federal natural resource agencies, NGOs, and other partnerships.



Eastern Whip-poor-will, Susan Young/CC1.0

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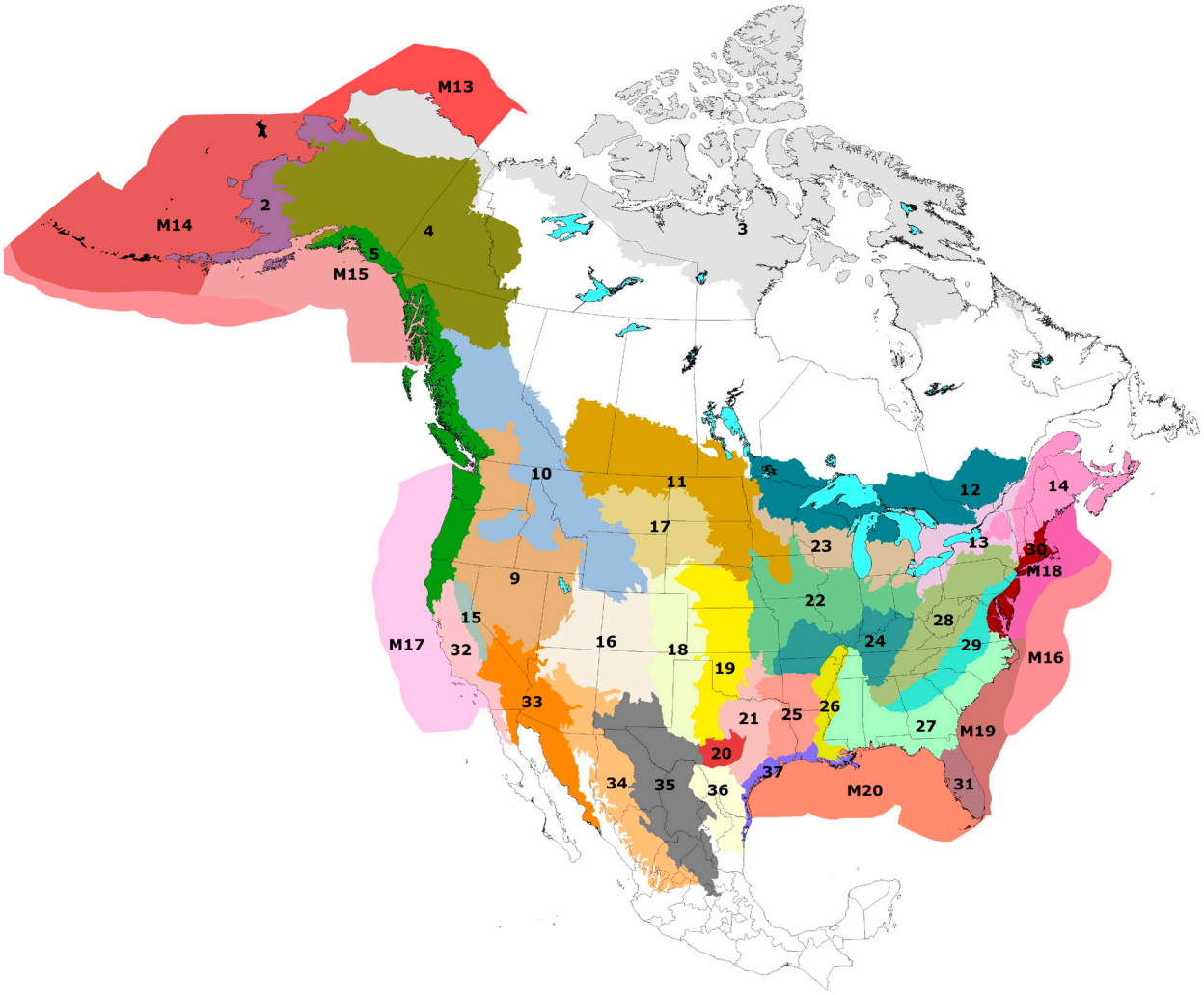


Mariana Fruit-dove, Laura Wolf/CC BY 2.0

Figures

Figure 1.

Map of terrestrial Bird Conservation Regions (BCRs) Marine Bird Conservation Regions (MBCRs) of North America (Bird Studies Canada and NABCI 2014). See Table 2 for BCR and MBCR names.



Tables

Table 1.
Island states, commonwealths, territories and other affiliations of the United States (USA), including the USA territorial sea, contiguous zone and exclusive economic zone considered in the development of the Birds of Conservation Concern 2021.

Hawaii and Pacific Islands
State of Hawaii
American Samoa (unincorporated and unorganized territory)
Commonwealth of the Northern Marianas Islands (aligned through a covenant of "political union")
Guam (unincorporated organized territory)
Unincorporated territories administered by the U.S. Fish and Wildlife Service (USFWS) as National Wildlife Refuges (NWR) unless noted.
Howland Island
Jarvis Island
Johnston Atoll (joint control with the Department of Defense)
Kingman Reef
Midway Atoll
Palmyra Atoll (partially privately owned)
Wake Island (administered by the Department of the Interior)
Puerto Rico and U.S. Virgin Islands
Commonwealth of Puerto Rico (commonwealth)
U.S. Virgin Islands (unincorporated organized territory)
Navassa Island (administered by the USFWS as a NWR)



King Rail, Alan Schmierer/CC0 1.0

Table 2.
Terrestrial Bird Conservation Regions (BCR) and Marine Bird Conservation Regions (MBCR) either wholly or partially within the jurisdiction of the Continental USA, including Alaska, used in the Birds of Conservation Concern 2021.

BCR/ MBCR	BCR/MBCR Name
1	Aleutian/Bering Sea Islands
2	Western Alaska
3	Arctic Plains and Mountains
4	Northwestern Interior Forest
5	Northern Pacific Rainforest
9	Great Basin
10	Northern Rockies
11	Prairie Potholes
12	Boreal Hardwood Transition
13	Lower Great Lakes/St. Lawrence Plain
14	Atlantic Northern Forest
15	Sierra Nevada
16	Southern Rockies/Colorado Plateau
17	Badlands and Prairies
18	Shortgrass Prairie
19	Central Mixed-grass Prairie
20	Edwards Plateau
21	Oaks and Prairies
22	Eastern Tallgrass Prairie
23	Prairie Hardwood Transition
24	Central Hardwoods
25	West Gulf Coastal Plain/Ouachitas
26	Mississippi Alluvial Valley
27	Southeastern Coastal Plain
28	Appalachian Mountains
29	Piedmont
30	New England/Mid-Atlantic Coast
31	Peninsular Florida
32	Coastal California
33	Sonoran and Mohave Deserts
34	Sierra Madre Occidental
35	Chihuahuan Desert
36	Tamaulipan Brushlands
37	Gulf Coastal Prairie
M13	Chukchi and Beaufort Seas
M14	East Bering Sea
M15	Gulf of Alaska
M17	California Current
M18	Northeast U.S. Continental Shelf and U.S. waters (M16) beyond the shelf
M19	Southeast U.S. Continental Shelf and U.S. waters (M16) beyond the shelf
M20	Gulf of Mexico

Table 3.
Birds of Conservation Concern 2021 in the Continental USA (CON), continental Bird Conservation Regions (BCR), Puerto Rico and Virgin Islands (PRVI), and Hawaii and Pacific Islands (HAPI). Refer to Appendix 1 for scientific names of species, subspecies and populations. Breeding (X) and nonbreeding (nb) status are indicated for each geography. Parenthesized names indicate conservation concern only exists for a specific subspecies or population.

Common Name	CON	BCR	PRVI	HAPI
West Indian Whistling-Duck			X	
Pacific Black Duck (Palau)				X
White-cheeked Pintail (West Indies)			X	
Masked Duck			X	
Ruddy Duck (West Indies)			X	
Western Grebe	X			
Clark's Grebe	X			
White-crowned Pigeon	X		X	
White-throated Ground Dove				X
Bridled Quail-Dove			X	
Many-colored Fruit-Dove				X
Mariana Fruit-Dove				X
Pacific Imperial-Pigeon (Pacific)				X
Yellow-billed Cuckoo (Eastern)		X		
Mangrove Cuckoo		X		
Black-billed Cuckoo	X			
Common Nighthawk (Lesser)		X		
Common Nighthawk (Henry's)		X		
Chuck-will's Widow		X		
Eastern Whip-poor-will	X			
Mexican Whip-poor-will	X			
Black Swift	X		X	
Chimney Swift	X			
Vaux's Swift (Vaux's)		X		
Antillean Mango (Puerto Rican)			X	
Lucifer Hummingbird	X			
Costa's Hummingbird		X		
Calliope Hummingbird	X			
Rufous Hummingbird	X			
Allen's Hummingbird	X			
Broad-tailed Hummingbird	X			
King Rail	X			
American Coot (Caribbean)			X	
Australasian (Purple) Swamphen (Samoan)				X
Spotless Crake (Tongan)				X
Yellow Rail	X			
Yellow-breasted Crake (Henderson's)			X	
Limpkin (Puerto Rican/Hispaniolan)			X	
American Avocet		X		
American Oystercatcher	X		X	
Black Oystercatcher	X			

Common Name	CON	BCR	PRVI	HAPI
American Golden-Plover	X			
Wilson's Plover	X		X	
Mountain Plover	X			
Snowy Plover (Interior/Gulf Coast)	X			
Snowy Plover (Caribbean)			X	
Upland Sandpiper		X		
Bristle-thighed Curlew	X			nb
Whimbrel (Atlantic)		X		
Long-billed Curlew		X		
Bar-tailed Godwit	X			
Hudsonian Godwit	X			
Marbled Godwit	X			
Ruddy Turnstone (Atlantic)		X		
Black Turnstone	X			
Red Knot (Pacific)	X			
Dunlin (Northern Alaska)		X		
Dunlin (Hudson Bay)		X		
Rock Sandpiper (Pribilof)		X		
Purple Sandpiper	X			
Buff-breasted Sandpiper	X			
Pectoral Sandpiper	X			
Semipalmated Sandpiper (Eastern/Central)		X	nb	
Short-billed Dowitcher	X			
Solitary Sandpiper (Western)		X		
Wandering Tattler	X			nb
Lesser Yellowlegs	X		nb	
Willet	X		nb	
Marbled Murrelet (Alaska)	X			
Kittlitz's Murrelet	X			
Scripps's Murrelet	X			
Guadalupe Murrelet	nb			
Craveri's Murrelet	nb			
Ancient Murrelet	X			
Cassin's Auklet		X		
Whiskered Auklet	X			
Tufted Puffin		X		
Red-legged Kittiwake	X			
Ivory Gull	nb			
Ross's Gull	nb			
Franklin's Gull	X			
Heermann's Gull	X			
Western Gull	X			
Yellow-footed Gull	nb			
California Gull	X			
Black Noddy (Hawaiian)				X
Blue-gray Noddy (Hawaiian)				X

Common Name	CON	BCR	PRVI	HAPI
Gray-backed Tern				X
Aleutian Tern	X			
Least Tern (Atlantic/Interior)	X		X	
Gull-billed Tern	X			
Black Tern	X			
Common Tern		X		
Forster's Tern		X		
Sandwich Tern		X		
Elegant Tern	X			
Black Skimmer	X			
White-tailed Tropicbird (Atlantic)			X	
Red-billed Tropicbird (Caribbean)			X	
Red-tailed Tropicbird (Black-billed)				X
Yellow-billed Loon	X			
Laysan Albatross	nb			X
Black-footed Albatross	nb			X
Polynesian Storm-Petrel				nb
Ashy Storm-Petrel	X			
Band-rumped Storm-Petrel (Atlantic)	nb			
Black Storm-Petrel	X			
Tristram's Storm-Petrel				X
Murphy's Petrel	nb			
Mottled Petrel	nb			nb
Black-capped Petrel	nb			
Bonin Petrel				X
Fea's Petrel	nb			
Cook's Petrel	nb			nb
Tahiti Petrel				X
Bulwer's Petrel				X
Cory's Shearwater	nb			
Buller's Shearwater	nb			nb
Pink-footed Shearwater	nb			
Christmas Shearwater				X
Manx Shearwater	nb			
Black-vented Shearwater	nb			
Audubon's Shearwater	nb		X	
Magnificent Frigatebird		X	X	
Great Frigatebird (Central Pacific)				X
Masked Booby (Atlantic)			X	
Red-footed Booby (Atlantic)			X	
Brandt's Cormorant	X			
Red-faced Cormorant	X			
American White Pelican		X		
Brown Pelican (Caribbean)			X	
Great Blue Heron (Great White)		X		
Little Blue Heron		X		

Common Name	CON	BCR	PRVI	HAPI
Reddish Egret	X			
Swallow-tailed Kite	X			
Northern Harrier		X		
Harris's Hawk		X		
'Io				X
Ferruginous Hawk		X		
Flammulated Owl	X			
Puerto Rican Screech-Owl (Virgin Islands)			X	
Whiskered Screech-Owl	X			
Western Screech-Owl (Northern Pacific)		X		
Snowy Owl	X			
Burrowing Owl (Western)		X		
Burrowing Owl (Florida)		X		
Spotted Owl (California)	X			
Long-eared Owl	X			
Short-eared Owl	X			
Pueo				X
Northern Saw-whet Owl		X		
Elegant Trogon	X			
Mariana Kingfisher				X
Belted Kingfisher		X		
Lewis's Woodpecker	X			
Red-headed Woodpecker	X			
Gila Woodpecker		X		
Williamson's Sapsucker (Rocky Mountain)		X		
Nuttall's Woodpecker		X		
White-headed Woodpecker (California)		X		
Arizona Woodpecker	X			
Gilded Flicker	X			
American Kestrel (Southeast)		X		
Prairie Falcon		X		
Olive-sided Flycatcher	X			
Cordilleran Flycatcher		X		
Loggerhead Shrike (Eastern)		X		
Black-capped Vireo	X			
Puerto Rican Vireo			X	
Plumbeous Vireo		X		
Pinyon Jay	X			
Island Scrub-Jay	X			
Woodhouse's Scrub-Jay (Woodhouse's)		X		
Clark's Nutcracker		X		
Yellow-billed Magpie	X			
Chihuahuan Raven		X		
Black-capped Chickadee (Appalachian)		X		
Mexican Chickadee	X			
Chestnut-backed Chickadee (Northern)		X		

Common Name	CON	BCR	PRVI	HAPI
Gray-headed Chickadee (Alaska)	X			
Oak Titmouse	X			
Verdin (Southwest)		X		
White-breasted Nuthatch (Slender-billed)		X		
Brown-headed Nuthatch		X		
Marsh Wren (Worthington's)		X		
Bewick's Wren (Eastern)		X		
Cactus Wren (Speckled)		X		
American Dipper		X		
Wrentit	X			
'Ōma'o				X
Veery (Eastern)		X		
Bicknell's Thrush	X			
Wood Thrush	X			
Varied Thrush (Pacific)		X		
Curve-billed Thrasher (Brownsville)		X		
Curve-billed Thrasher (Palmer's)		X		
Bendire's Thrasher	X			
California Thrasher	X			
LeConte's Thrasher	X			
Sage Thrasher		X		
Phainopepla (Southwest)		X		
Sprague's Pipit	X			
Evening Grosbeak	X			
Maui 'Alauahio				X
'Apapane				X
Anianiau				X
Hawai'i 'Amakihi				X
O'ahu 'Amakihi				X
Kaua'i 'Amakihi				X
Black Rosy-Finch	X			
Brown-capped Rosy-Finch	X			
Cassin's Finch	X			
Cassia Crossbill	X			
Lawrence's Goldfinch	X			
Chestnut-collared Longspur	X			
Thick-billed Longspur	X			
McKay's Bunting	X			
Rufous-winged Sparrow	X			
Cassin's Sparrow		X		
Bachman's Sparrow	X			
Grasshopper Sparrow (Northern)		X		
Lark Bunting		X		
Black-chinned Sparrow	X			
Field Sparrow		X		
Vesper Sparrow (Oregon)		X		

Common Name	CON	BCR	PRVI	HAPI
LeConte's Sparrow	X			
Seaside Sparrow (Atlantic/Gulf)	X			
Saltmarsh Sparrow	X			
Baird's Sparrow	X			
Henslow's Sparrow	X			
Savannah Sparrow (Belding's)		X		
Song Sparrow (Alameda/Samuels)		X		
Song Sparrow (Channel Island)		X		
Rufous-crowned Sparrow (Rock)		X		
Yellow-breasted Chat (Eastern)		X		
Yellow-headed Blackbird		X		
Bobolink	X			
Eastern Meadowlark		X		
Puerto Rican Oriole			X	
Orchard Oriole		X		
Bullock's Oriole		X		
Scott's Oriole		X		
Tricolored Blackbird	X			
Rusty Blackbird		X		
Golden-winged Warbler	X			
Blue-winged Warbler		X		
Prothonotary Warbler	X			
Colima Warbler	X			
Virginia's Warbler	X			
Connecticut Warbler	X			
Kentucky Warbler	X			
Common Yellowthroat (San Francisco)		X		
Kirtland's Warbler	X			
Cape May Warbler		X		
Cerulean Warbler	X			
Bay-breasted Warbler		X		
Prairie Warbler	X		nb	
Grace's Warbler	X			
Black-throated Gray Warbler		X		
Hermit Warbler		X		
Black-throated Green Warbler (Wayne's)		X		
Canada Warbler	X			
Red-faced Warbler	X			
Scarlet Tanager		X		
Pyrrhuloxia	X			
Rose-breasted Grosbeak		X		
Varied Bunting	X			
Painted Bunting		X		
Dickcissel		X		
Totals	135	88	29	35

Table 4.
Numbers of taxa of Birds of Conservation Concern 2021 represented on the Continental USA (CON), continental Bird Conservation Region (BCR), Puerto Rico and Virgin Islands (PRVI), Hawaii and Pacific Islands (HAPI) lists by general taxonomic groups and by habitats within landbirds. Also presented are the unique taxa represented on all lists.

	CON	BCR	PRVI	HAPI	Unique Taxa
Landbirds[1]	71	69	8	14	159
aerial insectivores[2]	5	4	1		
grasslands	7	9			
forests	38	33	5	12	
aridlands	13	13			
wetlands	3	8			
other habitats	5	2	2	2	
Shorebirds[3]	19	10	6	2	30
Seabirds[4]	36	7	7	16	58
Waterbirds[5]	8	3	8	3	22
All Taxa	134	88	29	35	269

[1]Doves and pigeons; cuckoos; nightjars and allies; swifts; hummingbirds; eagles and hawks; owls; trogons; kingfishers; woodpeckers; falcons; songbirds (perching birds).

[2]Nightjars and allies; swifts; some flycatchers.

[3]Avocets; oystercatchers; plovers; and sandpipers and allies.

[4]Auks, murres and puffins; gulls, terns and skimmers; tropicbirds; albatrosses; shearwaters and petrels; storm-petrels; frigatebirds; and boobies.

[5]Ducks; grebes; rails, gallinules and coots; limpkins; cranes; loons; storks; cormorants; pelicans; and herons and egrets.



Flammulated Owl, Alan Schmierer/CC0 1.0

Table 5.
Birds of Conservation Concern 2021 designated within BCRs 1, 2, 3, 4 and MBCRs 13, 14, 15. See Table 2 for descriptions of BCRs and MBCRs, Scientific names of species, subspecies and populations are provided in Appendix 1. Breeding (X) and nonbreeding (nb) status are indicated for each BCR or MBCR; breeding BCRs may also support passage or wintering birds.

Taxon Common Name	BCR/MBCR						
	1	2	3	4	M13	M14	M15
Black Oystercatcher	X	X					
American Golden-Plover		X	X	X			
Bristle-thighed Curlew		X		X			
Bar-tailed Godwit		X	X				
Hudsonian Godwit		X		X			
Marbled Godwit		X					
Black Turnstone		X					
Red Knot (Pacific)		X	X				
Dunlin (Northern Alaska)		nb	X				
Rock Sandpiper (Pribilof)	X	nb		nb			
Buff-breasted Sandpiper			X				
Pectoral Sandpiper			X				
Short-billed Dowitcher		X		X			
Solitary Sandpiper (Western)				X			
Wandering Tattler		X	X	X			
Lesser Yellowlegs				X			
Marbled Murrelet (Alaska)	X	X		X		nb	nb
Kittlitz's Murrelet	X	X	X			nb	nb
Ancient Murrelet	X					nb	nb
Whiskered Auklet	X					nb	
Red-legged Kittiwake	X					nb	nb
Ivory Gull					nb	nb	
Ross's Gull					nb		
Aleutian Tern	X	X		X			
Yellow-billed Loon	nb	X	X				nb
Laysan Albatross							nb
Black-footed Albatross						nb	nb
Murphy's Petrel						nb	nb
Mottled Petrel						nb	nb
Buller's Shearwater							nb
Pink-footed Shearwater							nb
Red-faced Cormorant	X	X					
Snowy Owl	X	X	X				
Short-eared Owl	X	X	X	X			
Olive-sided Flycatcher		X		X			
Gray-headed Chickadee (Alaska)			X	X			
McKay's Bunting	X						
Totals	13	20	12	13	2	9	11

Table 6.
Birds of Conservation Concern 2021 designated within BCRs 5, 10, 15, 32 and MBCR 17. See Table 2 for descriptions of BCRs and MBCRs. Scientific names of species, subspecies and populations are provided in Appendix 1. Breeding (X) and nonbreeding (nb) status are indicated for each BCR or MBCR; breeding BCRs may also support passage or wintering birds.

Taxon Common Name	BCR/MBCR				
	5	10	15	32	M17
Western Grebe	X	X	X	X	
Clark's Grebe	X	X	X	X	
Black Swift	X	X	X	X	
Vaux's Swift	X				
Calliope Hummingbird		X	X		
Rufous Hummingbird	X	X			
Allen's Hummingbird	X			X	
Broad-tailed Hummingbird		X			
Yellow Rail		X		nb	
Black Oystercatcher	X			X	
Mountain Plover		X		nb	
Snowy Plover (Interior/Gulf Coast)				X	
Marbled Godwit	nb			nb	
Red Knot (Pacific)	nb			nb	
Rock Sandpiper (Pribilof)	nb				
Short-billed Dowitcher	X			nb	
Lesser Yellowlegs	nb	nb			
Willet	nb	X	X	nb	
Marbled Murrelet (Alaska)	X				
Kittlitz's Murrelet	X				
Scripps's Murrelet				X	nb
Guadalupe Murrelet					nb
Craveri's Murrelet					nb
Ancient Murrelet	X				
Cassin's Auklet	X				
Tufted Puffin	X				nb
Franklin's Gull		X			
Heermann's Gull				X	
Western Gull	X			X	
California Gull	X	X	X	X	
Aleutian Tern	X				
Gull-billed Tern				X	
Black Tern		X		X	
Elegant Tern				X	
Black Skimmer				X	
Laysan Albatross					nb
Black-footed Albatross					nb
Ashy Storm-Petrel				X	nb
Black Storm-Petrel				X	nb
Murphy's Petrel					nb
Cook's Petrel					nb

Taxon Common Name	BCR/MBCR				
	5	10	15	32	M17
Buller's Shearwater					nb
Pink-footed Shearwater					nb
Black-vented Shearwater					nb
Brandt's Cormorant	X			X	
Red-faced Cormorant	X				
Northern Harrier				X	
Flammulated Owl	X	X	X	X	
Western Screech-Owl (Northern Pacific)	X			X	
Burrowing Owl (Western)				X	
Spotted Owl (California)			X	X	
Long-eared Owl		X	X	X	
Short-eared Owl				X	
Lewis's Woodpecker		X	X		
Williamson's Sapsucker (Rocky Mountain)		X			
Nuttall's Woodpecker				X	
White-headed Woodpecker (California)				X	
Olive-sided Flycatcher	X	X	X	X	
Pinyon Jay		X	X	X	
Island Scrub-Jay				X	
Yellow-billed Magpie				X	
Chestnut-backed Chickadee (Northern)	X				
Oak Titmouse	X		X	X	
White-breasted Nuthatch (Slender-billed)	X				
American Dipper			X		
Wrentit	X		X	X	
Varied Thrush (Pacific)	X				
California Thrasher			X	X	
LeConte's Thrasher				X	
Evening Grosbeak	X	X	X		
Black Rosy-Finch		X			
Cassin's Finch	X	X	X	X	
Lawrence's Goldfinch			X	X	
Thick-billed Longspur		X			
Black-chinned Sparrow				X	
Vesper Sparrow (Oregon)	X				
Savannah Sparrow (Belding's)				X	
Song Sparrow (Alameda/Samuels)				X	
Song Sparrow (Channel Island)				X	
Bobolink		X			
Bullock's Oriole				X	
Tricolored Blackbird				X	
Common Yellowthroat (San Francisco)				X	
Black-throated Gray Warbler			X		
Hermit Warbler			X		
Totals	34	24	21	49	13

Table 7.
Birds of Conservation Concern 2021 designated within BCRs 9, 16, 33, 34, 35 and 36. See Table 2 for descriptions of BCRs. Scientific names of species, subspecies and populations are provided in Appendix 1. Breeding (X) and nonbreeding (nb) status are indicated for each BCR; breeding BCRs may also support passage or wintering birds.

Taxon Common Name	BCR/MBCR					
	9	16	33	34	35	36
Western Grebe	X	X	X	X		
Clark's Grebe	X	X	X		X	
Common Nighthawk (Henry's)					X	
Mexican Whip-poor-will				X	X	
Black Swift	X	X				
Chimney Swift						X
Lucifer Hummingbird					X	
Costa's Hummingbird			X			
Calliope Hummingbird	X					
Rufous Hummingbird	X					
Broad-tailed Hummingbird	X	X		X	X	
King Rail						X
Yellow Rail	X					
American Avocet	X		X			
American Golden-Plover						nb
Wilson's Plover						X
Mountain Plover		X	nb		nb	nb
Snowy Plover (Interior/Gulf Coast)	X	X	X		X	X
Long-billed Curlew					nb	nb
Marbled Godwit	nb		nb			
Red Knot (Pacific)	nb					
Buff-breasted Sandpiper						nb
Pectoral Sandpiper	nb	nb				nb
Lesser Yellowlegs	nb	nb				nb
Willet	X		nb			
Franklin's Gull	X					
Yellow-footed Gull			nb			
California Gull	X	X				
Gull-billed Tern			X			X
Black Tern	X					
Forster's Tern	X					
Black Skimmer			X			
American White Pelican	X					
Northern Harrier	X					
Harris's Hawk						X
Ferruginous Hawk					X	
Flammulated Owl	X	X		X	X	
Whiskered Screech-Owl				X		
Burrowing Owl (Western)			X		X	
Long-eared Owl	X	X	X	X		
Short-eared Owl	X	X				

Taxon Common Name	BCR/MBCR					
	9	16	33	34	35	36
Elegant Trogon				X		
Lewis's Woodpecker	X	X		X		
Gila Woodpecker			X			
Arizona Woodpecker				X		
Gilded Flicker			X	X		
Olive-sided Flycatcher	X	X		X		
Cordilleran Flycatcher				X		
Black-capped Vireo					X	
Plumbeous Vireo				X		
Pinyon Jay	X	X	X	X	X	
Woodhouse's Scrub-Jay (Woodhouse's)					X	
Clark's Nutcracker		X				
Chihuahuan Raven						X
Mexican Chickadee				X		
Verdin (Southwest)			X			
Cactus Wren (Speckled)					X	
Curve-billed Thrasher (Palmer's))			X			
Curve-billed Thrasher (Brownsville)						X
Bendire's Thrasher	X	X	X	X	X	
California Thrasher			X			
LeConte's Thrasher			X			
Sage Thrasher	X					
Phainopepla (Southwest)				X		
Sprague's Pipit				nb	nb	nb
Evening Grosbeak	X	X		X	X	
Black Rosy-Finch	X	X				
Brown-capped Rosy-Finch		X				
Cassin's Finch	X	X				
Cassia Crossbill	X					
Lawrence's Goldfinch			X			
Chestnut-collared Longspur				nb	nb	nb
Thick-billed Longspur					nb	
Rufous-winged Sparrow			X	X		
Cassin's Sparrow					X	
Black-chinned Sparrow		X	X	X	X	
Baird's Sparrow				nb	nb	
Yellow-headed Blackbird		X				
Bobolink	X					
Eastern Meadowlark					X	X
Orchard Oriole						X
Scott's Oriole				X	X	
Tricolored Blackbird			X			
Colima Warbler					X	
Virginia's Warbler	X	X		X	X	
Grace's Warbler		X	X	X	X	

Taxon Common Name	BCR/MBCR					
	9	16	33	34	35	36
Black-throated Gray Warbler				X		
Red-faced Warbler				X		
Pyrrhuloxia			X	X	X	X
Varied Bunting				X	X	
Painted Bunting						X
Totals	34	25	27	30	30	20

Table 8.
Birds of Conservation Concern 2021 designated within BCRs 11, 17, 18, 19, 20, 21, 37 and MBCR 20. See Table 2 for descriptions of BCRs and MBCRs. Scientific names of species, subspecies and populations are provided in Appendix 1. Breeding (X) and nonbreeding (nb) status are indicated for each BCR/MBCR; breeding BCRs may also support passage or wintering birds.

Taxon Common Name	BCR/MBCR							
	11	17	18	19	20	21	37	M20
Western Grebe	X	X		X				
Clark's Grebe	X		X					
Black-billed Cuckoo	X	X		X				
Eastern Whip-poor-will	X							
Chimney Swift	X		X	X	X	X	X	
Broad-tailed Hummingbird			X					
King Rail				X			X	
Yellow Rail	X						nb	
American Oystercatcher							X	
American Golden-Plover	nb			nb	nb	nb	nb	
Wilson's Plover							X	
Mountain Plover	X	X	X	nb	nb	nb	nb	
Snowy Plover (Interior/Gulf Coast)			X	X			X	
Whimbrel (Atlantic)			nb	nb			nb	
Long-billed Curlew	X		X		nb	nb	nb	
Hudsonian Godwit	nb		nb	nb			nb	
Marbled Godwit	X	X					nb	
Ruddy Turnstone (Atlantic)	nb						nb	
Red Knot (Pacific)							nb	
Dunlin (Hudson Bay)	nb						nb	
Buff-breasted Sandpiper	nb		nb	nb	nb	nb	nb	
Pectoral Sandpiper	nb		nb	nb	nb	nb	nb	
Short-billed Dowitcher	nb						nb	
Lesser Yellowlegs	nb	nb	nb	nb	nb	nb	nb	
Willet	X	X		X			X	
Franklin's Gull	X	X						
California Gull	X	X						
Least Tern (Atlantic/Interior)				X		X	X	
Gull-billed Tern							X	
Black Tern	X	X		X				
Forster's Tern							X	

Taxon Common Name	BCR/MBCR							
	11	17	18	19	20	21	37	M20
Sandwich Tern							X	
Black Skimmer							X	
Band-rumped Storm-Petrel (Atlantic)								nb
Black-capped Petrel								nb
Cory's Shearwater								nb
Audubon's Shearwater								nb
Magnificent Frigatebird								nb
Little Blue Heron						X		
Reddish Egret							X	
Swallow-tailed Kite							X	
Northern Harrier	X	X	X					
Ferruginous Hawk		X	X					
Burrowing Owl (Western)		X		X				
Long-eared Owl	X	X	X	X				
Short-eared Owl	X	X	nb	nb				
Lewis's Woodpecker		X	X					
Red-headed Woodpecker	X	X	X	X		X	X	
Prairie Falcon		X						
Loggerhead Shrike (Eastern)						X	X	
Black-capped Vireo				X	X			
Pinyon Jay		X	X					
American Dipper		X						
Sprague's Pipit	X	X	nb	nb		nb	nb	
Chestnut-collared Longspur	X	X	X	nb	nb			
Thick-billed Longspur	X	X	X	nb	nb			
Grasshopper Sparrow (Northern)	X	X	X		X			
Lark Bunting		X		X				
Field Sparrow					X			
LeConte's Sparrow	X						nb	
Seaside Sparrow (Atlantic/Gulf)							X	
Baird's Sparrow	X	X						
Henslow's Sparrow	X					X	X	
Rufous-crowned Sparrow (Rock)					X			
Bobolink	X	X		X				
Eastern Meadowlark					X			
Golden-winged Warbler	X							
Prothonotary Warbler						X	X	
Kentucky Warbler						X		
Pyrrhuloxia			X	X	X		X	
Painted Bunting					X		X	
Dicksissel							X	
Totals	33	26	22	27	16	15	36	5

Table 9.
Birds of Conservation Concern 2021 designated within BCRs 12, 13, 22, 23, 24, 25, 26, 28 and 29. See Table 2 for descriptions of BCRs. Scientific names of species, subspecies and populations are provided in Appendix 1. Breeding (X) and nonbreeding (nb) status are indicated for each BCR; breeding BCRs may also support passage or wintering birds.

Taxon Common Name	BCR/MBCR								
	12	13	22	23	24	25	26	28	29
Western Grebe				X					
Yellow-billed Cuckoo (Eastern)								X	
Black-billed Cuckoo	X	X	X	X	X			X	X
Common Nighthawk (Lesser)								X	
Chuck-will's Widow						X		X	X
Eastern Whip-poor-will	X	X	X	X	X	X	X	X	X
Chimney Swift	X	X	X	X	X	X	X	X	X
King Rail			X	X	X	X	X		X
Yellow Rail	X			X		nb	nb		
American Golden-Plover		nb	nb	nb		nb	nb		
Upland Sandpiper		X	X	X					
Whimbrel (Atlantic)	nb								
Hudsonian Godwit			nb						
Marbled Godwit				X					
Ruddy Turnstone (Atlantic)	nb	nb	nb	nb					
Dunlin (Hudson Bay)	nb	nb	nb	nb					
Buff-breasted Sandpiper		nb	nb	nb					
Pectoral Sandpiper	nb	nb	nb	nb		nb	nb		
Semipalmated Sandpiper (Eastern/Central)	nb	nb	nb	nb	nb		nb		
Short-billed Dowitcher		nb	nb	nb					
Lesser Yellowlegs	nb	nb	nb	nb	nb	nb	nb		
Least Tern (Atlantic/Interior)					X	X	X		
Black Tern	X			X					
Common Tern	X								
Little Blue Heron							X		
Swallow-tailed Kite						X	X		
Long-eared Owl	X	X		X					
Short-eared Owl		nb	nb	nb	nb				nb
Northern Saw-whet Owl								X	
Belted Kingfisher		X							
Red-headed Woodpecker		X	X	X	X	X	X	X	X
American Kestrel (Southeast)						X			
Olive-sided Flycatcher	X								
Loggerhead Shrike (Eastern)			X						
Black-capped Chickadee (Appalachian)								X	
Brown-headed Nuthatch					X	X			
Bewick's Wren (Eastern)					X	X			
Veery (Eastern)	X								
Bicknell's Thrush								X	

Taxon Common Name	BCR/MBCR								
	12	13	22	23	24	25	26	28	29
Wood Thrush	X	X	X	X	X	X	X	X	X
Sprague's Pipit						nb			
Evening Grosbeak	X	X							
Bachman's Sparrow					X	X			
Grasshopper Sparrow (Northern)			X	X	X				X
Field Sparrow					X				
LeConte's Sparrow	X			X	nb	nb	nb		
Henslow's Sparrow			X	X	X	nb	nb	X	
Bobolink	X	X	X	X	X			X	
Eastern Meadowlark		X							
Rusty Blackbird			nb	nb	nb		nb	nb	nb
Golden-winged Warbler	X	X		X				X	
Blue-winged Warbler		X							
Prothonotary Warbler			X		X	X	X	X	X
Connecticut Warbler	X								
Kentucky Warbler			X		X	X	X	X	X
Kirtland's Warbler	X			X					
Cerulean Warbler	X	X	X	X	X		X	X	X
Prairie Warbler		X			X	X	X	X	X
Canada Warbler	X	X		X				X	
Rose-breasted Grosbeak		X							
Totals	24	26	25	30	23	22	20	20	14



Bicknell's Thrush, Alan Schmierer/CC0 1.0

Table 10.
Birds of Conservation Concern 2021 designated within BCRs 14, 27, 30, 31 and MBCR 18, 19. See Table 2 for descriptions of BCRs and MBCRs. Scientific names of species, subspecies and populations are provided in Appendix 1. Breeding (X) and nonbreeding (nb) status are indicated for each BCR/MBCR; breeding BCRs may also support passage or wintering birds.

Taxon Common Name	BCR/MBCR					
	14	27	30	31	M18	M19
White-crowned Pigeon				X		
Mangrove Cuckoo				X		
Black-billed Cuckoo	X		X			
Chuck-will's Widow		X				
Eastern Whip-poor-will	X	X	X			
Chimney Swift	X	X	X	X		
King Rail		X	X	X		
Yellow Rail		nb		nb		
American Oystercatcher		X	X	X		
Wilson's Plover		X		X		
Snowy Plover (Interior/Gulf Coast)		X		X		
Whimbrel (Atlantic)	nb	nb	nb	nb		
Hudsonian Godwit	nb		nb			
Marbled Godwit		nb				
Ruddy Turnstone (Atlantic)		nb	nb	nb		
Dunlin (Hudson Bay)		nb	nb	nb		
Purple Sandpiper	nb	nb	nb			
Pectoral Sandpiper		nb	nb	nb		
Semipalmated Sandpiper (Eastern/ Central)	nb	nb	nb	nb		
Short-billed Dowitcher		nb	nb	nb		
Lesser Yellowlegs	nb	nb	nb	nb		
Willet	X	X	X	X		
Least Tern (Atlantic/Interior)		X	X	X		
Gull-billed Tern		X	X	X		
Black Skimmer		X	X	X		
Band-rumped Storm-Petrel (Atlantic)					nb	nb
Black-capped Petrel						nb
Fea's Petrel					nb	nb
Cory's Shearwater					nb	nb
Manx Shearwater					nb	nb
Audubon's Shearwater					nb	nb
Magnificent Frigatebird				X		nb
Great Blue Heron (Great White)				X		
Reddish Egret				X		
Swallow-tailed Kite		X		X		
Burrowing Owl (Florida)				X		
Long-eared Owl	X		X			
Short-eared Owl	nb		nb			
Red-headed Woodpecker		X	X	X		

Taxon Common Name	BCR/MBCR					
	14	27	30	31	M18	M19
American Kestrel (Southeast)		X		X		
Olive-sided Flycatcher	X					
Brown-headed Nuthatch		X				
Marsh Wren (Worthington's)				X		
Veery (Eastern)	X					
Bicknell's Thrush	X					
Wood Thrush	X	X	X			
Evening Grosbeak	X					
Bachman's Sparrow		X		X		
Grasshopper Sparrow (Northern)		X	X			
LeConte's Sparrow		nb				
Seaside Sparrow (Atlantic/Gulf)		X	X	X		
Saltmarsh Sparrow		nb	X	nb		
Henslow's Sparrow		nb		nb		
Yellow-breasted Chat (Eastern)			X			
Bobolink	X		X			
Rusty Blackbird		nb	nb			
Blue-winged Warbler			X			
Prothonotary Warbler		X	X			
Kentucky Warbler		X	X			
Cape May Warbler	X					
Cerulean Warbler		X	X			
Bay-breasted Warbler	X					
Prairie Warbler	X	X	X	X		
Black-throated Green Warbler (Wayne's)		X				
Canada Warbler	X		X			
Scarlet Tanager			X			
Rose-breasted Grosbeak	X					
Painted Bunting		X		X		
Totals	22	39	35	32	5	7



Yellow-billed Loon, Bob Wick/BLM

Appendices

Appendix 1.
Common and scientific names of species, subspecies, and populations designated as Birds of Conservation Concern 2021, listed as threatened or endangered under the USA Endangered Species Act, considered as extinct in the wild, or included as non-migratory birds on the Watch Lists of the State of the Birds (Rosenberg et al. 2014) or in the Avian Conservation Assessment Database (Partners in Flight 2019). Taxonomic sequence and nomenclature follow the American Ornithologists' Union Check-list of North American Birds, 7th Edition (1998), through the 60th supplement (2019). Subspecies and population nomenclature follow Andres et al. (2012) and Clements et al. (2019); nomenclature for Pacific island species follows Clements et al. (2019).

Common Name	Scientific Name	BCC 2021[1]			ESA/WL[2]	
		CO	PV	HP	List	Area
West Indian Whistling-Duck	Dendrocygna arborea		P			
Emperor Goose	Anser canagicus				W	C
Brant	Branta bernicla				W	C
Nēnē	Branta sandvicensis				E	H
Cinnamon Teal	Spatula cyanoptera				W	C
Pacific Black Duck (Palau)	Anas superciliosa pelewensis			H		
Laysan Duck	Anas laysanensis				E	H
Hawaiian Duck/Koloa	Anas wyvilliana				E	H
Mariana Mallard	Anas oustaleti (?)				X	H
Mottled Duck	Anas fulvigula				W	C
White-cheeked Pintail (West Indies)	Anas bahamensis bahamensis		P			
Steller's Eider	Polysticta stelleri				T	C
Spectacled Eider	Somateria fischeri				T	C
Labrador Duck	Camptorhynchus labradorius				X	C
Masked Duck	Nomonyx dominicus		P			
Ruddy Duck (West Indies)	Oxyura jamaicensis (West Indies)		P			
Micronesian Scrubfowl (Mariana)	Megapodius laperouse laperouse				E	H
Mountain Quail	Oreortyx pictus				W	C
Northern Bobwhite (Masked)	Colinus virginianus ridgwayi				E	C
Greater Sage-Grouse	Centrocercus urophasianus				W	C
Gunnison Sage-Grouse	Centrocercus minimus				T	C
Greater Prairie-Chicken	Tympanuchus cupido pinnatus				W	C
Greater Prairie-Chicken (Heath Hen)	Tympanuchus cupido cupido				X	C
Attwater's (Greater) Prairie-Chicken	Tympanuchus cupido attwateri				E	C
Lesser Prairie-Chicken	Tympanuchus pallidicinctus				W	C
Western Grebe	Aechmophorus occidentalis	C				
Clark's Grebe	Aechmophorus clarkii	C				
White-crowned Pigeon	Patagioenas leucocephala	C	P			

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		CO	PV	HP	List	Area
Plain Pigeon (Puerto Rican)	Patagioenas inornata wetmorei				E	P
Passenger Pigeon	Ectopistes migratorius				X	C
Shy (Friendly) Ground Dove	Alopecoenas stairi				E	H
White-throated Ground Dove	Alopecoenas xanthonurus			H		
Bridled Quail-Dove	Geotrygon mystacea		P			
Many-colored Fruit-Dove	Ptilinopus perousii perousii			H		
Mariana Fruit-Dove	Ptilinopus roseicapilla			H		
Pacific Imperial-Pigeon (Pacific)	Ducula pacifica pacifica			H		
Yellow-billed Cuckoo (Western)	Coccyzus americanus (Western)				T	C
Yellow-billed Cuckoo (Eastern)	Coccyzus americanus (Eastern)	R				
Mangrove Cuckoo	Coccyzus minor	R				
Black-billed Cuckoo	Coccyzus erythropthalmus	C				
Common Nighthawk (Lesser)	Chordeiles minor minor	R				
Common Nighthawk (Henry's)	Chordeiles minor henryi	R				
Chuck-will's Widow	Antrostomus carolinensis	R				
Eastern Whip-poor-will	Antrostomus vociferus	C				
Mexican Whip-poor-will	Antrostomus arizonae	C				
Puerto Rican Nightjar	Antrostomus noctitherus				E	P
Black Swift	Cypseloides niger	C	P			
Chimney Swift	Chaetura pelagica	C				
Vaux's Swift (Vaux's)	Chaetura vauxi vauxi	R				
Mariana Swiftlet	Aerodramus bartschi				E	H
Antillean Mango (Puerto Rican)	Anthracothorax dominicus aurulentus		P			
Lucifer Hummingbird	Calothorax lucifer	C				
Costa's Hummingbird	Calypte costae	R				
Calliope Hummingbird	Selasphorus calliope	C				
Rufous Hummingbird	Selasphorus rufus	C				
Allen's Hummingbird	Selasphorus sasin	C				
Broad-tailed Hummingbird	Selasphorus platycercus	C				
Antillean Cave-Rail	Nesotrochis debooyi				X	P
Ridgway's Rail (California)	Rallus obsoletus obsoletus				E	C
Ridgway's Rail (Light-footed)	Rallus obsoletus levipes				E	C
Ridgway's Rail (Yuma)	Rallus obsoletus yumanensis				E	C
King Rail	Rallus elegans	C				
Guam Rail	Gallirallus owstoni				E	H
Wake Island Rail	Gallirallus wakensis				X	H
Common Gallinule (Hawaiian)	Gallinula galeta sandvicensis				E	H
Common Moorhen (Mariana)	Gallinula chloropus guami				E	H
Hawaiian Coot	Fulica alai				E	H
American Coot (Caribbean)	Fulica americana americana (Caribbean)		P			
Australasian (Purple) Swamphen (Samoan)	Porphyrio (porphyrio) melanotus samoensis			H		
Laysan Rail	Zapornia palmeri				X	H

Common Name	Scientific Name	BCC 2021[1]			ESA/WL[2]	
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Hawaiian Rail	Zapornia sandwichensis				X	H
Spotless Crake (Tongan)	Zapornia tabuensis tabuensis			H		
Yellow Rail	Coturnicops noveboracensis	C				
Yellow-breasted Crake (Henderson's)	Hapalocrex flaviventer hendersoni		P			
Black Rail	Laterallus jamaicensis jamaicensis/ coturniculus				E	C,P
Limpkin (Puerto Rican/Hispaniolan)	Aramus guarauna elucus		P			
Sandhill Crane (Mississippi)	Antigone canadensis pulla				E	C
Whooping Crane	Grus americana				E	C
Black-necked Stilt (Hawaiian)	Himantopus mexicanus knudseni				E	H
American Avocet	Recurvirostra americana	R				
American Oystercatcher	Haematopus palliatus	C	P			
Black Oystercatcher	Haematopus bachmani	C				
American Golden-Plover	Pluvialis dominica	C				
Piping Plover (Atlantic)	Charadrius melodus melodus				T	C
Piping Plover (Great Lakes)	C. m. circumcinctus (Great Lakes)				E	C
Piping Plover (Great Plains)	C. m. circumcinctus (Great Plains)				T	C
Wilson's Plover	Charadrius wilsonia	C	P			
Mountain Plover	Charadrius montanus	C				
Snowy Plover (Pacific Coast)	Charadrius nivosus nivosus (Pacific Coast)				T	C
Snowy Plover (Interior/Gulf Coast)	C. n. nivosus (Interior/Gulf Coast)	C				
Snowy Plover (Caribbean)	C. n. tenuirostris		P			
Upland Sandpiper	Bartramia longicauda	R				
Bristle-thighed Curlew	Numenius tahitiensis	C		H		
Whimbrel (Atlantic)	Numenius phaeopus hudsonicus (Atlantic)	R				
Eskimo Curlew	Numenius borealis				E	C
Long-billed Curlew	Numenius americanus	R				
Bar-tailed Godwit	Limosa lapponica	C				
Hudsonian Godwit	Limosa haemastica	C				
Marbled Godwit	Limosa fedoa	C				
Ruddy Turnstone (Atlantic)	Arenaria interpres morinella	R				
Black Turnstone	Arenaria melanocephala	C				
Red Knot (Atlantic)	Calidris canutus rufa				T	C
Red Knot (Pacific)	Calidris canutus roselaari	C				
Dunlin (Northern Alaska)	Calidris alpina arcticola	R				
Dunlin (Hudson Bay)	Calidris alpina hudsonia	R				
Rock Sandpiper (Pribilof)	Calidris ptilocnemis ptilocnemis	R				
Purple Sandpiper	Calidris maritima	C				
Buff-breasted Sandpiper	Calidris subruficollis	C				
Pectoral Sandpiper	Calidris melanotos	C				
Semipalmated Sandpiper (Eastern/ Central)	Calidris pusilla (Eastern/Central)	R	P			
Short-billed Dowitcher	Limnodromus griseus	C				

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American Woodcock	Scolopax minor				W	C
Solitary Sandpiper (Western)	Tringa solitaria cinnamomea	R				
Wandering Tattler	Tringa incana	C		H		
Lesser Yellowlegs	Tringa flavipes	C	P			
Willet	Tringa semipalmata	C	P			
Great Auk	Pinguinus impennis				X	C
Marbled Murrelet (CA/OR/WA)	Brachyramphus marmoratus (California/ Oregon/ Washington)				T	C
Marbled Murrelet (Alaska)	Brachyramphus marmoratus (Alaska)	C				
Kittlitz's Murrelet	Brachyramphus brevirostris	C				
Scripps's Murrelet	Synthliboramphus scrippsi	C				
Guadalupe Murrelet	Synthliboramphus hypoleucus	C				
Craveri's Murrelet	Synthliboramphus craveri	C				
Ancient Murrelet	Synthliboramphus antiquus	C				
Cassin's Auklet	Ptychoramphus aleuticus	R				
Whiskered Auklet	Aethia pygmaea	C				
Tufted Puffin	Fratercula cirrhata	R				
Red-legged Kittiwake	Rissa brevirostris	C				
Ivory Gull	Pagophila eburnea	C				
Ross's Gull	Rhodostethia rosea	C				
Franklin's Gull	Leucophaeus pipixcan	C				
Heermann's Gull	Larus heermanni	C				
Western Gull	Larus occidentalis	C				
Yellow-footed Gull	Larus livens	C				
California Gull	Larus californicus	C				
Black Noddy (Hawaiian)	Anous minutus melanogenys			H		
Blue-gray Noddy (Hawaiian)	Anous cerulea saxatilis			H		
Gray-backed Tern	Onychoprion lunata			H		
Aleutian Tern	Onychoprion aleuticus	C				
Least Tern (California)	Sternula antillarum brownii				E	C
Least Tern (Atlantic/Interior)	Sternula antillarum antillarum/ athalassos	C	P			
Gull-billed Tern	Gelochelidon nilotica	R				
Black Tern	Chlidonias niger surinamensis	C				
Roseate Tern	Sterna dougallii dougallii				E/T	C,P
Common Tern	Sterna hirundo	R				
Forster's Tern	Sterna forsteri	R				
Sandwich Tern	Thalasseus sandvicensis	R				
Elegant Tern	Thalasseus elegans	C				
Black Skimmer	Rynchops niger	C				
White-tailed Tropicbird (Atlantic)	Phaethon lepturus catesbyi		P			
Red-billed Tropicbird (Caribbean)	Phaethon aethereus mesonauta (Caribbean)		P			

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Red-tailed Tropicbird (Black-billed)	Phaethon rubricauda melanorhynchos			H		
Yellow-billed Loon	Gavia adamsii	C				
Laysan Albatross	Phoebastria immutabilis	C		H		
Black-footed Albatross	Phoebastria nigripes	C		H		
Short-tailed Albatross	Phoebastria albatrus				E	C,H
Polynesian Storm-Petrel	Nesofregetta fuliginosa			H		
Ashy Storm-Petrel	Hydrobates homochroa	C				
Band-rumped Storm-Petrel (Pacific)	Hydrobates castro (Pacific)				E	H
Band-rumped Storm-Petrel (Atlantic)	Hydrobates castro (Atlantic)	C				
Black Storm-Petrel	Hydrobates melania	C				
Tristram's Storm-Petrel	Hydrobates tristrami			H		
Murphy's Petrel	Pterodroma ultima	C				
Mottled Petrel	Pterodroma inexpectata	C		H		
Bermuda Petrel	Pterodroma cahow				E	C
Black-capped Petrel	Pterodroma hasitata	C				
Hawaiian Petrel	Pterodroma sandwichensis				E	H
Bonin Petrel	Pterodroma hypoleuca			H		
Fea's Petrel	Pterodroma feae	C				
Cook's Petrel	Pterodroma cookii	C		H		
Tahiti Petrel	Pseudobulweria rostrata			H		
Bulwer's Petrel	Bulweria bulwerii			H		
Cory's Shearwater	Calonectris diomedea	C				
Buller's Shearwater	Ardenna bulleri	C		H		
Pink-footed Shearwater	Ardenna creatopus	C				
Christmas Shearwater	Puffinus nativitatis			H		
Manx Shearwater	Puffinus puffinus	C				
Newell's Shearwater	Puffinus newelli				T	H
Black-vented Shearwater	Puffinus opisthomelas	C				
Audubon's Shearwater	Puffinus lherminieri	C	P			
Wood Stork (Southeast USA)	Mycteria americana (Southeast USA)				T	C
Magnificent Frigatebird	Fregata magnificens	R	P			
Great Frigatebird (Central Pacific)	Fregata minor palmerstoni			H		
Masked Booby (Atlantic)	Sula dactylatra dactylatra		P			
Red-footed Booby (Atlantic)	Sula sula sula		P			
Brandt's Cormorant	Phalacrocorax penicillatus	C				
Red-faced Cormorant	Phalacrocorax urile	C				
American White Pelican	Pelecanus erythrorhynchos	R				
Brown Pelican (Caribbean)	Pelecanus occidentalis occidentalis		P			
Great Blue Heron (Great White)	Ardea herodias occidentalis	R				
Little Blue Heron	Egretta caerulea	R				
Reddish Egret	Egretta rufescens	C				
California Condor	Gymnogyps californianus				E	C

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		CO	PV	HP	List	Area
Swallow-tailed Kite	Elanoides forficatus	C				
Northern Harrier	Circus hudsonius	R				
Sharp-shinned Hawk (Puerto Rican)	Accipiter striatus venator				E	P
Snail Kite (Everglade)	Rostrhamus sociabilis plumbeus				E	C
Harris's Hawk	Parabuteo unicinctus harrisi	R				
Broad-winged Hawk (Puerto Rican)	Buteo platypterus brunnescens				E	P
'lo	Buteo solitarius			H		
Ferruginous Hawk	Buteo regalis	R				
Flammulated Owl	Psiloscops flammeolus	C				
Puerto Rican Screech-Owl (Virgin Islands)	Megascops nudipes newtoni		P			
Whiskered Screech-Owl	Megascops trichopsis	C				
Western Screech-Owl (Northern Pacific)	Megascops kennicottii kennicottii/ cardonensis	R				
Snowy Owl	Bubo scandiacus	C				
Burrowing Owl (Western)	Athene cunicularia hypugaea	R				
Burrowing Owl (Florida)	Athene cunicularia floridana	R				
Spotted Owl (California)	Strix occidentalis occidentalis	C				
Spotted Owl (Northern)	Strix occidentalis caurina				T	C
Spotted Owl (Mexican)	Strix occidentalis lucida				T	C
Long-eared Owl	Asio otus	C				
Short-eared Owl	Asio flammeus flammeus	C				
Pueo	Asio flammeus sandwichensis			H		
Northern Saw-whet Owl	Aegolius acadicus	R				
Elegant Trogon	Trogon elegans	C				
Guam Kingfisher	Todiramphus cinnamominus				E	H
Mariana Kingfisher	Todiramphus albicilla			H		
Belted Kingfisher	Megaceryle alcyon	R				
Lewis's Woodpecker	Melanerpes lewis	C				
Red-headed Woodpecker	Melanerpes erythrocephalus	C				
Gila Woodpecker	Melanerpes uropygialis	R				
Williamson's Sapsucker (Rocky Mountain)	Sphyrapicus thyroideus nataliae	R				
Nuttall's Woodpecker	Drybates nuttallii	R				
Red-cockaded Woodpecker	Drybates borealis				E	C
White-headed Woodpecker (California)	Drybates albolarvatus gravirostris	R				
Arizona Woodpecker	Drybates arizonae	C				
Gilded Flicker	Colaptes chrysoides	C				
Ivory-billed Woodpecker	Campephilus principalis				X	C
Crested Caracara (Audubon's)	Caracara cheriway audubonii				T	C
American Kestrel (Southeast)	Falco sparverius paulus	R				
Aplomado Falcon (Northern)	Falco femoralis septentrionalis				E	C
Prairie Falcon	Falco mexicanus	R				
Blue-crowned Lorikeet	Vini australis				W	H
Carolina Parakeet	Conuropsis carolinensis				X	C

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Green Parakeet	Psittacara holochlorus				W	C
Puerto Rican Parakeet	Psittacara maugei				X	P
Thick-billed Parrot	Rhynchopsitta pachyrhyncha				E	C
Puerto Rican Parrot	Amazona vittata				E	P
Red-crowned Parrot	Amazona viridigenalis				W	C
Olive-sided Flycatcher	Contopus cooperi	C				
Willow Flycatcher (Southwestern)	Empidonax traillii extimus				E	C
Cordilleran Flycatcher	Empidonax occidentalis	R				
Micronesian Myzomela	Myzomela rubratra saffordi				W	H
Mao	Gymnomyza samoensis				E	H
Loggerhead Shrike (San Clemente)	Lanius ludovicianus mearnsi				E	C
Loggerhead Shrike (Eastern)	Lanius ludovicianus excubitorides/ migrans	R				
Black-capped Vireo	Vireo atricapilla	C				
Puerto Rican Vireo	Vireo latimeri		P			
Bell's Vireo (Least)	Vireo bellii pusillus				E	C
Plumbeous Vireo	Vireo plumbeus	R				
Pinyon Jay	Gymnorhinus cyanocephalus	C				
Florida Scrub-Jay	Aphelocoma coerulescens				T	C
Island Scrub-Jay	Aphelocoma insularis	C				
Woodhouse's Scrub-Jay (Woodhouse's)	Aphelocoma woodhouseii woodhouseii	R				
Clark's Nutcracker	Nucifraga columbiana	R				
Yellow-billed Magpie	Pica nuttalli	C				
Mariana Crow	Corvus kubaryi				E	H
White-necked Crow	Corvus leucognaphalus				E	P
Hawaiian Crow/'Alalā	Corvus hawaiiensis				E	H
Chihuahuan Raven	Corvus cryptoleucus	R				
Rufous Fantail (Guam)	Rhipidura rufifrons uraniae				X	H
Rufous Fantail (Saipan)	Rhipidura rufifrons saipanensis				W	H
Rufous Fantail (Rota)	Rhipidura rufifrons mariae				W	H
Hawai'i ‘Elepaio	Chasiempis sandwichensis				W	H
Kaua'i ‘Elepaio	Chasiempis sclateri				W	H
O'ahu ‘Elepaio	Chasiempis ibidis				E	H
Fiji Shrikebill (Manua)	Clytorhynchus vitiensis powelli				W	H
Tinian Monarch	Monarcha takatsukasae				W	H
Guam Flycatcher	Myiagra freycineti				X	H
Horned Lark (Streaked)	Eremophila alpestris strigata				T	C
Black-capped Chickadee (Appalachian)	Poecile atricapillus practicus	R				
Mexican Chickadee	Poecile sclateri	C				
Chestnut-backed Chickadee (Northern)	Poecile rufescens rufescens	R				
Gray-headed Chickadee (Alaska)	Poecile cinctus lathami	C				
Oak Titmouse	Baeolophus inornatus	C				

Common Name	Scientific Name	BCC 2021[1]			ESA/WL[2]	
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Verdin (Southwest)	Auriparus flaviceps acaciarum	R				
White-breasted Nuthatch (Slender-billed)	Sitta carolinensis aculeata	R				
Brown-headed Nuthatch	Sitta pusilla	R				
Marsh Wren (Worthington's)	Cistothorus palustris griseus	R				
Bewick's Wren (Eastern)	Thryomanes bewickii bewickii	R				
Cactus Wren (Speckled)	Campylorhynchus brunneicapillus guttatus	R				
California Gnatcatcher (Coastal)	Polioptila californica californica				T	C
American Dipper	Cinclus mexicanus	R				
Wrentit	Chamaea fasciata	C				
Golden White-eye	Cleptornis marchei				W	H
Bridled White-eye (Guam)	Zosterops conspicillatus conspicillatus				X	H
Bridled White-eye (Saipan)	Zosterops conspicillatus saypani				W	H
Rota White-eye	Zosterops rotensis				E	H
Nightingale Reed Warbler (Guam)	Acrocephalus luscinius				X	H
Nightingale (Saipan) Reed Warbler	Acrocephalus luscinius/hiwae				E	H
Aguiguan Reed Warbler	Acrocephalus nijoi				X	H
Pagan Reed Warbler	Acrocephalus yamashinae				X	H
Millerbird (Nihoa)	Acrocephalus familiaris kingi				E	H
Kāma'o	Myadestes myadestinus				X	H
Āmaui	Myadestes woahensis				X	H
Oloma‘o	Myadestes lanaiensis rutha				E	H
'Ōma'o	Myadestes obscurus			H		
Puaiohi	Myadestes palmeri				E	H
Veery (Eastern)	Catharus fuscescens fuscescens	R				
Bicknell's Thrush	Catharus bicknelli	C				
Wood Thrush	Hylocichla mustelina	C				
Varied Thrush (Pacific)	Ixoreus naevius naevius	R				
Curve-billed Thrasher (Brownsville)	Toxostoma curvirostre oberholseri	R				
Curve-billed Thrasher (Palmer's)	Toxostoma curvirostre palmeri	R				
Bendire's Thrasher	Toxostoma bendirei	C				
California Thrasher	Toxostoma redivivum	C				
LeConte's Thrasher	Toxostoma lecontei	C				
Sage Thrasher	Oreoscoptes montanus	R				
Polynesian Starling (Manua)	Aplonis tabuensis manuae				W	H
Polynesian Starling (Tutuila)	Aplonis tabuensis tutuilae				W	H
Samoan Starling	Aplonis atrifusca				W	H
Kaua'I Ō'Ō	Moho braccatus				X	H
O'ahu Ō'Ō	Moho apicalis				X	H
Bishop's Ō'Ō	Moho bishopi				X	H
Hawai'i Ō'Ō	Moho nobilis				X	H
Kioea	Chaetoptila angustipluma				X	H
Phainopepla (Southwest)	Phainopepla nitens lepida	R				

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Sprague's Pipit	Anthus spragueii	C				
Evening Grosbeak	Coccothraustes vespertinus	C				
Po`ouli	Melamprosops phaeosoma				X	H
'Akikiki	Oreomystis bairdi				E	H
O'ahu 'Alauahio	Paroreomyza maculata				E	H
Kākāwahie	Paroreomyza flammea				X	H
Maui 'Alauahio	Paroreomyza montana			H		
Palila	Loxioides bailleui				E	H
Laysan Finch	Telespyza cantans				E	H
Nihoa Finch	Telespyza ultima				E	H
Kona Grosbeak	Chloridops kona				X	H
Lesser Koa-Finch	Rhodacanthis flaviceps				X	H
Greater Koa-Finch	Rhodacanthis palmeri				X	H
'Ula-'ai-hawane	Ciridops anna				X	H
'Akohekohe	Palmeria dolei				E	H
Laysan Honeycreeper	Himatione fraithii				X	H
'Apapane	Himatione sanguinea			H		
'I'iwi	Drepanis coccinea				E	H
Hawai'i Mamo	Drepanis pacifica				X	H
Black Mamo	Drepanis funerea				X	H
`Ō`ū	Psittirostra psittacea				E	H
Lanai Hookbill	Dysmorodrepanis munroi				X	H
Maui Parrotbill	Pseudonestor xanthophrys				E	H
Kaua'i Nukupu'u	Hemignathus hanapepe				X	H
O'ahu Nukupu'u	Hemignathus lucidus				X	H
Maui Nukupu'u	Hemignathus affinis				X	H
'Akiapōlā'au	Hemignathus wilsoni				E	H
Lesser 'Akialoa	Akialoa obscura				X	H
Kaua'i 'Akialoa	Akialoa stejnegeri				X	H
O'ahu 'Akialoa	Akialoa ellisiana				X	H
Maui-nui 'Akialoa	Akialoa lanaiensis				X	H
'Anianiau	Magumma parva			H		
Hawai'i 'Amakihi	Chlorodrepanis virens			H		
O'ahu 'Amakihi	Chlorodrepanis flava			H		
Kaua'i 'Amakihi	Chlorodrepanis stejngeri			H		
Greater 'Amakihi	Viridonia sagittirostris				X	H
Hawai'i Creeper	Loxops mana				E	H
'Akeke'e	Loxops caeruleirostris				E	H
O'ahu 'Akepa	Loxops wolstenholmei				X	H
Maui 'Akepa	Loxops ochraceus				X	H
Hawai'i 'Akepa	Loxops coccineus				E	H
Black Rosy-Finch	Leucosticte atrata	C				
Brown-capped Rosy-Finch	Leucosticte australis	C				
Cassin's Finch	Haemorhous cassinii	C				
Cassia Crossbill	Loxia sinesciuris	C				

Common Name	Scientific Name	BCC 2021[1]			ESA/WL[2]	
		CO	PV	HP	List	Area
Lawrence's Goldfinch	Spinus lawrencei	C				
Chestnut-collared Longspur	Calcarius ornatus	C				
Thick-billed Longspur	Rhynchophanes mccownii	C				
McKay's Bunting	Plectrophenax hyperboreus	C				
Rufous-winged Sparrow	Peucaea carpalis	C				
Cassin's Sparrow	Peucaea cassinii	R				
Bachman's Sparrow	Peucaea aestivalis	C				
Grasshopper Sparrow (Florida)	Ammodramus savannarum floridanus				E	C
Grasshopper Sparrow (Northern)	Ammodramus savannarum perpallidus/pratensis	R				
Lark Bunting	Calamospiza melanocorys	R				
Black-chinned Sparrow	Spizella atrogularis	C				
Field Sparrow	Spizella pusilla	R				
Bell's Sparrow (San Clemente)	Artemisiospiza belli clementeae				T	C
Vesper Sparrow (Oregon)	Pooecetes gramineus affinis	R				
LeConte's Sparrow	Ammodramus leconteii	C				
Dusky Seaside Sparrow	Ammospiza maritima nigrescens				X	C
Seaside Sparrow (Cape Sable)	Ammodramus maritimus mirabilis				E	C
Seaside Sparrow (Atlantic/Gulf)	Ammodramus maritima maritima/ pennisulae/ macgillivraii/ fisheri/sennetti	C				
Saltmarsh Sparrow	Ammodramus caudacuta	C				
Baird's Sparrow	Centronyx bairdii	C				
Henslow's Sparrow	Centronyx henslowii	C				
Savannah Sparrow (Belding's)	Passerculus sandwichensis beldingi	R				
Song Sparrow (Alameda/Samuels)	Melospiza melodia pusillula/ samuelis	R				
Song Sparrow (Channel Island)	Melospiza melodia graminea	R				
California Towhee (Inyo)	Melozone crissalis eremophilus				T	C
Rufous-crowned Sparrow (Rock)	Aimophila ruficeps eremoeca	R				
Yellow-breasted Chat (Eastern)	Icteria virens virens	R				
Yellow-headed Blackbird	Xanthocephalus xanthocephalus	R				
Bobolink	Dolichonyx oryzivorus	C				
Eastern Meadowlark	Sturnella magna	R				
Puerto Rican Oriole	Icterus portoricensis		P			
Orchard Oriole	Icterus spurius	R				
Bullock's Oriole	Icterus bullockii	R				
Scott's Oriole	Icterus parisorum	R				
Tricolored Blackbird	Agelaius tricolor	C				
Yellow-shouldered Blackbird	Agelaius xanthomus				E	P
Rusty Blackbird	Euphagus carolinus	R				
Bachman's Warbler	Vermivora bachmanii				X	C
Golden-winged Warbler	Vermivora chrysoptera	C				
Blue-winged Warbler	Vermivora cyanoptera	R				
Prothonotary Warbler	Protonotaria citrea	C				

Common Name	Scientific Name	BCC 2021[1]			ESA/WL[2]	
		CO	PV	HP	List	Area
Colima Warbler	Leiothlypis crissalis	C				
Virginia's Warbler	Leiothlypis virginiae	C				
Connecticut Warbler	Oporornis agilis	C				
Kentucky Warbler	Geothlypis formosa	C				
Common Yellowthroat (San Francisco)	Geothlypis trichas sinuosa	R				
Elfin-woods Warbler	Setophaga angelae				T	P
Kirtland's Warbler	Setophaga kirtlandii	C				
Cape May Warbler	Setophaga tigrina	R				
Cerulean Warbler	Setophaga cerulea	C				
Bay-breasted Warbler	Setophaga castanea	R				
Prairie Warbler	Setophaga discolor	C	P			
Grace's Warbler	Setophaga graciae	C				
Black-throated Gray Warbler	Setophaga nigrescens	R				
Hermit Warbler	Setophaga occidentalis	R				
Golden-cheeked Warbler	Dendroica chrysoparia				E	C
Black-throated Green Warbler (Wayne's)	Setophaga virens (Wayne's)	R				
Canada Warbler	Cardellina canadensis	C				
Red-faced Warbler	Cardellina rubrifrons	C				
Scarlet Tanager	Piranga olivacea	R				
Pyrrhuloxia	Cardinalis sinuatus	C				
Rose-breasted Grosbeak	Pheucticus ludovicianus	R				
Varied Bunting	Passerina versicolor	C				
Painted Bunting	Passerina ciris	R				
Dickcissel	Spiza americana	R				

[1]BCC = Birds of Conservation Concern 2021: CO (C) = Continental USA, R = continental Bird Conservation Region list (BCR); PV (P) = Puerto Rico and Virgin Islands; HP (H) = Hawaii and Pacific Islands.

[2]ESA/WL (List) = listed under the USA Endangered Species Act as endangered (E) or threatened (T); considered extinct in the wild (X); or on the Partners in Flight Watch List in 2014 or the Avian Conservation Assessment Database in 2019 and not defined as a Migratory Bird (W). Area = main occurrence region of ESA or Watch List taxa as described above (C, P, H).

Appendix 2.
Numbers of Birds of Conservation Concern 2021, non-migratory birds on the Watch Lists in the 2014 State of the Birds (Rosenberg et al. 2014) or Avian Conservation Assessment Database (Partners in Flight 2019), species or populations listed as threatened or endangered under the ESA, and extinct species or populations for the Continental USA, Puerto Rico and the Virgin Islands, and Hawaii and the Pacific Islands. Shared taxa assigned to breeding area list or by greatest abundance.

Region	BCC 2021	Watch List 2014/2019	ESA	Extinct
Continental USA[1]	129 (88)[1]	11	43	8
Puerto Rico/Virgin Islands	21	0	8	2
Hawaii/Pacific Islands	31	13	37	37

[1]Continental list and (additional BCR-scale taxa).



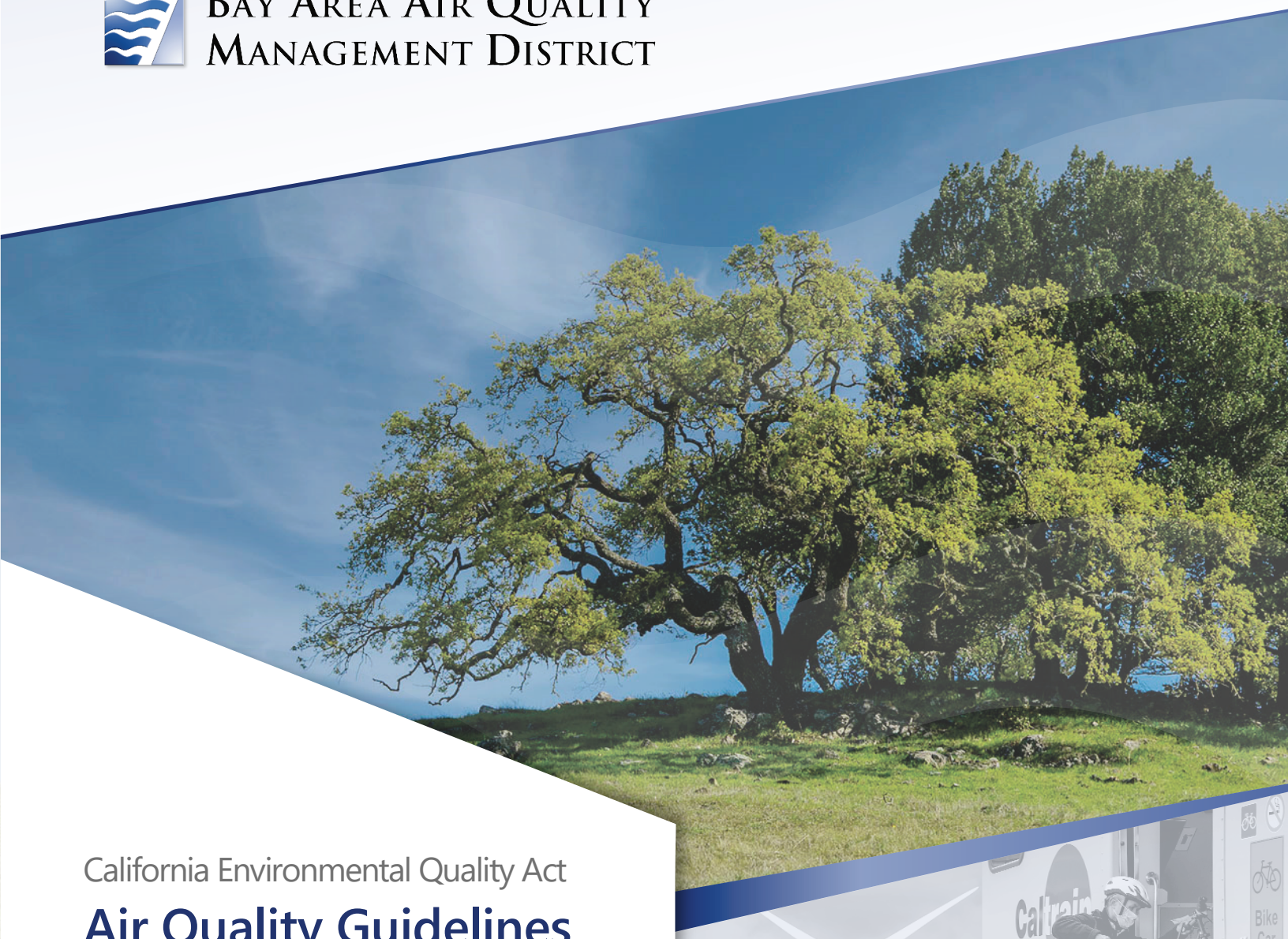
Least Tern, Joanna Gilkeson/USFWS

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April 2021

Bay Area Air Quality Management District

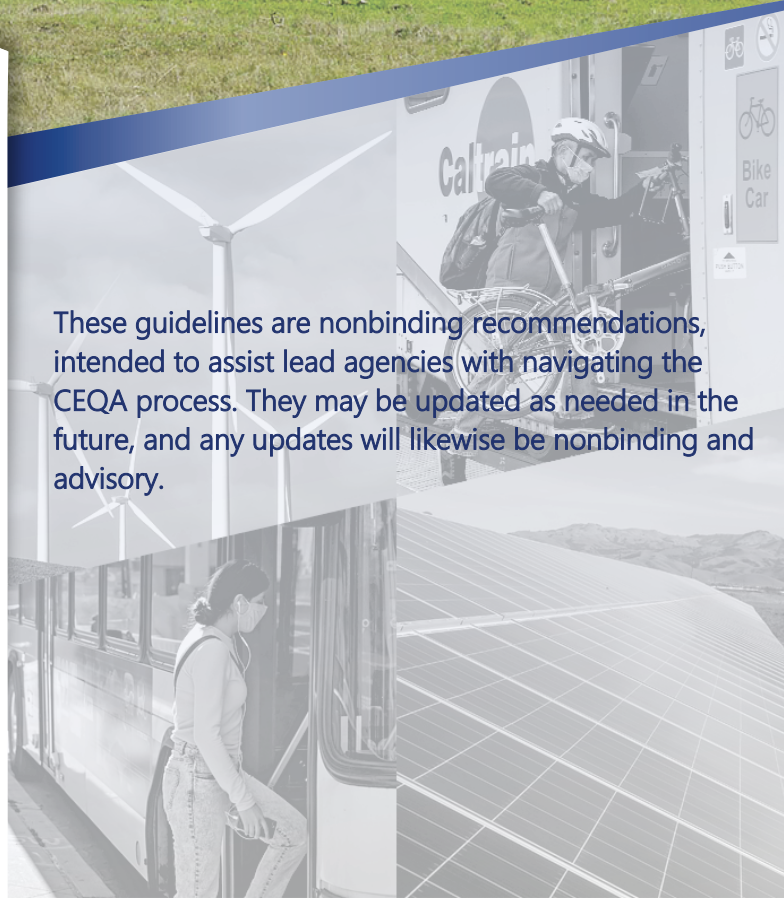


California Environmental Quality Act

Air Quality Guidelines Appendix B:

CEQA Thresholds for Evaluating the Significance of Climate Impacts From Land Use Projects and Plans

April 2022



These guidelines are nonbinding recommendations, intended to assist lead agencies with navigating the CEQA process. They may be updated as needed in the future, and any updates will likewise be nonbinding and advisory.

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

Justification Report

CEQA Thresholds for Evaluating the Significance of Climate Impacts

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April 2022

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LIST OF ABBREVIATIONS

ºC	degrees Celsius
AB	Assembly Bill
Air District	Bay Area Air Quality Management District
CALGreen	California Green Building Standards Code
CARB	California Air Resources Board
CEC	California Energy Commission
CEQA	California Environmental Quality Act
DC	direct current
EIR	environmental impact report
EV	electric vehicle
GHG	greenhouse gas
IPCC	Intergovernmental Panel on Climate Change
OPR	Governor's Office of Planning and Research
RPS	Renewables Portfolio Standard
SB	Senate Bill
VAC	voltage of alternating current
VMT	vehicle miles traveled
ZEV	zero-emission vehicle

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1 INTRODUCTION AND EXECUTIVE SUMMARY

This report presents the Bay Area Air Quality Management District's (Air District's) recommended thresholds of significance for use in determining whether a proposed project will have a significant impact on climate change. The Air District recommends that these thresholds of significance be used by public agencies to comply with the California Environmental Quality Act (CEQA).

Evaluating climate impacts under CEQA can be challenging because global climate change is inherently a cumulative problem. Climate change is not caused by any individual emissions source but by a large number of sources around the world emitting greenhouse gases (GHGs) that collectively create a significant cumulative impact. CEQA requires agencies in California to analyze such impacts by evaluating whether a proposed project would make a "cumulatively considerable" contribution to the significant cumulative impact on climate change. (See CEQA Guidelines Sections 15064[h] and 15064.4[b].)[1] But CEQA does not provide any further definition of what constitutes a cumulatively considerable contribution in this context. These thresholds of significance are intended to assist public agencies in determining whether proposed projects they are considering would make a cumulatively considerable contribution to global climate change, as required by CEQA.

The Air District's recommended thresholds of significance are summarized below, with a detailed discussion of the basis for the thresholds presented in the remainder of this report. The information provided in this report is intended to provide the substantial evidence that lead agencies will need to support their determinations about significance using these thresholds. This information also provides the substantial evidence to support adoption of these thresholds by the Air District's Board of Directors. (See CEQA Guidelines Section 15064.7 [thresholds must be adopted by the Board of Directors through a public review process and be supported by substantial evidence].)

1.1 THRESHOLDS FOR LAND USE PROJECTS

For land use development projects, the Air District recommends using the approach endorsed by the California Supreme Court in *Center for Biological Diversity v. Department of Fish & Wildlife* (2015) (62 Cal.4th 204), which evaluates a project based on its effect on California's efforts to meet the State's long-term climate goals. As the Supreme Court held in that case, a project that would be consistent with meeting those goals can be found to have a less-than-significant impact on climate change under CEQA. If a project would contribute its "fair share" of what will be required to achieve those long-term climate goals, then a reviewing agency can find that the impact will not be significant because the project will help to solve the problem of global climate change (62 Cal.4th 220–223).

[1] The 2021 State CEQA Guidelines, including Appendices F and G, can be found at the following website: https://www.califaep.org/docs/CEQA_Handbook_2021.pdf.

Applying this approach, the Air District has analyzed what will be required of new land use development projects to achieve California's long-term climate goal of carbon neutrality[2] by 2045. The Air District has found, based on this analysis, that a new land use development project being built today needs to incorporate the following design elements to do its "fair share" of implementing the goal of carbon neutrality by 2045:

Thresholds for Land Use Projects (Must Include A or B)
A. Projects must include, at a minimum, the following project design elements: 1. Buildings a. The project will not include natural gas appliances or natural gas plumbing (in both residential and nonresidential development). b. The project will not result in any wasteful, inefficient, or unnecessary energy usage as determined by the analysis required under CEQA Section 21100(b)(3) and Section 15126.2(b) of the State CEQA Guidelines. 2. Transportation a. Achieve a reduction in project-generated vehicle miles traveled (VMT) below the regional average consistent with the current version of the California Climate Change Scoping Plan (currently 15 percent) or meet a locally adopted Senate Bill 743 VMT target, reflecting the recommendations provided in the Governor's Office of Planning and Research's Technical Advisory on Evaluating Transportation Impacts in CEQA: i. Residential projects: 15 percent below the existing VMT per capita ii. Office projects: 15 percent below the existing VMT per employee iii. Retail projects: no net increase in existing VMT b. Achieve compliance with off-street electric vehicle requirements in the most recently adopted version of CALGreen Tier 2.
B. Projects must be consistent with a local GHG reduction strategy that meets the criteria under State CEQA Guidelines Section 15183.5(b).

If a project is designed and built to incorporate these design elements, then it will contribute its portion of what is necessary to achieve California's long-term climate goals—its "fair share"—and an agency reviewing the project under CEQA can conclude that the project will not make a cumulatively considerable contribution to global climate change. If the project does not incorporate these design elements, then it should be found to make a significant climate impact because it will hinder California's efforts to address climate change. These recommended thresholds for land use projects are discussed in more detail in Section 4.

[2] "Carbon neutrality" is defined in Executive Order B-55-18 as the point at which the removal of carbon pollution from the atmosphere meets or exceeds carbon emissions. Carbon neutrality is achieved when carbon dioxide and other GHGs generated by sources such as transportation, power plants, and industrial processes are less than or equal to the amount of carbon dioxide that is stored, both in natural sinks and mechanical sequestration.

1.2 THRESHOLDS FOR GENERAL PLANS AND RELATED PLANNING DOCUMENTS

The Air District recommends a similar approach for cities and counties adopting general plans and related planning documents that will guide long-range development in their jurisdictions. The Air District recommends that cities and counties evaluate such plans based on whether they will be consistent with California's long-term climate goal of achieving carbon neutrality by 2045. To be consistent with this goal, these plans should reduce GHG emissions in the relevant jurisdiction to meet an interim milestone of 40 percent below the 1990 emission levels by 2030, consistent with Senate Bill (SB) 32, and to support the State's goal of carbon neutrality by 2045. Cities and counties planning to develop in a manner that is not consistent with meeting these GHG reduction targets will have a significant climate impact because they will hinder California's efforts to address climate change.

Thresholds for Plans (Must Include A or B)
A. Meet the State's goals to reduce emissions to 40 percent below 1990 levels by 2030 and carbon neutrality by 2045; or
B. Be consistent with a local GHG reduction strategy that meets the criteria under State CEQA Guidelines Section 15183.5(b).

The Air District also strongly recommends that cities and counties adopt climate action plans to document specific strategies and implementation measures to achieve these 2030 and 2045 goals. Robust climate action plans that meet the requirements of CEQA Guidelines Section 15183.5(b) can provide such jurisdictions with a number of benefits. If properly developed, they will provide the substantial evidence a jurisdiction needs to demonstrate that its general plan updates and related planning documents will not have a significant climate impact as outlined in the preceding paragraph. In addition, a jurisdiction can use a qualified climate action plan to evaluate individual land use projects under CEQA. This gives the local jurisdiction the flexibility to tailor requirements for land use projects in its community to the specific circumstances of that community rather than use the Air District's general thresholds for land use projects described above. In addition, a jurisdiction can adopt a climate action plan immediately, without having to wait for its next general plan update cycle.

Thresholds for general plans and related planning documents are discussed in more detail in Section 5. Guidance from the Air District on how to develop and adopt a comprehensive climate action plan that satisfies the detailed requirements of CEQA Guidelines Section 15183.5(b) is set forth in Appendix C to the Air District's Air Quality Guidelines.

1.3 Important Considerations for Using These Thresholds

The Air District has developed these thresholds of significance based on typical residential and commercial land use projects and typical long-term communitywide planning documents such as general plans and similar long-range development plans. As such, these thresholds may not be appropriate for other types of projects that do not fit into the mold of a typical residential or commercial project or general plan update. Lead agencies should keep this point in mind when evaluating other types of projects. A lead agency does

not necessarily need to use a threshold of significance if the analysis and justifications that were used to develop the threshold do not reflect the particular circumstances of the project under review. Accordingly, a lead agency should not use these thresholds if it is faced with a unique or unusual project for which the analyses supporting the thresholds as described in this report do not squarely apply. In such cases, the lead agency should develop an alternative approach that would be more appropriate for the particular project before it, considering all of the facts and circumstances of the project on a case-by-case basis.

In addition, lead agencies should keep in mind that the science of climate change – and California's regulatory and policy responses to it – are constantly evolving. As the technical and policy considerations on which these thresholds of significance are based advance in the future, lead agencies may need to make adjustments to the thresholds as set forth herein to be consistent with the most current information. As the California Supreme Court has explained, lead agencies are required to "ensure that CEQA analysis stays in step with evolving scientific knowledge and state regulatory schemes" (*Cleveland National Forest Foundation v. SANDAG* (2017) 3 Cal.5th 497, 519). Making appropriate adjustments to these thresholds in light of future developments will ensure that lead agencies comply with this important CEQA mandate.

2 FRAMEWORK FOR ANALYZING IMPACTS UNDER CEQA

The central requirement of the CEQA environmental analysis is to determine whether implementing a project will result in any significant adverse impact on the environment, either individually or cumulatively.

This mandate requires the reviewing agency first to evaluate whether the project will have a significant impact by itself and then to consider whether the project may contribute to a significant cumulative impact in conjunction with other past, present, and reasonably foreseeable future projects that also contribute to the impact.[3]

In the cumulative context, the analysis has two parts. To evaluate cumulative impacts, the agency must assess (1) whether the overall cumulative impact will be significant and, (2) if the overall impact is significant, whether the incremental contribution that the individual project under review will add to the overall cumulative problem will be cumulatively considerable. As Section 15064(h)(1) of the CEQA Guidelines states:

> When assessing whether a cumulative effect requires an EIR [environmental impact report], the lead agency shall consider whether the cumulative impact is significant and whether the effects of the project are cumulatively considerable. An EIR must be prepared if the cumulative impact may be significant and the project's incremental effect, though individually limited, is cumulatively considerable.

Both parts of this test must be met for a project's impact to be treated as significant under CEQA. If the overall cumulative impact does not rise to the level of a "significant" impact, or if the project's incremental contribution is not cumulatively considerable, then the project's impact is not treated as significant. (See *San Francisco Baykeeper, Inc. v. State Lands Commission* [2015] [242 Cal.App.4th 202, 222] [project not

[3] A cumulative impact is the change in the environment that results from the incremental impact of the project under review in conjunction with other past, present, and reasonably foreseeable probable future projects (CEQA Guidelines Section 15355).

significant if "the cumulative impact is insignificant or if the project's incremental contribution to the impact is not cumulatively considerable"]; see also CEQA Guidelines Sections 15130[a][3] and 15064[h].)

Cumulatively considerable means that the incremental effect of the specific project under review will be significant when viewed in the context of the overall cumulative problem (CEQA Section 21083[b][2]). CEQA does not require that any incremental addition to a significant cumulative impact, no matter how small, must necessarily be treated as cumulatively considerable. The statute does not require a so-called "one additional molecule" standard, and some projects' incremental contributions would be so minor that their impact does not have to be treated as significant even though the projects would add an additional amount to the significant cumulative impact (*Communities for a Better Environment v. California Resources Agency* [2002] [103 Cal.App.4th 98, 120]; see also CEQA Guidelines Section 15064[h][4].) The level at which the incremental addition becomes cumulatively considerable will depend on the nature of the particular cumulative impact being evaluated. The ultimate test is whether any additional amount should be considered significant in the context of the existing cumulative effect. (CEQA Section 21083[b][2]).)

Applying these principles, the environmental impact analysis under CEQA is a four-step process:

- Step One: **Determine the level at which an impact on the environmental resource under consideration becomes "significant."** This is the touchstone for assessing whether the project may have a significant impact individually or may contribute to a cumulative impact that is significant. The level at which the impact becomes significant will depend on the nature of the environmental resource being evaluated.
- Step Two: **Evaluate whether the project under review would degrade the environmental resource to such an extent that there would be an impact exceeding the "significant" level determined during Step One**. If implementing the project would cause an impact to exceed that level all by itself, then the project's impact is treated as significant under CEQA and the project requires preparation of an EIR, implementation of feasible mitigation measures to reduce the impact to a less-than-significant level, and consideration of alternatives that would avoid or lessen any significant impacts. If the project under review would not degrade the environmental resource to such an extent that there would be a significant impact, the analysis proceeds to Step Three.
- Step Three: **Determine whether the contribution of the project combined with the contributions of all other past, present, and reasonably foreseeable future projects would exceed the "significant" level determined during Step One.** If implementing the project would not cause a significant impact by itself, it still must be evaluated to determine whether it would make a cumulatively considerable contribution to a significant cumulative impact. The first element of that analysis is to assess the overall cumulative impact caused by the project in conjunction with other past, present, and reasonably foreseeable future projects affecting the same resource. If the overall cumulative impact exceeds the "significant" level determined during Step One, then the project would contribute to a significant cumulative impact, and the analysis proceeds to Step Four to determine whether that contribution is cumulatively considerable.
- Step Four: **Determine whether the project's incremental contribution is cumulatively considerable.** The final step is to determine whether the project's incremental contribution is cumulatively considerable in light of the overall cumulative impact. If implementing the project would make a cumulatively

considerable contribution to a significant cumulative impact, the impact is considered significant under CEQA and the agency must prepare an EIR, impose feasible mitigation measures to bring the incremental contribution below the cumulatively considerable level, and consider alternatives.

The CEQA analysis applies this four-step process to evaluating climate impacts just as it does for all other impacts.

3 ANALYZING IMPACTS ON GLOBAL CLIMATE CHANGE

CEQA requires agencies to consider a project's impacts on global climate change in the same manner that they consider impacts on other areas in the environmental review document. Climate change is unique, however, given the global nature of the problem.

Step One in the analysis requires determining the level at which climate change becomes a "significant" environmental problem. There is a general consensus that we need to limit the warming of the planet to no more than 1.5 degrees Celsius (ºC) in order to maintain a sustainable global climate. Aiming to limit global warming to 1.5ºC is a goal recognized by the Paris Agreement on Climate Change and in California's Executive Order B-55-18, and the Intergovernmental Panel on Climate Change (IPCC) has documented the serious adverse consequences that are expected if the climate warms by more than that amount (IPCC 2018). A 1.5ºC rise in global temperatures is therefore an appropriate measure of the level at which climate change will become significant. A global temperature increase of more than that amount will constitute a significant climate impact.

Proceeding to Step Two in the analysis, it is clear that no individual project could have a significant climate impact all by itself, because no project by itself could cause the global temperature to rise by 1.5ºC. Indeed, it is difficult to conceive of any project whose GHG emissions would cause global temperature to change in any detectable way. The California Supreme Court acknowledged this situation in its *Center for Biological Diversity* decision, explaining that "an individual project's emissions will most likely not have any appreciable impact on the global problem by themselves, but they will contribute to the significant cumulative impact caused by greenhouse gas emissions from other sources around the globe" (*Center for Biological Diversity v. Department of Fish & Wildlife* [2015] 62 Cal.4th 204, 219 [citation omitted]).

Moving on to the cumulative analysis, Step Three asks whether the project would contribute to a significant cumulative impact in conjunction with all other past, present, and foreseeable future projects that are contributing to the same impact. With respect to climate change, clearly the answer is yes. Climate change is a cumulative problem caused by millions or billions of individually minor sources all around the globe contributing to the global impact, and it is unquestionably a significant cumulative problem.[4] The global climate has already

[4] CEQA requires the cumulative analysis to consider the contributions from all projects that contribute to the impact (i.e., all projects that contribute to the degradation of the environmental resource being evaluated). (See *City of Long Beach v. Los Angeles Unified School Dist.* [2009] [176 Cal.App.4th 889, 907], *Bakersfield Citizens for Local Control v. City of Bakersfield* [2004] [124 Cal.App.4th 1184, 1219 fn. 10], and *Kings County Farm Bureau v. City of Hanford* [1990] [221 Cal.App.3d 692, 720]). In the context of global climate change, this means considering all sources of GHG emissions around the globe that contribute to the global problem. Given the large number of sources involved, the analysis needs to use the "summary of projections" method to assess the magnitude of the total cumulative impact, not the "list of projects" method. (See CEQA Guidelines Section 15130[b].)

warmed by approximately 1.0ºC compared to a preindustrial baseline, and IPCC projects that continued growth in GHG emissions will cause that warming to reach 1.5 ºC by 2030–2053 if nothing is done to limit it (IPCC 2018).

The analysis therefore focuses on Step Four: determining whether the project's GHG emissions would make a cumulatively considerable contribution to the significant problem of global climate change. As the Supreme Court noted in its *Center for Biological Diversity* decision, the question is "whether the project's incremental addition of greenhouse gases is 'cumulatively considerable' in light of the global problem, and thus significant" (*Center for Biological Diversity v. Department of Fish & Wildlife* [2015] 62 Cal.4th 219). This is the challenge that has faced lead agencies in undertaking the CEQA analysis: how to determine the level at which a project becomes cumulatively considerable.

4 THRESHOLDS FOR LAND USE DEVELOPMENT PROJECTS

4.1 THE SUPREME COURT'S "FAIR SHARE" ANALYSIS AND CONSISTENCY WITH CALIFORNIA'S LONG-TERM CLIMATE GOALS

The crucial question in the CEQA climate impact analysis is whether the project under review would make a cumulatively considerable contribution to the significant cumulative problem of global climate change. For land use development projects, the Air District recommends using the approach endorsed by the California Supreme Court in the *Center for Biological Diversity* decision, discussed above, which focuses on determining whether the project would be doing its "fair share" to implement California's ambitious long-term climate goals. This approach evaluates whether a project's GHG emissions are cumulatively considerable based on "their effect on the state's efforts to meet [those] goals...." (*Center for Biological Diversity v. Department of Fish & Wildlife* [2015] 62 Cal.4th 221.) If a new land use project would serve California's pressing need to provide housing, jobs, and related infrastructure in a manner that supports achieving those climate goals, then it would help to solve the climate change problem, and its GHG emissions should not be treated as cumulatively considerable. As the Supreme Court held, "consistency with meeting [those] statewide goals [is] a permissible significance criterion for project emissions" (*Center for Biological Diversity v. Department of Fish & Wildlife* [2015] 62 Cal.4th 220), and an agency's "choice to use that criterion does not violate CEQA" (*Center for Biological Diversity v. Department of Fish & Wildlife* [2015] 62 Cal.4th 223).

This approach is based on the principle inherent in CEQA that an individual project would make a less-than-cumulatively-considerable contribution if it would do its part to address the cumulative problem. As the Supreme Court explained, "if a plan is in place to address a cumulative problem, a new project's incremental addition to the problem will not be 'cumulatively considerable' if it is consistent with the plan and is doing its fair share to achieve the plan's goals" (*Center for Biological Diversity v. Department of Fish & Wildlife* [2015] 62 Cal.4th 223). No individual project needs to solve the entire cumulative problem by itself. Indeed, no individual project could, given that the problem is the result of such a large number of diverse emission sources. But each individual project does need to do what is required of it to ensure that the overall solution is implemented, and if it does that, then its impact on climate change can be treated as less than cumulatively considerable. As the Supreme Court put it in the climate context, "[t]o the extent a project incorporates efficiency and conservation measures sufficient to contribute its portion of the overall greenhouse gas

reductions necessary [to achieve the State's climate goals], one can reasonably argue that the project's impact is not cumulatively considerable, because it is helping to solve the cumulative problem..." (*Center for Biological Diversity v. Department of Fish & Wildlife* [2015] 62 Cal.4th 220 [internal quotation marks omitted]).

4.2 USING THE EXECUTIVE ORDER B-55-18 AND THE 2045 CARBON NEUTRALITY GOAL IN THE "FAIR SHARE" ANALYSIS

The *Center for Biological Diversity* case was decided in 2015, and it specifically addressed only the Assembly Bill (AB) 32 goal of attaining 1990 emission levels by 2020 statewide, not the longer-term goal for 2045. However, we are now past the 2020 milestone. At this point, the focus has shifted to the longer-term goals and ultimately to carbon neutrality by 2045. Moreover, the Supreme Court has recognized the necessity and appropriateness of using these longer-term goals as the touchstone for the CEQA analysis. As it held in *Cleveland National Forest Foundation v. SANDAG*, these longer-term goals express "what scientific research has determined to be the level of emissions reductions necessary to stabilize the climate by midcentury and thereby avoid catastrophic effects of climate change" (*Cleveland National Forest Foundation v. SANDAG* [2017] 3 Cal.5th 497, 513). They represent "the scientifically-supported level of emissions reduction needed to avoid significant disruption of the climate and [are] used as the long-term driver for state climate change policy development" (*Cleveland National Forest Foundation v. SANDAG* [2017] 3 Cal.5th 497, 513 (citation omitted)[5]).

The consistency analysis approved by the Supreme Court in *Center for Biological Diversity* can be applied to these longer-term goals in the same way it was applied to the AB 32 2020 goal. If a project would be consistent with meeting these long-term State climate goals, then its climate impact can be seen as less than cumulatively considerable "because it is helping to solve the cumulative problem of greenhouse gas emissions as envisioned by California law" (*Center for Biological Diversity v. Department of Fish & Wildlife* [2015] 62 Cal.4th 220 (citation omitted)).

Moreover, although the 2045 goal is set forth in an executive order and not in a statute, as with the 2020 AB 32 goal that the Supreme Court addressed in *Center for Biological Diversity*, the Executive Order B-55-18 goal is appropriate to use for developing a threshold of significance given the science supporting it. The Supreme Court explicitly rejected the argument that an executive order cannot be used for this purpose because it has not been adopted by statute in the *SANDAG* case. It explained that the executive order at issue there "expresses the pace and magnitude of reduction efforts that the scientific community believes is necessary to stabilize the climate. This scientific information has important value to policymakers and citizens in considering the emission impacts of a project..." (*Cleveland National Forest Foundation v. SANDAG* [2017] 3 Cal.5th 515). Agencies are required to design their CEQA analyses "based to the extent possible on scientific and factual data," and if an executive order best embodies the current state of the scientific and factual data, an agency may use it as the basis for its CEQA analysis (*Ibid*. (quoting CEQA Guidelines Section 15064[b]).

[5] These statements were referring to the older Executive Order S-3-05, which included an 80-percent reduction target by 2050, but they apply with equal force to the more recent Executive Order B-55-18.

4.3 DETERMINING A LAND USE PROJECT'S "FAIR SHARE" FOR GETTING TO CARBON NEUTRALITY BY 2045

The "fair share" analysis looks at how a new land use development project needs to be designed and built to ensure that it will be consistent with the goal of carbon neutrality by 2045. This is California's current articulation of what will be required to achieve long-term climate stabilization at a sustainable level, as articulated in Executive Order B-55-18. If a land use project incorporates all of the design elements necessary for it to be carbon neutral by 2045, then it will contribute its portion of what is needed to achieve the State's climate goals and will help to solve the cumulative problem. It can therefore be found to make a less-than-cumulatively-considerable climate impact.

A land use project's "fair share" will not necessarily include everything that will need to happen in order to achieve carbon neutrality by 2045. There will likely be certain aspects of achieving carbon neutrality that are beyond the scope of how a land use project is designed and thus cannot reasonably be allocated to its "fair share." For example, becoming carbon neutral by 2045 will require California's electrical power generators to shift to 100-percent carbon-free energy resources, which is not something that can be controlled through the design of new land use projects. But for those aspects that can be controlled or influenced by how such projects are designed, projects need to address those aspects in order to contribute their "fair share" of what is needed to attain carbon neutrality. If a project is not designed and built to ensure that it can be carbon neutral by 2045, then it will impede California's ability to achieve its long-term climate goals and should be treated as making a cumulatively considerable contribution to global climate change.

To determine the "fair share," the analysis should therefore focus on the design elements that need to be incorporated into the project in order to lay the foundation for achieving carbon neutrality by 2045. As GHG emissions from the land use sector come primarily from building energy use and from transportation, these are the areas that need to be evaluated to ensure that the project can and will be carbon neutral. With respect to building energy use, this can be achieved by replacing natural gas with electric power and by eliminating inefficient or wasteful energy usage. This will support California's transition away from fossil fuel–based energy sources and will bring the project's GHG emissions associated with building energy use down to zero as our electric supply becomes 100 percent carbon free. With respect to transportation, projects need to be designed to reduce project-generated VMT and to provide sufficient electric vehicle (EV) charging infrastructure to support the shift to EVs. As explained below, the Air District recommends using a threshold of a 15-percent reduction in project-generated VMT per capita compared with existing levels (or other, more current percentage to the extent further analysis shows that a different level of reduction is needed) and providing EV charging infrastructure as specified in the California Green Building Standards Code (CALGreen) Tier 2 standards. If a land use project being designed and built today incorporates the design elements necessary for the project to be carbon neutral by 2045, then it will contribute its "fair share" to achieving the State's climate goals. A lead agency can therefore conclude that it will make a less-than-cumulatively-considerable climate impact.

There is no proposed construction-related climate impact threshold at this time. Greenhouse gas emissions from construction represent a very small portion of a project's lifetime GHG emissions. The

proposed thresholds for land use projects are designed to address operational GHG emissions which represent the vast majority of project GHG emissions.

The following sections provide a more detailed discussion of the framework for evaluating the design elements necessary for a project to be consistent with California's long-term climate goals. The Air District recommends that lead agencies use the design elements as the threshold of significance for land use projects under the Supreme Court's "fair share" approach discussed above.

Thresholds for Land Use Projects (Must Include A or B)
A. Projects must include, at a minimum, the following project design elements: 1. Buildings a. The project will not include natural gas appliances or natural gas plumbing (in both residential and nonresidential development). b. The project will not result in any wasteful, inefficient, or unnecessary energy usage as determined by the analysis required under CEQA Section 21100(b)(3) and Section 15126.2(b) of the State CEQA Guidelines. 2. Transportation a. Achieve a reduction in project-generated vehicle miles traveled (VMT) below the regional average consistent with the current version of the California Climate Change Scoping Plan (currently 15 percent) or meet a locally adopted Senate Bill 743 VMT target, reflecting the recommendations provided in the Governor's Office of Planning and Research's Technical Advisory on Evaluating Transportation Impacts in CEQA: i. Residential projects: 15 percent below the existing VMT per capita ii. Office projects: 15 percent below the existing VMT per employee iii. Retail projects: no net increase in existing VMT b. Achieve compliance with off-street electric vehicle requirements in the most recently adopted version of CALGreen Tier 2.
B. Be consistent with a local GHG reduction strategy that meets the criteria under State CEQA Guidelines Section 15183.5(b).

4.3.1 Building Energy Use

Energy used in residential and nonresidential buildings in California comes primarily from natural gas and electricity, the generation and consumption of which can result in GHG emissions. Natural gas usage emits GHGs directly when it is burned for space heating, cooking, hot water heating and similar uses, whereas electricity usage emits GHGs indirectly to the extent that it is generated by burning carbon-based fuels. For the building sector to achieve carbon neutrality, natural gas usage will need to be phased out and replaced with electricity usage, and electrical generation will need to shift to 100-percent carbon-free sources. To support these shifts, new projects need to be built without natural gas and with no inefficient or wasteful energy usage.

ELECTRICITY

Eliminating GHG emissions associated with building electricity usage will be achieved by decarbonizing California's electrical generation infrastructure. California has committed to achieving this goal by 2045 through SB 100, the 100 Percent Clean Energy Act of 2018. SB 100 strengthened the State's Renewables Portfolio Standard (RPS) by requiring that 60 percent of all electricity provided to retail users in California come from renewable sources by 2030 and that 100 percent come from carbon-free sources by 2045.

The land use sector will benefit from RPS because the electricity used in buildings will be increasingly carbon-free, but implementation does not depend (directly at least) on how buildings are designed and built. RPS will be implemented by the generators that produce and sell the electricity, not by the end users of that electricity. Implementing SB 100 is therefore not part of the "fair share" that falls to land use development projects to ensure that California reaches its 2045 carbon neutrality target.

Nevertheless, land use projects do have an important role to play on the demand side to ensure that SB 100 can feasibly be implemented. Inefficient electricity usage will hinder the shift to renewable power generation by requiring additional carbon-free generating resources to be developed, increasing the cost of shifting to renewables and other carbon-free energy sources, and delaying full implementation longer than necessary. Thus, to the extent that new land use projects have a role to play in ensuring that SB 100 is successfully implemented, that role is to maximize the efficiency with which they use electricity and to eliminate any wasteful or unnecessary usage. If a new land use project maximizes efficiency and eliminates wasteful and unnecessary usage, then it will implement its "fair share" in this area, consistent with achieving the State's long-term climate goals. Conversely, if a project is not designed to use electricity in an efficient manner, then it will hinder the successful implementation of SB 100 and the State's long-term climate goals.

CEQA requires lead agencies to evaluate a project's potential for wasteful, inefficient, or unnecessary energy usage under CEQA Section 21100(b)(3) and Section 15126.2(b) of the State CEQA Guidelines, along with State CEQA Guidelines Appendix F and Appendix G, Section VI. The Air District recommends using the results of this analysis to determine whether the project will implement its "fair share" with respect to supporting the implementation of SB 100. If the energy analysis required under CEQA Section 21100(b)(3) shows that a project will not result in any wasteful, inefficient, or unnecessary electrical usage, then it will be consistent with implementing SB 100 and will not make a cumulatively considerable climate impact with respect to building electrical usage. If the project is found to involve wasteful, inefficient, or unnecessary electrical usage, then the lead agency should conclude that it will make a cumulatively considerable impact and treat it as significant in this regard.

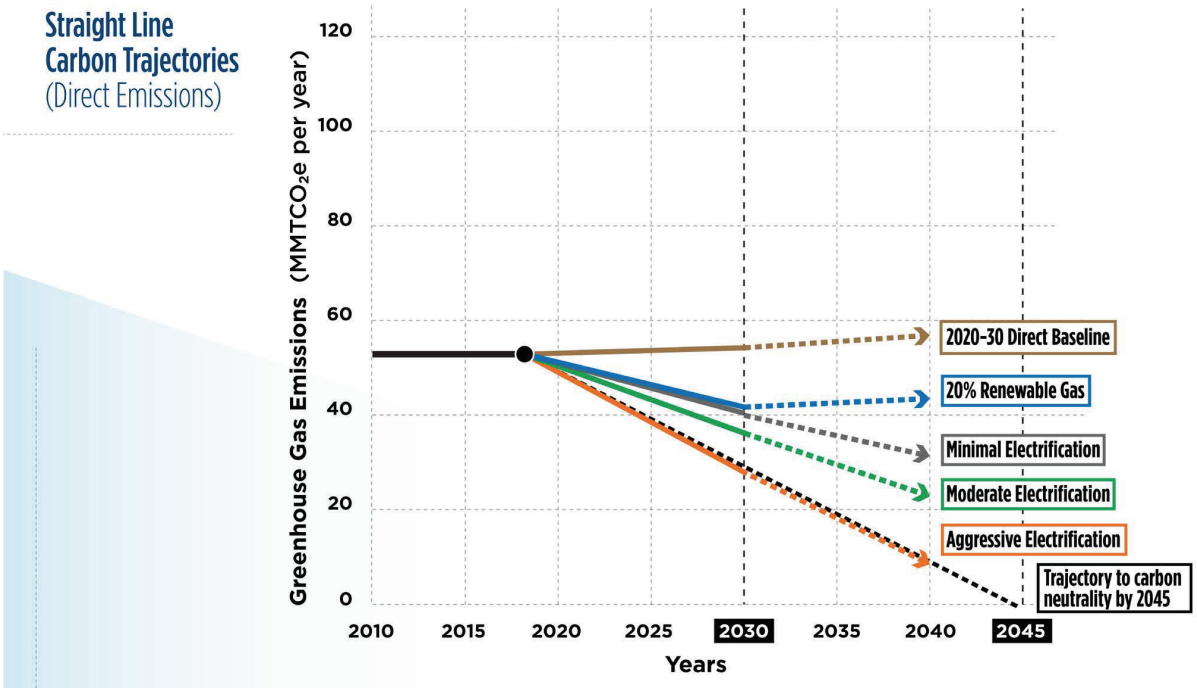
NATURAL GAS

Regarding natural gas usage, new land use development projects must be built without any natural gas infrastructure in order to be consistent with achieving the 2045 carbon neutrality goal. There is no practical way to eliminate the GHG emissions that are generated by burning natural gas, so the land use sector will need to fully eliminate natural gas usage in buildings in order to achieve the goal of carbon neutrality. Given the difficulty of retrofitting existing buildings to replace the use of natural gas with the use of electricity, California needs to stop building natural gas infrastructure in new buildings if it is going to be able to achieve full

electrification by the 2045 target date. Retrofitting an existing building to replace natural gas infrastructure with electrical service is far more difficult and expensive than simply building a new all-electric building (CEC 2021a; E3 2019). For California to successfully eliminate natural gas usage by 2045, it will need to focus available resources on retrofitting existing natural gas infrastructure. This task will become virtually impossible if we continue to build more natural gas infrastructure that will also need to be retrofit within the next few years.

This need to eliminate natural gas in new projects in order to achieve carbon neutrality in buildings by 2045 is demonstrated by analyses conducted by the California Energy Commission (CEC) in its California Building Decarbonization Assessment (CEC 2021a). CEC published the California Building Decarbonization Assessment primarily in response to the requirements of AB 3232, which required CEC to evaluate how the State can reduce GHG emissions from its residential and commercial building stock by at least 40 percent below 1990 levels by 2030. But CEC went beyond just analyzing that 2030 goal and evaluated what will be necessary to achieve the longer-term goal of carbon neutrality by 2045. The analysis considered a number of different scenarios and projected the total GHG emissions from residential and commercial buildings under each of them. The results of CEC's analysis are shown graphically in Figure 1.

Figure 1 Effectiveness of CEC-Modeled Electrification Scenarios at Achieving Carbon Neutrality by 2045



Source: CEC 2021a:14

The CEC's analysis shows that only the most aggressive electrification scenario will put the building sector on track to reach carbon neutrality by 2045. Anything that hinders such aggressive efforts will jeopardize California's chances of achieving full building decarbonization by 2045 and impair the state's ability to reach its long-term climate goals. Installing natural gas infrastructure in new buildings will do so because it will add even more infrastructure that will need to be retrofit with electricity between now and 2045. New projects therefore need to eliminate natural gas in order to implement their "fair share" of achieving the long-term 2045 carbon neutrality goal. If a project does not use natural gas in its buildings, then a lead agency can conclude that it is consistent with achieving the 2045 carbon neutrality goal and will not have a cumulatively considerable impact on climate change. If a project does use natural gas, then it will hinder California's ability to decarbonize its building sector. In that case, the lead agency should conclude that it will make a cumulatively considerable impact and treat it as significant.

4.3.2 Transportation

The second principal source of GHG emissions associated with land use comes from transportation. Decarbonization of the transportation infrastructure serving land use development will come from shifting the motor vehicle fleet to EVs, coupled with a shift to carbon-free electricity to power those vehicles. Land use projects cannot directly control whether and how fast these shifts are implemented, but they can and do have an important indirect influence on California's transition to a zero-carbon transportation system.

New land use development can influence transportation-related emissions in two areas related to how it is designed and built. First, new land use projects need to provide sufficient EV charging infrastructure to serve the needs of project users who will be driving EVs. If project users cannot find the charging infrastructure they need to charge their vehicles at the residential, commercial, and other buildings they frequent, they will be discouraged from switching to an EV. But if those buildings provide sufficient charging infrastructure to make driving an EV easy and efficient, then users will find it easy to choose to drive an EV, and the rate of EV penetration will be accelerated. It is therefore very important for land use projects to provide the EV charging infrastructure needed to support growing EV usage.

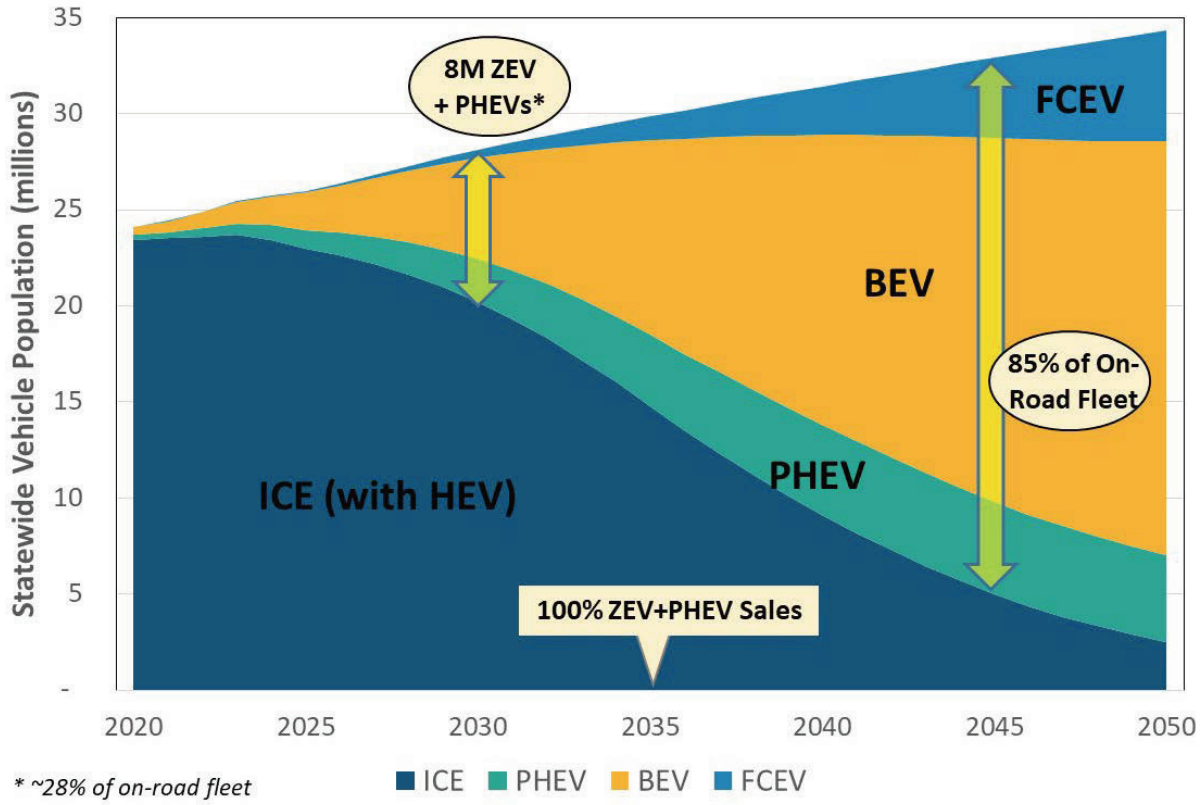
Second, new land use projects can influence transportation-related GHG emissions by reducing the amount of VMT associated with the project. Motor vehicle transportation does not need to be eliminated entirely in order for the land use sector to achieve carbon neutrality, as carbon-free vehicle technology can be used (e.g., EVs powered by carbon-free electricity sources). But for that goal to be realistically implemented by 2045, California will need to reduce its per-capita VMT. How land use development is designed and sited can have a significant influence on how much VMT the project will generate. New land use projects need to provide alternatives to motor vehicle–based transportation such that VMT per capita can be reduced to levels consistent with achieving carbon neutrality by 2045.

The design elements that new land use projects need to incorporate to address these two areas are outlined below.

EV CHARGING INFRASTRUCTURE

To implement the decarbonization of California's motor vehicle transportation, the California Air Resources Board (CARB) has adopted a comprehensive Mobile Source Strategy incorporating a suite of policies to promote the shift away from fossil fuel–powered vehicles (CARB 2021b). These policies include aggressive targets for EV penetration, including Executive Order B-16-12's goal of 1.5 million zero-emission vehicles (ZEVs) on the road by 2025 and Executive Order N-79-20's call for all new light-duty vehicles sold in California to be battery electric or plug-in hybrid by 2035. CARB's modeling projects that these efforts will result in as many as 8 million light-duty EVs in the statewide fleet by 2030 and that 85 percent of the on-road fleet will be EVs by 2045 (CARB 2021b:94–95). The results of CARB's modeling for its 2020 Mobile Source Strategy scenario are shown in Figure 2, below.

Figure 2 Statewide Light-Duty Vehicle Technology Penetration in the On-Road Fleet



Source: CARB 2021b

Notes: BEV = battery electric vehicle; FCEV = fuel cell electric vehicle; HEV = hybrid electric vehicle; ICE = internal combustion engine vehicle; PHEV = plug-in electric vehicle; ZEV = zero emission vehicle.

Implementing this widespread shift to EVs will require the installation of extensive EV charging infrastructure, and new development will need to provide its "fair share" of that infrastructure. Indeed, new development has an especially important role to play, as installing EV charging infrastructure in new buildings is far less expensive than retrofitting existing buildings. CARB has found that installing EV charging infrastructure in a new building can save an estimated $7,000–$8,000 per parking space compared with retrofitting it later (CARB 2019a:19).

The requirements for EV charging infrastructure in new land use development projects are governed by the CALGreen regulatory standards. These standards are set forth in Title 24 of the California Code of Regulations, and they are regularly updated on a 3-year cycle. The CALGreen standards consist of a set of mandatory standards that are legally required for new development, as well as two more aggressive sets of voluntary standards known as Tier 1 and Tier 2. Although the Tier 1 and Tier 2 standards are voluntary, they often form the basis of future mandatory standards adopted in subsequent updates.

The CalGreen standards have recently been updated (2022 version) and will be in effect from January 1, 2023, through December 31, 2025. The 2022 CALGreen standards seek to deploy additional EV chargers in various building types, including multifamily residential and nonresidential land uses. They include requirements for both EV capable parking spaces and the installation of Level 2 EV supply equipment for multifamily residential and nonresidential buildings. The 2022 CALGreen standards go beyond previous iterations and include requirements for both EV readiness and the actual installation of EV chargers. As with previous iterations, the 2022 CALGreen standards include both mandatory requirements and more aggressive voluntary Tier 1 and Tier 2 provisions.

The 2022 CALGreen mandatory standards were adopted based on what will be required to serve anticipated EV charging demand through the year 2025. CARB evaluated what will be required to serve demand through 2025 as part of its role in ensuring that the CALGreen standards support California's long-range climate goals pursuant to AB 341 (Health and Safety Code Section 18930.5[b]). CARB suggested a number of necessary revisions for the 2022 iteration of the standards, including an increase in the percent of parking spaces in certain types of projects that must be EV-capable from the earlier 6 percent to the current 10 percent. These revisions were based on CARB's assessment of the level of EV infrastructure that will be required to support the Executive Order B-16-12 target of 1.5 million ZEVs on the road by 2025. CARB conducted this analysis in 2019 using the Electric Vehicle Infrastructure Projection model (EVI-Pro) developed by the National Renewable Energy Laboratory and the California Energy Commission. Using EVI-Pro, CARB projected the amount of EV charging infrastructure required by 2025 and then calculated the amount of infrastructure expected by 2025 under existing mandatory codes and standards. The results of this analysis showed a gap between what would be achieved under existing codes and standards and what will be needed as of 2025 (CARB 2019a). The revised 2022 CALGreen mandatory standards adopted for the current 2023–2025 cycle are intended to close this gap and ensure that the charging infrastructure needs of 2025 will be met.

However, providing EV charging infrastructure to meet expected demand as of 2025 will not be sufficient to support the much more extensive level of EV penetration anticipated farther into the future. As shown in Figure 2, the number of EVs on the road is projected to grow exponentially, and the demand for EV charging infrastructure will increase accordingly. If a project provides only enough infrastructure to satisfy 2025 demand, it will fall well short of what project users will need as the State progresses toward 2045. The Air District therefore recommends using the more aggressive Tier 2 CALGreen standards to evaluate whether new land use development projects will provide their "fair share" of EV charging infrastructure. This approach is also consistent with CARB's assessment that the Tier 2 standards will need to be made mandatory in CALGreen to support the exponential increase in EV adoption rates as we move past 2025 (CARB 2019a:16).

Looking toward a post-2025 horizon is also appropriate because land use development projects have a long lifetime and will be in use in future years when extensive EV penetration is projected. To be consistent with implementing California's 2045 climate goals, such projects cannot simply provide a level of infrastructure aimed at 2025 levels of EV use, as is reflected in the current CALGreen mandatory standards. A new land use development project will need to implement the more aggressive Tier 2 CALGreen standard for its impact to be less than significant in this area.

VEHICLE MILES TRAVELED

With respect to VMT, CARB studies have shown that California will not be able to achieve its long-term climate goals if we continue our current high level of VMT per capita. The State will need to significantly reduce its VMT per capita in order to attain the goal of carbon neutrality by 2045 (CARB 2021b:105–126). New land use projects have an important role to play in doing so, as the way a project is sited and designed can significantly affect how the people who use the project will get around. For example, project siting and design can affect whether project users will be forced into making long car trips on a regular basis or whether they will be able to take advantage of alternative transportation options for their daily travel needs. New land use projects will need to be built with reduced levels of VMT per capita in order to implement their "fair share" of what it will take to eliminate GHG emissions from the transportation sector.

CARB has developed an analytical methodology for determining the level of VMT reduction that will be necessary to achieve California's long-term GHG emissions goals. This methodology calculates the total statewide VMT that California can accommodate and still hit its emissions targets and then divides that total statewide VMT by the State's projected population as of the target year. This calculation gives the amount of VMT per capita that the State can accommodate consistent with achieving the target. CARB's methodology then compares this targeted VMT-per-capita number with current VMT per capita to establish the reduction from current baseline levels necessary in order to hit the target.

CARB developed this methodology in conjunction with the VMT-per-capita threshold that the Governor's Office of Planning and Research (OPR) adopted for evaluating transportation impacts pursuant to SB 743 (see CEQA Guidelines Section 15064.3). SB 743 required lead agencies to abandon the old "level of service" metric for evaluating a project's transportation impacts, which was based solely on the amount of delay experienced by motor vehicles. This metric was criticized for prioritizing motor vehicle transportation and disincentivizing alternative modes, such as public transit, walking, and biking. SB 743 tasked OPR with developing an alternative metric to assess transportation impacts, and it directed OPR to base its alternative metric on factors such as reducing GHG emissions and developing multimodal transportation networks (CEQA Section 21099[b][1]). OPR concluded that the VMT-per-capita metric was the most appropriate for this purpose, and it published new Guidelines Section 15064.3 in November 2017.

CARB applied its methodology in support of OPR's VMT-per-capita metric to determine the appropriate level of VMT reduction that would allow the State to attain its long-term emissions goals, looking initially to the 2050 long-term target of an 80-percent reduction in GHG emissions compared to 1990 levels (CARB 2019b). CARB found that total statewide VMT would need to be limited to 1,035 million miles driven per day in order to achieve that target, consisting of 908 million light-duty-vehicle miles and 127 million heavy-duty-vehicle miles.

With the State's population projected to grow to 49 million people by 2050, this works out to a per-capita VMT of 18.51 miles per day for light-duty vehicles and 21.09 miles per day for all vehicle types combined.[6] Given current baseline per-capita VMT levels of 22.24 miles per day for light-duty vehicles and 24.61 miles per day for all vehicle types, the reductions needed to achieve the 2050 goal are 16.8 percent for light-duty vehicles and 14.3 percent for all vehicle types combined. CARB's calculations are summarized in Table B-1.

Table B-1 Per-Capita VMT Reductions Necessary to Attain 2050 GHG Reduction Target

	Light-Duty Vehicles	All Vehicle Types
Baseline VMT/capita	22.24 miles per day	24.61 miles per day
2050 VMT/capita	18.5 miles per day	21.09 miles per day
Reduction needed	**16.8%**	**14.3%**

Based on this analysis (as well as other factors), OPR recommended using a 15-percent reduction in per-capita VMT as an appropriate threshold of significance for evaluating transportation impacts, as this level of VMT addresses transportation and corresponds to what would be needed to attain the State's 2050 climate target (OPR 2018).[7]

CARB is currently updating this analysis for the 2045 carbon neutrality target in connection with its 2022 Scoping Plan Update. Although that work is ongoing and CARB has not finalized its revised analysis, CARB has suggested that it will use the same 15-percent-per-capita VMT reduction threshold that it derived in connection with the 2050 target. Specifically, in October 2021, CARB updated its Mobile Source Strategy, an important constituent of the Scoping Plan, using the same 15-percent reduction target as used in previous plans (CARB 2021b:105). The Air District therefore recommends that lead agencies use OPR's 15-percent per-capita VMT reduction threshold for evaluating land use projects (OPR 2018). Alternatively, to the extent CARB determines that a different threshold would be more appropriate for purposes of the 2045 carbon neutrality target in connection with its work on the 2022 Scoping Plan Update, lead agencies should use that 2045-specific threshold instead. If a land use project is designed and built so that its associated VMT per capita is reduced to the extent determined to be necessary by CARB, then it will implement its "fair share" of the VMT reductions needed to attain the State's long-term climate goals and can be found to have a less-than-significant climate impact.

Finally, it is worth noting that some local jurisdictions may have developed their own VMT-per-capita thresholds for use in CEQA transportation analyses pursuant to SB 743. If such a jurisdiction-specific VMT-per-capita threshold is available and applicable, the Air District recommends that lead agencies use it in their climate impact analyses, provided that it was established based on what it will take to achieve California's long-term climate goals in a manner akin to the analysis outlined above. If an SB 743 transportation threshold is not established at a level commensurate with achieving those climate goals, then it would not be appropriate to use it to evaluate climate impacts. But if it is based on the level of VMT necessary for the local jurisdiction to attain climate neutrality by 2045, then a lead agency can use it to

6 Statewide population projections are provided by the California Department of Finance, and VMT projections are provided by CARB's scenario planning tool, Vision (CARB 2019b:5).

7 The 15-percent reduction is compared to existing VMT per capita measured as either regional VMT per capita or city VMT per capita (OPR 2018:15).

evaluate whether a project is doing its "fair share" with respect to ensuring that VMT is reduced sufficient to achieve the State's climate goals.

OPR has provided guidance to local jurisdictions on choosing appropriate local VMT reduction thresholds in its Technical Advisory on Evaluating Transportation Impacts in CEQA (OPR 2018). The advisory contains technical recommendations regarding assessment of VMT, thresholds of significance, and mitigation measures. It specifies recommended thresholds of significance for residential, office, and retail projects, which are reflected in the "Thresholds for Land Use Projects" section on page B-10 of this document. These types of projects reflect the vast majority of land use projects implemented in the Bay Area. For other types of projects, lead agencies should follow the guidance provided in the OPR advisory. OPR may update or supplement this advisory in the future in response to new information and advancements in modeling and methods, so lead agencies should continue to track the development of the advisory and always use the most recent version.

5 THRESHOLDS FOR GENERAL PLANS AND SIMILAR LONG-TERM COMMUNITY-WIDE PLANNING DOCUMENTS

Local governments are essential partners in achieving California's goal to reduce GHG emissions. Local governments not only approve specific land use development projects but have primary authority to plan for and zone how and where land is developed within their jurisdiction to accommodate population growth and the changing needs of their communities. CEQA also applies to these planning decisions, and local governments are required to evaluate the climate impacts when adopting such plans.

Thresholds for Plans (Must Include A or B)
A. Meet the State's goals to reduce emissions to 40 percent below 1990 levels by 2030 and carbon neutrality by 2045; or
B. Be consistent with a local GHG reduction strategy that meets the criteria under State CEQA Guidelines Section 15183.5(b).

5.1 REDUCING GHG EMISSIONS TO MEET GHG REDUCTION TARGETS

For long-term communitywide planning documents (e.g., general plans, long-range development plans, climate action plans) to have a less-than-significant climate impact, they must demonstrate that GHG emissions from the jurisdiction will decline consistent with California's GHG reduction targets of 40 percent below 1990 levels by 2030 and carbon neutrality by 2045. A city or county that plans to develop in a manner that will cause emissions to exceed these targets will hinder the State's ability to achieve its climate goals and thus will have a significant climate impact. Conversely, a city or county that will develop in a way that will meet those targets will support the State's ability to achieve its climate goals and thus will have a less-than-significant impact on GHG emissions. Therefore, a communitywide long-term plan must demonstrate that the community will have GHG emissions 40 percent below its 1990 levels by 2030 and support the State's goal of carbon neutrality by 2045.

5.2 CLIMATE ACTION PLANS

The Air District encourages local jurisdictions to develop climate action plans as a means of demonstrating that their communities—including existing and new buildings and infrastructure—will develop in accordance with meeting the statewide GHG reduction targets. A robust climate action plan identifies a land use design, a transportation network, goals, policies, and implementation measures that will achieve the required GHG emissions targets of 40 percent below 1990 levels by 2030 and support the State's goal of achieving carbon neutrality by 2045. If a jurisdiction adopts such a climate action plan, it can then use that plan when it adopts its general plan updates and similar long-range planning documents to provide the basis for demonstrating that the jurisdiction's GHG emissions will decline consistent with the State's 2030 and 2045 targets. This demonstration will allow the jurisdiction to make the required CEQA determination that its general plan and similar planning documents will not have a significant climate impact, as discussed in Section 5.1, above.

Furthermore, a robust climate action plan developed and adopted in accordance with the requirements for a "plan for the reduction of greenhouse gas emissions" set forth in CEQA Guidelines Section 15183.5 will provide additional benefits related to approving specific development projects. Guidelines Section 15183.5(b)(2) provides that if a jurisdiction has adopted a climate action plan that satisfies all of the Section 15183.5 requirements, the jurisdiction can find that a project that is consistent with the plan will not make a cumulatively considerable contribution to global climate change under CEQA. Adopting a climate action plan with requirements and implementation measures governing specific types of projects—and what those projects must do to ensure that the jurisdiction's GHG emissions achieve the required targets—can provide a great deal of certainty for project applicants and agency decision makers. A proposed project that complies with all the specified requirements and implementation measures will not be found to be significant under Guidelines Section 15183.5(b)(2). Local jurisdictions also will be able to tailor the applicable requirements and mitigation measures to their specific communities rather than rely on the Air District's general thresholds for evaluating land use projects, discussed in Section 4, above.

CEQA Guidelines Section 15183.5(b)(1) lays out the specific criteria to be included in local GHG reduction strategies that can enable CEQA streamlining benefits for future land use projects. Such plans must:

- quantify GHG emissions, both existing and projected over a specified period, resulting from activities in a defined geographic area;
- establish a level, based on substantial evidence, below which the contribution to GHG emissions from activities covered by the plan would not be cumulatively considerable;
- identify and analyze the GHG emissions resulting from specific actions or categories of actions anticipated in the geographic area;
- specify measures or a group of measures, including performance standards, that substantial evidence demonstrates, if implemented on a project-by-project basis, would collectively achieve the specified emissions level;

- establish a mechanism to monitor the plan's progress toward achieving the level and to require amendment if the plan is not achieving specified levels; and
- be adopted in a public process following environmental review.

These requirements are somewhat vague in some cases, and the Air District cautions jurisdictions developing climate action plans to take care that their plans are comprehensive and fully satisfy the letter and the spirit of the Section 15183.5 process. Climate action plans that do not satisfy all of these required elements will not be eligible for use in approving later projects under Guidelines Section 15183.5(b)(2), and they will not provide the substantial evidence necessary to demonstrate that the jurisdiction's general plan updates and related long-range planning documents will have a less-than-significant impact as outlined in Section 5.1.

The Air District has published guidance on how a jurisdiction can develop a climate action plan that satisfies the requirements of Guidelines Section 15183.5(b)(1), which is included as Appendix C to the CEQA Air Quality Guidelines document. Jurisdictions developing climate action plans should refer to and follow that guidance to strengthen their plan's ability to comply with all Section 15183.5(b)(1) requirements and allow it to be used to evaluate climate impacts under Section 15183.5(b)(2).

The Air District strongly encourages jurisdictions to adopt local GHG reduction strategies—either as a stand-alone climate action or sustainability plans or as a part of the general plan—that meet the Section 15183.5(b)(1) criteria. Adopting a robust GHG reduction strategy that satisfies these requirements can bring many benefits to the community:

- It will identify measures that the city or county will need to take to ensure that its GHG emissions will be consistent with the statewide climate protection targets, that the jurisdiction can then use to make the consistency determination for its general plan updates.
- The city or county will be able to use the Section 15183.5(b)(1)–compliant GHG reduction strategy to approve specific land use development projects that are consistent with the strategy. This will provide a method for analyzing projects under CEQA that is tailored to the specific needs and policy goals of the individual jurisdiction, and it will allow the city or county to use that tailored methodology instead of the more general thresholds approach developed by the Air District for use regionwide.
- Cities and counties can develop Section 15183.5(b)(1) GHG reduction strategies immediately, without waiting for their next general plan update cycle.

This approach to local climate planning, tied to the SB 32 and carbon neutrality goals, promotes reductions on a plan level without impeding the implementation of GHG-efficient development, and recognizes the initiative of many Bay Area communities that have already developed or are developing a GHG reduction plan. A qualified climate action plan will provide the evidentiary basis for making CEQA findings that development consistent with the plan will result in feasible, measurable, and verifiable GHG reductions consistent with broad State goals such that projects approved under the plan will achieve their "fair share" of GHG emission reductions.

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Fully Protected Animals

On this page

- Introduction
- Fish
- Amphibians
- Reptiles
- Birds
- Mammals

The classification of fully protected was California's initial effort in the 1960s to identify and provide additional protection to those animals that were rare or faced possible extinction. Lists were created for fish, amphibians, reptiles, birds, and mammals. Most fully protected species have also been listed as threatened or endangered species under the more recent California Endangered Species Act.

Fully protected species may not be taken or possessed except with authorization from CDFW and only under specific circumstances. CDFW may authorize take of fully protected species for necessary scientific research, including efforts to recovery fully protected or CESA-listed species, relocation of a fully protected bird species for the protection of livestock, or if the fully protected species is listed as a covered species whose conservation and management is provided for in a Natural Community Conservation Plan (NCCP).

CDFW may authorize take of fully protected species that is incidental to a project only for the five types of projects listed below. If you think CDFW may be able to authorize take of fully protected species for your project or activity, please reach out to your regional CDFW office to discuss your project before applying for take authorization.

- 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.

The following species are fully protected. Their common and scientific names listed are from Fish and Game Code Sections 3511, 4700, 5050, and 5515. However, some of these names are no longer consistent with current scientific nomenclature.

Fishes

Common Name	**Scientific Name**
Colorado pikeminnow (formerly Colorado River squawfish)	*Ptychocheilus lucius*
Mohave tui chub (formerly Mohave chub)	*Siphateles bicolor mohavenisis* (formerly *Gila mohavensis*)
Lost River sucker	*Deltistes luxatus* and *Catostomus luxatus*
Modoc sucker	*Catostomus microps*
shortnose sucker	*Chasmistes brevirostris*
razorback sucker (formerly humpback sucker)	*Xyrauchen texanus*
Owens pupfish (formerly Owens river pupfish)	*Cyprinodon radiosus*
unarmored threespine stickleback	*Gasterosteus aculeatus williamsoni*

Common Name	Scientific Name
rough sculpin	*Cottus asperrimus*

Amphibians

Common Name	Scientific Name
Santa Cruz long-toed salamander	*Ambystoma macrodactylum croceum*
limestone salamander	*Hydromantes brunus*
black toad	*Bufo boreas exsul*

Reptiles

Common Name	Scientific Name
blunt-nosed leopard lizard	*Gambelia sila*
San Francisco garter snake	*Thamnophis sirtalis tetrataenia*

Birds

Common Name	Scientific Name
California black rail	*Laterallus jamaicensis coturniculus*
California Ridgway's rail (formerly California clapper rail)	*Rallus longirostris obsoletus*
California condor	*Gymnogyps califonianus*
California least tern	*Sterna albifrons browni*

Common Name	Scientific Name
golden eagle	*Aquila chrysaetos*
greater sandhill crane	*Grus candadensis tabida*
light-footed Ridgway's rail (formerly light-footed clapper rail)	*Rallus longirostris levipes*
southern bald eagle	*Haliaeetus leucocephalus leucocephalus*
trumpeter swan	*Cygnus buccinator*
white-tailed kite	*Elanus leucurus*
Yuma Ridgway's rail (formerly Yuma clapper rail)	*Rallus longirostris yumanensis*

Mammals

Common Name	Scientific Name
Morro Bay kangaroo rat	*Dipodomys heermanni morroensis*
bighorn sheep	*Ovis canadensis* - except Nelson bighorn sheep (ssp. *Ovis canadensis nelsoni*) in the area described in subdivision (b) of Section 4902 (Fish and Game Code)
northern elephant seal	*Mirounga angustirostris*
Guadalupe fur seal	*Arctocephalus townsendi*
ringtail	genus *Bassariscus*
Pacific right whale	*Eubalanea sieboldi*
salt-marsh harvest mouse	*Reithrodontomys raviventris*
southern sea otter	*Enhydra lutris nereis*

Common Name	Scientific Name
wolverine	*Gulo luscus*

Habitat Conservation Planning Branch
P.O. Box 944209, Sacramento, CA 94244-2090
HCPB@wildlife.ca.gov

“M”

CA Dept. of Fish & Wildlife
Letter Dated November 15, 2024

E&P Technology Way – Buildings A & B Use Permits
(P22-00307 / P22-00308)
Planning Commission Hearing Date December 3, 2025

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State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
Bay Delta Region
2825 Cordelia Road
Fairfield, CA 94534
(707) 428-2002
www.wildlife.ca.gov

GAVIN NEWSOM, Governor
CHARLTON H. BONHAM, Director

November 15, 2024

Sean Trippi, Supervising Planner
Napa County Planning, Building, and Environmental Services
1195 Third Street, Suite 210
Napa, CA 94559
Sean.Trippi@countyofnapa.org

Subject: E&P Technology Way - Building A & B Use Permit #'s P22-00307-UP and P22-00308-UP (APN's: 057-250-030, -031, -032), Initial Study/Mitigated Negative Declaration, SCH No. 2024100855, Napa County

Dear Mr. Trippi:

The California Department of Fish and Wildlife (CDFW) received an Initial Study/Mitigated Negative Declaration (IS/MND) from Napa County (County) for the E&P Technology Way - Building A & B Use Permit #'s P22-00307-UP and P22-00308-UP (APN's: 057-250-030, -031, -032) (Project) pursuant the California Environmental Quality Act (CEQA) and CEQA Guidelines.

CDFW is submitting comments on the IS/MND to inform the County, as the Lead Agency, of potentially significant impacts to biological resources associated with the Project.

CDFW ROLE

CDFW is a **Trustee Agency** with responsibility under CEQA pursuant to CEQA Guidelines section 15386 for commenting on projects that could impact fish, plant, and wildlife resources. CDFW is also considered a **Responsible Agency** if a project would require discretionary approval, such as permits issued under the California Endangered Species Act (CESA), the Lake and Streambed Alteration (LSA) Agreement, or other provisions of the Fish and Game Code that afford protection to the state's fish and wildlife trust resources.

PROJECT DESCRIPTION SUMMARY

Proponent: Mike Kelly

Objective: The Project is limited to the development of a 143,312 square-foot wine production facility (Building A) and a 66,915 square-foot warehouse (Building B). The winery uses will include grape crushing, bulk wine processing and storage, stainless steel tank and barrel storage, bottling, and office space. In addition, approximately 13,000 square feet of covered outdoor work area will be located on the north side of the

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building. The Project also includes 129 parking spaces and 8 spaces for semi-trailers. Access will be provided by three new driveways: one on Technology Way and two on Morris Court.

Building B is limited to warehouse uses within the proposed 66,915 square-foot building. All vehicles will enter from a new access driveway on Technology Way that runs along the eastern property line. Trucks will be able to circulate around the building in a one-way loop, exiting at a second driveway on Technology Way on the west side of the building. The entrance driveway will be wide enough to accommodate two-way traffic.

Location: The Project is located on three parcels comprising two sites: Building A is proposed on a 13.2-acre parcel on the north side of Technology Way and Morris Court (APN 057-250-030), at approximately 38.22753°N and -122.26939°W; and Building B is proposed on a 6.87-acre site on the north side of Technology Way, opposite Gateway Road West (APN's 057-250-031, -032, to be combined), at approximately 38.22677°N, -122.26638°W. A conservation easement runs along the north and northeast boundary of the Project site which includes a meandering path along the south side of Sheehy Creek.

REGULATORY REQUIREMENT

California Endangered Species Act

Please be advised that a CESA Incidental Take Permit (ITP) must be obtained if the Project has the potential to result in "take" of plants or animals listed or candidate species under CESA either during construction or over the life of the Project. **The Project has the potential to impact Swainson's hawk (*Buteo swainsoni*), CESA listed as threatened species. Thank you for including mitigation measures for Swainson's hawk. Please be advised that the California Natural Diversity Database (CNDDB) documents a nesting Swainson's hawk record in year 2021 approximately 300 feet north of the Project site. Swainson's hawks often utilize the same nests sites from year to year, therefore there is a high potential for nesting Swainson's hawk to be impacted by the Project during nesting season, warranting an ITP. The Project also has the potential to impact burrowing owl (*Athene cunicularia*), a CESA candidate species, as further described below.** Issuance of an ITP is subject to CEQA documentation; the CEQA document must specify impacts, mitigation measures, and a mitigation monitoring and reporting program. If the Project will impact CESA listed species, early consultation is encouraged, as significant modification to the Project and mitigation measures may be required in order to obtain an ITP.

CEQA requires a Mandatory Finding of Significance if a project is likely to substantially restrict the range or reduce the population of a threatened or endangered species. (Pub.

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Resources Code, §§ 21001, subd. (c) & 21083; CEQA Guidelines, §§ 15380, 15064, & 15065.). Impacts must be avoided or mitigated to less-than-significant levels unless the CEQA Lead Agency makes and supports Findings of Overriding Consideration (FOC). The CEQA Lead Agency's FOC does not eliminate the Project proponent's obligation to comply with CESA.

Raptors and Other Nesting Birds

CDFW has jurisdiction over actions that may result in the disturbance or destruction of active nest sites or the unauthorized take of birds. Fish and Game Code sections protecting birds, their eggs, and nests include sections 3503 (regarding unlawful take, possession or needless destruction of the nests or eggs of any bird), 3503.5 (regarding the take, possession or destruction of any birds-of-prey or their nests or eggs), and 3513 (regarding unlawful take of any migratory nongame bird). Migratory birds are also protected under the federal Migratory Bird Treaty Act.

COMMENTS AND RECOMMENDATIONS

CDFW offers the comments and recommendations below to assist the County in adequately identifying and/or mitigating the Project's significant, or potentially significant, direct and indirect impacts on fish and wildlife (biological) resources. Based on the Project's avoidance of significant impacts on biological resources with implementation of mitigation measures, including those CDFW recommends below and included in **Attachment 1** Draft Mitigation Monitoring and Reporting Program, CDFW concludes that an MND is appropriate for the Project.

I. Mitigation Measure and Related Impact Shortcoming

MANDATORY FINDING OF SIGNIFICANCE. Does the Project have potential to substantially reduce the number or restrict the range of an endangered, rare, or threatened species?

COMMENT 1: Burrowing Owl

Issue: Thank you for including in the IS/MND mitigation measures for burrowing owl (BUOW). However, the language in the IS/MND and the Biological Resources Analysis does not reflect the recent status change of BUOW to a CESA candidate species, and Mitigation Measure (MM) BIO-6 does not stipulate whether the Project would obtain a CESA ITP if take of BUOW may occur. Take of CESA candidate species is prohibited without a CESA take authorization from CDFW, typically an ITP. CNDDB documents a wintering BUOW record approximately 1,100 feet northeast of the Project site, within the area of potential Project disturbance.

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Recommended mitigation measure: To reduce potential impacts to BUOW to less-than-significant and comply with CESA, CDFW recommends adding the following requirements to MM BIO-6.

> Mitigation Measure BIO-6 (Burrowing Owl Habitat Assessment and Surveys): If take of burrowing owl (BUOW) cannot be avoided, the Project shall consult with CDFW pursuant to CESA and obtain an ITP before Project activities commence. Take is likely to occur and the Project shall obtain an ITP if: 1) BUOW surveys of the Project site detect BUOW occupancy of burrows or burrow surrogates, or 2) there is sign of BUOW occupancy on the Project site within the past three years and habitat has not had any substantial change that would make it no longer suitable within the past three years. Occupancy means a site that is assumed occupied if at least one BUOW has been observed occupying a burrow or burrow surrogate within the last three years. Occupancy of suitable BUOW habitat may also be indicated by BUOW sign including its molted feathers, cast pellets, prey remains, eggshell fragments, or excrement at or near a burrow entrance or perch site. If BUOW, or their burrows or burrow surrogates, are detected within 500 meters (1,640 feet) of the Project site during BUOW surveys, but not on the Project site, the Project shall consult with CDFW to determine if avoidance is feasible, or an ITP is warranted and shall obtain an ITP if deemed necessary by CDFW.

II. Editorial Comment

COMMENT 2: California Endangered Species Act Incidental Take Permit

Issue: The IS/MND Page 2, Section 10 states: "The proposed project does not involve the "take" of listed endangered or threatened species, and thus does not require a "take permit" from the Department of Fish and Wildlife…" As discussed above, the Project has the potential to result in take of BUOW and Swainson's hawk. Furthermore, the IS/MND MM BIO-4 states: "If take of Swainson's hawk cannot be avoided, the Project shall consult with CDFW pursuant to CESA and obtain an ITP before Project activities may commence. Therefore, the Project may require a "take permit" (i.e., ITP) from CDFW.

Recommendation: CDFW recommends revising the above language on IS/MND Page 2, Section 10 to: "The proposed project has the potential to result in "take" of listed endangered or threatened species, or candidate species for listing, and thus may require a "take permit" from the Department of Fish and Wildlife, the U.S. Fish and Wildlife Service, or the National Marine Fisheries Service.

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ENVIRONMENTAL DATA

CEQA requires that information developed in environmental impact reports and negative declarations be incorporated into a database which may be used to make subsequent or supplemental environmental determinations. (Pub. Resources Code, § 21003, subd. (e).) Accordingly, please report any special-status species and natural communities detected during Project surveys to CNDDB. The CNDDB field survey form can be filled out and submitted online at the following link: https://wildlife.ca.gov/Data/CNDDB/Submitting-Data. The types of information reported to CNDDB can be found at the following link: https://www.wildlife.ca.gov/Data/CNDDB/Plants-and-Animals

ENVIRONMENTAL DOCUMENT FILING FEES

The Project, as proposed, would have an impact on fish and/or wildlife, and assessment of environmental document filing fees is necessary. Fees are payable upon filing of the Notice of Determination by the Lead Agency and serve to help defray the cost of environmental review by CDFW. Payment of the environmental document filing fee is required in order for the underlying Project approval to be operative, vested, and final. (Cal. Code Regs, tit. 14, § 753.5; Fish & G. Code, § 711.4; Pub. Resources Code, § 21089.)

CONCLUSION

CDFW appreciates the opportunity to comment on the IS/MND to assist the County in identifying and mitigating Project impacts on biological resources.

Questions regarding this letter or further coordination should be directed to Nicholas Magnuson, Environmental Scientist, at (707) 815-4166 or Nicholas.Magnuson@wildlife.ca.gov, or Melanie Day, Senior Environmental Scientist (Supervisory), at (707) 210-4415 or Melanie.Day@wildlife.ca.gov.

Sincerely,

DocuSigned by:
Erin Chappell
B77E9A6211EF486...

Erin Chappell
Regional Manager
Bay Delta Region

Attachment 1: Draft Mitigation Monitoring and Reporting Program

ec: Office of Planning and Research, State Clearinghouse (SCH No. 2024100855)
Sean Kennings, LAK Associates, LLC - Sean@lakassociates.com

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ATTACHMENT

Draft Mitigation Monitoring and Reporting Program (MMRP)

CDFW provides the following language to be incorporated into the MMRP for the Project.

Biological Resources (BIO)			
Mitigation Measure (MM)	**Description**	**Timing**	**Responsible Party**
MM BIO-6	***ADD THE BELOW LANGUAGE TO THE EXISTING MM BIO-6.*** Burrowing Owl Habitat Assessment and Surveys: If take of BUOW cannot be avoided, the Project shall consult with CDFW pursuant to CESA and obtain an ITP before Project activities commence. Take is likely to occur, and the Project shall obtain an ITP if: 1) BUOW surveys of the Project site detect BUOW occupancy of burrows or burrow surrogates, or 2) there is sign of BUOW occupancy on the Project site within the past three years and habitat has not had any substantial change that would make it no longer suitable within the past three years. Occupancy means a site that is assumed occupied if at least one BUOW has been observed occupying a burrow or burrow surrogate within the last three years. Occupancy of suitable BUOW habitat may also be indicated by BUOW sign including its molted feathers, cast pellets, prey remains, eggshell fragments, or excrement at or near a burrow entrance or perch site. If BUOW, or their burrows or burrow surrogates, are detected within 500 meters (1,640 feet) of the Project site during BUOW surveys, but not on the Project site, the Project shall consult with CDFW to determine if avoidance is feasible, or an ITP is warranted and shall obtain an ITP if deemed necessary by CDFW.	Prior to Ground Disturbance and During Project Construction	Project Applicant
Editorial Comment	CDFW recommends revising the language on IS/MND Page 2, Section 10 to: “The proposed project has the potential to result in “take” of listed endangered or threatened species, or candidate species for listing, and thus may require a “take permit” from the Department of Fish and Wildlife, the U.S. Fish and Wildlife Service, or the National Marine Fisheries Service.	Prior to Finalizing IS/MND	Lead Agency

“Q”

First Carbon Solutions
Memo Dated November 10, 2025

E&P Technology Way – Buildings A & B Use Permits
(P22-00307 / P22-00308)
Planning Commission Hearing Date December 3, 2025

FCS
An ADEC Innovation

Memorandum

Date:	November 10, 2025
To:	Dennis Paulley, E&P Properties, Inc.
From:	Jason Brandman, Sr. Vice President, Environmental Services, FirstCarbon Solutions
Subject:	Responses to Comments for the E&P Technology Way Buildings A and B Project Initial Study/Mitigated Negative Declaration

Responses to Comments

The FirstCarbon Solutions (FCS) team has been requested to respond to comments received during the public comment period from October 19, 2024 to November 20, 2024 regarding the E&P Technology Way Buildings A and B Project Initial Study/Mitigated Negative Declaration (IS/MND) (State Clearinghouse [SCH] No. 2024100855). The list of relevant commenters on the proposed E&P Technology Way Buildings A and B Project (proposed project) is presented below. Each comment has been assigned an author code. Individual comments within each communication have been numbered so comments can be cross-referenced with responses. Comment Letters are included in the attachments to this memorandum.

List of Commenters

State Agencies

California Department of Fish and Wildlife (11-15-24).....CDFW

Organizations

Adams Broadwell Joseph & Cardoza (11-14-24)
On behalf of the Napa-Solano Residents for Responsible Development.....NSRRD1

Adams Broadwell Joseph & Cardoza (11-19-24)
On behalf of the Napa-Solano Residents for Responsible Development.....NSRRD2

This memorandum also contains an Errata section where clarifying information and revisions to the IS/MND are provided for incorporation into the Final IS/MND. These revisions represent minor technical changes, updates and clarification. None of the information provided in this memorandum or the Errata section include information requiring recirculation of the IS/MND.

State Agencies

California Department of Fish and Wildlife (CDFW)

Response to CDFW-1

CDFW confirms receipt of the IS/MND and confirms use permit and parcel numbers associated with the project. This comment is noted. No additional response is required.

Response to CDFW-2

CDFW clarifies their role as Trustee Agency and Responsible Agency. This comment is noted. No additional response is required.

Response to CDFW-3

The project proponent, objectives, and location are identified including parcel numbers and approximate dimensions of proposed buildings and parking areas. This comment is noted. No additional response is required.

Response to CDFW-4

The conditions under which an Incidental Take Permit (ITP) is required are provided. CDFW also states that the project has the potential to impact Swainson's hawk due to an observation of a nesting individual in 2021 approximately 300 feet north of the project site in the California Natural Diversity Database (CNDDB) database, and burrowing owl due to an observation of a wintering individual in 2006 approximately 1,100 feet northeast of the project site in the CNDDB database.

These comments are noted. Mitigation Measure (MM) BIO-6 in Section IV, Biological Resources, of the IS/MND has been revised to include changes recommended by CDFW (see Errata, Section IV Biological Resources below). This change reflects the recent status change of burrowing owl to a California Endangered Species Act (CESA) candidate speceis and stipulates that the proposed project would obtain a CESA ITP if take of burrowing owl cannot be avoided. This will further ensure that biological impacts remain less than significnat. This change would not result in a new significant evnironmental impact. Additionally, MM BIO-6 has been revised to include language on the provisions for an ITP (see Errata, Section IV Biological Resources below).

Implementation of MM BIO-6, as recommended by CDFW, would ensure that biological impacts remain less than significant. This nominal modification merely clarifies and amplifies the analysis and would not trigger any new significant impacts or an increase in any previously identified significant impacts.

Response to CDFW-5

The jurisdiction of CDFW over natural resources governed by Fish and Game Code and the Migratory Bird Treaty Act is clarified. This comment is noted. No additional response is required.

Response to CDFW-6

CDFW introduces the subsequent discussion of recommended Avoidance and Mitigation Measures (AMM) and concludes that an IS/MND is appropriate for the project provided suitable AMM are implemented.

This comment is noted. Responses to specific recommended AMM are provided below (see Responses to CDFW-7 and CDFW-8). No additional response is required.

Response to CDFW-7

CDFW states that language in the IS/MND and FCS (2024) biological assessment does not reflect the recent status of change of burrowing owl under CESA. CDFW recommends adding language to MM BIO-6 that specifies the conditions under which an ITP is warranted.

This comment is noted. As stated in Response to CDFW-4, MM BIO-6 in Section IV, Biological Resources, of the IS/MND has had language added to include changes recommended by CDFW (see Errata, Section IV Biological Resources below). This addition reflects the recent status change of burrowing owl to a CESA candidate species and stipulates that the proposed project would obtain a CESA ITP if take of burrowing owl cannot be avoided. Additionally, MM BIO-6 has been revised to include language on the provisions for an ITP (see Errata, Section IV Biological Resources below). Implementation of MM BIO-6, as recommended by CDFW, will further ensure that biological impacts remain less than significant. This nominal modification merely clarifies and amplifies the analysis and would not trigger any new significant impacts or an increase in any previously identified significant impacts.

Response to CDFW-8

CDFW provides an editorial comment that describes the conditions under which an ITP for Swainson’s hawk may be warranted. CDFW recommends modifying language from the IS/MND to reflect that the project has the potential for “take” as defined under CESA of burrowing owl and Swainson's hawk.

As stated in Response to CDFW-4, the IS/MND Page 2, Section 10 has been revised to contain recommended language provided by CDFW. This language includes the provisions of an ITP and states that the proposed project has the potential to result in the take of listed endangered or threatened species, or candidate species for listing and thus may require a take permit from CDFW or the National Marine Fisheries Service (NOAA Fisheries) (see Errata, Section IV Biological Resources below). Implementation of this suggested language from CDFW will further ensure that biological impacts remain less than significant. This nominal modification merely clarifies and amplifies the analysis and would not trigger any new significant impacts or an increase in any previously identified significant impacts.

Response to CDFW-9

The requirements for submitting environmental data to databases including CNDDB are discussed by the commenter. This comment is noted. No additional response is required.

Response to CDFW-10

Filing fees for submission of environmental documents as part of California Environmental Quality Act (CEQA) review are discussed by the commenter. This comment is noted. No additional response is required.

Response to CDFW-11

Contact information for CDFW personnel are presented by the commenter. This comment is noted. No additional response is required.

Organizations

Adams Broadwell Joseph & Cardoza on behalf of the Napa-Solano Residents for Responsible Development, dated November 14, 2024 (NSRRD1)

Response to NSRRD1-1

This comment requests an extension to the current public comment period based on the claim that the County failed to provide timely access to the supporting documents to the IS/MND. This comment also describes the proposed project, including the project proponent, objectives, and location, including parcel numbers and approximate dimensions of proposed buildings.

Contrary to the commenter's assertion, all supporting documentation, except the confidential Phase I Cultural Resource Assessment (Phase I CRA) was available on the County's website[1] and the link to those documents was included in the Notice of Planning Commission Hearing and Notice of Intent to Adopt a Negative Declaration.[2] Furthermore, it is stated in the Notice that "copies of documents and other information relating to the project described above may be examined between 8:00 a.m. and 4:00 p.m. Monday through Friday at the office of the Planning, Building, and Environmental Service Department, Napa County Administration Building, 1195 Third Street, Suite 210, Napa, California." The Phase I CRA contains sensitive information relating to cultural resources and is not intended for public distribution pursuant to Public Resources Code Section 21082.3(C)(2). This document is only available to qualified professionals upon request. Additionally, the County notes that the Public Records Act exempts from disclosure records "of Native American graves, cemeteries, and sacred places and records of Native American places, features and objects" described in Public Resources Code Sections 5097.9 and 5097.993. These confidentiality mandates take precedence over CEQA's disclosure policies. Government Code Section 6524(r); *Clover Valley Found. V. City of Rocklin* (2011) 197 CA4th 200, 221.

CEQA also specifically protects the confidentiality of information that is provided by a Tribe as part of the Assembly Bill (AB) 52 consultation process. Such information may not be disclosed to the public without the consent of the Tribe that provided the information. There is no such consent in this situation and, therefore, the County is precluded by law from disclosing confidential information.

Therefore, the County provided timely access to supporting documents to the IS/MND in full compliance with CEQA's requirements. Thus, no additional response is required.

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1 County of Napa. 2025. P22-00308 E&P Technology Way, Building B. Website: https://www.pbes.cloud/index.php/s/4DJdazPtwt7P6wN. Accessed June 24, 2025

2 County of Napa. 2024. Notice of Planning Commission Hearing and Notice of Intent to Adopt a Negative Declaration. October 18. Website: https://ceqanet.lci.ca.gov/2024100855/Attachment/x0tGiK. Accessed June 18, 2025.

Response to NSRRD1-2

This comment reiterates the previous comment's request for supporting documents for the IS/MND. Comment noted.

This comment is noted. See Response to NSRRD1-1. No additional response is required.

Response to NSRRD1-3

This comment claims that Phase I CRA conducted by FCS has not been provided for public review.

This comment is noted. As previously mentioned within Response to NSRDD1-1, the Phase I CRA contains sensitive information relating to cultural resources and is not intended for public distribution pursuant to Public Resources Code Section 21082.3(C)(2). This document is only available to qualified professionals upon request. Furthermore, the methodology and results of the Phase I CRA were provided in Section V. Cultural Resources of the IS/MND.

Response to NSRRD1-4

This comment reiterates the requests summarized by Response to NSRRD1-1 through Response to NSRRD1-3 for the provision of the Phase I CRA conducted by FCS and the extension of the public review period by at least 30 days.

This comment is noted. See Response to NSRRD1-1 and Response to NSRRD1-3. No additional response is required.

Response to NSRRD1-5

This comment requests the provision of all related project documents not provided for the public review period.

This comment is noted. See Response to NSRRD1-1 through Response to NSRRD1-3. The public review period for an IS/MND requires submission of a "mitigated negative declaration and initial study" for public and agency review. These guidelines do not specify the requirement of including all project documents, but require that documents incorporated by reference, per CEQA Guidelines Section 15072(g)(4) as cited in the comment, be "readily accessible to the public during the lead agency's normal working hours." The ruling cited in the comment, *Vineyard Area Citizens for Responsible Growth, Inc. v. City of Rancho Cordova*, was brought under the plaintiffs' claims objecting to an Environmental Impact Report (EIR) prepared for the construction of a 22,000-unit mixed-use residential project. The plaintiffs claimed that "(1) the environmental impact report (EIR) prepared for the community and specific plans failed to adequately identify and evaluate future water sources for the development, and (2) potential impacts on migratory salmon in the Cosumnes River, disclosed in the Final EIR, should instead have been incorporated in a revised Draft EIR and recirculated for public comment." The ruling concluded that although the EIR prepared by the County (defendant) "identifies the intended water sources in general terms, it does not clearly and coherently explain, using material properly stated or incorporated in the EIR, how the long-term demand is likely to be met with those sources, the environmental impacts of exploiting those sources, and how those impacts are to be mitigated." The ruling also reiterated that the Draft EIR must be revised and recirculated for public comment based on the newly-disclosed information. Given that the holding for *Vineyard Area Citizens for Responsible Growth, Inc. v. City of Rancho Cordova* case

addresses water resources, and does not remark on requirements related to the availability of documents incorporated by reference or for ensuring any related or referenced documents remain "readily accessible" to the public, the holding of *Vineyard Area Citizens for Responsible Growth, Inc. v. City of Rancho Cordova* is unrelated to the proposed project. No additional response is required.

Response to NSRRD1-6

This comment reiterates the claims made by Response to NSRRD1-5, citing the California Public Records Act (Government Code § 7922.525(a)).

This comment is noted. See Response to NSRRD1-5. No additional response is required.

Adams Broadwell Joseph & Cardoza on behalf of the Napa-Solano Residents for Responsible Development, dated November 19, 2024 (NSRRD2)

Response to NSRRD2-1

This comment describes the proposed project, including the project proponent, objectives, parking area, utilities, and location, including parcel numbers and approximate dimensions of proposed buildings of the proposed project.

This comment is noted for the record. No additional response is required.

Response to NSRRD2-2

This comment introduces the intent of the comment letter and a brief summary of claims made by the comment letter asserting that the IS/MND lacks an adequate Project Description and fails to provide substantial evidence that the proposed project would not assert in significant environmental impacts. Based on these claims, the commenter claims that an EIR is required for the proposed project.

This comment is noted. CEQA Guidelines state that commenters on mitigated negative declarations should focus on the proposed finding that the project will not have a significant environmental effect (CEQA Guidelines § 15204(a)). This general comment fails to address the requirements of Section 15204(b) because it does not identify the specific effect the commenter alleges is significant, fails to explain why the commenter believes a significant effect would occur; and fails to explain why the effect would be significant. The commenter has not provided any credible evidence in this general comment to support a fair argument that there are significant impacts. The IS/MND, as well as all supporting technical studies, provide all required elements of a legally adequate Project Description, and all feasible mitigation measures for the proposed project's impacts have been applied. Therefore, an EIR is not required. Thus, these claims remain unsubstantiated. No additional response is required.

Response to NSRRD2-3

Napa-Solano Residents for Responsible Development (NSRRD) introduces their role as an Organization.

This comment is noted for the record. The comment did not raise any issues with respect to the environmental analysis. No response additional is required.

Response to NSRRD2-4

This comment claims that the IS/MND fails the “fair argument” standard in disproving that the proposed project would avoid significant environmental impacts and that an EIR is required.

Comment noted. This comment does not reference the project-specific findings of the IS/MND; therefore, the comment is vague and unsubstantiated, lacking critical information or examples demonstrating the project’s lack of conformance with the CEQA “fair argument” standard. Given the lack of substantial evidence supporting a fair argument that impacts would result, no additional response is required.

Response to NSRRD2-5

The comment claims that the IS/MND fails to provide a complete Project Description due to the omission of details on the proposed project’s construction timeline, activities, the frequency and number of clients that would visit the building.

Comment noted. The commenter fails to establish basis for their comments and submit supporting data or references offering facts, reasonable assumptions based on facts, or expert opinion supported by facts. Section 15204(c). Accordingly, this comment fails to establish “substantial evidence” sufficient to support a “fair argument” that the alleged impacts may occur and further fails to establish that the alleged impacts should be considered “significant.”

Neither CEQA nor the CEQA Guidelines require the inclusion of a specific, detailed construction schedule in the Project Description. Potential impacts associated with construction are analyzed based on reasonable assumptions of construction duration and intensity. They are not analyzed on an exact day-by-day or phase-specific construction schedule. Therefore such a schedule is unnecessary in a Project Description. Courts have upheld that CEQA does not demand "excessive detail" that would hamper flexibility or unnecessarily burden the environmental review process. For example, *San Franciscans for Reasonable Growth v. City and County of San Francisco* (1984) 151 Cal.App.3d 61 emphasized that CEQA does not require details that are impractical or speculative at the planning stage. Given the lack of specification on the scope of construction, as evidenced by variable factors, it would be too speculative to assume a definitive construction timeline during the public review phase of the proposed project. Furthermore, as stated in the Project Description of the IS/MND, the proposed project does not include retail sales or access for the general public. Individual clients could visit the site on occasion, any number of client trips would be nominal at best, and would therefore not impact the conclusions of the IS/MND. No additional response is required.

Response to NSRRD2-6

This comment reiterates the claims of Comment NSRRD2-5 on the supposed inadequacy of the Project Description in failing to provide information on the proposed project’s construction timeline in addition to construction activities, equipment, and construction/start dates. The comment claims that this would impact the conclusions of the IS/MND regarding air quality, public health, greenhouse gas (GHG) emissions, and biological resources. Comment noted. See Response to NSRRD2-5. As previously noted, any proposed timeline for construction activity for the proposed project would be conceptual in nature, given the uncertainty due to funding, environmental conditions, and other factors. This would include when providing information on activities and equipment, which would be contingent on site-specific needs at the time of project implementation. Furthermore, the comment fails to cite the project-specific findings

of the IS/MND that would be impacted by the lack of provision of this information, vaguely referring to potential impacts whose conclusions would be altered as a result of this information. As such, the claims of the comment are unsubstantiated given the lack of references to the findings of the environmental analysis, and are therefore speculative at best. No additional response is required.

Response to NSRRD2-7

The commenter discusses how the lack of knowledge about the timing and location of construction may result in impacts to biological resources such as migratory birds if ground-disturbing activities commence during the nesting season (February 1 to August 31).

Comment noted. Implementation of MM BIO-3, MM BIO-4, and MM BIO-6 would eliminate the potential for impacts to nesting birds including Swainson's hawk and burrowing owl. MM BIO-3 stipulates that if any ground-disturbing activities are to occur during the nesting season from February 1 to August 31, that pre-construction surveys for nesting birds will be performed following protocols approved by CDFW for detecting the presence or absence of these species. Pre-construction surveys shall occur no more than 14 days prior to the initiation of work and shall be conducted both on the project site and in a sufficient area surrounding the project site to identify any nests that could potentially be directly or indirectly affected by construction-related activities. If active nests are found within the project area or close enough that nesting success may be affected, a work exclusion zone shall be established around each nest and remain in place until all young in the nest have fledged or the nest becomes inactive. The size of the exclusion zone shall be determined through consultation with CDFW and will be species-specific, ranging from as small as 25 feet for common species disturbance tolerant, to 250 feet or more for raptors.

In addition, MM BIO-4 stipulates that if any project activities are to commence during the nesting season for Swainson's hawk (March 1 to September 15), that surveys shall be performed for Swainson's hawk according to protocols specified in the CDFW publication *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley (2000).* If active Swainson's hawk nests are detected, a 0.5-mile construction avoidance buffer shall be observed around the nest until the nest is no longer active.

Finally, MM BIO-6 stipulates that surveys for burrowing owl shall be performed that follow the protocols specified in the CDFW publication *Staff Report on Burrowing Owl Mitigation (2012)* if any project activities are to commence during the burrowing owl wintering season (September 1 to January 31). Protocol-level surveys shall include a habitat assessment that includes both the project site and within 500 meters of the project site and shall be performed each year work is conducted to account for any changes in habitat conditions such as the creation of small mammal burrows. Surveys for nonbreeding burrowing owls during the wintering season shall also be performed on at least four occasions, including within 24 hours prior to ground disturbance. In the event any burrowing owls are found during any of these surveys, construction activities shall be scheduled to avoid nesting and breeding periods in consultation with CDFW. Language to MM BIO-6 has also been added to include changes recommended by CDFW, as described in Response to CDFW-4 and Response to CDFW-7. No additional response is required.

Response to NSRRD2-8

This comment claims that the Vehicle Miles Traveled (VMT) Analysis prepared for the proposed project is deficient due to the lack of detail on visitor trips. In assessing this, the commenter references the conclusions of a local transportation expert.

This comment is noted. As previously mentioned in Response to NSRRD2-5, the proposed project would not generate a high number of visitor trips because the proposed project would not be open to the public. As such, the nominal amount of client trips would not impact the conclusions of the IS/MND regarding transportation impacts. No additional response is required.

Response to NSRRD2-9

This comment states that since the project site is within the Napa Sanitation District (NapaSan) recycled water service area, the installation of new facilities is required, and that this should be disclosed within the Project Description to analyze the significance of environmental impacts, specifically those related to air quality, noise, biological resources, transportation, and energy. The comment concludes by stating that the proposed project should address these impacts with an EIR.

This comment is noted. Although the project site is within NapaSan's recycled water service area, this does not preclude the expansion or construction of new facilities constituting an environmental impact under CEQA, as noted on page 30 of Section XIX. Utilities and Service Systems of the IS/MND. As noted within the section, the proposed project would not result in the relocation or construction of water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities beyond connections to existing facilities, and the construction of new facilities is not directly referenced in the comment letter. Furthermore, potential environmental impacts resulting from connections to existing facilities, comprising a portion of overall anticipated construction and use during operations, are fully evaluated in the IS/MND across all sections, including those for air quality, noise, biological resources, transportation, and energy. Furthermore, as noted on page 31 of Section XIX. Utilities and Service Systems of the IS/MND, NapaSan, has provided a Will Serve letter for the proposed project. Therefore, the construction of connections to existing facilities, and the potential for unanticipated or significant environmental impacts, would not occur as a result of the proposed project. No additional response is required.

Response to NSRRD2-10

The commenter describes the requirement of CEQA to document baseline environmental conditions on the project site and the rationale for including detailed descriptions of existing environmental conditions.

This comment is noted. CEQA directs commenters on a negative declaration to state the basis for their comments and submit supporting data or references offering facts, reasonable assumptions based on facts, or expert opinion supported by facts. CEQA Guidelines Section 15204(c). This comment does not provide any specific information regarding the proposed project. No additional response is required.

Response to NSRRD2-11

The commenter describes how the Biological Resources Assessment prepared by FCS dated February 21, 2024, relies on a CNDDB analysis as well as a wildlife and botanical survey performed on December

8, 2022. The commenter also notes that the FCS report describes the site as having been impacted by disking and lack of vegetation. The comment does not identify any specific issues with the IS/MND.

In addition to the reconnaissance survey performed on December 8, 2022, FCS performed 10 focused surveys for avian species as described in the Special-Status Avian Survey Report prepared by Pinecrest dated January 29, 2024, as well as five special-status plant surveys as described in the memorandum prepared by Pinecrest titled Results of Special-Status Plant Surveys at E&P Technology Way dated July 21, 2023. The number of avian surveys performed exceeds the minimum number of surveys required for Swainson's hawk described in the CDFW publication titled Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley (2000). The number of plant surveys also exceeds the minimum number of surveys required for assessing the presence of special-status plants as described in the CDFW publication titled Protocols for Surveying and Evaluating Impacts to Special-Status Native Plant Populations and Sensitive Natural Communities (2018).

A total of 54 species of birds were observed in the Sheehy Creek riparian corridor, and 18 species of birds were observed in the project area, with the project area defined as the grassland portion of the three parcels excluding the Sheehy Creek riparian corridor and pedestrian pathway. A total of 58 unique species of bird were observed between the project area and the Sheehy Creek riparian corridor. No species of bird were observed nesting in the project area, and two species of bird—Anna's hummingbird and red-shouldered blackbird—were observed nesting in the Sheehy Creek riparian corridor. A total of 45 non-native plant species and nine native plant species were observed in the project area for a total of 54 unique species of plants. None of the native plants observed in the project area were considered special-status plants.

Additionally, the Biological Resources Assessment prepared by FCS does not claim that there is a "lack of vegetation" in the project area, but rather that the vegetation has been impacted by the history of disking leading to domination by non-native plant species and precluding the formation of fossorial mammal burrows.

Response to NSRRD2-12

The commenter summarizes the steps required for characterization of the environmental setting, and cites the letter prepared by Dr. Shawn Smallwood dated November 15, 2024 in arguing that the December 8, 2022 reconnaissance survey was performed for an unknown duration, that the CDFW protocols for surveying for special-status plants were not implemented, and that no surveys were performed for bats and reptiles.

As described in Response to NSRRD2-11, above, the December 8, 2022 reconnaissance survey was followed by 10 focused avian surveys that followed duration and timing protocols specified in the CDFW *publication Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley (2000).* Five focused special-status plant surveys were also performed in 2023 that followed protocols as described in the CDFW publication *Protocols for Surveying and Evaluating Impacts to Special-Status Native Plant Populations and Sensitive Natural Communities (2018)*. The number of avian and plant surveys performed exceeds the minimum number of recommended surveys described in both CDFW protocol publications.

Focused surveys for bats were not performed because the Biological Resources Assessment prepared by FCS concluded that there was no habitat for roosting bats in the project area due to the lack of trees or structures suitable for roosting. Because of the lack of bat roosting habitat in the project area, no impacts to bats are expected to occur and no focused surveys for bats were recommended.

The Biological Resources Assessment did conclude that there was the potential for reptiles, specifically western pond turtle, to exist in the project area and does recommend several mitigation measures to avoid impacts to reptiles and amphibians including western pond turtle. Specifically, MM BIO-8 requires the applicant to perform pre-construction surveys for reptiles and amphibians including western pond turtle, California tiger salamander, foothill yellow-legged frog, and California red-legged frog within 48 hours of ground-disturbing activities. MM BIO-8 also requires the applicant to install exclusion fencing along the entire length of Sheehy Creek to prevent native reptiles and amphibians from entering the project area and requires the applicant to cease all construction activities and notify CDFW and/or the United States Fish and Wildlife Service (USFWS) if special-status reptile or amphibian species are observed on-site. An education program on the identification of special-status reptile and amphibian species is also to be administered to all personnel who will be present at the site during ground disturbance and related activities. No additional response is required.

Response to NSRRD2-13

The commenter summarizes Dr. Smallwood's letter claiming that CNDDB was consulted to identify documented occurrences of special-status species on or near the project site but did not consult the eBird or iNaturalist databases. The commenter cites Dr. Smallwood's letter stating that four species identified in the IS/MND as having low or no potential for occurrence were documented in the project site.

Comment noted. The likelihood of occurrence presented in the IS/MND is based on the suitability of the habitat in the project area primarily for nesting and secondarily for foraging. The four species presumably alluded to based on examination of Table 4 in Dr. Smallwood's letter are sharp-shinned hawk, Cooper's hawk, Swainson's hawk, and American kestrel. None of these species have any likelihood of nesting in the project area due to the lack of trees or shrubs.

As described in the Biological Resources Assessment prepared by FCS, there is foraging habitat for these and other raptor species in the project area. In order to compensate for the loss of foraging habitat, the applicant, in consultation with CDFW and the County of Napa, proposed MM BIO-5 that requires the applicant to mitigate for the loss of foraging habitat for Swainson's hawk and other raptors at a 1:1 ratio by purchasing foraging credits at a CDFW-approved Swainson's hawk mitigation bank, or by permanently preserving Swainson's hawk foraging habitat through a conservation easement and funding a long-term management plan in perpetuity. Through the implementation of this mitigation, impacts to foraging habitat for raptors would be reduced to less than significant.

Determination of species with the potential to exist in the vicinity of the site was based on an industry standard "nine-quadrangle" search around the project site using the CNDDB database. Neither eBird or iNaturalist were used since they are not reliable sources of information on determining the presence or absence of species at a given location. EBird and iNaturalist are not based on expert opinion. Rather, they allow any citizen to upload occurrences and therefore occurrences are not regularly checked for accuracy. These databases are known to frequently misidentify species, particularly species that are

frequently confused, such as hawks and raptors. However, CNDDB's comprehensive and curated data is maintained by CDFW and contains vetted and updated records which caters to special-status species. CNDDB is also widely used in CEQA compliance and is the standardized method of identifying the likelihood of species occurrences. As Dr. Smallwood did not reference CNDDB in his discussion of the likelihood of species presence on-site and relied solely on eBird and iNaturalist, his conclusions cannot be confirmed as accurate. No additional response is required.

Response to NSRRD2-14

The commenter paraphrases Dr. Smallwood's letter and states that around 125 special-status species occur in the vicinity of the project site and eight special-status species were recorded on or adjacent to the project site. The commenter additionally states that only 13 vertebrate taxa were documented on the project site by FCS. The commenter reports that Dr. Smallwood found 69 species of vertebrates in three locations within 700 meters of the project site, and 44 species of vertebrates at three additional locations south/southeast of the project site.

Comment noted. The FCS Biological Resources Assessment describes and analyzes the likelihood of the occurrence of 259 special-status species (94 species of animals and 165 species of plants and bryophytes) known within the vicinity of the project site, based on a CNDDB industry standard "nine-quadrangle" search around the project site.

Additionally, the 125 special-status species Dr. Smallwood identified occurring in the vicinity of the project site include occurrences primarily pulled from eBird and iNaturalist. As described in Response to NSRRD2-13, eBird and iNaturalist are community-sourced platforms that may include misidentification or non-verified data and, as such, are not a substitute for resources agency recognized data like CNDDB. As such, they are not reliable sources of information on determining the presence or absence of species at a given location. EBird and iNaturalist are not based on expert opinion. Rather, they allow anyone to upload occurrences and therefore occurrences are not regularly checked for accuracy. These databases are known to frequently misidentify species, particularly species that are frequently confused, such as hawks and raptors. CNDDB's comprehensive and curated data is maintained by CDFW and contains vetted and updated records which caters to special-status species. CNDDB is also widely used in CEQA compliance and is the standardized method of identifying the likelihood of species occurrences. As Dr. Smallwood did not reference CNDDB in his discussion of the likelihood of species presence on-site and relied solely on eBird and iNaturalist, his conclusions cannot be confirmed as accurate. Therefore, Dr. Smallwood's list cannot be considered accurate given the databases used to create it. Additionally, as described in Response to NSRRD2-11, above, the Pinecrest Special-Status Avian Survey Report and the FCS Biological Resources Assessment documented a combined total of 61 species of vertebrates, not 13 (58 species of birds, American beaver, Pacific tree frog, and California vole). The 61 species of vertebrates recorded from a single site exceeds the 44 species observed by Dr. Smallwood at three combined sites south/southeast of the project site and is approximately equal to the 69 species observed by Dr. Smallwood at three combined sites within 700 meters of the project site. Additionally, Dr. Smallwood's species counts resulted from summing the number of species observed at each of three different sites whereas the FCS and Pinecrest observations were made at a single site. To be comparable to the single site surveyed in the FCS and Pinecrest reports, the 44 and 69 species reported by Dr. Smallwood across three sites should be reverse extrapolated to a lower number to be comparable to the single site surveyed in the FCS and Pinecrest reports, since the number of species observed will increase as you increase the

number of sites surveyed. Thus, based on Dr. Smallwood's own data, the community of vertebrates at the project site has been adequately characterized by the FCS and Pinecrest reports. No additional response is required.

Response to NSRRD2-15

The commenter claims that the reports prepared for the project do not accurately describe the baseline environmental setting for biological resources. The commenter also paraphrases Dr. Smallwood's letter stating that multiple special-status species are "not disclosed or analyzed" in the IS/MND.

Comment noted. As described in Response to NSRRD2-14 above, 61 species of vertebrates were observed on-site in the FCS and Pinecrest reports, exceeding or approximately equaling the number of species observed by Dr. Smallwood and other consulting companies at similar sites. As described in Response to NSRRD 2-11, above, a total of 54 unique species of plants were observed in the project area, excluding the Sheehy Creek riparian area, during surveys performed according to CDFW protocols. In addition, the number of surveys performed for birds and plants exceeds the number of surveys required by CDFW protocols. Thus, the baseline biological resources of the site have been adequately described based on Dr. Smallwood's own data and based on adherence to industry standard sampling protocols published by CDFW.

As described in Response to NSRRD 2-14, above, a total of 259 special-status species were analyzed from the vicinity of the project site using an industry standard "nine-quadrangle" search of the CNDDB database. No species occurrences that appeared during this search were omitted. As described in Response to NSRRD 2-13, above, the likelihood of occurrence for each avian species was determined primarily based on nesting and secondarily based on foraging, thus the low likelihood of occurrence listed for several raptor species in the project area is substantiated since there is no nesting habitat but some foraging habitat that ranges in quality from low to very low depending on the foraging preferences of the species. Low forage quality is primarily due to the history of disking on-site that precludes the formation of small mammal burrows. The comment does not provide substantial evidence that the proposed project would have a significant impact on the environment; therefore, the demand to prepare and EIR is unsupported. The IS/MND properly considers potential impacts. No additional response is required.

Response to NSRRD2-16

This comment reiterates the claims of Comment NSRRD2-4, citing the “fair argument” standard on the need for an EIR for the proposed project due to a lack of substantial evidence disproving the proposed project’s potential to result in significant environmental impacts.

As described in Response to NSRRD2-5 through NSRRD2-15, the commenter’s claims that the proposed project would result in significant impacts are unsubstantiated. Additionally, the commenter does not provide any substantial evidence or examples to suggest that the County failed to address a subject or disclose information regarding the proposed project’s environmental impact. As such, the comment is speculative, given the lack of reference to the findings of the environmental analysis prepared for the IS/MND. No additional response is required.

Response to NSRRD2-17

The comment claims that the IS/MND lacks evidence suggesting that the project emissions would be less than significant during construction and operations. The comment provides attachments of California Emissions Estimator Model (CalEEMod) calculations supposedly showing emissions results for the proposed project and suggesting that implementation of mitigation measures requiring use of products with limited volatile organic compound (VOC) concentrate would reduce impacts to less than significant.

The CalEEMod results included in the comment letter misinterpreted Bay Area Air Quality Management District (Bay Area Air District) thresholds. The commenter erroneously compared the modeling's summer maximum emissions to the Bay Area Air District thresholds that are based on average daily emissions as opposed to summer maximum emissions. Utilizing the commenter's modeling results for illustrative purpose only, when comparing the appropriate CalEEMod emissions (i.e., average daily emissions) to Bay Area Air District thresholds, all emissions are below the established thresholds. The proposed project would not result in significant air quality impacts. No additional response is required.

Response to NSRRD2-18

The comment states that the project's reliance on Bay Area Air District design standards, California Building Standards Code (CBC) requirements, and the County's conditions of approval lack substantial evidence supporting the conclusion that the proposed project would not result in less than significant GHG emission impacts. The comment quotes Section VIII Greenhouse Gas Emissions of the IS/MND summarizing GHG emission reduction strategies of the proposed project.

Comment noted. This comment provides an overview of the GHG emission reduction strategies of the proposed project but fails to fully explain how incorporation of the aforementioned strategies fails the CEQA fair argument standard for proving that the proposed project would result in significant environmental impacts. Given the vagueness of the comment and the lack of substantial evidence disproving the findings of the IS/MND, this comment does not meet the fair argument test required by CEQA. No additional response is required.

Response to NSRRD2-19

This comment asserts that lack of implementation of certain GHG emission reduction strategies, would preclude the proposed project from reducing GHG emission impacts to a less than significant level. The comment references an uncited statement in the Staff Report, claiming that lack of incorporation of these strategies would entail preparation of an EIR.

Comment noted. As discussed in greater detail in Response to NSRRD2-33 below, per CEQA Guidelines Section 15070(b), the proposed project is not required to reduce project-specific impacts to the maximum extent possible, but to a level that is less than significant. Although the comment references a statement supposedly referencing the possibility of incorporating additional GHG emissions reduction strategies, an overview of potential measures to be incorporated into the proposed project does not preclude the findings in that not all reduction strategies would need to be implemented to reduce GHG emissions impacts to a level that is less than significant, as required by CEQA. Without an explanation as to why implementation of the select GHG emissions reduction strategies would not reduce GHG emissions impacts to a level that is less than significant, the claims purported by this comment are unsupported assumptions and do not provide facts or substantial evidence of significant impacts. Pursuant to CEQA

Guidelines Section 15064, an effect shall not be considered significant in the absence of substantial evidence. As demonstrated in Section VIII, Greenhouse Gas Emissions, of the IS/MND, the proposed project would have a less than significant GHG emissions impact and would not require mitigation. No additional response is required.

Response to NSRRD2-20

The commenter states that loss of grassland would result in potentially significant impacts due to habitat loss. The commenter quotes Dr. Smallwood's letter stating that loss of habitat results in "66% loss of species on the site and a 48% loss of species in the project area."

Comment noted. These statements are vague and do not provide substantial evidence of potential significant impacts. Moreover, impacts must be analyzed for each species individually. For raptors, including Swainson's hawk, no nesting habitat exists on-site. However, there is some foraging habitat on-site. As described in MM BIO-5 and in the Response to NSRRD 2-13 above, loss of foraging habitat will be mitigated at a 1:1 ratio either at a CDFW-approved mitigation bank or through preservation of off-site habitat in perpetuity. Additionally, as described in Response to NSRRD 2-7 above, implementation of MM BIO-3, BIO-4, and BIO-6 would reduce impacts to migratory birds and burrowing owl to less than significant. As described in Response to NSRRD 2-12 above, MM BIO-8 is designed to reduce impacts to reptiles and amphibians to less than significant. CDFW reviewed each of these MMs from the IS/MND and did not have any further comments nor did CDFW object to the conclusions in the IS/MND. No additional response is required.

Response to NSRRD2-21

The commenter quotes Dr. Smallwood's letter that habitat loss results in the loss of "productive capacity" and that the project may result in the loss of "over 1,000 birds" annually.

Comment noted. As discussed in greater detail in Response to NSRRD 2-72 below, it is unclear through what mechanism over 1,000 birds would be lost annually because of implementation of the proposed project. It is also unclear what is meant by "productive capacity" as it relates to wildlife reproduction as this is not a term used in peer-reviewed academic literature. Without definition of these terms or any explanation of the causal factors of mortality, these calculations are unsupported assumptions and do not provide facts or substantial evidence of significant impacts. Pursuant to CEQA Guidelines Section 15064, an effect shall not be considered significant in the absence of substantial evidence. No additional response is required.

Response to NSRRD2-22

The commenter states that project-generated traffic may significantly impact biological resources such as California red-legged frog, California tiger salamander, and American badger.

Comment noted. CDFW reviewed the IS/MND and did not have any comments regarding traffic-related impacts to special-status species. See Response to NSRRD 2-78 below, for further discussion of traffic-related mortality. No additional response is required.

Response to NSRRD2-23

The commenter states that Dr. Smallwood's letter recommends silt fencing be installed 300 feet from the southern top of bank of Sheehy Creek to lessen impacts to wildlife in the riparian corridor.

Comment noted. CDFW reviewed the IS/MND and did not have any comments regarding the placement of silt fencing along the edge of the riparian corridor. Additionally, MM BIO-1 and MM BIO-8 require the installation of a silt fence along with exclusion fencings around Sheehy Creek's riparian corridor to prevent native amphibian species from entering the project site from Sheehy Creek. This minimizes the potential for amphibian mortality via dispersal, while lowering human disturbances within the riparian corridor via construction activities. Placement of silt fencing 300 feet south of the top of bank of Sheehy Creek is not a practical recommendation or standard protocol, since the width of the project area between Sheehy Creek and Technology Way ranges from 350 to 440 feet, leaving only 50-140 feet of buildable space. This is not financially feasible for the proposed project, nor is it necessary because the exclusion fencing would adequately reduce potential impacts to less than significant levels under CEQA. Although the studies referenced by Dr. Smallwood affirm why silt fencing is necessary as amphibian and reptile species have been recorded moving almost 300 feet within adjacent terrestrial habitat, with implementation of the exclusion fencing, movement through the project site during ground disturbance will be negated, reducing impacts to amphibians and reptiles. No additional response is required.

Response to NSRRD2-24

The commenter paraphrases Dr. Smallwood's letter asserting that the CDFW rare plant guidelines are for reconnaissance surveys and not pre-construction surveys.

Comment noted. Rare plant surveys that follow the CDFW (2018) guidelines are typically called "protocol level," whereas "reconnaissance level" surveys are those that are less thorough and preliminary in nature. MM BIO-2 proposes protocol-level surveys to be performed the spring before construction begins, in addition to the five protocol-level surveys that were performed on the project site by Pinecrest in 2023. If protocol-level surveys are performed, these can be considered pre-construction or reconnaissance surveys, as the difference between pre-construction and reconnaissance surveys is largely semantic. No additional response is required.

Response to NSRRD2-25

The commenter paraphrases Dr. Smallwood's letter asserting that implementation of pre-construction surveys for nesting birds and establishment of buffers if nests are identified will not reduce potentially significant impacts from habitat loss.

Comment noted. As described in Response to NSRRD 2-13 above, there is no suitable nesting habitat in the project area except for ground nesting bird species, and pre-construction nest surveys will be performed to ensure that no nests are impacted. Loss of foraging habitat would also be mitigated off-site at a 1:1 ratio. CDFW reviewed the mitigation measures in the IS/MND and did not have any further comments regarding the adequacy of nesting bird surveys or the implementation of buffers. Nor did CDFW comment on the impact conclusions. No additional response is required.

Response to NSRRD2-26

The commenter paraphrases Dr. Smallwood's letter asserting that burrowing owl require detection surveys during both nonbreeding and breeding periods as well as pre-construction take avoidance surveys.

Comment noted. Proposed surveys for MM BIO-6 include pre-construction surveys as well as surveys that follow the protocols in the CDFW publication *Staff Report on Burrowing Owl Mitigation (2012).* Specifically, protocol-level surveys shall include a habitat assessment that includes both the project site and within 500 meters of the project site and shall be performed each year work is conducted to account for any changes in habitat conditions such as the creation of small mammal burrows. Surveys for nonbreeding burrowing owls during the wintering season shall also be performed on at least four occasions, including within 24 hours prior to ground disturbance. In the event any burrowing owls are found during any of these surveys, construction activities shall be scheduled to avoid nesting and breeding periods in consultation with CDFW. Additionally, MM BIO-6 in Section IV, Biological Resources, of the IS/MND has been revised to include additional language recommended by CDFW which stipulates that the proposed project would obtain a CESA ITP if take of burrowing owl cannot be avoided. No additional response is required.

Response to NSRRD2-27

The commenter paraphrases Dr. Smallwood's letter asserting that one-way passages should be installed in silt fencing and that "highly significant impacts to amphibians" would occur as a result of installation of the fencing.

Comment noted. One-way passages are feasible to install in the silt fencing, and if combined with regular visual inspection of the fence by the project Biologist, will ensure that no amphibians or reptiles are trapped on the project side of the fence. The assertion that fencing would create highly significant impacts to amphibians is not supported by data, and the assumption that fencing would create impacts is not supported by any provided facts. No additional response is required.

Response to NSRRD2-28

The commenter states that the proposed project's impacts on biological resources may be significant and unmitigated and that an EIR must be prepared to evaluate potential impacts.

Comment noted. As described in Response to NSRRD2-7 and Response to NSRRD2-12 above, environmental baseline data has been adequately documented, and surveys and mitigation measures for plants and wildlife follow accepted protocols and have been approved by CDFW through their review of the IS/MND.

The CEQA Guidelines directs commenters to focus on the proposed finding in an IS/MND that the project will not have a significant environmental effect (CEQA Guidelines § 15204(a)). In accordance with Section 15204(b), commenters who believe that a project will have a significant environmental effect should identify the specific significant effect, explain why the specific effect would occur, and explain why the effect would be significant.

Commenters should also submit supporting data or references offering facts, reasonable assumptions based on facts, or expert opinion supported by facts to support their assertions (CEQA Guidelines § 15204(c)). Here, the comments fail to identify specific significant effects and do not provide any specific facts to support the general statements that the project "may be significant and unmitigated."

No additional response is required.

Response to NSRRD2-29

The commenter, Daniel T. Smith, Jr. of Smith Engineering & Management, states in a letter dated November 12, 2024, that the VMT impacts were improperly evaluated by separately analyzing Buildings A and B. The commenter also raises an issue relative to the trip generation and need to treat the office space separately as opposed to being ancillary to the warehouse function.

Comment noted. The projects are on separate parcels and are intended to be owned and managed separately; a single traffic study was prepared as both projects are proceeding at the same time. Although the projects were analyzed separately, the IS/MND properly analyzes the whole of the project because the combined traffic impacts were considered via the cumulative impacts discussion within the IS/MND. However, under the County's VMT policy, projects that do not screen out are required to reduce their VMT by 15 percent to mitigate their potential impact. The recommendation to prepare a Transportation Demand Management (TDM) Plan can be applied to both buildings rather than to Building B, if the County deems it necessary. With implementation of trip reduction measures by 15 percent, the impacts for both buildings would be less than significant.

It is noted that for Building B the office space is indicated as 11,000 square feet out of a total of 66,915 square feet, or approximately 16 percent of the total floor area. The description provided in the *Trip Generation Manual*, 11th Edition, for "Warehouse" (Land Use 150) says, "A warehouse is primarily devoted to the storage of materials, but it may also include office and maintenance areas." As almost 84 percent of the building would be dedicated to warehouse uses, it is reasonable to conclude that this is the primary use, making the application of this rate to the entire space consistent with the land use designation.

As a point of comparison, it is noted that application of trip generation rates for an office use versus a warehouse use for the 11,000 square feet of that use proposed in Building B would increase the trip generation by 10 trips during the AM peak-hour and one during the PM peak-hour, with 67 more trips on a daily basis. However, as the building was already anticipated to generate more than 110 daily trips, so has a recommended measure to mitigate potential VMT impacts, the change in the trip generation would have no effect on the findings or conclusions of the analysis. Similarly, the limited number of additional peak-hour trips would reasonably be expected not to result in any new adverse effects, though it is noted that this issue is not related to CEQA, so would have no effect on the Initial Study.

Based on the details provided above, the potentially significant transportation impacts of the project have already been identified and mitigations identified; hence an EIR is not warranted with respect to further evaluating potential transportation impacts. No additional response is required.

Response to NSRRD2-30

The comment states that the IS/MND fails to analyze the impacts resulting from the conversion of farmland to nonagricultural use, citing the proposed project's findings on the continued buildout of area surrounding the project site and the project site's classification under Farmlands of Local Importance.

As mentioned within the quote cited by the comment, the proposed project would not result in the conversion of existing farmland; as noted in Section II Agriculture and Forestry Resources in the IS/MND, the site is undeveloped and has been designated for industrial/business park uses for the last 35 years. As such, development of the proposed project would not result in the conversion of farmland to nonagricultural uses, given the broad definition of the site's classification under Farmlands of Local Importance, which includes all undeveloped lands with soils which "meet the characteristics of Prime Farmland or of additional Farmland of Statewide Importance except for irrigation." As noted in the same Section, this parallels the development of surrounding parcels in the Napa Valley Business Park Specific Plan (NVBPSP) area, which have been reclassified as Urban and Built-Up Land, thus negating the potential for future agricultural uses within the site and the surrounding area. As such, there is no evidence that the proposed project would result in significant environmental impacts due to the conversion of farmland to nonagricultural uses. No additional response is required.

Response to NSRRD2-31

This concluding comment reiterates the claim that the proposed project is inadequate under CEQA and requires provision of an EIR to account for potential significant impacts. The comment does not contain any specifics or details to support the statements.

Comment noted. See Response to NSRRD2-4 through Response to NSRRD2-30. No additional response is required.

Response to NSRRD2-32

This comment describes the project proponent, objectives, proposed uses, parking area, circulation plan, utilities, and location, including parcel numbers and approximate dimensions of proposed buildings of the proposed project. The comment concludes by stating that the IS/MND fails to provide sufficient information justifying the environmental impacts would be less than significant, specifically air quality impacts through the lack of provision of an air quality analysis performed through CalEEMod.

As explained in Section III, Air Quality, of the IS/MND, the project falls well below the Bay Area Air District screening criteria, and consequently will not significantly affect air quality individually or contribute considerably to any cumulative air quality impacts. Since all screening criteria for criteria air pollutants and precursors are met by the proposed project, a detailed assessment of the project's criteria air pollutant and precursor emissions is not required since the emissions from the proposed project would be under the Bay Area Air District quantitative thresholds of emissions for these pollutants.

No additional response is required.

Response to NSRRD2-33

This comment states that assertions regarding GHG emissions impacts for Buildings A and B are significant and unmitigated. The comment references the lack of incorporation of certain GHG emissions

reduction strategies, which the comment asserts would cause the proposed project to result in significant GHG emissions impacts. To supplement this response, the commenter provides a conceptualized quantitative analysis of the proposed project's GHG emissions during construction and operation using CalEEMod.

Although the commenter asserts that incorporation of additional GHG emissions reduction measures would result in lower GHG emissions, per CEQA Guidelines Section 15070(b), the proposed project would not be required to reduce project-specific impacts to the maximum extent possible, but to a level that is less than significant. Although the comment references a statement within the IS/MND supposedly referencing the possibility of incorporating additional GHG emissions reduction measures, incorporation of these measures is speculative and would be conducted on a project-specific basis to result in reducing GHG emissions impacts to a level that is less than significant. The commenter does not demonstrate how the proposed project would conflict with any local or regional air quality screening thresholds of significance when assessing whether GHG emissions impacts resulting from the proposed project would be less than significant, wherein the Lead Agency is permitted to select these thresholds based on "substantial evidence" per CEQA Guidelines Section 15064(c). As such, the commenter does not raise substantial evidence that the proposed project would result in significant GHG emissions impacts under CEQA Guidelines. No additional response is required.

Response to NSRRD2-34

The comment claims that without mitigation, emissions resulting from reactive organic compounds (ROCs) would exceed Bay Area Air District thresholds.

As previously mentioned in Response to NSRRD2-32 through Response to NSRRD2-33, the proposed project would not exceed established Bay Area Air District thresholds, which establishes an emission threshold for average daily emissions. The commenter erroneously compared the modeling's summer maximum emissions to the Bay Area Air District's thresholds which are based on average daily emissions. When correctly comparing the modeling's average daily emissions to the Bay Area Air District thresholds, all emissions are below thresholds. Therefore, utilizing the commenter's own modeling results for illustrative purposes, the proposed project still would not result in a significant air quality impact.

No additional response is required.

Response to NSRRD2-35

The comment provides concluding remarks that the proposed project would result in significant environmental impacts and would require an EIR.

Comment noted. Refer to Response to NSRRD2-31 through Response to NSRRD2-35. No additional response is required.

Response to NSRRD2-36

The commenter describes the location of the proposed project, the dimensions of the proposed buildings, and that the purpose of writing the letter is to comment on impacts to biological resources in the IS/MND prepared by FCS and the County. This comment is noted. No additional response is required.

Response to NSRRD2-37

The commenter describes their qualifications. This comment is noted. No additional response is required.

Response to NSRRD2-38

The commenter describes the process of characterizing existing environmental conditions through field surveys and reviews of literature and available databases. This comment is noted. No additional response is required.

Response to NSRRD2-39

The commenter describes the purpose of CEQA and the requirement to know biological species that exist on-site and which species are likely to occur; however, this comment does not raise any issues specific to the proposed project or the IS/MND. This comment is noted. No additional response is required.

Response to NSRRD2-40

The commenter states that the survey performed on December 8, 2022 was reconnaissance level and therefore not appropriate for use as baseline data for an IS/MND.

Comment noted. As described in Response to NSRRD2-11 above, the December 8, 2022 survey was followed by 10 protocol-level avian surveys and five protocol-level plant surveys. No additional response is required.

Response to NSRRD2-41

The commenter states that without knowing how long the December 8 survey lasted the survey results cannot be fully interpreted.

Comment noted. As described in Response to NSRRD2-11 above, the December 8 survey was followed by 10 protocol-level avian surveys and five protocol-level plant surveys. Duration and timing of each survey was performed according to CDFW protocols. Duration of avian surveys were at least 4 hours and were initiated typically between 7:30 a.m. and 8:30 a.m. as described in the Special-Status Avian Survey Report prepared by Pinecrest dated January 29, 2024. No additional response is required.

Response to NSRRD2-42

The commenter states that starting surveys at 11:00 a.m. results in fewer species observed than early morning surveys.

Comment noted. As described in Response to NSRRD2-41 above, avian surveys were initiated typically between 7:30 a.m. and 8:30 a.m. as described in the Special-Status Avian Survey Report prepared by Pinecrest dated January 29, 2024. No additional response is required.

Response to NSRRD2-43

The commenter argues that FCS detected 13 taxa of vertebrate wildlife within the project site and stated that he detected 69 species of vertebrate wildlife at three separate locations within 700 meters of the site. The commenter concludes that the reconnaissance surveys conducted by FCS were “grossly deficient, and its results ill-suited for characterizing the existing environmental settings.”

Comment noted. As described in Response to NSRRD2-14*,* above, the Pinecrest Special-Status Avian Survey Report and the FCS Biological Resources Assessment report a combined total of 61 vertebrate species, not 13. This number from a single site exceeds the 44 species observed by the commenter at three combined sites south/southeast of the project site and is approximately equal to the 69 species observed by the commenter at three combined sites within 700 meters of the project site. Additionally, the commenter's species counts result from summing the number of species observed at each of three different sites, which is not an industry accepted practice for conducting species counts. To be comparable to the single site surveyed in the FCS and Pinecrest reports, the 44 and 69 species observed by Dr. Smallwood across three sites should be reverse extrapolated to a lower number to be comparable to the single site surveyed in the FCS and Pinecrest reports, since the number of species observed will increase as you increase the number of sites surveyed. Thus, based on Dr. Smallwood's own data, the community of vertebrates at the project site has been adequately characterized by the FCS and Pinecrest reports. No additional response is required.

Response to NSRRD2-44

The commenter states that FCS did not follow the CDFW 2018 plant survey guidelines.

Comment noted. As described in Response to NSRRD2-11 above, five special-status plant surveys were conducted according to protocols described in the CDFW publication titled *Protocols for Surveying and Evaluating Impacts to Special-Status Native Plant Populations and Sensitive Natural Communities (2018),* exceeding the number of surveys required. The results of these surveys are described in the memorandum prepared by Pinecrest titled Results of Special-Status Plant Surveys at E&P Technology Way dated July 21, 2023. A total of 54 species of plants were observed in the project area, defined as the grassland portion of the three parcels excluding the Sheehy Creek riparian corridor and pedestrian pathway. No additional response is required.

Response to NSRRD2-45

The commenter states that no surveys were performed for bats, small mammals, or reptiles.

Comment noted. See Response to NSRRD2-12, above, regarding bat, reptile, and amphibian surveys. Live trapping for small mammals is not warranted since there are no known special-status species of small mammals that have the potential to exist on the project site. No additional response is required.

Response to NSRRD2-46

The commenter reports there is a discrepancy in the FCS (2024) report in that the riparian corridor is stated as having high quality habitat whereas the project area does not contain habitat for special-status species due to the history of disking.

Comment noted. This is correct, the Sheehy Creek riparian corridor is in a conservation easement, and is not defined as part of the project area. The project area is defined as the ruderal grassland portion of the parcels, exclusive of the riparian corridor and pedestrian walkway. The project area has been disked and mowed annually for many years and is not high-quality natural habitat particularly when compared to the conservation easement. The value of the upland grassland habitat is reduced due to the history of disking, since disking eliminates fossorial mammal burrows and soil cracks that might otherwise provide

refugia for animals migrating out of the riparian corridor. There is no discrepancy or inconsistency in the IS/MND. No additional response is required.

Response to NSRRD2-47

The commenter describes the purpose of literature and database reviews. This comment is noted. No additional response is required.

Response to NSRRD2-48

The commenter indicates that the FCS report did not consult eBird or iNaturalist when compiling a list of species that are known to occur on or near the project site.

As described in Response to NSRRD2-13, above, species with potential to exist in the vicinity of the site were compiled based on an industry standard "nine-quadrangle" search around the project site using the CNDDB database. Neither eBird or iNaturalist were used since they are not reliable sources of information on the presence or absence of species at a given location, nor are they consistent with industry practice. Whereas the CNDDB database is curated, eBird and iNaturalist are community-sourced platforms that allow lay individuals to upload occurrences. The data is not vetted by experts and occurrences are not regularly checked for accuracy. These databases are known to frequently misidentify species that are frequently confused, such as hawks and raptors. However, CNDDB’s comprehensive and curated data is maintained by CDFW and contains vetted and updated records that cater to special-status species. CNDDB is also widely used in CEQA compliance and is the standardized method of identifying the likelihood of species occurrences. As Dr. Smallwood did not reference CNDDB in his discussion of the likelihood of species presence on-site and relied solely on eBird and iNaturalist, his conclusions cannot be confirmed as accurate. No additional response is required.

Response to NSRRD2-49

The commenter states that CNDDB is not sufficient to characterize the wildlife community of a site and states that FCS "misuses" the CNDDB database.

Comment noted. As described in Response to NSRRD2-43, above, the wildlife community of the site was extensively characterized with over 10 targeted wildlife surveys identifying a total of 61 vertebrate species, and five protocol-level plant surveys identifying a total of 54 plant species. The number of animal species identified on-site meets or exceeds the commenter's own species counts from nearby locations.

The CNDDB database was also used according to its intended purpose. As described in Response to NSRRD2-48above, an industry standard "nine-quadrangle" search was performed around the project site using the CNDDB database in order to generate a minimum list of species that may occur on-site, not to rule out species that may exist on-site. Subsequent field surveys were performed to identify any special-status species on-site, and any special-status species on-site would be identified even if they did not appear on the nine-quadrangle CNDDB search. No additional response is required.

Response to NSRRD2-50

The commenter describes how the CNDDB database is compiled and notes general features about the database; however, the comment does not identify any issues specific to the proposed project or the IS/MND.

This comment is noted. No additional response is required.

Response to NSRRD2-51

The commenter states they believe 125 special-status species of wildlife should be analyzed for occurrence, and reports that some of these species have been observed on or in the vicinity of the project site.

The numbers presented by the commenter are in error. Additionally, the comment's assertion that, based on those numbers, the project site supports multiple special-status species of wildlife is unsupported. See *Response to* NSRRD2-14above. No additional response is required.

Response to NSRRD2-52

The commenter claims that FCS analyzed only 51 special-status species for the potential to occur on-site and contends that numerous species are misclassified as having a low likelihood of existing on-site.

The numbers presented by the commenter are in error. As described in Response to NSRRD2-14 above, the Biological Resources Assessment prepared by FCS analyzes the likelihood of occurrence of a total of 259 special-status species including 94 species of animals. This list was generated using an industry standard "nine-quadrangle" search of the CNDDB database. No species occurrences that appeared during this search were omitted. As described in Response to NSRRD2-13 above, the likelihood of occurrence for each avian species was determined primarily based on nesting habitat and secondarily based on foraging habitat, thus the "low" or "very low" likelihood of occurrence listed for several raptor species in the project area is substantiated since there is no nesting habitat in the project area but some foraging habitat that ranges in quality from low to very low due to the history of disking.

Subsequent field surveys were performed to identify any special-status species on-site, and any special-status species on-site would be identified even if they did not appear on the nine-quadrangle CNDDB search. No additional response is required.

Response to NSRRD2-53

The commenter describes inaccuracies in the legal status of various species in the occurrence likelihood table.

Comment noted. Out of 259 species in the occurrence likelihood table, 17 displayed legal status based on outdated classifications. Despite this, none of the conclusions in the IS/MND are affected or require revision. The occurrence likelihood table does not claim to be an exhaustive listing of all the state and federal protections afforded to each species. Any special-status species observed on-site would be given appropriate protections regardless of the status presented in the occurrence likelihood table. No additional response is required.

Response to NSRRD2-54

The commenter states that no valid reason for determining potential for occurrence is given. The commenter also claims that differences between nesting and foraging habitat are a "contrived bifurcation of habitat that lacks scientific foundation."

Comment noted. The claim by the commenter that the difference between nesting and foraging habitat is a "contrived bifurcation of habitat that lacks scientific foundation" is without merit. It is common knowledge that most birds nest in different habitats than they forage in. Furthermore, birds spend much more time proportionately at their nest site than in any one foraging site. Finally, from a population dynamic perspective, disturbance of nest sites has a much more profound influence on population persistence than an equal area of foraging habitat. These are all broadly accepted scientific principles.

The "likelihood to occur" is an often-used phrase but really contains two distinct components, likelihood of nesting, and likelihood of foraging. As described in Response to NSRRD2-13 above, the likelihood of occurrence for each avian species was determined primarily based on nesting habitat and secondarily based on foraging habitat. For this project site, there is no likelihood of nesting, but some likelihood of foraging for most raptors. To come up with a single "likelihood to occur," FCS weighted the lack of nesting habitat as greater than the presence of foraging habitat. Thus the "low" or "very low" likelihood of occurrence listed for several raptor species in the project area is substantiated since there is no nesting habitat but some foraging habitat that varies in quality from high to low depending on the foraging patterns and preferences of the species. No additional response is required.

Response to NSRRD2-55

The commenter states that American badger may exist on-site due to their personal observation of American badger in a variety of habitats. The commenter takes issue with the claim that American badger prefer habitats with "plenty of prey;" however, the comment does not provide any specific evidence or facts related to the project site.

Comment noted. The likelihood of occurrence for this species was determined based on the probability that this species would den in the project area. The project area is defined as the grassland habitat of the parcels exclusive of the Sheehy Creek riparian corridor and pedestrian pathway. The project area is entirely flat, lacks any woody plant cover or topography, is regularly disked and mowed, and is surrounded on three sides by development. This would be considered by most Biologists as unsuitable habitat for American badger to create dens in.

In terms of foraging, it is an established principle in the scientific literature that large predators including badgers prefer and migrate toward habitats with plenty of prey. The project area is surrounded on three sides by development and has no fossorial mammal or rodent burrows due to the history of disking and mowing, limiting the prey abundance. The project site quantitatively contains less prey than un-disked habitats adjacent to open space, and American badger, like most predators, prefer habitats with plenty of prey. No additional response is required.

Response to NSRRD2-56

The commenter states that bald eagles forage in a variety of habitats and may hunt ground squirrels and other mammals. The commenter says they observed a bald eagle 2.7 miles from the project site and that "2.7 miles from the project site is essentially at the project site."

Comment noted. As discussed in Response to NSRRD2-54 above, the likelihood of occurrence for each avian species was determined primarily based on nesting habitat and secondarily based on foraging habitat. For this project site, there is no likelihood of nesting for bald eagle, and the likelihood of foraging

for this particular species is also close to zero. Moreover, there is a lack of substantial evidence to support a finding of foraging habitat on the project site in the comment. As the commenter mentions, bald eagles will occasionally hunt ground squirrels and other terrestrial animals. However, there are no ground squirrels or other fossorial mammals at this site due to the history of disking and mowing. Bald eagles prefer large prey, and the project site entirely lacks large prey such as rabbits and ground squirrels, making the likelihood of observing a bald eagle foraging this site unlikely. While the commenter may have observed a bald eagle 2.7 miles away, this is not "essentially at the project site." The observation of a bald eagle 2.7 miles away coincides with a known occurrence of bald eagle in the CNDDB database in the Napa-Sonoma Marsh surrounding the Napa River, a much more likely place to find a bald eagle foraging and a completely different habitat than on the project site. Nonetheless, FCS classified the likelihood of occurrence of this species as "very low" and not "none." No additional response is required.

Response to NSRRD2-57

The commenter states that they saw a peregrine falcon within 2.7 miles of the project site and that the classification of "low" likelihood of occurrence is inaccurate.

Comment noted. As discussed in Response to NSRRD2-54 above, the likelihood of occurrence for each avian species was determined primarily based on nesting habitat and secondarily based on foraging habitat. To come up with a single "likelihood to occur," FCS weighted the lack of nesting habitat as greater than the presence of foraging habitat. For this project site, there is no likelihood of nesting for peregrine falcon, and the likelihood of foraging for this particular species is low. Peregrine falcons primarily hunt other birds in the air, thus a peregrine falcon would tend to occur on-site only if they caught a bird and landed in the field to process the prey. Therefore, the weighted likelihood of occurrence for this species as "very low" is substantiated.

Regardless of the stated likelihood of occurrence, if peregrine falcon were observed nesting near the project parcel, appropriate protections would be afforded this species. The likelihood of occurrence is only a guide and does not exclude species from consideration. No additional response is required.

Response to NSRRD2-58

The commenter disagrees that western pond turtle is listed as having no likelihood of occurrence on-site.

Comment noted. This is a typographical error and is clarified in the sentence in the occurrence likelihood table that immediately follows: "Some marginally suitable nesting habitat exists on-site." In addition, surveys and avoidance measures for western pond turtle are recommended in the conclusions of the Biological Resources Assessment and incorporated into MM BIO-8. The conclusions in the IS/MND accurately reflect the biological findings and do not require any revisions. No additional response is required.

Response to NSRRD2-59

The commenter states that the likelihood determination for burrowing owl is incorrectly classified as "very low" and asserts that no reason is given for this determination other than the disturbed nature of the site. The commenter describes a locality known from 240 meters off-site, and claims that this is "essentially on the project site."

Comment noted. As described in Response to CDFW-4 above, a habitat assessment for burrowing owl following the CDFW (2012) protocols determined that the entirety of the project site is free from structures that could be utilized as burrows including fossorial mammal burrows, pipes, culverts, and debris piles. The entirety of the project site has been disked and mowed regularly, disrupting the formation of ground squirrel or other types of burrows, and is free from debris including pipes or wood piles. This is sufficient to declare the habitat unsuitable for burrowing owl according to the CDFW (2012) protocols. Nonetheless, FCS performed burrowing owl surveys 10 times in 2022 and 2023 that encompassed the entirety of the project site. No burrowing owls were observed on-site, and no burrowing owls have been observed within 15 miles of the project site since the single observation of a wintering individual 0.2 mile off-site to the northeast in 2006. No additional response is required.

Response to NSRRD2-60

The commenter presents the different types of surveys described in the CDFW publication *Staff Report on Burrowing Owl Mitigation (2012).*

This comment is noted. No additional response is required.

Response to NSRRD2-61

The commenter describes additional detail about the purpose of each kind of burrowing owl survey in the CDFW (2012) protocols.

This comment is noted. No additional response is required.

Response to NSRRD2-62

The commenter describes how the site may be suitable for burrowing owl and how they have seen ground squirrels near the project site, but not on the project site. The commenter states that protocol-level burrowing owl surveys should be performed according to the CDFW (2012) protocols.

Comment noted. As described in Response to CDFW-4, and Response to NSRRD2-59 above, the commenter is incorrect in stating only a single reconnaissance survey was performed. In fact, 10 targeted burrowing owl field surveys were performed on the project site that conform to the protocols specified in the CDFW publication *Staff Report on Burrowing Owl Mitigation (2012).* No additional response is required.

Response to NSRRD2-63

The commenter states that they believe that the designation of Swainson's hawk likelihood of occurrence as very low is incorrect. The commenter states that Swainson's hawk forage over many types of habitats including disturbed ground and that 0.25 mile is not far for a Swainson's hawk to fly.

Comment noted. As described in Response to NSRRD2-54 above, the likelihood of occurrence for each avian species was determined primarily based on nesting habitat and secondarily based on foraging habitat. To come up with a single "likelihood to occur" FCS weighted the lack of nesting habitat as greater than the presence of foraging habitat. For this project site, there is no likelihood of nesting for Swainson's hawk, and the likelihood of foraging for this particular species is low due to the lack of small mammal prey on-site due to the history of disking and disruption of fossorial mammal burrows. Nonetheless, FCS

conducted 10 focused field surveys for Swainson's hawk in 2022 and 2023 according to the CDFW publication *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley (2000).*

Regardless of the stated likelihood of occurrence, if Swainson's hawk were observed nesting near the project parcel, appropriate protections would be afforded this species. The likelihood of occurrence is only a guide and does not exclude species from consideration. No additional response is required.

Response to NSRRD2-64

The commenter describes their skepticism of reports documenting the recovery of Swainson's hawk in the region; however, this comment does not raise any issues specific to the project site or the IS/MND.

This comment is noted. No additional response is required.

Response to NSRRD2-65

The commenter criticizes the County's "failure" to implement "appropriate survey and mitigation guidelines" related to Swainson's hawk.

This comment is noted. The IS/MND states that less than 1 percent of Swainson’s hawk foraging habitat would be affected by the proposed project and that hundreds of acres of additional foraging habitat is within 5 miles of the project site. However, the proposed project would mitigate for the loss of Swainson’s hawk habitat through MM BIO-5 which stipulates that the proposed project shall provide Swainson’s hawk foraging habitat mitigation at a minimum 1:1 ratio. Dr. Smallwood does not address why MM BIO-5 would be insufficient to mitigate for the loss of foraging habitat for Swainson’s hawk. Therefore, appropriate survey and mitigation guidelines are present within the IS/MND. No additional response is required.

Response to NSRRD2-66

The commenter takes issue with the claim that 0.16 percent of potential foraging habitat of the average home range of a single individual would be lost due to implementation of the proposed project. The commenter states that "[if] the 0.16% of foraging habitat that is lost is the 0.16% that makes the difference between persistence and extirpation, then the 0.16% would be of critical importance."

Comment noted. The County is aware of the severity of the loss of foraging habitat for the Swainson’s hawk and although there is no conclusive way to argue that 0.16 percent of habitat loss would be the difference between persistence and extirpation, the project nonetheless offers up mitigation to account for the loss of Swainson’s hawk foraging habitat through the implementation of MM BIO-5. As stated above in Response to NSRRD2-65*,* the proposed project shall provide Swainson’s hawk foraging habitat mitigation at a minimum 1:1 ratio. Therefore, impacts to Swainson’s hawk foraging habitat would not be reduced to a less than significant level under CEQA. No additional response is required.

Response to NSRRD2-67

The commenter describes the purpose of an impact analysis and emphasizes the importance of adequate characterization of the environmental setting. The commenter asserts that the environmental setting has not been adequately characterized and that potential impacts have not been analyzed.

Comment noted. As described in Response to NSRRD2-14 and Response to NSRRD2-12, adequate characterization of the environmental setting was performed including protocol-level surveys for plants, Swainson's hawk, and burrowing owl. No additional response is required. The comment does not raise any specific issues related to the proposed project or the IS/MND.

Response to NSRRD2-68

The commenter summarizes text from the IS/MND making the case that no evidence of raptor nests, wildlife dens or burrows, or other sensitive habitats have been identified from the project area, concluding that there would be no significant impacts to wildlife or other sensitive habitats.

This comment is noted. With mitigation, as stated in the IS/MND, this comment is correct, there would be no significant impacts to wildlife or other sensitive habitats. No additional response is required.

Response to NSRRD2-69

The commenter states that there would be potentially significant impacts from the project and describes surveys they have performed for other warehouse projects including before and after control-intervention studies that purported to detect declines in wildlife abundance and richness.

This comment is noted. No additional response is required.

Response to NSRRD2-70

The commenter describes how habitat loss consists of numerical declines of wildlife and also loss of "productive capacity" due to habitat fragmentation. The commenter describes methods for estimating the loss of productive capacity.

This comment is noted. See Response to NSRRD2-21 above. No additional response is required.

Response to NSRRD2-71

The commenter relates the results of studies on avian abundance in different habitats that have been fragmented. The commenter describes data they collected on nest abundance at a location in Southern California.

This comment is noted. No additional response is required.

Response to NSRRD2-72

The commenter states that loss of nest sites and nest attempts would qualify as significant impacts for the purposes of the IS/MND. The commenter provides calculations where they estimate the number of birds that will be lost due to project implementation.

Comment noted. While the calculations and studies presented by the commenter are interesting, they are contradicted by the environmental conditions on-site. The proposed project would not increase habitat fragmentation because the project site is surrounded on three sides by industrial development and would not isolate patches of habitat from other patches of habitat, which is the scientific definition of habitat fragmentation.

Additionally, there is little to no suitable habitat for nesting in the project area, and no nesting birds were observed in the project area during 10 protocol-level avian surveys in 2022 and 2023. Thus, the commenter's claim that project implementation will result in the loss of 1,113 birds per year is difficult to reconcile with the observation that no nests have so far been observed in the project area. No additional response is required.

Response to NSRRD2-73

The commenter states that many of the 1,113 birds that could be lost annually are protected by various State and federal laws, resulting in significant project impacts.

Comment noted. See Response to NSRRD2-72. No additional response is required.

Response to NSRRD2-74

The commenter states that traffic-related impacts to wildlife account for numerous mortality events each year for birds, reptiles, mammals, amphibians, and arthropods. The commenter provides statistics for traffic-related mortality in the United States and Canada.

This comment is noted. No additional response is required.

Response to NSRRD2-75

The commenter provides statistics on traffic-related mortality along Vasco Road in Contra Costa County. The commenter estimates the number of wildlife killed by traffic per mile per year and states that an analysis is needed to determine whether increased traffic at the project site will result in local impacts on wildlife.

This comment is noted. CDFW did not find issue with the lack of conversation related to traffic-related mortality within the IS/MND. Impacts of traffic-related mortality are not a threshold held under CEQA or identified by the lead agency and is therefore not a necessary component that need to be addressed. Additionally, Vasco Road in Contra Costa County is a significantly busier road than Technology Way or Morris Court which bound the project site. The commenter’s calculations are speculative to the amount of traffic-related mortality that the project would produce due to the type of road analyzed in his sample study. No additional response is required.

Response to NSRRD2-76

The commenter states that special-status species such as California tiger salamander and California red-legged frog could suffer traffic collision mortality.

This comment is noted. See Response to NSRRD2-75 above. No additional response is required.

Response to NSRRD2-77

The commenter cites scientific literature to estimate the number of individuals killed along Vasco Road in Contra Costa County. The commenter lists the various species that were observed and states that VMT is an effective metric for predicting wildlife mortality.

This comment is noted. No additional response is required.

Response to NSRRD2-78

The commenter calculates wildlife fatalities for the proposed project based on VMT from the IS/MND and mortality estimates from the Vasco Road study and concludes that 399 vertebrate fatalities per year would result.

Comment noted. The calculations provided are interesting and potentially useful, however parameterizing these calculations with data from Vasco Road and comparing them to the project site is problematic. Vasco Road is in a rural area surrounded by undeveloped land and runs along a major wildlife corridor in the Altamont Pass. In contrast, the project area is surrounded on three sides by industrial development and is not a known wildlife movement corridor. These factors significantly affect the number of roadway deaths, making the calculations from Vasco Road inapplicable to the project site.

It is equally conceivable that development of the proposed budlings will prevent animals from migrating from the Sheehy Creek corridor onto Technology Way. Currently there are no barriers preventing animals from migrating onto Technology Way from Sheehy Creek. Thus, implementation of the proposed project could actually reduce wildlife mortality from traffic. No additional response is required.

Response to NSRRD2-79

The commenter states that based on their analysis, traffic may cause significant impacts to wildlife. The commenter states that the IS/MND does not consider this possibility and that mitigation measures for avoidance of traffic mortality are available and feasible.

Comment noted. See Response to NSRRD2-78. No additional response is required.

Response to NSRRD2-80

The commenter recommends that MM BIO-1 be amended such that silt fencing is placed 300 feet from the top of bank of Sheehy Creek.

Comment noted. See Response to NSRRD2-23 above. CDFW reviewed the IS/MND and did not have any comments regarding the placement of silt fencing along the edge of the riparian corridor. Placement of silt fencing 300 feet south of the top of bank of Sheehy Creek is not a practical recommendation, since the width of the project area between Sheehy Creek and Technology Way ranges from 350 to 440 feet, leaving only 50-140 feet of buildable space. No additional response is required.

Response to NSRRD2-81

The commenter claims that MM BIO-2 "misrepresents CDFW (2018) as a pre-construction survey rather than as a reconnaissance survey" and that implementing CDFW (2018) "would not qualify as a legitimate mitigation measure."

Comment noted. See Response to NSRRD2-24 above. Rare plant surveys that follow the CDFW (2018) guidelines are typically called "protocol level", whereas "reconnaissance level" surveys are those that are less thorough and preliminary in nature. MM BIO-2 proposes protocol-level surveys to be performed the spring before construction begins, in addition to the five protocol-level surveys that were performed on the project site by Pinecrest in 2023. If protocol-level surveys are performed, these can be considered more effective than pre-construction or reconnaissance surveys.

Response to NSRRD2-82

The commenter states that MM BIO-3 would not detect all available nests nor prevent the loss of "productive capacity." The commenter also states that MM BIO-3". . . allows a single individual to make a subjective decision [about buffer width], outside the public's view. . . and lacks objective criteria."

Comment noted. MM BIO-3 states that the project Biologist will consult with CDFW, a public agency, to determine buffer widths. No additional response is required.

Response to NSRRD2-83

The commenter recommends that MM BIO-6 require implementation of the CDFW (2012) protocols including breeding season surveys. The commenter states surveys should be completed prior to CEQA review, not after.

Comment noted. As described in Response to NSRRD2-11 above, the CDFW (2012) burrowing owl protocols including breeding season surveys were already completed in 2022 and 2023 and will be performed again the year construction is scheduled to begin.

Response to NSRRD2-84

The commenter states that exclusion fencing should be fitted with one-way passages to ensure that animals can move from the project site to the Sheehy Creek riparian corridor but not the other direction. The commenter states that even with these passages, there would be "substantial, highly significant impact to amphibians such as yellow-legged frog."

Comment noted. The recommendation to install one-way passages is a good idea and should be easy to implement. However, it is not substantiated that there will be "substantial, highly significant impacts" to amphibians despite pre-construction surveys and exclusion fencing required by MM BIO-8. Nor is there substantial evidence that the one-way passages would result in a substantial reduction of the already less than significant impacts. There have been no amphibians observed in the project area during any of the surveys performed at the project site, and no yellow-legged frogs observed in Sheehy Creek. It is unlikely that amphibians would migrate from the riparian corridor onto the project area in substantial numbers due to the lack of fossorial mammal burrows or cracks in the ground suitable for estivation, because of the history of disking. Pre-construction surveys required by MM BIO-8, as well as exclusion fencing and installation of one-way passages, will reduce the likelihood of impacts to amphibians to less than significant. No additional response is required.

Response to NSRRD2-85

The commenter, Daniel T. Smith, Jr. of Smith Engineering & Management, states in a letter dated November 12, 2024, that the VMT impacts were improperly evaluated by separately analyzing Buildings A and B. The commenter also raises an issue relative to the trip generation and need to treat the office space separately as opposed to being ancillary to the warehouse function.

Comment noted. The projects are on separate parcels and are intended to be owned and managed separately; a single traffic study was prepared as both projects are proceeding at the same time. Although the projects were analyzed separately, the IS/MND properly analyzes the whole of the project because the combined traffic impacts were considered via the cumulative impacts discussion within the IS/MND.

However, under the County's VMT policy, projects that do not screen out are required to reduce their VMT by 15 percent to mitigate their potential impact. The recommendation to prepare a TDM Plan can be applied to both buildings rather than to Building B, if the County deems it necessary. With implementation of trip reduction measures by 15 percent, the impacts for both buildings would be less than significant.

It is noted that for Building B the office space is indicated as 11,000 square feet out of a total of 66,915 square feet, or approximately 16 percent of the total floor area. The description provided in the *Trip Generation Manual*, 11th Edition, for "Warehouse" (Land Use 150) says, "A warehouse is primarily devoted to the storage of materials, but it may also include office and maintenance areas." As almost 84 percent of the building would be dedicated to warehouse uses, it is reasonable to conclude that this is the primary use, making the application of this rate to the entire space consistent with the land use designation.

As a point of comparison, it is noted that application of trip generation rates for an office use versus a warehouse use for the 11,000 square feet of that use proposed in Building B would increase the trip generation by 10 trips during the AM peak-hour and one during the PM peak-hour, with 67 more trips on a daily basis. However, as the building was already anticipated to generate more than 110 daily trips, so has a recommended measure to mitigate potential VMT impacts, the change in the trip generation would have no effect on the findings or conclusions of the analysis. Similarly, the limited number of additional peak-hour trips would reasonably be expected not to result in any new adverse effects, though it is noted that this issue is not related to CEQA, so would have no effect on the Initial Study.

Based on the details provided above, the potentially significant transportation impacts of the project have already been identified and mitigations identified; hence an EIR is not warranted with respect to further evaluating potential transportation impacts. No additional response is required.

Errata

The following are revisions to the IS/MND for the proposed project. These revisions are minor modifications and clarifications to the document, and do not change the significance of any of the environmental issue conclusions within the IS/MND. The revisions are listed by page number. All additions to the text are underlined (underlined) and all deletions from the text are stricken (stricken).

Section IV. Biological Resources

Page 2, Section 10, Only Paragraph

The following edit has been made because of CDFW recommendations to include language for the potential for "take" of listed species.

> The proposed project does not involve the "take" of listed endangered or threatened species, and thus does not require a "take permit" from the Department of Fish and Wildlife, the U.S. Fish and Wildlife Service, or the National Marine Fisheries Service.

Nonetheless, MM BIO-6 includes requirements if a “take permit” from the Department of Fish and Wildlife, the U.S. Fish and Wildlife Service, or the National Marine Fisheries Service” is required.

Page 12-13, Section IV Biological Resources, Seventh Paragraph

This edit was made in response to CDFW’s recommendation to include mitigation language in case avoidance of burrowing owls is not possible and an ITP is required. The addition of this language ensures the effectiveness of MM BIO-6, but does not have any impact on the significance conclusions in the IS/MND.

MM BIO-6 **(Burrowing Owl Habitat Assessment and Surveys):** A qualified Biologist shall conduct a habitat assessment and surveys for wintering burrowing owls prior to construction if construction starts during the burrowing wintering season (September 1 to January 31) Surveys shall be conducted if warranted based on the habitat assessment. The habitat assessment and surveys shall follow the Department of Fish and Game Staff Report on Burrowing Owl Mitigation (2012) methodology (https://wildlife.ca.gov/Conservation/Survey-Protocols#377281284-birds) and the qualified Biologist shall prepare a report documenting the survey results. The habitat assessment and surveys shall encompass the Project site and a sufficient buffer zone to detect owls nearby that may be impacted, which is up to 500 meters (1,640 feet) around the Project site pursuant to the above methodology. Habitat assessments and surveys shall occur each year of project construction, as conditions may change annually and suitable refugia for burrowing owl, such as small mammal burrows, can be created within a few hours or days, unless otherwise approved in writing by CDFW.

Surveys for nonbreeding burrowing owls shall be spread over four visits during the nonbreeding season (i.e., wintering), September 1 to January 31. Time lapses between surveys or project activities shall trigger subsequent surveys including, but not limited to, a final survey within 24 hours prior to ground disturbance. The qualified Biologist shall have a minimum of 2 years of experience implementing the above methodology resulting in burrowing owl detections. The Biologist shall immediately notify CDFW if burrowing owl is detected and implement a construction avoidance buffer around any detected burrowing owl pursuant to the buffer distances outlined in the Department of Fish and Game Staff Report on Burrowing Owl Mitigation (2012), which may be up to 500 meters (1,640 feet). Any detected owl shall be monitored by the qualified Biologist to ensure it is not disturbed during construction activities, unless otherwise approved in writing by CDFW.

If take of burrowing owl (BUOW) cannot be avoided, the Biologist shall consult with CDFW pursuant to CESA and obtain an ITP before Project activities commence. Take is likely to occur and the Biologist shall obtain an ITP if: (1) BUOW surveys of the Project site detect BUOW occupancy of burrows or burrow surrogates, or (2) there is sign of BUOW occupancy on the Project site within the past 3 years and habitat has not had any substantial change that would make it no longer suitable within the past 3 years. Occupancy means a site that is assumed occupied if at least one BUOW has been

observed occupying a burrow or burrow surrogate within the last 3 years. Occupancy of suitable BUOW habitat may also be indicated by BUOW sign including its molted feathers, cast pellets, prey remains, eggshell fragments, or excrement at or near a burrow entrance or perch site. If BUOW, or their burrows or burrow surrogates, are detected within 500 meters (1,640 feet) of the Project site during BUOW surveys, but not on the Project site, the Biologist shall consult with CDFW to determine whether avoidance is feasible, or an ITP is warranted and shall obtain an ITP if deemed necessary by CDFW.

Section VIII. Greenhouse Gas Emissions

Page 18, Impact GHG-1, Fifth Paragraph

The following edit has been made to clarify the California Green Building Standards Code (CALGreen) electric vehicle (EV) charging requirements for warehouse buildings.

CALGreen's Tier 2 Voluntary Provisions are voluntary in nature and are not required by CALGreen or the County. The Project will comply with CALGreen EV charging requirements for nonresidential new construction which include EV capable and EV charging station requirements, and requirements for warehouses which include provisions to provide capacity for raceway, busway, transformer, and panel to serve future EV trucks. These features support long-term reductions in mobile-source emissions and align with state and regional climate goals, including AB 32, SB 32, and Executive Order B-55-18. ~~The project will be required to comply with the recently adopted version of CALGreen Tier 2.~~ Project approval will include a condition of approval to ensure this is reviewed and implemented at the time of construction through adherence to the California Building Code. Therefore, the Project is consistent with this design standard.

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SPECIAL-STATUS AVIAN SURVEY REPORT

Date: January 29, 2024

To: Robert Carroll, FCS International

From: Dr. Christopher T. DiVittorio, Pinecrest Research Corp., Inc.

Subject: Results of special-status avian surveys at Technology Way, Napa County, CA (APN 057-250-030, 057-250-031, 057-250-032; FCS Project 5639.0001)

Robert Carroll,

This special-status avian survey report (Report) details the findings of ten (10) avian surveys conducted between December 8, 2022 and June 21, 2023 at the above-referenced property located in the County of Napa. The property consists of three parcels assigned Napa County APN 057-250-030, 057-250-031, and 057-250-032 (Figures 1 & 2). The parcels measure 13.53, 4.9, and 2.23 acres, respectively, and are currently undeveloped, although they are surrounded on the east, west, and south by commercial warehouses. Surveys were conducted in order to determine the presence or absence of the following special-status animals: burrowing owl (*Athene cunicularia*), Swainson's hawk (*Buteo swainsoni*), nesting raptors, and nesting passerine birds. Surveys for these species were recommended to be performed according to a Biological Resources Assessment (BRA) prepared for the property by FCS International dated January 2, 2023. Surveys were conducted by consulting biologist Dr. Christopher DiVittorio.

Site Description

The portion of the property that is the proposed project area is composed of disked and mowed ruderal grassland (Figure 3). Sheehy Creek flows west along the north boundary of the property, however the entirety of the Sheehy Creek riparian corridor is in a conservation easement and is not part of the proposed project area. The conservation easement is separated from the project area along the entirety of its length by a paved pedestrian pathway. The ruderal grassland that comprises the project area exhibits low species diversity and few native plant species due to the history of disking and mowing. The vegetation type of the project area as determined by Sawyer et al. (2009) *Manual of California Vegetation 2nd Edition* (MCV)[1] is *Bromus* (*diandrus, hordeaceous*)-*Brachypodium distachyon* Semi-Natural Herbaceous Stand.

Methods

Between December 8, 2022 and June 21, 2023, ten (10) surveys were conducted for nesting passerine birds, raptors (including Swainson's hawk), and burrowing owl. During each survey, the entirety of the project area was examined on foot. These surveys included the entirety of the project area on all three parcels, as well visual inspection of the Sheehy Creek conservation easement on the north property

[1] Sawyer, J.O., T. Keeler-Wolf, J. Evens. 2009. *Manual of California Vegetation*. California Native Plant Society Press, Sacramento, CA.

boundary that is not part of the project area but is adjacent to it. Areas on adjacent parcels were also examined with binoculars where possible. A total of approximately 30 survey hours were completed across all survey dates.

Survey methods followed established procedures and applicable protocols, including the *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley*, and the *Staff Report on Burrowing Owl Mitigation*.[2,3] Survey equipment included high-quality binoculars and a high-quality spotting scope. Surveys were conducted during the appropriate times of day (including peak bird detection periods between sunrise and 10 a.m.). Surveys were conducted on foot. Survey dates with the corresponding Swainson's hawk survey periods are shown below, although all species of birds were surveyed for at each time period. The survey on 12/8/22 was technically prior to the beginning of Swainson's hawk Period 1 as described in the 2000 protocol[2], however this sample period is only recommended and primarily used to determine the presence or absence of suitable habitat onsite.

Date	Swainson's Hawk Survey Period
12/8/2022	1st survey in Period I
3/20/2023	1st survey in Period II
3/31/2023	2nd survey in Period II
4/4/2023	3rd survey in Period II
4/5/2023	1st survey in Period III
4/6/2023	2nd survey in Period III
4/7/2023	3rd survey in Period III
4/24/2023	1st survey in Period IV
5/29/2023	2nd survey in Period IV
6/21/2023	1st survey in Period V

Results & Recommendations

Transcribed field notes from each of the ten site visits are provided in Appendix A, and a master list of all species of birds encountered across the ten site visits is provided in Appendix B. A total of 16 unique species of birds were observed in the project area, and 52 unique species of birds observed in the Sheehy Creek conservation easement. The lack of birds observed in the project area was likely due to the lack of suitable nesting habitat on the project area itself, which is composed of disked ruderal grassland that is periodically mowed.

No special-status species including Swainson's hawk or burrowing owl were observed in the project area. Three special-status species were observed in the Sheehy Creek conservation easement--white-tailed kite, loggerhead shrike, and red-tailed hawk--however this easement is not in the project area. Additionally, none of these species were engaged in nesting behaviors and were not actively foraging in the project area. No nesting birds were observed in the project area. Nesting birds observed in the Sheehy Creek riparian corridor included red-shouldered blackbird and Anna's hummingbird.

[2] Swainson's Hawk Technical Advisory Committee. 2000. *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley*. California Department of Fish and Wildlife, May 31, 2000.

[3] California Department of Fish and Wildlife 2012. *Staff Report on Burrowing Owl Mitigation*. State of California Natural Resource Agency Department of Fish and Game. March 7, 2012.

Swainson's Hawk

No individuals of Swainson's hawk were observed during any of the surveys. One raptor nest was observed in the conservation easement of Sheehy Creek in a cottonwood tree, the location of which is indicated in Figure 1. Repeated observations of this nest showed that it was not active during 2023 and has fallen into disrepair. The presence of red-tailed hawk (*Buteo jamaicensis*) and white-tailed kite soaring in the vicinity of the project area also suggests that Swainson's hawk are not utilizing this habitat currently since these species are antagonistic and do not typically share ranges. The negative survey results for Swainson's hawk despite approximately 30 survey hours satisfies the requirements of the survey protocol for this species, therefore it is reasonable to conclude Swainson's hawk are absent from the project area.

Nesting Raptors

No active raptor nests were observed in the vicinity of the project area. One raptor nest was observed in the conservation easement of Sheehy Creek in the location indicated in Figure 1, however repeated observations of this nest showed that it was not active during 2023 and has fallen into disrepair. Pairs of red-tailed hawk (*Buteo jamaicensis*) and white-tailed kite (*Elanus leucurus*) were occasionally observed soaring over the project area, and occasionally perching on adjacent buildings and trees within the Sheehy Creek conservation easement, however none of these birds behaved in a way that indicated any nest building activity was occurring on or near the project area. Although red-tailed hawks occasionally flew over the project area, they did not appear to be actively foraging in the project area. The frequent disking and mowing of the project area typically precludes the existence of small mammal burrows, thus it is likely that the project area is not high quality foraging habitat for raptors.

Other Nesting Birds

No active nests of any other bird species were observed within the project area. Nests of red-shouldered blackbird (*Agelaius phoeniceus*) and Anna's hummingbird (*Calypte anna*) were observed in the Sheehy Creek conservation easement, however these species are not special-status and their nests were outside of the proposed project area. These species are typically very tolerant of human activity, thus it is reasonable to conclude that construction in the project area would not significantly affect or preclude continued nesting of these species in the Sheehy Creek conservation easement.

Burrowing Owl

No evidence of burrowing owl activity was observed during any of the ten field surveys. No California ground squirrel burrows were observed on-site, and no other burrows or dens were observed in the project area that would provide suitable nesting habitat for burrowing owl. Frequent disking and mowing of the project area precludes the existence of small mammal burrows due to severe disturbance of the upper soil horizon. Therefore, it is reasonable to conclude burrowing owl is absent from the project area.

Please contact me at the email or phone number below if you have any questions about this or any other studies we've performed for this project.

Sincerely,



Christopher DiVittorio, PhD
President, PEC
(510) 881-3039
chris@pinecrestenvironmental.org

Figure 1: Site Map - West



Figure 2: Site Map - East



Figure 3: Ruderal Grassland



Pinecrest Environmental Consulting
www.pinecrestenvironmental.org

SOURCES: PEC Inc.

APN 057-250-030, 057-250-031, 057-250-032
E&P Technology Way, Napa, CA 94558

Appendix A: Animal Survey Field Notes

The following is a transcription of field notes for each of the ten (10) protocol-level surveys conducted at the project area and the Sheehy Creek conservation easement.

Site Visit: 12/8/22

Time: 10:00 AM
Weather: clear, 50 degF, 66% RH, wind 2-4 mph
Notes: most of project area recently disked; nest in cottonwood tree in Sheehy Creek conservation easement does not look maintained and is not in use; 2 adult red-tailed hawk soaring above conservation easement and landing on nearby buildings
Purpose: Swainson's hawk, other raptor, nesting bird, BUOW
Personnel: Dr. Christopher DiVittorio

Bird Species in Project Area: crow (*Corvus brachyrhynchos*), kildeer (*Charadrius vociferus*), rock pigeon (*Columba livia*), turkey vulture (*Cathartes aura*)

Bird Species in Conservation Easement: crow (*Corvus brachyrhynchos*), red-tailed hawk (*Buteo jamaicensis*), white-crowned sparrow (*Zonotrichia leucophrys*), mourning dove (*Zenaida macroura*), loggerhead shrike (*Lanius ludovicianus*), dark-eyed junco (*Junco hyemalis*), rufous-crowned sparrow (*Aimophlia ruficeps*), black phoebe (*Sayornis nigricans*), rock pigeon (*Columba livia*), Western scrub jay (*Aphelocoma californica*), unknown gull, Anna's hummingbird (*Calypte anna*), Hutton's vireo (*Vireo huttoni*), turkey vulture (*Cathartes aura*)

Other Animals: American beaver (*Castor canadensis*) dams located in Sheehy Creek appear active; runways of California vole (*Microtus californicus*)

Site Visit: 3/20/23

Time: 8:15 AM
Weather: no wind, 49 degF, 46% RH
Notes: old raptor nest in cottonwood tree not active; sticks falling down, looks in disrepair
Purpose: Swainson's hawk, other raptor, nesting bird, BUOW
Personnel: Dr. Christopher DiVittorio

Bird Species in Project Area: red-shouldered blackbird (*Agelaius phoeniceus*), California towhee (*Melozone crissalis*), crow (*Corvus brachyrhynchos*), song sparrow (*Melospiza melodia*), rock pigeon (*Columba livia*), mourning dove (*Zenaida macroura*), Western meadowlark (*Sturnella neglecta*), kildeer (*Charadrius vociferus*)

Bird Species in Conservation Easement: red-shouldered blackbird (*Agelaius phoeniceus*), great egret (*Ardea alba*), California towhee (*Melozone crissalis*), crow (*Corvus brachyrhynchos*), tree swallow (*Tachycineta bicolor*), mallard ducks (*Anas platyrhynchos*), bushtit (*Psaltriparus minimus*), savannah sparrow (*Passerculus sandwichensis*), song sparrow (*Melospiza melodia*), horned lark *(Eremophila alpestris*), rock pigeon (*Columba livia*), sora (*Porzana carolina*), mourning dove (*Zenaida macroura*), kildeer (*Charadrius vociferus*)

Other Animals: dam of American beaver (*Castor canadensis*) on Sheehy Creek observed, black-tailed jackrabbit (*Lepus californicus*)

Site Visit: 3/31/23

Time: 7:45 AM
Weather: clear then partly cloudy by mid-day, wind 0 mph, 44.5 degF, 76.5% RH
Notes: no activity at stick nest in cottonwood tree; no raptors observed soaring today
Purpose: Swainson's hawk, other raptor, nesting bird, BUOW
Personnel: Dr. Christopher DiVittorio

Bird Species in Project Area: American robin (*Turdus migratorius*), Western meadowlark (*Sturnella neglecta*), white-crowned sparrow (*Zonotrichia leucophrys*), crow (*Corvus brachyrhynchos*), song sparrow (*Melospiza melodia*), house finch (*Haemorhous mexicanus*), barn swallow (*Hirundo rustica*) (soaring overhead high altitude)

Bird Species in Conservation Easement: American robin (*Turdus migratorius*), red-shouldered blackbird (*Agelaius phoeniceus*), Western scrub jay (*Aphelocoma californica*), white-crowned sparrow (*Zonotrichia leucophrys*), hermit thrush (*Catharus guttatus*), Virginia rail (*Rallus limicola*), Lawrence's goldfinch (*Spinus lawrencei*), crow (*Corvus brachyrhynchos*), raven (*Corvus corax*), song sparrow (*Melospiza melodia*), California towhee (*Melozone crissalis*), Northern mockingbird (*Mimus polyglottos*), mallard ducks (*Anas platyrhynchos*), Canada goose (*Branta canadensis*), yellow-rumped warbler (*Setophaga coronata*), California gull (*Larus californicus*), house finch (*Haemorhous mexicanus*), barn swallow (*Hirundo rustica*) (soaring overhead high altitude), European starling (*Sturnus vulgaris*)

Site Visit: 4/4/23

Start time: 7:35 AM
Weather: clear and sunny, 49 degF, no wind, 81% RH
Notes: stick nest in cottonwood tree still inactive; sticks falling down; cottonwood just leafing out; pair of hawks perching on large dead tree offsite approx. 0.2 mile N of parcel; white tail kite perching on cottonwood tree in Sheehy Creek easement, but not nesting or acting territorial, left after 15 min
Purpose: Swainson's hawk, other raptor, nesting bird, BUOW
Personnel: Dr. Christopher DiVittorio

Bird Species in Project Area: Western meadowlark (*Sturnella neglecta*), red-shouldered blackbird (*Agelaius phoeniceus*), song sparrow (*Melospiza melodia*), California towhee (*Melozone crissalis*), house finch (*Haemorhous mexicanus*), crow (*Corvus brachyrhynchos*)

Bird Species in Conservation Easement: red-shouldered blackbird (*Agelaius phoeniceus*), crow (*Corvus brachyrhynchos*), song sparrow (*Melospiza melodia*), California towhee (*Melozone crissalis*), mourning dove (*Zenaida macroura*), house finch (*Haemorhous mexicanus*), yellow-rumped warbler (*Setophaga coronata*), European starling (*Sturnus vulgaris*), American robin (*Turdus migratorius*), rock pigeon (*Columba livia*), ruby-crowned kinglet (*Regulus calendula*), crow (*Corvus brachyrhynchos*), unidentified species of sparrow, Canada goose (*Branta canadensis*), black phoebe (*Sayornis nigricans*), tree swallow (*Tachycineta bicolor*), white-throated sparrow (*Zonotrichia albicollis*), marsh wren (*Cistothorus palustris*), wild turkey (*Meleagris gallopavo*), mallard ducks (*Anas platyrhynchos*), bufflehead (*Bucephala albeola*), Western kingbird (*Tyrannus verticalis*), Western scrub jay (*Aphelocoma californica*), unknown hummingbird (likely Allen's or rufous), white-tailed kite (*Elanus leucurus*)

Other Animals: dam of American beaver (*Castor canadensis*), calls of Pacific tree frog (*Pseudacris regalia*)

Site Visit: 4/5/23

Start time: 7:45 AM
Weather: clear and sunny, 45 degF, no wind, 80% RH
Notes: white-tail kite perching on cottonwood tree with nest but is not near or paying attention to the nest; nest still inactive; second white-tail kite hovering nearby, both flushed after several minutes; 2 large raptors, unknown species, perching on large dead tree offsite 0.2 miles to the north
Purpose: Swainson's hawk, other raptor, nesting bird, BUOW
Personnel: Dr. Christopher DiVittorio

Bird Species in Project Area: red-shouldered blackbird (*Agelaius phoeniceus*), crow (*Corvus brachyrhynchos*), mourning dove (*Zenaida macroura*), house finch (*Haemorhous mexicanus*), house sparrow (*Passer domesticus*), American robin (*Turdus migratorius*), barn swallow (*Hirundo rustica*), cliff swallow (*Petrochelidon pyrrhonota*), Western meadowlark (*Sturnella neglecta*)

Bird Species in Conservation Easement: red-shouldered blackbird (*Agelaius phoeniceus*), crow (*Corvus brachyrhynchos*), rock pigeon (*Columba livia*), mourning dove (*Zenaida macroura*), song sparrow (*Melospiza melodia*), European starling (*Sturnus vulgaris*), Bewick's wren (*Thryomanes bewickii*), marsh wren (*Cistothorus palustris*), yellow-rumped warbler (*Setophaga coronata*), bushtit (*Psaltriparus minimus*), house finch (*Haemorhous mexicanus*), house sparrow (*Passer domesticus*), American robin (*Turdus migratorius*), lesser goldfinch (*Spinus psaltria*), barn swallow (*Hirundo rustica*), cliff swallow (*Petrochelidon pyrrhonota*), blue-gray gnatcatcher (*Polioptila caerulea*), black phoebe (*Sayornis nigricans*), white-tailed kite (*Elanus leucurus*), Anna's hummingbird (*Calypte anna*)

Site Visit: 4/6/23

Start time: 7:30 AM
Weather: clear and sunny, 44 degF, 50% RH, no wind
Notes: no activity at nest in cottonwood tree
Purpose: Swainson's hawk, other raptor, nesting bird, BUOW
Personnel: Dr. Christopher DiVittorio

Bird Species in Project Area: red-shouldered blackbird (*Agelaius phoeniceus*), American robin (*Turdus migratorius*), crow (*Corvus brachyrhynchos*), song sparrow (*Melospiza melodia*), Western meadowlark (*Sturnella neglecta*), cliff swallow (*Petrochelidon pyrrhonota*), great egret (*Ardea alba*) foraging in field, house finch (*Haemorhous mexicanus*)

Bird Species in Conservation Easement: California towhee (*Melozone crissalis*), American robin (*Turdus migratorius*), crow (*Corvus brachyrhynchos*), song sparrow (*Melospiza melodia*), yellow-rumped warbler (*Setophaga coronata*), white-crowned sparrow (*Zonotrichia leucophrys*), cliff swallow (*Petrochelidon pyrrhonota*), Bewick's wren (*Thryomanes bewickii*), house finch (*Haemorhous mexicanus*), mourning dove (*Zenaida macroura*), Northern mockingbird (*Mimus polyglottos*), Anna's hummingbird (*Calypte anna*), loggerhead shrike (*Lanius ludovicianus*), white-tailed kite (*Elanus leucurus*)

Site Visit: 4/7/23

Start time: 7:30 AM
Weather: cloudy with light rain, 54 degF, 81% RH, wind 1-2 mph, fewer birds today
Notes: fewer birds today likely due to rain; white-tail kite perching on cottonwood but not using or interested in the dilapidated nest; nest in cottonwood tree inactive; juvenile red-tailed kite perching in Eucalyptus trees offsite to E of project area, flew away after several minutes;
Purpose: Swainson's hawk, other raptor, nesting bird, BUOW
Personnel: Dr. Christopher DiVittorio

Bird Species in Project Area: song sparrow (*Melospiza melodia*), red-shouldered blackbird (*Agelaius phoeniceus*), crow (*Corvus brachyrhynchos*), house finch (*Haemorhous mexicanus*), violet-green swallow (*Tachycineta thalassina*)

Bird Species in Conservation Easement: Bewick's wren (*Thryomanes bewickii*), song sparrow (*Melospiza melodia*), red-shouldered blackbird (*Agelaius phoeniceus*), Northern mockingbird (*Mimus polyglottos*), American robin (*Turdus migratorius*), crow (*Corvus brachyrhynchos*), white-tailed kite (*Elanus leucurus*), dark-eyed junco (*Junco hyemalis*), black phoebe (*Sayornis nigricans*), California towhee (*Melozone crissalis*), yellow-rumped warbler (*Setophaga coronata*), house finch (*Haemorhous mexicanus*), great egret (*Ardea alba*), white-crowned sparrow (*Zonotrichia leucophrys*), mourning dove (*Zenaida macroura*), Anna's hummingbird (*Calypte anna*), violet-green swallow (*Tachycineta thalassina*), mallard ducks (*Anas platyrhynchos*), Western kingbird (*Tyrannus verticalis*), great blue heron (*Ardea herodias*)

Site Visit: 4/24/23

Start time: 10:25 AM
Weather: cloudy, then sunny; 61 degF, 64% RH, 1-3 mph wind
Notes: no activity at nest in cottonwood tree
Purpose: Swainson's hawk, other raptor, nesting bird, BUOW
Personnel: Dr. Christopher DiVittorio

Bird Species in Project Area: red-shouldered blackbird (*Agelaius phoeniceus*), crow (*Corvus brachyrhynchos*), house finch (*Haemorhous mexicanus*), violet-green swallow (*Tachycineta thalassina*)

Bird Species in Conservation Easement: red-shouldered blackbird (*Agelaius phoeniceus*), violet-green swallow (*Tachycineta thalassina*), California towhee (*Melozone crissalis*), dark-eyed junco (*Junco hyemalis*), black phoebe (*Sayornis nigricans*), lesser goldfinch (*Spinus psaltria*), crow (*Corvus brachyrhynchos*), Anna's hummingbird (*Calypte anna*), European starling (*Sturnus vulgaris*), white-crowned sparrow (*Zonotrichia leucophrys*), turkey vulture (*Cathartes aura*), mourning dove (*Zenaida macroura*), white-tailed kite (*Elanus leucurus*) soaring and hovering over field, unidentified species of sparrow

Site Visit: 5/29/23

Start time: 8:35 AM
Weather: sunny
Notes: nest in cottonwood tree not active
Purpose: Swainson's hawk, BUOW

Personnel: Dr. Christopher DiVittorio

Bird Species in Project Area: no sign of BUOW or Swainson's hawk; presence/absence survey only; no comprehensive bird list completed

Site Visit: 6/21/23

Start time: 11:00 PM
Weather: clear, sunny, 74 degF, 51% RH, 3-6 mph wind
Note: many species appear to have migrated offsite for the summer; site has been recently mowed
Purpose: Swainson's hawk, other raptor, nesting bird, BUOW
Personnel: Dr. Christopher DiVittorio

Bird Species in Project Area: no sign of BUOW or Swainson's hawk; presence/absence survey only; no comprehensive bird list completed

Appendix B: Master Species List

The following is a list of bird species observed across the ten (10) site visits at the project area and Sheehy Creek conservation easement. Special-status species are denoted with an asterisk (*).

Bird Species in Project Area

robin (*Turdus migratorius*)
barn American swallow (*Hirundo rustica*)
California towhee (*Melozone crissalis*)
cliff swallow (*Petrochelidon pyrrhonota*)
crow (*Corvus brachyrhynchos*)
great egret (*Ardea alba*) foraging in field
house finch (*Haemorhous mexicanus*)
house sparrow (*Passer domesticus*)
kildeer (*Charadrius vociferus*)
mourning dove (*Zenaida macroura*)
red-shouldered blackbird (*Agelaius phoeniceus*)
rock pigeon (*Columba livia*)
song sparrow (*Melospiza melodia*)
turkey vulture (*Cathartes aura*)
violet-green swallow (*Tachycineta thalassina*)
Western meadowlark (*Sturnella neglecta*)
white-crowned sparrow (*Zonotrichia leucophrys*)

Bird Species in Conservation Easement:

American robin (*Turdus migratorius*)
Anna's hummingbird (*Calypte anna*)
barn swallow (*Hirundo rustica*)
Bewick's wren (*Thryomanes bewickii*)
black phoebe (*Sayornis nigricans*)
blue-gray gnatcatcher (*Polioptila caerulea*)
bufflehead (*Bucephala albeola*)
bushtit (*Psaltriparus minimus*)
California gull (*Larus californicus*)
California towhee (*Melozone crissalis*)
Canada goose (*Branta canadensis*)
cliff swallow (*Petrochelidon pyrrhonota*)
crow (*Corvus brachyrhynchos*)
dark-eyed junco (*Junco hyemalis*)
European starling (*Sturnus vulgaris*)
great blue heron (*Ardea herodias*)
great egret (*Ardea alba*)
hermit thrush (*Catharus guttatus*)
horned lark *(Eremophila alpestris*)
house finch (*Haemorhous mexicanus*)
house sparrow (*Passer domesticus*)

Hutton's vireo (*Vireo huttoni*)
kildeer (*Charadrius vociferus*)
Lawrence's goldfinch (*Spinus lawrencei*)
lesser goldfinch (*Spinus psaltria*)
loggerhead shrike (*Lanius ludovicianus*)*
mallard ducks (*Anas platyrhynchos*)
marsh wren (*Cistothorus palustris*)
mourning dove (*Zenaida macroura*)
Northern mockingbird (*Mimus polyglottos*)
raven (*Corvus corax*)
red-shouldered blackbird (*Agelaius phoeniceus*)
red-tailed hawk (*Buteo jamaicensis*)
rock pigeon (*Columba livia*)
ruby-crowned kinglet (*Regulus calendula*)
rufous-crowned sparrow (*Aimophlia ruficeps*)
savannah sparrow (*Passerculus sandwichensis*)
song sparrow (*Melospiza melodia*)
sora (*Porzana carolina*)
tree swallow (*Tachycineta bicolor*)
turkey vulture (*Cathartes aura*)
violet-green swallow (*Tachycineta thalassina*)
Virginia rail (*Rallus limicola*)
Western kingbird (*Tyrannus verticalis*)
Western scrub jay (*Aphelocoma californica*)
white-crowned sparrow (*Zonotrichia leucophrys*)
white-tailed kite (*Elanus leucurus*)*
white-throated sparrow (*Zonotrichia albicollis*)
wild turkey (*Meleagris gallopavo*)
yellow-rumped warbler (*Setophaga coronata*)
unidentified species of sparrow
unidentified species of gull
unidentified species of hummingbird (likely Anna's)

Pinecrest Environmental Consulting

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M E M O R A N D U M

Date: July 21, 2023

To: Jason Brandman, FCS International.

From: Dr. Christopher T. DiVittorio, Pinecrest Research Corp., Inc.

Subject: Results of special-status plant surveys at E&P Technology Way, Napa County, CA (FCS Project 5816.0001)

To Whom It May Concern,

This rare plant survey report (Report) details the findings of five protocol-level special-status plant surveys conducted in 2023 at the above-referenced property located in the County of Napa. The site consists of three parcels, a 13.5 acre parcel assigned APN 057-250-030, a 4.9 acre parcel assigned APN 057-250-031, and a 2.2 acre parcel assigned APN 057-250-032. This Report is intended to compliment the Biological Assessment (BA) dated January 2, 2023 that was previously prepared for this project.

Site Description

A full description of habitats and potential development constraints are presented in the BA. In summary, the majority of the site is disked ruderal grassland with low cover of plants and low species diversity (Figures 1 & 2). Due to repeated disking and mowing, the species onsite are primarily ruderal, early-successional species adapted to colonizing disturbed habitats. The habitat type of this area as determined by Sawyer et al. (2009) *Manual of California Vegetation 2nd Edition* (MCV) is *Bromus* (*diandrus, hordeaceous*)-*Brachypodium distachyon* Semi-Natural Herbaceous Stand. On the north side of the parcels, separated by a paved pedestrian walkway, is a conservation easement containing the recreated Sheehy Creek channel and riparian corridor, that was established and planted to native species as part of nearby developments in the past. The MCV classification of this habitat is *Salix laevigata* (*lasiandra*) Woodland Alliance and *Populus fremontii* Forest Alliance. The project will affect only the ruderal grassland portion of the site, thus the rare plant survey was limited to this portion of the property.

Methods

Rare plants are defined here to include: (1) all plants that are federal- or state-listed as rare, threatened or endangered, (2) all federal and state candidates for listing, (3) all plants included in Lists 1 through 4 of the CNPS Inventory (Skinner and Pavlik 1994), and (4) plants that qualify under the definition of "rare" in the California Environmental Quality Act, section 15380. Background information searches were conducted prior to all site visits to identify potential rare plant species or sensitive plant communities recognized by the California Department of Fish and Game (CDFG) that may occur in the Study Area vicinity. A table of these species, and their protection status, habitat requirements, and likelihood to occur in the Study Area is provided below. Sources for this search included the California Department of Fish and Game (CDFG) Natural Diversity Database (CDFG 2023) and the California Native Plant Society (CNPS) Electronic Inventory of Rare and Endangered Vascular Plants of California (CNPS 2023).

Appendix A contains potential special-status species that were searched for based on plants known to exist in Napa County, and a "9-quad" search of all known special-status plant species from the surrounding region. In addition, plants known to occur within 5 miles of the project site are denoted with a description of the location of their nearest occurrence.

Site visits were performed during the growing season of 2023. Early-season site visits were performed on March 20 and March 31. Mid-season site visits were performed on April 24 and May 29. A late-season site visit was also performed on June 21. Site visits were performed by PEC botanist Dr. Christopher DiVittorio, with secondary identification on voucher and photograph specimens made by PEC botanist Dr. Zoya Akulova. During the site visit, Dr. DiVittorio surveyed the entirety of the project area using methods as specified in the California Department of Fish & Wildlife (CDFW) publication titled *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities*, dated March 20, 2018. Field surveys were conducted by walking the entire project area on foot in parallel lines approximately 15 feet apart, identifying every species that was flowering, and making note of any species that were past flowering or that had not yet flowered. Voucher specimens were taken of any species that required identification in the laboratory. All terminology follows currently accepted nomenclature as described in *The Jepson Manual* (2012).

Results & Recommendations

The project area is comprised of routinely disked ruderal *Bromus* (*diandrus, hordeaceous*) semi-natural stands with some isolated individuals of *Baccharis pilularis* near the edges of the site. Due to the highly disturbed nature of the project site, all of the species found are early successional species adapted to colonizing new disturbances. As such, most of the species were non-native. No special-status native plant species or sensitive habitats were positively identified in the project area. A full list of the species encountered during the surveys is provided below in Appendix B. In total, 9 native species were observed onsite and 45 non-native species were observed.

No special-status species were found thus we have no recommendations for mitigation or avoidance for this project.

Please let me know if you have any questions about this or any other studies we've performed for this project.

Sincerely,



Christopher DiVittorio, PhD
President, PEC
(510) 881-3039
chris@pinecrestenvironmental.org

Figure 1: Habitat Map - West



Figure 2: Habitat Map - East



Appendix A: Special-Status Species Considered

The following is a list of sensitive and/or rare plants and habitats generated based on knowledge of the species and habitats of Napa County by PEC staff, from various State and Federal databases, and from the California Natural Diversity Database (CNDDB). Known occurrences within 5 miles of the project site are shown in bold with a description of the location of the nearest known locality.

Taxon	Status[1] Fed/State/CNPS	Habitat	Potential to Occur Within the Project Area
PLANTS			
Alkali milk-vetch (*Astragalus tener* var. *tener*)	**—/—/1B.2**	**Alkali grassland**	**Very Low: No alkali habitat exists in the project area. Nearest known occurrence is 1.5 miles N of the project site near Bordeaux Way.**
Anthony peak lupine (*Lupinus antoninus*)	—/—/1B.2	Coniferous forest	None: No coniferous forest habitat exists in the project area.
Baker's goldfields (*Lasthenia californica* ssp. *bakeri*)	—/—/1B.2	Coastal grasslands	Very Low: Some grassland habitat exists in the project area.
Baker's larkspur (*Delphinium bakeri*)	FE/SE/1B.1	Coastal scrub	Very Low: No coastal scrub habitat exists in the project area.
Baker's manzanita (*Arctostaphylos bakeri* ssp. *bakeri*)	—/—/1B.1	Serpentine chaparral	None: No serpentine chaparral exists in the project area.
Baker's navarretia (*Navarretia leucocephala* ssp. *bakeri*)	—/—/1B.1	Vernal pool	None: No vernal pool habitat exists in the project area.
Beaked tracyina (*Tracyina rostrata*)	—/—/1B.2	Grassland, foothill woodland	Very Low: Some grassland habitat exists in the project area.
Bent flowered fiddleneck (*Amsinckia lunaris*)	—/—/1B.2	Grassland, foothill woodland	Very Low: Some grassland habitat exists in the project area.
Big-scale balsamroot (*Balsamorhiza macrolepis*)	**—/—/1B.2**	**Grassland**	**Very Low: Some grassland habitat exists in the project area. Nearest known occurrence is 4.5 miles SE of the project site near American Canyon.**
Blasdale's bent grass (*Agrostis blasdalei*)	—/—/1B.2	Coastal grassland	Very Low: No coastal grassland habitat exists in the project area.
Blue coast gilia (*Gilia capitata* ssp. *chamissonis*)	—/—/1B.1	Coastal sand dunes	None: No sand dune habitat exists in the project area.

Taxon	Status[1] Fed/State/CNPS	Habitat	Potential to Occur Within the Project Area
Bluff wallflower (*Erysimum concinnum*)	—/—/1B.2	Coastal scrub	None: No coastal scrub habitat exists in the project area.
Bogg's Lake hedge-hyssop (*Gratiola heterosepala*)	—/—/1B.2	Vernal pool, pond	None: No vernal pool habitat exists in the project area.
Bolander's horkelia (*Horkelia bolanderi*)	—/—/1B.2	Coniferous forest, grassland	Very Low: Some grassland exists in the project area.
Brandegee's eriastrum (*Eriastrum brandegeeae*)	—/—/1B.1	Chaparral	None: No chaparral habitat exists in the project area.
Bristly sedge (*Carex comosa*)	—/—/2B.1	Wetland, riparian	None: No potential wetland habitat exists in the project area.
Brownish beaked-rush (*Rhynchospora capitellata*)	—/—/2B.2	Wetland, riparian	None: No potential wetland habitat exists in the project area.
Burke's goldfields (*Lasthenia burkei*)	FE/SE/1B.1	Vernal pools, grassland	Very Low: Some grassland habitat exists in the project area.
California alkali grass (*Puccinellia simplex*)	—/—/1B.2	Alkali grassland	None: No alkali grassland habitat exists in the project area.
California beaked-rush (*Rhynchospora californica*)	—/—/1B.1	Freshwater wetlands	None: No potential wetland habitat exists in the project area.
California satintail (*Imperata brevifolia*)	—/—/2B.1	Chaparral, coastal scrub	None: No chaparral habitat exists in the project area.
California sedge (*Carex californica*)	—/—/2B.3	Wetlands	None: No wetland habitat exists in the project area.
Calistoga ceanothus (*Ceanothus divergens*)	—/—/1B.2	Chaparral	None: No chaparral habitat exists in the project area.
Calistoga popcornflower (*Plagiobothrys strictus*)	FE/ST/1B.1	Wetland, riparian	None: No wetland habitat exists in the project area.
Clara Hunt's milk vetch (*Astragalus claranus*)	—/—/1B.1	Chaparral, grassland	Very Low: Some grassland habitat exists in the project area.
Coast lily (*Lilium maritimum*)	—/—/1B.1	Coastal grassland	Very Low: Some grassland habitat exists in the project area.
Coastal bluff morning glory (*Calystegia purpurata* ssp. *saxicola*)	—/—/1B.2	Coastal grassland	Very Low: Some grassland habitat exists in the project area.

Taxon	Status[1] Fed/State/CNPS	Habitat	Potential to Occur Within the Project Area
Cobb Mountain lupine (*Lupinus sericatus*)	—/—/1B.2	Chaparral, coniferous forest	None: No chaparral habitat exists in the project area.
Colusa layia (*Layia septentrionalis*)	—/—/1B.2	Chaparral, valley grassland	Very Low: Some grassland habitat exists in the project area.
Congested-headed hayfield tarplant (*Hemizonia congesta* ssp. *congesta*)	—/—/1B.2	Grassland, coastal scrub	Low: Some grassland habitat exists in the project area.
Contra Costa goldfields (*Lasthenia conjugens*)	**FE/—/1B.1**	**Vernal pool**	**Very Low: No vernal pool habitat exists in the project area. Nearest known occurrence is 1.0 miles N of the project site near Soscol Creek Road.**
Crystal Springs lessingia (*Lessingia arachnoidea*)	—/—/1B.2	Serpentine grassland	None: No serpentine grassland habitat exists in the project area.
Cunningham Marsh cinquefoil (*Potentilla uliginosa*)	—/—/1A	Wetland	None: No wetland habitat exists in the project area.
Dark-eyed gilia (*Gilia millefoliata*)	—/—/1B.2	Coastal sand dunes	None: No coastal sand dune habitat exists in the project area.
Deceiving sedge (*Carex saliniformis*)	—/—/1B.2	Grassland	Very Low: Some grassland habitat exists in the project area.
Deep-scarred cryptantha (*Cryptantha excavata*)	—/—/1B.2	Woodland	None: No woodland habitat exists in the project area.
Delta tule pea (*Lathyrus jepsonii* var. *jepsonii*)	**—/—/1B.2**	**Freshwater and brackish marsh**	**Very Low: No marsh habitat exists in the project area. Nearest known occurrence is 0.8 miles W of the project site near Sheehy Creek.**
Dimorphic snapdragon (*Antirrhinum subcordatum*)	—/—/4.3	Serpentine chaparral	None: No serpentine chaparral exists in the project area.
Dwarf downingia (*Downingia pusilla*)	**—/—/2B.2**	**Vernal pool, wetland**	**Very Low: No vernal pool habitat exists in the project area. Nearest known occurrence is 0.3 miles N of the project site near Delvin Road.**
Dwarf soaproot (*Chlorogalum pomeridianum* var. *minus*)	—/—/1B.2	Serpentine chaparral	None: No serpentine chaparral exists in the project area.
Eel-grass pondweed (*Potamogeton zosteriformis*)	—/—/2B.2	Wetland, pond	None: No wetland habitat exists in the project area.

Taxon	Status[1] Fed/State/CNPS	Habitat	Potential to Occur Within the Project Area
Fragrant fritillary (*Fritillaria liliacea*)	—/—/1B.2	Grassland	Very Low: Some grassland habitat exists in the project area.
Few-flowered navarretia (*Navarretia leucocephala* ssp. *pauciflora*)	FE/SE/1B.1	Vernal pool, wetland	None: No vernal pool habitat exists in the project area.
Franciscan onion (*Allium peninsulare* var. *franciscanum*)	**—/—/1B.2**	**Coastal grassland**	**Very Low: Some grassland habitat exists in the project area. Nearest known occurrence is 5.2 miles NE of the project site near Carneros Creek.**
Geysers panicum (*Panicum acuminatum* var. *thermale*)	—/—/1B.2	Chaparral, wetland	None: No chaparral habitat exists in the project area.
Glandular western flax (*Hesperolinon adenophyllum*)	—/—/1B.2	Chaparral	None: No chaparral habitat exists in the project area.
Golden larkspur (*Delphinium luteum*)	FE/SR/1B.1	Coastal grassland	Very Low: No coastal grassland habitat exists in the project area.
Grassleaf water plantain (*Alisma gramineum*)	—/—/2B.2	Wetland, pond	None: No wetland habitat exists in the project area.
Greene's narrow-leaved daisy (*Erigeron greenei*)	**—/—/1B.2**	**Serpentine chaparral**	**None: No serpentine chaparral habitat exists in the project area. Nearest known occurrence is 2.5 miles NE of the project site near Skyline Park.**
Hall's harmonia (*Harmonia hallii*)	—/—/1B.2	Serpentine chaparral	None: No chaparral habitat exists in the project area.
Hoffman's bristly jewelflower (*Streptanthus glandulosus* spp. *hoffmanii*)	—/—/1B.3	Chaparral, woodland	None: No chaparral habitat exists in the project area.
Holly-leaved ceanothus (*Ceanothus purpureus*)	**—/—/1B.2**	**Chaparral**	**None: No chaparral habitat exists in the project area. Nearest known occurrence is 2.6 miles NE of the project site near Skyline Park.**
Hospital Canyon larkspur (*Delphinium californicum* ssp. *interius*)	—/—/1B.2	Woodland	None: No woodland habitat exists in the project area.
Humboldt County milk vetch (*Astragalus agnicidus*)	—/—/1B.1	Coniferous forest	None: No coniferous forest habitat exists in the project area.
Jepson's coyote thistle (*Eryngium jepsonii*)	—/—/4.2	Wetland, vernal pool	None: No wetland habitat exists in the project area.

Taxon	Status[1] Fed/State/CNPS	Habitat	Potential to Occur Within the Project Area
Jepson's leptosiphon (*Leptosiphon jepsonii*)	—/—/1B.2	Chaparral	None: No chaparral habitat exists in the project area.
Jepson's milk-vetch (*Astragalus rattanii* var. *jepsonianus*)	—/—/1B.2	Chaparral, grassland	None: No chaparral habitat exists in the project area.
Kenwood Marsh checkerbloom (*Sidalcea oregana* ssp. *valida*)	FE/SE/1B.1	Wetland	None: No wetland habitat exists in the project area.
Konocti manzanita (*Arctostaphylos manzanita* ssp. *elegans*)	—/—/1B.3	Chaparral, woodland	None: No chaparral habitat exists in the project area.
Lake County stonecrop (*Sedella leiocarpa*)	—/—/1B.1	Grassland, wetland	None: No wetland habitat exists in the project area.
Legenere (*Legenere limosa*)	**—/—/1B.1**	**Wetland, grassland**	**Very Low: No potential wetland habitat exists in the project area. Nearest known occurrence is 0.9 miles N of the project site near Soscol Creek.**
Loch Lomond button-celery (*Eryngium constancei*)	FE/SE/1B.1	Vernal pool	None: No vernal pool habitat exists in the project area.
Long-styled sand-spurrey (*Spergularia macrotheca* var. *longistyla*)	—/—/1B.2	Wetland, grassland	None: No potential wetland habitat exists in the project area.
Lyngbye's sedge (*Carex lyngbyei*)	**—/—/2B.2**	**Salt marsh**	**None: No salt marsh habitat exists in the project area. Nearest known occurrence is 2.2 miles SW of the project site near the community of Brazos.**
Many-flowered navarretia (*Navarretia leucocephala* spp. *plieantha*)	FE/SE/1B.2	Vernal pool	None: No wetland habitat exists in the project area.
Maple-leaved checkerbloom (*Sidalcea malachroides*)	—/—/4.2	Coastal grassland, coniferous forest	Very Low: Some grassland habitat exists in the project area.
Marin checker lily (*Fritillaria lanceolata* var. *tristulis*)	—/—/1B.1	Grassland	Very Low: Some grassland habitat exists in the project area.
Marin checkerbloom (*Sidalcea hickmanii* spp. *viridis*)	—/—/1B.2	Grassland	Very Low: Some grassland habitat exists in the project area.
Marin County navarretia (*Navarretia rosulata*)	—/—/1B.2	Serpentine forest	None: No serpentine habitat exists in the project area.
Marin knotweed (*Polygonum marinense*)	**—/—/3.1**	**Coastal salt marsh**	**None: No coastal salt marsh habitat exists in the project area. Nearest**

Taxon	Status[1] Fed/State/CNPS	Habitat	Potential to Occur Within the Project Area
			known occurrence is 0.8 miles SW of the project site near Fagan Marsh.
Marin manzanita (*Arctostaphylos virgata*)	—/—/1B.2	Chaparral	None: No chaparral habitat exists in the project area.
Marin western flax (*Hesperolinon congestum*)	FT/ST/1B.1	Chaparral	None: No chaparral habitat exists in the project area.
Marsh checkerbloom (*Sidalcea oregana* ssp. *hydrophila*)	—/—/1B.2	Wetland, riparian	None: No wetland habitat exists in the project area.
Marsh microseris (*Microseris paludosa*)	—/—/1B.2	Wetland, grassland	None: No wetland habitat exists in the project area.
Marsh pea (*Lathyrus palustris*)	—/—/2B.1	Coastal grassland	Very Low: No coastal grassland habitat exists in the project area.
Mason's ceanothus (*Ceanothus masonii*)	—/SR/1B.2	Chaparral	None: No chaparral habitat exists in the project area.
Mason's lilaeopsis (*Lilaeopsis masonii*)	**—/SR/1B.1**	**Freshwater and brackish marsh**	**None: No marsh habitat exists in the project area. Nearest known occurrence is 0.8 miles W of the project site near the Napa River.**
Milo Baker's lupine (*Lupinus milo-bakeri*)	—/—/1B.1	Woodland, grassland	None: No woodland habitat exists in the project area.
Morrison's jewelflower (*Streptanthus morrisonii* ssp. *morrisonii*)	—/—/1B.2	Chaparral	None: No chaparral habitat exists in the project area.
Mt. St. Helena morning glory (*Calystegia collina* ssp. *oxyphylla*)	—/—/4.2	Serpentine chaparral	None: No serpentine habitat exists in the project area.
Mt. Tamalpais bristly jewelflower (*Streptanthus glandulosus* spp. *pulchellus*)	—/—/1B.2	Chaparral, grassland	None: No chaparral habitat exists in the project area.
Mt. Tamalpais manzanita (*Arctostaphylos montana* spp. *montana*)	—/—/1B.3	Chaparral	None: No chaparral habitat exists in the project area.
Mt. Tamalpais thistle (*Cirsium hydrophilum* var. *vaseyi*)	—/—/1B.2	Grassland	Very Low: Some grassland habitat exists in the project area.
Napa blue grass (*Poa napensis*)	FE/SE/1B.1	Wetland, grassland	Very Low: Some grassland habitat exists in the project area.
Napa checkerbloom (*Sidalcea hickmanii* ssp. *napensis*)	—/—/1B.1	Chaparral	None: No chaparral habitat exists in the project area.

Taxon	Status[1] Fed/State/CNPS	Habitat	Potential to Occur Within the Project Area
Napa false indigo (*Amorpha californica* var. *napensis*)	—/—/1B.2	Forest, woodland	None: No woodland habitat exists in the project area.
Narrow-anthered brodiaea (*Brodiaea leptandra*)	**—/—/1B.2**	**Woodland, grassland**	**Very Low: Some grassland habitat exists in the project area. Nearest known occurrence is 2.5 miles NE of the project site near Skyline Park.**
North Coast semaphore grass (*Pleuropogon hooverianus*)	—/—/1B.1	Wetland, vernal pool	None: No wetland habitat exists in the project area.
Nuttall's ribbon-leaved pondweed (*Potamogeton epihydrus*)	—/—/2B.2	Pond	None: No pond habitat exists in the project area.
Oval-leaved viburnum (*Viburnum ellipticum*)	**—/—/2B.3**	**Chaparral**	**None: No chaparral habitat exists in the project area. Nearest known occurrence is 2.5 miles NE of the project site near Skyline Park.**
Pacific gilia (*Gilia capitata* ssp. *pacifica*)	—/—/1B.2	Coastal grassland	Very Low: No coastal grassland habitat exists in the project area.
Pacific Grove clover (*Trifolium polyodon*)	—/—/1B.1	Grassland, wetland	None: No wetland habitat exists in the project area.
Pappose tarplant (*Centromadia parryi* ssp. *parryi*)	—/—/1B.2	Grassland, wetland	None: No wetland habitat exists in the project area.
Pennell's bird's beak (*Cordylanthus tenuis* ssp. *capillaris*)	FE/SR/1B.2	Chaparral	None: No chaparral habitat exists in the project area.
Perennial goldfields (*Lasthenia californica* ssp. *macrantha*)	—/—/1B.2	Coastal scrub	None: No coastal scrub habitat exists in the project area.
Peruvian dodder (*Cuscuta obtusiflora* var. *glandulosa*)	—/—/1B.2	Parasitic plant, grassland, chaparral	Very Low: Some grassland habitat exists in the project area.
Petaluma popcornflower (*Plagiobothrys mollis* var. *vestitus*)	—/—/1A	Coastal salt marsh	None: No coastal salt marsh habitat exists in the project area.
Pink sand verbena (*Abronia umbellata* var. *breviflora*)	—/—/1B.1	Coastal sand dune	None: No sand dune habitat exists in the project area.
Pitkin Marsh lily (*Lilium pardalinum* ssp. *pitkinense*)	FE/SE/1B.1	Wetland	None: No wetland habitat exists in the project area.

Taxon	Status[1] Fed/State/CNPS	Habitat	Potential to Occur Within the Project Area
Pitkin Marsh paintbrush (*Castilleja uliginosa*)	FE/SE/1A	Wetland	None: No wetland habitat exists in the project area.
Point Reyes checkerbloom (*Sidalcea calycosa* ssp. *rhizomata*)	—/—/1B.2	Coastal salt marsh	None: No salt marsh habiat exists in the project area.
Point Reyes salty bird's beak (*Chloropyron maritimum* ssp. *palustre*)	—/—/1B.2	Coastal salt marsh	None: No salt marsh habitat exists in the project area.
Purple-stemmed checkerbloom (*Sidalcea malviflora* spp. *purpurea*)	—/—/1B.2	Wetland	None: No wetland habitat exists in the project area.
Pygmy cypress (*Hesperocyparis pygmaea*)	—/—/1B.2	Hardpan soil	None: No hardpan forest habitat exists in the project area.
Raiche's manzanita (*Arctostaphylos stanfordiana* ssp. *raichei*)	—/—/1B.1	Chaparral	None: No chaparral habitat exists in the project area.
Raiche's red ribbons (*Clarkia concinna* spp. *raichei*)	—/—/1B.1	Coastal scrub	Very Low: No coastal scrub habitat exists in the project area.
Rincon Ridge ceanothus (*Ceanothus confusus*)	—/—/1B.1	Chaparral	None: No chaparral habitat exists in the project area.
Rincon Ridge manzanita (*Arctostaphylos stanfordiana* ssp. *decumbens*)	—/—/1B.1	Chaparral	None: No chaparral habitat exists in the project area.
Rose leptosiphon (*Leptosiphon rosaceus*)	—/—/1B.1	Coastal scrub	None: No coastal scrub habitat exists in the project area.
Round-headed beaked rush (*Rhynchospora globularis*)	—/—/2B.1	Wetland, riparian	None: No l wetland habitat exists in the project area.
Round-headed Chinese houses (*Collinsia corymbosa*)	—/—/1B.2	Coastal strand	None: No coastal strand habitat exists in the project area.
Round-leaved filaree (*California macrophylla*)	—/—/1B.2	Foothill grassland	Very Low: Some grassland habitat exists in the project area.
Saline clover (*Trifolium hydrophilum*)	**—/—/1B.2**	**Wetland, riparian**	**Very Low: No potential wetland habitat exists in the project area. Nearest known occurrence is 0.9 miles N of the project site near Soscol Creek.**
San Francisco spineflower (*Chorizanthe cuspidata* var. *cuspidata*)	—/—/1B.2	Coastal sand dunes	None: No coastal sand dune habitat exists in the project area.

Taxon	Status[1] Fed/State/CNPS	Habitat	Potential to Occur Within the Project Area
San Joaquin spearscale (*Extriplex joaquinana*)	**—/—/1B.2**	**Alkali scrub, grassland**	**Very Low: No alkali scrub habitat exists in the project area. Nearest known occurrence is 3.2 miles N of the project site near Kennedy Park.**
Santa Cruz clover (*Trifolium buckwestiorum*)	—/—/1B.1	Wetland, grassland	Very Low: Some grassland habitat exists in the project area.
Santa Cruz microseris (*Stebbinsoseris decipiens*)	—/—/1B.2	Coastal scrub	None: No coastal scrub habitat exists in the project area.
Santa Cruz tarplant (*Holocarpha macradenia*)	FT/SE/1B.1	Coastal prairie	None: No coastal prairie habitat exists in the project area.
Santa Rosa horkelia (*Horkelia tenuiloba*)	—/—/1B.2	Chaparral	None: No chaparral habitat exists in the project area.
Seaside bittercress (*Cardamine angulata*)	—/—/2B.2	Forest, riparian	None: No forest habitat exists in the project area.
Sebastopol meadowfoam (*Limnanthes vinculans*)	FE/SE/1B.1	Wetland, vernal pool	None: No wetland habitat exists in the project area.
Serpentine cryptantha (*Cryptantha dissita*)	—/—/1B.2	Serpentine chaparral	None: No chaparral habitat exists in the project area.
Serpentine daisy (*Erigeron serpentinus*)	—/—/1B.3	Serpentine chaparral	None: No serpentine chaparral exists in the project area.
Short-leaved evax (*Hesperevax sparsiflora var. brevifolia*)	—/—/1B.2	Coastal grassland	Very Low: No coastal grassland habitat exists in the project area.
Slender Orcutt grass (*Orcuttia tenuis*)	FT/SE/1B.1	Vernal pool	None: No vernal pool habitat exists in the project area.
Small-flowered calycadenia (*Calycadenia micrantha*)	—/—/1B.2	Chaparral	None: No chaparral habitat exists in the project area.
Small groundcone (*Kopsiopsis hookeri*)	—/—/2B.3	Redwood forest	None: No redwood forest habitat exists in the project area.
Soft salty bird's beak (*Chloropyron molle* ssp. *molle*)	**FE/ST/1B.2**	**Coastal salt marsh**	**None: No salt marsh habitat exists in the project area. Nearest known occurrence is 0.8 miles SW of the project site near Fagan Marsh.**
Sonoma alopecurus (*Alopecurus aequalis* var. *sonomensis*)	FE/—/1B.1	Wetland, vernal pool	None: No wetland habitat exists in the project area.

Taxon	Status[1] Fed/State/CNPS	Habitat	Potential to Occur Within the Project Area
Sonoma beardtongue (*Penstemon newberryi* var. *sonomensis*)	—/—/1B.3	Chaparral	Very Low: Some grassland habitat exists in the project area.
Sonoma ceanothus (*Ceanothus sonomensis*)	—/—/1B.2	Chaparral	None: No chaparral habitat exists in the project area.
Sonoma spineflower (*Chorizanthe valida*)	FE/SE/1B.1	Coastal grassland	Very Low: Some grassland habitat exists in the project area.
Sonoma sunshine (*Blennosperma bakeri*)	FE/SE/1B.1	Grassland, wetland	Very Low: Some grassland habitat exists in the project area.
Suisun marsh aster (*Symphyotrichum lentum*)	**—/—/1B.2**	**Freshwater and brackish marsh**	**None: No marsh habitat exists in the project area. Nearest known occurrence is 0.8 miles SW of the project site near Fagan Marsh.**
Supple daisy (*Erigeron supplex*)	—/—/1B.2	Coastal scrub	None: No coastal scrub habitat exists in the project area.
Swamp harebell (*Campanula californica*)	—/—/1B.2	Coastal grassland, wetland	None: No wetland habitat exists in the project area.
Tamalpais jewelflower (*Streptanthus batrachopus*)	—/—/1B.3	Serpentine	None: No serpentine habitat exists in the project area.
Tamalpais lessingia (*Lessingia micradenia* var. *micradenia*)	—/—/1B.2	Grassland	Very Low: Some grassland habitat exists in the project area.
Tamalpais oak (*Quercus parvula* var. *tamalpaisensis*)	—/—/1B.3	Woodland	None: No woodland habitat exists in the project area.
The Cedars fairy lantern (*Calochortus raichei*)	—/—/1B.2	Hardpan chaparral	None: No chaparral habitat exists in the project area.
The Cedars manzanita (*Arctostaphylos bakeri* ssp. *sublaevis*)	—/—/1B.2	Hardpan chaparral	None: No chaparral habitat exists in the project area.
Thin-lobed horkelia (*Horkelia tenuiloba*)	—/—/1B.2	Chaparral	None: No chaparral habitat exists in the project area.
Thurber's reed grass (*Calamagrostis crassiglumis*)	—/—/2B.1	Coastal scrub, wetland	None: No wetland habitat exists in the project area.
Tiburon buckwheat (*Eriogonum luteolum* var. *caninum*)	—/—/1B.2	Serpentine grassland	None: No serpentine grassland exists in the project area.

Taxon	Status[1] Fed/State/CNPS	Habitat	Potential to Occur Within the Project Area
Tiburon paintbrush (*Castilleja affinis* var. *neglecta*)	**FE/ST/1B.2**	**Serpentine grassland**	**Very Low: No serpentine grassland exists in the project area. Nearest known occurrence is 4.5 miles SE of the project site near American Canyon.**
Two-carpellate western flax (*Hesperolinon bicarpellatum*)	—/—/1B.2	Serpentine chaparral	None: No serpentine chaparral exists in the project area.
Two-fork clover (*Trifolium amoenum*)	**FE/—/1B.1**	**Grassland, wetland**	**Very Low: Some grassland habitat exists in the project area. Nearest known occurrence is 2.5 miles W of the project site near Milton Road.**
Vine Hill ceanothus (*Ceanothus foliosus* var. *vineatus*)	—/—/1B.1	Chaparral	None: No chaparral habitat exists in the project area.
Vine Hill clarkia (*Clarkia imbricata*)	FE/SE/1B.1	Chaparral, grassland	None: No chaparral habitat exists in the project area.
Vine Hill manzanita (*Arctostaphylos densiflora*)	—/SE/1B.1	Chaparral	None: No chaparral habitat exists in the project area.
Watershield (*Brasenia schreberi*)	—/—/2B.3	Pond	None: No pond habitat exists in the project area.
Western leatherwood (*Dirca occidentalis*)	—/—/1B.2	Woodland, chaparral	None: No woodland habitat exists in the project area.
White-beaked rush (*Rhynchospora alba*)	—/—/2B.2	Wetland, riparian	None: No wetland habitat exists in the project area.
White-flowered rein orchid (*Piperia candida*)	—/—/1B.2	Coniferous forest	None: No coniferous forest habitat exists in the project area.
White-rayed pentachaeta (*Pentachaeta bellidiflora*)	FE/SE/1B.1	Grassland	Very Low: Some grassland habitat exists in the project area.
Wolly-headed gilia (*Gilia capitata* ssp. *tomentosa*)	—/—/1B.1	Coastal grassland	Very Low: No coastal grassland habitat exists in the project area.
Wolly meadowfoam (*Limnanthes floccosa* ssp. *floccosa*)	—/—/4.2	Vernal pool	None: No wetland habitat exists in the project area.
Wolly spineflower (*Chorizanthe cuspidata* var. *villosa*)	—/—/1B.2	Coastal sand dunes	None: No sand dune habitat exists in the project area.

Taxon	Status[1] Fed/State/CNPS	Habitat	Potential to Occur Within the Project Area
MOSSES, LICHENS & LIVERWORTS			
Angel's hair lichen (*Ramalina thrausta*)	—/—/2B.1	Forest, woodland	None: No forest habitat exists in the project area.
Coastal triquetrella (*Triquetrella californica*)	—/—/1B.2	Forest, woodland	None: No forest habitat exists in the project area.
Elongate copper moss (*Mielichhoferia elongata*)	—/—/4.3	Rock outcrops	None: No rock outcrop habitat exists in the project area.
Koch's cord moss (*Entosthodon kochii*)	—/—/1B.3	Forest, woodland	None: No forest habitat exists in the project area.
Methuselah's beard lichen (*Dolichousnea longissima*)	—/—/4.2	Forest, woodland	None: No forest habitat exists in the project area.
Slender silver moss (*Anomobryum julaceum*)	—/—/4.2	Rocky substrates in forests	None: No forest habitat exists in the project area.
Torren's grimmia (*Grimmia torenii*)	—/—/1B.3	Forest, woodland	None: No forest habitat exists in the project area.
HABITATS			
Coastal & Valley Freshwater Marsh (CVFM)	—	—	None: No marsh habitat exists in the project area.
Coastal Brackish Marsh (CVFM)	—	—	None: No brackish marshes exist in the project area.
Northern Coastal Salt Marsh (NCSM)	—	—	None: No salt marsh habitat exists in the project area.
Northern Hardpan Vernal Pool (NHVP)	—	—	None: No hardpan vernal pool habitat exists in the project area.
Northern Vernal Pool (NVP)	—	—	None: No vernal pool habitat exists in the project area.
Sycamore Alluvial Woodland (SAW)	—	—	None: No woodland habitat exists in the project area.
Valley Needlegrass Grassland (VNG)	—	—	Very Low: Some disturbed grassland habitat exists in the project area.

Taxon	Status[1] Fed/State/CNPS	Habitat	Potential to Occur Within the Project Area
Valley Oak Woodland (VOW)	—	—	None: No valley oaks exist in the project area.
Valley Sink Scrub (VSS)	—	—	None: No sink habitat exists in the project area.

[1] Status:
Federal
FE = Federally Endangered Species
FT = Federally Threatened Species

State
SE = State Endangered Species
ST = State Threatened Species
SSC = California Species of Special Concern
CFP = California Fully Protected Species

CNPS (applies to plants only)
List 1B = plants considered rare, threatened, or endangered in California and elsewhere
List 2B = plants rare, threatened or endangered in California, but more common elsewhere
List 3 = plant is likely rare but more information is required
List 4 = plants of limited distribution

Appendix B: Plant Species Observed Onsite

The following is a list of plant species directly observed onsite during the above-referenced plant surveys. No special-status species were observed onsite.

Non-native

bird's foot trefoil (*Lotus corniculatus*)
black mustard (*Brassica nigra*),
bristly ox-tongue (*Helminthotheca echioides*)
bull thistle (*Cirsium vulgare*)
bur clover (*Medicago polymorpha*)
chicory (*Cichorium intybus*)
common dandelion (*Taraxacum officinale*)
common groundsel (*Senecio vulgaris*)
crane's bill filaree (*Erodium botrys*)
curly dock (*Rumex crispus*)
fennel (*Foeniculum vulgare*)
field bindweed (*Convolvulus arvensis*)
foxtail barley (*Hordeum murinum*)
Fuller's teasel (*Dipsacus fullonum*)
hairgrass (*Aira caryophyllea*)
hairy vetch (*Vicia villosa*)
Harding grass (*Phalaris aquatica*)
hedge parsley (*Torilis arvensis*)
Italian ryegrass (*Festuca perennis*)
Italian thistle (*Circium pycnocephalus*)
Jersey cudweed (*Pseudognaphalium luteoalbum*)
narrowleaf cottonrose (*Logfia gallica*)
pineapple weed (*Matricaria discoidea*)
poison hemlock (*Conium maculatum*)
prickly lettuce (*Lactuca serriola*)
reed fescue (*Festuca arundinacea*)
ribwort (*Plantago lanceolata*)
ripgut brome (*Bromus diandrus*)
rose clover (*Trifolium hirtum*)
salsify (*Tragopogon porrifolius*)
scarlet pimpernel (*Lysimachia arvensis*)
sheep sorrel (*Rumex acetocella*)
shortpod mustard (*Hirschfeldia incana*)
smooth cat’s ear (*Hypochaeris glabra*)
soft chess (*Bromus hordeaceous*)
spring vetch (*Vicia sativa*)
strawberry clover (*Trifolium fragiferum*)
sweet pea (*Lathyrus latifolius*)
weedy brome (*Bromus caroli-henrici*)
wild geranium (*Geranium dissectum*)
wild lettuce (*Lactuca saligna*)
wild oatgrass (*Avena barbata*)

wild radish (*Raphanus sativa*)
yellow star thistle (*Centaurea solstitialis*)
Zorro fescue (*Festuca myuros*)

Native

California poppy (*Eschscholzia californica*)
common yarrow (*Achillea millefolium*)
coyote brush (*Baccharis pilularis*)
hairy gumweed (*Grindelia hirsutula*)
ladies' tobacco (*Pseudognaphalium californicum*)
meadow barley (*Hordeum brachyantherum*)
mountain dandelion (*Agoseris heterophylla*)
saltgrass (*Distichlis spicata*)
slender tarweed (*Madia gracilis*)

FCS
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Attachment A:

Comment Letters–State Agencies

Docusign Envelope ID: 7CBA9409-1745-4F3A-BEF7-243EC7B98880

State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
Bay Delta Region
2825 Cordelia Road
Fairfield, CA 94534
(707) 428-2002
www.wildlife.ca.gov

November 15, 2024

Sean Trippi, Supervising Planner
Napa County Planning, Building, and Environmental Services
1195 Third Street, Suite 210
Napa, CA 94559
Sean.Trippi@countyofnapa.org

Subject: E&P Technology Way - Building A & B Use Permit #'s P22-00307-UP and P22-00308-UP (APN's: 057-250-030, -031, -032), Initial Study/Mitigated Negative Declaration, SCH No. 2024100855, Napa County

Dear Mr. Trippi:

The California Department of Fish and Wildlife (CDFW) received an Initial Study/Mitigated Negative Declaration (IS/MND) from Napa County (County) for the E&P Technology Way - Building A & B Use Permit #'s P22-00307-UP and P22-00308-UP (APN's: 057-250-030, -031, -032) (Project) pursuant the California Environmental Quality Act (CEQA) and CEQA Guidelines. 1

CDFW is submitting comments on the IS/MND to inform the County, as the Lead Agency, of potentially significant impacts to biological resources associated with the Project.

CDFW ROLE

CDFW is a **Trustee Agency** with responsibility under CEQA pursuant to CEQA Guidelines section 15386 for commenting on projects that could impact fish, plant, and wildlife resources. CDFW is also considered a **Responsible Agency** if a project would require discretionary approval, such as permits issued under the California Endangered Species Act (CESA), the Lake and Streambed Alteration (LSA) Agreement, or other provisions of the Fish and Game Code that afford protection to the state's fish and wildlife trust resources. 2

PROJECT DESCRIPTION SUMMARY

Proponent: Mike Kelly

Objective: The Project is limited to the development of a 143,312 square-foot wine production facility (Building A) and a 66,915 square-foot warehouse (Building B). The winery uses will include grape crushing, bulk wine processing and storage, stainless steel tank and barrel storage, bottling, and office space. In addition, approximately 13,000 square feet of covered outdoor work area will be located on the north side of the 3

Docusign Envelope ID: 7CBA9409-1745-4F3A-BEF7-243EC7B98880

building. The Project also includes 129 parking spaces and 8 spaces for semi-trailers. Access will be provided by three new driveways: one on Technology Way and two on Morris Court.

Building B is limited to warehouse uses within the proposed 66,915 square-foot building. All vehicles will enter from a new access driveway on Technology Way that runs along the eastern property line. Trucks will be able to circulate around the building in a one-way loop, exiting at a second driveway on Technology Way on the west side of the building. The entrance driveway will be wide enough to accommodate two-way traffic.

3 CONT

Location: The Project is located on three parcels comprising two sites: Building A is proposed on a 13.2-acre parcel on the north side of Technology Way and Morris Court (APN 057-250-030), at approximately 38.22753°N and -122.26939°W; and Building B is proposed on a 6.87-acre site on the north side of Technology Way, opposite Gateway Road West (APN's 057-250-031, -032, to be combined), at approximately 38.22677°N, -122.26638°W. A conservation easement runs along the north and northeast boundary of the Project site which includes a meandering path along the south side of Sheehy Creek.

REGULATORY REQUIREMENT

California Endangered Species Act

Please be advised that a CESA Incidental Take Permit (ITP) must be obtained if the Project has the potential to result in "take" of plants or animals listed or candidate species under CESA either during construction or over the life of the Project. **The Project has the potential to impact Swainson's hawk (*Buteo swainsoni*), CESA listed as threatened species. Thank you for including mitigation measures for Swainson's hawk. Please be advised that the California Natural Diversity Database (CNDDB) documents a nesting Swainson's hawk record in year 2021 approximately 300 feet north of the Project site. Swainson's hawks often utilize the same nests sites from year to year, therefore there is a high potential for nesting Swainson's hawk to be impacted by the Project during nesting season, warranting an ITP. The Project also has the potential to impact burrowing owl (*Athene cunicularia*), a CESA candidate species, as further described below.** Issuance of an ITP is subject to CEQA documentation; the CEQA document must specify impacts, mitigation measures, and a mitigation monitoring and reporting program. If the Project will impact CESA listed species, early consultation is encouraged, as significant modification to the Project and mitigation measures may be required in order to obtain an ITP.

4

CEQA requires a Mandatory Finding of Significance if a project is likely to substantially restrict the range or reduce the population of a threatened or endangered species. (Pub.

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Resources Code, §§ 21001, subd. (c) & 21083; CEQA Guidelines, §§ 15380, 15064, & 15065.). Impacts must be avoided or mitigated to less-than-significant levels unless the CEQA Lead Agency makes and supports Findings of Overriding Consideration (FOC). The CEQA Lead Agency's FOC does not eliminate the Project proponent's obligation to comply with CESA. 4 CONT

Raptors and Other Nesting Birds

CDFW has jurisdiction over actions that may result in the disturbance or destruction of active nest sites or the unauthorized take of birds. Fish and Game Code sections protecting birds, their eggs, and nests include sections 3503 (regarding unlawful take, possession or needless destruction of the nests or eggs of any bird), 3503.5 (regarding the take, possession or destruction of any birds-of-prey or their nests or eggs), and 3513 (regarding unlawful take of any migratory nongame bird). Migratory birds are also protected under the federal Migratory Bird Treaty Act. 5

COMMENTS AND RECOMMENDATIONS

CDFW offers the comments and recommendations below to assist the County in adequately identifying and/or mitigating the Project's significant, or potentially significant, direct and indirect impacts on fish and wildlife (biological) resources. Based on the Project's avoidance of significant impacts on biological resources with implementation of mitigation measures, including those CDFW recommends below and included in **Attachment 1** Draft Mitigation Monitoring and Reporting Program, CDFW concludes that an MND is appropriate for the Project. 6

I. Mitigation Measure and Related Impact Shortcoming

MANDATORY FINDING OF SIGNIFICANCE. Does the Project have potential to substantially reduce the number or restrict the range of an endangered, rare, or threatened species?

COMMENT 1: Burrowing Owl

Issue: Thank you for including in the IS/MND mitigation measures for burrowing owl (BUOW). However, the language in the IS/MND and the Biological Resources Analysis does not reflect the recent status change of BUOW to a CESA candidate species, and Mitigation Measure (MM) BIO-6 does not stipulate whether the Project would obtain a CESA ITP if take of BUOW may occur. Take of CESA candidate species is prohibited without a CESA take authorization from CDFW, typically an ITP. CNDDB documents a wintering BUOW record approximately 1,100 feet northeast of the Project site, within the area of potential Project disturbance. 7

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Recommended mitigation measure: To reduce potential impacts to BUOW to less-than-significant and comply with CESA, CDFW recommends adding the following requirements to MM BIO-6.

> Mitigation Measure BIO-6 (Burrowing Owl Habitat Assessment and Surveys): If take of burrowing owl (BUOW) cannot be avoided, the Project shall consult with CDFW pursuant to CESA and obtain an ITP before Project activities commence. Take is likely to occur and the Project shall obtain an ITP if: 1) BUOW surveys of the Project site detect BUOW occupancy of burrows or burrow surrogates, or 2) there is sign of BUOW occupancy on the Project site within the past three years and habitat has not had any substantial change that would make it no longer suitable within the past three years. Occupancy means a site that is assumed occupied if at least one BUOW has been observed occupying a burrow or burrow surrogate within the last three years. Occupancy of suitable BUOW habitat may also be indicated by BUOW sign including its molted feathers, cast pellets, prey remains, eggshell fragments, or excrement at or near a burrow entrance or perch site. If BUOW, or their burrows or burrow surrogates, are detected within 500 meters (1,640 feet) of the Project site during BUOW surveys, but not on the Project site, the Project shall consult with CDFW to determine if avoidance is feasible, or an ITP is warranted and shall obtain an ITP if deemed necessary by CDFW.

7 CONT

II. Editorial Comment

COMMENT 2: California Endangered Species Act Incidental Take Permit

Issue: The IS/MND Page 2, Section 10 states: "The proposed project does not involve the "take" of listed endangered or threatened species, and thus does not require a "take permit" from the Department of Fish and Wildlife…" As discussed above, the Project has the potential to result in take of BUOW and Swainson's hawk. Furthermore, the IS/MND MM BIO-4 states: "If take of Swainson's hawk cannot be avoided, the Project shall consult with CDFW pursuant to CESA and obtain an ITP before Project activities may commence. Therefore, the Project may require a "take permit" (i.e., ITP) from CDFW.

8

Recommendation: CDFW recommends revising the above language on IS/MND Page 2, Section 10 to: "The proposed project has the potential to result in "take" of listed endangered or threatened species, or candidate species for listing, and thus may require a "take permit" from the Department of Fish and Wildlife, the U.S. Fish and Wildlife Service, or the National Marine Fisheries Service.

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ENVIRONMENTAL DATA

CEQA requires that information developed in environmental impact reports and negative declarations be incorporated into a database which may be used to make subsequent or supplemental environmental determinations. (Pub. Resources Code, § 21003, subd. (e).) Accordingly, please report any special-status species and natural communities detected during Project surveys to CNDDB. The CNDDB field survey form can be filled out and submitted online at the following link: https://wildlife.ca.gov/Data/CNDDB/Submitting-Data. The types of information reported to CNDDB can be found at the following link: https://www.wildlife.ca.gov/Data/CNDDB/Plants-and-Animals

9

ENVIRONMENTAL DOCUMENT FILING FEES

The Project, as proposed, would have an impact on fish and/or wildlife, and assessment of environmental document filing fees is necessary. Fees are payable upon filing of the Notice of Determination by the Lead Agency and serve to help defray the cost of environmental review by CDFW. Payment of the environmental document filing fee is required in order for the underlying Project approval to be operative, vested, and final. (Cal. Code Regs, tit. 14, § 753.5; Fish & G. Code, § 711.4; Pub. Resources Code, § 21089.)

10

CONCLUSION

CDFW appreciates the opportunity to comment on the IS/MND to assist the County in identifying and mitigating Project impacts on biological resources.

Questions regarding this letter or further coordination should be directed to Nicholas Magnuson, Environmental Scientist, at (707) 815-4166 or Nicholas.Magnuson@wildlife.ca.gov, or Melanie Day, Senior Environmental Scientist (Supervisory), at (707) 210-4415 or Melanie.Day@wildlife.ca.gov.

11

Sincerely,

DocuSigned by:
Erin Chappell
B77E9A6211EF486...

Erin Chappell
Regional Manager
Bay Delta Region

Attachment 1: Draft Mitigation Monitoring and Reporting Program

ec: Office of Planning and Research, State Clearinghouse (SCH No. 2024100855)
Sean Kennings, LAK Associates, LLC - Sean@lakassociates.com

Docusign Envelope ID: 7CBA9409-1745-4F3A-BEF7-243EC7B98880

ATTACHMENT

Draft Mitigation Monitoring and Reporting Program (MMRP)

CDFW provides the following language to be incorporated into the MMRP for the Project.

Biological Resources (BIO)			
Mitigation Measure (MM)	**Description**	**Timing**	**Responsible Party**
MM BIO-6	***ADD THE BELOW LANGUAGE TO THE EXISTING MM BIO-6.*** Burrowing Owl Habitat Assessment and Surveys: If take of BUOW cannot be avoided, the Project shall consult with CDFW pursuant to CESA and obtain an ITP before Project activities commence. Take is likely to occur, and the Project shall obtain an ITP if: 1) BUOW surveys of the Project site detect BUOW occupancy of burrows or burrow surrogates, or 2) there is sign of BUOW occupancy on the Project site within the past three years and habitat has not had any substantial change that would make it no longer suitable within the past three years. Occupancy means a site that is assumed occupied if at least one BUOW has been observed occupying a burrow or burrow surrogate within the last three years. Occupancy of suitable BUOW habitat may also be indicated by BUOW sign including its molted feathers, cast pellets, prey remains, eggshell fragments, or excrement at or near a burrow entrance or perch site. If BUOW, or their burrows or burrow surrogates, are detected within 500 meters (1,640 feet) of the Project site during BUOW surveys, but not on the Project site, the Project shall consult with CDFW to determine if avoidance is feasible, or an ITP is warranted and shall obtain an ITP if deemed necessary by CDFW.	Prior to Ground Disturbance and During Project Construction	Project Applicant
Editorial Comment	CDFW recommends revising the language on IS/MND Page 2, Section 10 to: “The proposed project has the potential to result in “take” of listed endangered or threatened species, or candidate species for listing, and thus may require a “take permit” from the Department of Fish and Wildlife, the U.S. Fish and Wildlife Service, or the National Marine Fisheries Service.	Prior to Finalizing IS/MND	Lead Agency

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Attachment B:

Comment Letters–Organizations

November 14, 2024

Via Email and Overnight Mail
Brian D. Bordona, Director
County of Napa
Planning, Building, & Environmental Services Department
1195 Third Street, Suite 210
Napa, CA 94559
Email: Brian.bordona@countyofnapa.org

Via Email Only
Sean Trippi, Supervising Planner, Sean.trippi@countyofnapa.org

Re: Request to Extend the Public Review and Comment Period for the Initial Study/Mitigated Negative Declaration for the E&P Technology Way - Buildings A & B (Use Permits #P22-00307 and #P22-00308) (SCH: 2024100855)

Dear Director Bordona and Mr. Trippi:

On behalf of Napa-Solano Residents for Responsible Development ("Napa-Solano Residents"), we respectfully request that the County of Napa ("County") extend the public review and comment period for the Initial Study/Mitigated Negative Declaration (collectively, "MND")[1] prepared pursuant to the California Environmental Quality Act ("CEQA")[2] for the E&P Technology Way - Buildings A and B (Use Permits #P22-00307 and #P22-00308) (SCH: 2024100855) ("Project"), proposed by Michael Kelley ("Applicant"), **by at least thirty (30) days** due to the County's failure to provide timely access to the supporting documents for the MND. 1

The Project proposes to construct two separate buildings on three parcels comprising two sites: Building A is proposed on a 13.2-acre parcel on the north side of Technology Way and Morris Court (APN 057-250-030) and Building B is proposed

[1] Napa County, *Initial Study/Mitigated Negative Declaration for E&P Technology Way - Buildings A & B (Use Permits #P22-00307 and #P22-00308)* (October 2024), available at: https://ceqanet.opr.ca.gov/2024100855 (hereinafter "MND").
[2] Pub. Res. Code § 21000 *et seq.*; 14 C.C.R. §§ 15000, *et seq*.

on a 6.87-acre project site on the north side of Technology Way, opposite Gateway Road West (APN's 057-250-031, -032), which will be combined.[3] Building A is a 143,312 square foot ("SF") refrigerated wine production facility with an annual production capacity of 450,000 gallons.[4] Building B is a proposed 66,915 SF building for warehouse uses.[5]

1 CONT

On November 7, 2024, we submitted a letter to the County pursuant to CEQA requesting "***immediate access*** to any and all documents referenced or relied upon" in the MND ("MND reference document request").[6] CEQA requires that "all documents referenced in the draft environmental impact report or negative declaration" be available for review and "readily accessible" during the entire comment period.[7] On November 7, 2024, we also submitted a letter to the County pursuant to the California Public Records Act (Government Code §§ 7920.000, *et seq*.) ("PRA") as well as Article I, section 3(b) of the California Constitution[8] to request "*immediate access*[9] to any and all public records in the County's possession referring or related" to the Project ("PRA request").[10] The requests were sent separately to avoid confusion as to what documents and records were sought.

2

The County's NextRequest system sent an autoreply to acknowledge receipt of the PRA request on November 7, 2024 and sent an autoreply to acknowledge

[3] Napa County, *Staff Report for the E&P Technology Way - Buildings A & B (Use Permits #P22-00307 and #P22-00308) Project* at p. 2 (November 8, 2024).
[4] MND at p. 1.
[5] *Id.* at p. 2.
[6] Letter to Request Immediate Access to Documents Referenced in the MND from Jeanne Grube, Adams Broadwell Joseph & Cardozo ("ABJC"), to Brian D. Bordona, Director of County of Napa Planning, Building, and Environmental Services Department, Neha Hoskins, Clerk of the Board of Supervisors, and Sean Trippi, Supervising Planner, (November 7, 2024) ("Exhibit A").
[7] Pub. Res. Code § 21092(b)(1) (stating that "all documents referenced in the draft environmental impact report or negative declaration" shall be made "available for review"); *see also* 14 C.C.R. § 15072(g)(4) (stating that all documents incorporated by reference in the MND . . . "shall be readily accessible to the public").
[8] Article I, section 3(b) provides that any statutory right to information shall be broadly construed to provide the greatest access to government information and further requires that any statute that limits the right of access to information shall be narrowly construed.
[9] Gov't Code § 7922.525(a).
[10] Letter to Request Immediate Access to Public Records from Jeanne Grube, ABJC, to Brian D. Bordona, Director of County of Napa Planning, Building, and Environmental Services Department, Neha Hoskins, Clerk of the Board of Supervisors, and Sean Trippi, Supervising Planner, (November 7, 2024) ("Exhibit B").

receipt of the MND reference document request on November 8.[11] On November 13, 2024, our office contacted the County via email to ask when records would be provided to each request.[12] The County responded that same day that a response would be provided on November 18, which is the day before the MND comment period deadline.[13] No responsive records have been produced by the County to either request as of the date of this letter. 2 CONT

During our review of the MND, we identified that the "First Carbon Solutions, Phase 1 Cultural Resources Assessment, dated January 20, 2023" ("Assessment") is referenced and relied upon in the MND, but has not been provided in response to our MND reference document request. This missing Assessment is critical to understanding the MND's analysis of the Project's significant impacts on cultural resources and proposed mitigation measure (CULT-1). The MND references several recommendations made by First Carbon Solutions in the Assessment to lessen the significant impacts on cultural resources and also refers to Appendix E of the Assessment, which purportedly contains the "Cultural Resources Regulations and Evaluation Criteria."[14] Yet none of this information and analysis has been provided for public review and comment during the comment period on the MND. 3

Without access to this assessment and its appendices during the public comment period on the MND, Napa-Solano Residents and other members of the public are deprived of having a meaningful opportunity to comment on the MND. The County's failure to make the underlying MND documents available during the entire comment period precludes Napa-Solano Residents and other members of the public from evaluating the accuracy of the County's impact analysis and the adequacy of the proposed mitigation. By failing to make all documents referenced in the MND "readily available" during the current comment period, the County is violating the clear procedural mandates of CEQA, to the detriment of Napa-Solano Residents and other members of the public who wish to meaningfully review and comment on the MND.

Accordingly, we request that: 4

[11] Message from NextRequest to Jeanne Grube, ABJC re Request No. 24-924 (November 7, 2024); Message from NextRequest to Jeanne Grube, ABJC re Request No. 24-926 (November 8, 2024).
[12] Email from Jeanne Grube, ABJC, to Sean Trippi, Supervising Planner (November 13, 2024).
[13] Email from Marie E Willis, Senior Office Assistant, Planning, Building, & Environmental Services, to Jeanne Grube, ABJC (November 13, 2024).
[14] MND at p. 14.

1) the County immediately provide us with access to the missing document identified above and all documents referenced or relied upon in the MND, as requested in our November 7, 2024 MND reference document request; and

2) the County extend the public review and comment period on the MND for at least thirty (30) days from the date on which the County releases these documents for public review.

4
CONT

Given the short time before the current comment deadline, please contact me as soon as possible with your response to this request, but no later than tomorrow, November 15, 2024.

Please feel free to email with any questions at trengifo@adamsbroadwell.com. Thank you for your prompt attention and response to this matter.

Sincerely,

Tara C. Rengifo

Tara C. Rengifo

Attachments
TCR:acp

EXHIBIT A

November 7, 2024

Via Email and U.S. Mail

Brian D. Bordona
Director
County of Napa Planning, Building, and Environmental Services Department
1195 Third Street
Suite 210
Napa, CA 94559
Email: Brian.bordona@countyofnapa.org

Neha Hoskins
Clerk of the Board of Supervisors
County of Napa
1195 Third Street, Suite 310
Napa, CA 94559
Email:
clerkoftheboard@countyofnapa.org
Neha.hoskins@countyofnapa.org

Via Email Only

Sean Trippi, Supervising Planner
County of Napa
Sean.trippi@countyofnapa.org

Re: Request for *Immediate Access* to Documents Referenced or Relied Upon in the Mitigated Negative Declaration (MND) (SCH: 2024100855) for the E&P Technology Way Buildings A and B (Use Permits #P22-00307 and #P22-00308)

Dear Mr. Bordona, Ms, Hoskins, and Mr. Trippi:

We are writing on behalf of Napa-Solano Residents for Responsible Development ("Napa-Solano Residents") to request *immediate access to* a copy of any and all documents referenced or relied upon in the Mitigated Negative Declaration ("MND") (SCH:2024100855) for the E&P Technology Way Buildings A and B (Use Permits #P22-00307 and #P22-00308) Project ("Project"), proposed by Michael Kelley ("Applicant"). This excludes documents available on the County website here: https://www.pbes.cloud/index.php/s/ptc3SDW98WWmLnZ? (Building A) or https://www.pbes.cloud/index.php/s/4DJdazPtwt7P6wN (Building B). 5

The project proposes construction of a wine production facility (Building A) in a 143,312 SF-building with the necessary equipment for annual production of 450,000 gallons of wine. Building B proposes construction of an accompanying warehouse of 66,915 SF.

The project site is in the Napa Valley Business Park on the North side of Technology Way and Morris Court (APN 057-250-030 – Building A, and APN 057-250-031, -031 Building B).

Our request for all documents referenced or relied upon in the MND is made pursuant to the California Environmental Quality Act (CEQA"), which requires that all documents referenced, and incorporated by reference, in an environmental review document be made available to the public for the entire comment period.[1] 5 CONT

If the requested documents are in electronic format, please send them via a file hosting service such as Dropbox. If the electronic documents are 10 MB or less (or can be easily broken into chunks of 10 MB or less), please email them to jgrube@adamsbroadwell.com as attachments. Otherwise, please send the above requested items by U.S. Mail to our Sacramento Office as follows:

U.S. Mail
Jeanne K. Grube
Adams Broadwell Joseph & Cardozo
520 Capitol Mall, Suite 350
Sacramento, CA 95814

Email
jgrube@adamsbroadwell.com

Sincerely,



Jeanne K. Grube
Paralegal

JKG:acp

[1] *See* Pub. Resources Code, § 21092, subd. (b)(1); 14 Cal. Code Reg. § 15072(g)(4) (stating that all documents incorporated by reference in the MND . . . "shall be readily accessible to the public"); *Vineyard Area Citizens for Responsible Growth, Inc. v. City of Rancho Cordova* (2007) 40 Cal.4th 412, 442, as modified (Apr. 18, 2007).

EXHIBIT B

November 7, 2024

Via Email and U.S. Mail

Brian D. Bordona
Director
County of Napa Planning, Building, and Environmental Services Department
1195 Third Street
Suite 210
Napa, CA 94559
Email: Brian.bordona@countyofnapa.org

Neha Hoskins
Clerk of the Board of Supervisors
County of Napa
1195 Third Street, Suite 310
Napa, CA 94559
Email:
clerkoftheboard@countyofnapa.org
Neha.hoskins@countyofnapa.org

Via Email Only

Sean Trippi, Supervising Planner
County of Napa
Sean.trippi@countyofnapa.org

Via Online Portal

https://countyofnapa.nextrequest.com/

Re: Request for *Immediate Access* to Public Records - E&P Technology Way Buildings A and B (Use Permits #P22-00307 and #P22-00308) (SCH: 2024100855), proposed by Michael Kelley

Dear Mr. Bordona, Ms, Hoskings, and Mr. Trippi:

We are writing on behalf of Napa-Solano Residents for Responsible Development ("Napa-Solano Residents") to request ***immediate access*** *to* any and all public records in the County of Napa's possession referring or related to the E&P Technology Way Building A and B (Use Permits #P22-00307 and #P22-00308) Project ("Project") proposed by Michael Kelley ("Applicant"). This request includes, but is not limited to, any and all file materials, applications, correspondence, resolutions, memos, notes, analysis, email messages, files, maps, charts, and any other documents related to the Project. This request excludes documents available on the County website here: 6

https://www.pbes.cloud/index.php/s/ptc3SDW98WWmLnZ? (Building A) or https://www.pbes.cloud/index.php/s/4DJdazPtwt7P6wN (Building B).

The project proposes construction of a wine production facility (Building A) in a 143,312 SF-building with the necessary equipment for annual production of 450,000 gallons of wine. Building B proposes construction of an accompanying warehouse of 66,915 SF.

The project site is in the Napa Valley Business Park on the North side of Technology Way and Morris Court (APN 057-250-030 – Building A, and APN 057-250-031, -031 Building B).

Napa-Solano Residents is an unincorporated association of individuals and labor organizations that may be adversely affected by the environmental and public health impacts associated with Project development. Napa-Solano Residents includes the International Brotherhood of Electrical Workers Local 180, Plumbers & Steamfitters Local 343, Sheet Metal Workers Local 104, Sprinkler Fitters Local 483, District Council of Ironworkers and their members and families; and other individuals that live and/or work in Napa County.

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CONT

This request is made pursuant to the **California Public Records Act** (Government Code §§ 7920.000, *et seq*.). This request is also made pursuant to Article I, section 3(b) of the California Constitution, which provides a Constitutional right of access to information concerning the conduct of government. Article I, section 3(b) provides that any statutory right to information shall be broadly construed to provide the greatest access to government information and further requires that any statute that limits the right of access to information shall be narrowly construed.

We request *immediate access* to review the above documents pursuant to section 7922.525 of the Public Records Act, which requires public records to be "open to inspection at all times during the office hours of a state or local agency" and provides that "every person has a right to inspect any public record."[1] Therefore, the 10-day response period applicable to a "request for a copy of records" under Section 7922.535(a) does not apply to this request.

[1] Gov. Code §7922.525(a).

We request access to the above records in their original form, as maintained by the agency.[2] Pursuant to Government Code Section 7922.570, if the requested documents are in electronic format, please upload them to a file hosting program such as Dropbox, NextRequest or a similar program. Alternatively, if the electronic documents are 10 MB or less (or can be easily broken into sections of 10 MB or less), they may be emailed to me as attachments.

We will pay for any direct costs of duplication associated with filling this request up to $200. However, please contact me at (916) 444-6201 with a cost estimate before copying/scanning the materials.

Please use the following contact information for all correspondence:

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If you have any questions, please call me at (916) 444-6201 or email me at jgrube@adamsbroadwell.com. Thank you for your assistance with this matter.

Sincerely,



Jeanne K. Grube
Paralegal

JKG:acp

[2] Gov. Code § 7922.570; *Sierra Club v. Super. Ct.* (2013) 57 Cal. 4th 157, 161-62.

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November 19, 2024

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Re: Agenda Item #7: Comments on the Initial Study/Mitigated Negative Declaration for the E&P Technology Way - Buildings A & B (Use Permits #P22-00307 and #P22-00308) (SCH: 2024100855)

Dear Chair Dave Whitmer, Vice Chair Heather Phillips, Commissioner Kara Brunzell, Commissioner Andrew Mazotti, Commissioner Megan Dameron, Director Bordona, Mr. Trippi, and Mr. Kennings:

On behalf of Napa-Solano Residents for Responsible Development ("Napa-Solano Residents"), we submit these comments on the Initial Study/Mitigated Negative Declaration (collectively, "MND")[1] prepared pursuant to the California Environmental Quality Act ("CEQA")[2] by Napa County ("County") for the E&P Technology Way - Buildings A and B (Use Permits #P22-00307 and #P22-00308) (SCH: 2024100855) ("Project"), proposed by Michael Kelley ("Applicant"). 1

[1] Napa County, *Initial Study/Mitigated Negative Declaration for E&P Technology Way - Buildings A & B (Use Permits #P22-00307 and #P22-00308)* (October 2024), available at: https://ceqanet.opr.ca.gov/2024100855 (hereinafter "MND").
[2] Pub. Resources Code § 21000 *et seq.*; 14 C.C.R. §§ 15000, *et seq*.

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The Project proposes to construct two separate buildings on three parcels comprising two sites: Building A is proposed on a 13.2-acre parcel on the north side of Technology Way and Morris Court (APN 057-250-030) and Building B is proposed on a 6.87-acre project site on the north side of Technology Way, opposite Gateway Road West (APN's 057-250-031 and -032, which will be combined).[3] Both sites are located in the Napa Valley Business Park Specific Plan ("NVBPSP") area within the IP:AC (Industrial Park: Airport Compatibility) Zoning District.[4]

Building A is a 143,312 square foot ("SF") refrigerated wine production facility with an annual production capacity of 450,000 gallons.[5] The winery uses will include grape crushing, bulk wine processing and storage, stainless steel tank and barrel storage, bottling, and office space.[6] An additional 13,000 SF of covered outdoor work area is also proposed for the north side of the building.[7] During non-harvest season, the facility will have 16 full-time and 7 part-time employees, which will increase during harvest to approximately 35 total employees.[8] Building A will have 129 parking spaces and eight (8) spaces for semi-trailers.[9]

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Building B is a proposed 66,915 SF building for warehouse uses that the MND claims will be "consistent with allowable warehouse uses as outlined in Industrial Park zoning district (18.40.020) and the [NVBPSP]."[10] Building B will be utilized primarily for warehousing/distribution as well as office space.[11] The facility will be run by up to 30 employees but no user has been identified.[12] There will be no retail sales and no access for the general public.[13]

The Building A and Building B projects will be provided with water service from the City of American Canyon.[14] Napa Sanitation District will provide sewer.[15]

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[3] Napa County, *Staff Report for the E&P Technology Way - Buildings A & B (Use Permits #P22-00307 and #P22-00308) Project* at p. 2 (November 8, 2024).
[4] *Ibid.*
[5] MND at p. 1.
[6] *Ibid.*
[7] *Ibid.*
[8] *Ibid.*
[9] *Ibid.*
[10] *Id.* at p. 2.
[11] *Ibid.*
[12] *Ibid.*
[13] *Ibid.*
[14] *Ibid.*
[15] *Ibid.*

We reviewed the MND and its technical appendices with the assistance of Napa-Solano Residents' expert consultants, including air quality, public health, and greenhouse gas ("GHG") emissions expert James Clark, biological resources expert Dr. Shawn Smallwood, and transportation expert Daniel Smith. Mr. Clark's technical comments and curriculum vitae are attached hereto as Exhibit A.[16] Dr. Smallwood's technical comments and curriculum vitae are attached hereto as Exhibit B.[17] Mr. Smith's technical comments and curriculum vitae are attached hereto as Exhibit C.[18] These comment letters and all attachments thereto are incorporated by reference as if fully set forth herein.[19]

Based on our review of the MND, the MND fails as an informational document under CEQA and lacks substantial evidence to support its conclusions that the Project's significant impacts would be mitigated to less than significant levels, as asserted in the MND. The MND lacks an adequate project description and fails to adequately characterize the Project site's environmental setting. There is also substantial evidence to support a fair argument that the Project would have potentially significant environmental impacts on air quality, greenhouse gas ("GHG") emissions, biological resources, transportation, and agricultural lands. Napa-Solano Residents and their expert consultants have identified potentially significant impacts that the MND either mischaracterizes, underestimates, or fails to identify. Moreover, the mitigation measures described in the MND will not, in fact, reduce impacts to less-than-significant levels. 2

For the foregoing reasons and as explained in detail herein, the County must prepare an Environmental Impact Report ("EIR") for the Project before the County may consider Project approval.

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[16] Exhibit A, James Clark, *Comments on the Initial Study/Mitigated Negative Declaration for the E&P Technology Way - Buildings A & B (Use Permits #P22-00307 and #P22-00308) Project* (hereinafter "Clark Comments").

[17] Exhibit B, Dr. Smallwood, *Comments on the Initial Study/Mitigated Negative Declaration for the E&P Technology Way - Buildings A & B (Use Permits #P22-00307 and #P22-00308) Project* (hereinafter "Smallwood Comments").

[18] Exhibit C, Daniel Smith, *Comments on the Initial Study/Mitigated Negative Declaration for the E&P Technology Way - Buildings A & B (Use Permits #P22-00307 and #P22-00308) Project* (hereinafter "Smith Comments").

[19] Napa-Solano Residents reserves the right to supplement these comments, and to file further comments at any and all future proceedings and hearings related to the Project. Gov. Code § 65009(b); Pub. Res. Code § 21177(a); *Bakersfield Citizens for Local Control v. Bakersfield* (2004) 124 Cal.App.4th 1184, 1199-1203; *see also Galante Vineyards v. Monterey Water Dist.* (1997) 60 Cal.App.4th 1109, 1121.

I. STATEMENT OF INTEREST

Napa-Solano Residents is an unincorporated association of individuals and labor organizations that may be adversely affected by the potential environmental impacts associated with Project development. Napa-Solano Residents includes members of the International Brotherhood of Electrical Workers Local 180, Plumbers & Steamfitters Local 343, Sheet Metal Workers Local 104, Sprinkler Fitters Local 483, the District Council of Ironworkers, and their members and their families, and other individuals that live and/or work in Napa County.

Napa-Solano Residents supports the development of sustainable residential, commercial, and industrial centers where properly analyzed and carefully planned to minimize impacts on public health and the environment. Developments like the Project should avoid adverse impacts to air quality, biological resources, transportation, and public health, and should take all feasible steps to ensure unavoidable impacts are mitigated to the maximum extent feasible. Only by maintaining the highest standards can development truly be sustainable.

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The individual members of Napa-Solano Residents and the members of the affiliated labor organizations live, work, recreate and raise their families in and around Napa County. They would be directly affected by the Project's environmental and health and safety impacts. Individual members may also work constructing the Project itself. They would be the first in line to be exposed to any health and safety hazards which may be present on the Project site. They each have a personal interest in protecting the Project area from unnecessary, adverse environmental and public health impacts.

Napa-Solano Residents and its members also have an interest in enforcing environmental laws that encourage sustainable development and ensure a safe working environment for the members they represent. Environmentally detrimental projects can jeopardize future jobs by making it more difficult and more expensive for industry to expand in Napa County, and by making it less desirable for businesses to locate and people to live and recreate in the County, including the Project vicinity. Continued environmental degradation can, and has, caused construction moratoriums and other restrictions on growth that, in turn, reduces future employment opportunities.

Finally, Napa-Solano Residents is concerned with projects that can result in serious environmental harm without providing countervailing economic benefits. CEQA provides a balancing process whereby economic benefits, including the provision of jobs for highly trained workers, are weighed against significant impacts to the environment.[20] It is in this spirit we offer these comments. 3 CONT

II. LEGAL BACKGROUND

CEQA requires that lead agencies analyze a project with potentially significant environmental impacts in an EIR.[21] The purpose of the EIR "is to inform the public and its responsible officials of the environmental consequences of their decisions *before* they are made. Thus, the EIR 'protects not only the environment, but also informed self-government.'"[22] The EIR has been described "as an environmental 'alarm bell' whose purpose it is to alert the public and its responsible officials to environmental changes before they have reached ecological points of no return."[23]

CEQA's purpose and goals must be met through the preparation of an EIR, except in certain limited circumstances. CEQA contains a strong presumption in favor of requiring a lead agency to prepare an EIR. This presumption is reflected in the "fair argument" standard. Under that standard, a lead agency "shall" prepare an EIR whenever substantial evidence in the whole record before the agency supports a fair argument that a project may have a significant effect on the environment.[24] 4

In contrast, a mitigated negative declaration may be prepared only when, after preparing an initial study, a lead agency determines that a project may have a significant effect on the environment, but:

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[20] Pub. Res. Code § 21081 (a)(3); *Citizens for Sensible Development of Bishop Area v. County of Inyo* (1985) 172 Cal.App.3d 151, 171.
[21] *See* Pub. Res. Code § 21000; 14 C.C.R. § 15002.
[22] *Citizens of Goleta Valley v. Bd. of Supervisors* (1990) 52 Cal.3d 553, 564 [internal citations omitted].
[23] *County of Inyo v. Yorty* (1973) 32 Cal.App.3d 795, 810.
[24] Pub. Res. Code §§ 21080(d); 21082.2(d); 14 C.C.R. §§ 15002(k)(3), 15064(f)(1), (h)(1); *Laurel Heights Improvement Assn. v. Regents of the Univ. of Cal.* (1993) 6 Cal.4th 1112, 1123; *Stanislaus Audubon Society, Inc. v. County of Stanislaus* (1995) 33 Cal.App.4th 144, 150-151; *Quail Botanical Gardens Found., Inc. v. City of Encinitas* (1994) 29 Cal.App.4th 1597, 1601-1602.

> (1) revisions in the project plans or proposals made by, or agreed to by, the applicant before the proposed negative declaration and initial study are released for public review ***would avoid the effects or mitigate the effects to a point where <u>clearly</u> no significant effect on the environment would occur***, and (2) there is ***no substantial evidence*** in light of the whole record before the public agency that the project, as revised, ***may*** have a significant effect on the environment.[25]

Courts have held that "[i]f no EIR has been prepared for a nonexempt project, but substantial evidence in the record supports a fair argument that the project may result in significant adverse impacts, the proper remedy is to order preparation of an EIR."[26] The fair argument standard creates a "'low threshold'" favoring environmental review through an EIR, rather than through issuance of a negative declaration.[27] An agency's decision not to require an EIR can be upheld only when there is no credible evidence to the contrary.[28]

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"Substantial evidence" required to support a fair argument is defined as "enough relevant information and reasonable inferences from this information that a fair argument can be made to support a conclusion, even though other conclusions might also be reached."[29]

According to the CEQA Guidelines, when determining whether an EIR is required, the lead agency is required to apply the principles set forth in Section 15064, subdivision (g):

> [I]n marginal cases where it is not clear whether there is substantial evidence that a project may have a significant effect on the environment, the lead agency shall be guided by the following principle: If there is disagreement

[25] Pub. Res. Code § 21064.5 (emphasis added).
[26] *See, e.g., Communities for a Better Environment. v. South Coast Air Quality Management Dist.* (2010) 48 Cal.4th 310, 319-320.
[27] *Citizens Action to Serve All Students v. Thornley* (1990) 222 Cal.App.3d 748, 754 [internal citations omitted].
[28] *Sierra Club v. County of Sonoma* (1992) 6 Cal.App.4th 1307, 1318; *see also Friends of B Street v. City of Hayward* (1980) 106 Cal.App.3d 988, 1002 ("If there was substantial evidence that the proposed project might have a significant environmental impact, evidence to the contrary is not sufficient to support a decision to dispense with preparation of an EIR and adopt a negative declaration, because it could be 'fairly argued' that the project might have a significant environmental impact").
[29] 14 C.C.R. § 15384(a).

among expert opinion supported by facts over the significance of an effect on the environment, the Lead Agency shall treat the effect as significant and shall prepare an EIR.[30]

With respect to this Project, the MND fails to satisfy the basic purposes of CEQA. The MND fails to adequately disclose, investigate, and analyze the Project's potentially significant impacts during construction and operation, and fails to provide substantial evidence to support its conclusions that impacts will be mitigated to a less than significant level.[31] Because substantial evidence shows that the Project may result in potentially significant impacts, a fair argument can be made that the Project may cause significant impacts requiring the preparation of an EIR. 4 CONT

III. THE MND FAILS TO PROVIDE A COMPLETE PROJECT DESCRIPTION

CEQA requires that an Initial Study include a description of the project.[32] "An accurate and complete project description is necessary for an intelligent evaluation of the potential environmental impacts of the agency's action… Only through an accurate view of the project may affected outsiders and public decision-makers balance the proposal's benefit against its environmental cost, consider mitigation measures, assess the advantage of terminating the proposal … and weigh other alternatives in the balance."[33] Without a complete project description, the environmental analysis under CEQA is impermissibly limited, thus minimizing the project's impacts and undermining meaningful public review.[34] 5

The MND relies on an inadequate Project Description because it omits critical details about the Project's construction timeline and activities, the frequency and number of clients that will visit Building A during operations, and the construction and operation of new recycled water facilities. As a result of these deficiencies, the Project Description in the MND misleads the public by failing to describe the full scope of the Project and its impacts.

[30] *Id.* at § 15064(g).
[31] Pub. Res. Code § 21064.5.
[32] 14 C.C.R. § 15063(d)(1).
[33] *County of Inyo,* 71 Cal.App.3d at 192-193.
[34] *See, e.g., Laurel Heights Improvement Assn. v. Regents of the Univ. of Cal.* (1988) 47 Cal.3d 376.

First, the MND's Project Description fails to provide information regarding the Project's construction timeline or identify the activities during construction. The Project Description must disclose the timeline for construction, the construction activities that will occur and equipment to be utilized during each construction phase, the start date for construction, and if construction will occur simultaneously for both buildings. The failure to provide this information in the Project Description affects the impacts analysis related to air quality, public health, GHG emissions, and biological resources, among others. 6

Construction activities require soil disturbing activities, heavy equipment, and numerous hauling truck trips that can significantly impact air quality and public health. An adequate description of the Project's construction period is critical to an informed analysis of the Project's impacts on air quality and public health during construction. Omitting this information in the Project Description also precludes any evaluation of construction-related air quality and GHG emissions. The lack of information concerning the Project's construction phase also severely affects the MND's biological resources impacts analysis. When and where construction activities may occur can directly impact the Project's effects on biological resources such as migratory birds. The County's own evidence acknowledges that avian species have the potential to nest on the Project site, yet the MND lacks any analysis about whether ground-disturbing activities could commence during the nesting season (February 1 through August 31).[35] 7

Second, the Project Description fails to provide details about the expected visitors to Building A during Project operations. The MND explains that clients will travel onsite to meet with distributors, restaurants, wine shop owners, and other wine buyers but no other information is provided about these visits.[36] Daniel Smith, Napa-Solano Residents' transportation expert, comments that details about the frequency of these visitor meetings and the estimated number of visitors must be disclosed in the Project Description to allow for an adequate analysis of the Project's VMT impacts.[37] The VMT analysis for the Project only evaluates full time and part time employees, even though the Napa County Winery Trip Generation Worksheet relied upon in the trip generation analysis has a line item for "maximum daily 8

[35] First Carbon Solutions, *Biological Resources Analysis* at p. 34 (January 30, 2024; updated February 21, 2024).
[36] MND at 2.
[37] Smith Comments at p. 2.

visitation."[38] The MND confirms visitor trips will occur as part of the Project yet improperly omits these trips from the VMT analysis.[39] Mr. Smith concludes that the Project Description as well as the transportation impact analysis is deficient in omitting this information. 8 CONT

Finally, since the Project site is within NapaSan's recycled water service area, the Project is required to install new facilities to utilize recycled water for landscape irrigation.[40] Yet the Project Description omits any discussion about the construction and operation of these new recycled water facilities, which are required for the Project.[41] As of 2023, the Project had requested service for approximately 3.2 acres of landscaping with a recycled water demand of approximately 5.4 acre-feet per year.[42] To be serviced by the existing NapaSan recycled water service area, the Project may need to construct new pipelines, install service connections, add metering devices, install on-site storage tanks, and retrofit the irrigation system to handle recycled water. The construction and operation of these Project components must be evaluated in the MND as part of the whole of the action. Construction of these facilities may worsen the impacts on air quality, noise, biological resources, and transportation. During operations, pumps or other parts of the facilities may require electricity, thereby increasing energy impacts. Thus, information regarding the facilities that must be installed for the Project to use recycled water from NapaSan for landscape irrigation must be disclosed in the Project Description and analyzed to determine the significance of environmental impacts. 9

A complete Project Description is necessary to ensure informed decision making and meaningful public review.[43] Approving a project without having identified and mitigated all of the project's significant environmental effects violates CEQA's requirements. An EIR must be prepared which fully discloses all components of the Project.

[38] W-Trans, *Transportation Impact Study* at Appendix C (November 21, 2023); Smith Comments at p. 2.
[39] *Ibid.*
[40] Letter to the Napa County Planning, Building & Environmental Services from Gavin Glascott, Assistant Civil Engineer at NapaSan at p. 2 (February 1, 2023).
[41] *Ibid.*
[42] *Ibid.*
[43] *Dry Creek Citizens Coalition v. County of Tulare* (1999) 70 Cal.App.4th 20, 26.

IV. THE MND FAILS TO ADEQUATELY DESCRIBE THE ENVIRONMENTAL SETTING FOR BIOLOGICAL RESOURCES

The MND fails to adequately describe the environmental setting against which the Project's impacts on biological resources are to be measured. This contravenes the fundamental purpose of the environmental review process, which is to determine whether there is a potentially substantial, adverse change compared to the existing setting. [44] CEQA requires that a lead agency include a description of the physical environmental conditions, or "baseline," in the vicinity of the project as they exist at the time environmental review commences.[45] As the courts have repeatedly held, the impacts of a project must be measured against the "real conditions on the ground."[46] The description of the environmental setting constitutes the "baseline" physical conditions against which the lead agency assesses the significance of a project's impacts.[47] An environmental setting is required "to give the public and decision makers the most accurate and understandable picture practically possible of the project's likely near-term and long-term impacts.[48] 10

To establish the Project's baseline for biological resources, a Biological Resources Analysis was prepared earlier this year that reviewed the California Natural Diversity Database ("CNDDB") polygons that overlap with the Project site and relied on a wildlife and botanical survey performed on December 8, 2022—nearly two years ago.[49] Based on the Biological Resource Analysis, the MND describes the Project site as having been impacted by disking and a lack of vegetation.[50] 11

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[44] 14 C.C.R. § 15063(d).
[45] 14 C.C.R. § 15125(a); *Communities for a Better Environment v. South Coast Air Quality Management Dist.* (2010) 48 Cal. 4th 310, 321.
[46] *Id.*; Save *Our Peninsula Com. v. Monterey County Bd. of Supervisors* (2001) 87 Cal.App.4th 99, 121-22; *City of Carmel-by-the-Sea v. Bd. of Supervisors of Monterey County* (1986) 183 Cal.App.3d 229, 246.
[47] 14 C.C.R. § 15125(a); *Communities for a Better Environment v. South Coast Air Quality Management Dist.*, 48 Cal. 4th at 321.
[48] 14 C.C.R. § 15125(a).
[49] MND at p. 10.
[50] *Ibid.* Notably, the NVBPSP describes the area as containing grassland that provide "principal habitat" for several birds and mammals as well as hunting and feeding ground for other wildlife. Napa County, *Napa Valley Business Park Specific Plan & EIR* at pp. 249-250 (Adopted July 29, 1986; amended thru October 22, 2013).

Dr. Smallwood recognizes that the characterization of the environmental setting, including the regional setting, is essential for proper CEQA analysis. These steps typically include (1) surveys of the site for biological resources, and (2) reviews of literature, databases, and local experts for documented occurrences of special-status species.[51] With regards to the Project's biological resources survey, Dr. Smallwood's comments provide substantial evidence that the survey is inadequate to establish the environmental setting for several reasons.[52] For example, Dr. Smallwood comments that the duration of the December 2022 biological resources survey is unknown, the proper California Department of Fish and Wildlife ("CDFW") guidelines were not implemented for rare plants, and surveys were not performed for bats and reptiles.[53] 12

Dr. Smallwood's comments also identify several issues with the Project's desktop review.[54] By way of example, the Biological Resources Analysis relied upon the CNDDB to identify documented occurrences of special-status species, but as Dr. Smallwood comments, the desktop review did not also involve a search of eBird or iNaturalist.[55] A more complete database review would have shown that some of the species omitted from consideration in the Biological Resources Analysis have actually been recorded on the Project site, according to Dr. Smallwood.[56] Moreover, of the 31 species identified in the MND as having a very low occurrence potential, Dr. Smallwood emphasizes that three of those species have been documented on the Project site and of the 13 species determined to have no potential to occur on the site, one of those species was documented on the site.[57] 13

Furthermore, based on his own survey efforts in the area and database reviews, Dr. Smallwood determines that there are around 125 special-status species known to occur within sufficient proximity to the Project site.[58] Of those 125 special-status species, Dr. Smallwood states that 8 species were recorded on or adjacent to the Project site, 46 species were documented within 1.5 miles of the site, 25 species were within 1.5-4 miles of the site, and 41 were identified within 4-30 miles of the 14

[51] Smallwood Comments at p. 1.
[52] *Id.* at pp. 2, 11.
[53] *Id.* at p. 11.
[54] *Id.* at pp. 11-23.
[55] *Id.* at p. 11.
[56] *Id.* at p. 12.
[57] *Ibid.*
[58] *Id.* at p. 12.

site.[59] While the Project's survey effort only resulted in the detection of 13 taxa of vertebrate wildlife, Dr. Smallwood has detected 69 species of vertebrate wildlife—of which 13 species were special-status species—during visual-scan surveys at three locations within 700 m of the Project site.[60] Dr. Smallwood has also surveyed for biological resources at three locations around 2.7 miles south/southeast of the Project site where he, along with the other consulting firms, detected 44 species of vertebrate wildlife.[61]

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For the foregoing reasons, Dr. Smallwood concludes that the MND and Biological Resources Analysis fail to accurately describe the Project's environmental setting for biological resources.[62] Dr. Smallwood's own desktop review and survey efforts demonstrate that the Project site supports multiple special-status species of wildlife that are not disclosed and analyzed in the MND.[63] These errors and omissions in the baseline for biological resources prevents the County from adequately assessing impacts to the existing environment at the Project site. The environmental setting and impacts analysis must be adequately disclosed and analyzed in an EIR.

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V. AN EIR IS REQUIRED BECAUSE THERE IS SUBSTANTIAL EVIDENCE SUPPORTING A FAIR ARGUMENT THAT THE PROJECT MAY HAVE SIGNIFICANT IMPACTS

An MND is improper, and an EIR must be prepared, whenever it can be fairly argued on the basis of substantial evidence that the project may have a significant environmental impact.[64] "[S]ignificant effect on the environment" is defined as "a substantial, or potentially substantial, adverse change in the environment."[65] An effect on the environment need not be "momentous" to meet the

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[59] *Ibid.*
[60] *Id.* at p. 2.
[61] *Ibid.*
[62] *Id.* at p. 12.
[63] *Ibid.*
[64] Pub. Res. Code § 21151; 14 C.C.R. § 15064(f)(1); *Citizens for Responsible Equitable Envt'l Dev. v. City of Chula Vista* (2011) 197 Cal.App.4th 327, 330-31; *Communities for a Better Env't v. South Coast Air Quality Mgmt. Dist.* (2010) 48 Cal.4th 310, 319.
[65] Pub. Res. Code § 21068; 14 C.C.R. § 15382.

CEQA test for significance; it is enough that the impacts are "not trivial."[66] Substantial evidence, for purposes of the fair argument standard, includes "fact, a reasonable assumption predicated upon fact, or **expert opinion** supported by fact."[67]

Moreover, the failure to provide information required by CEQA is a failure to proceed in the manner required by CEQA.[68] Challenges to an agency's failure to proceed in the manner required by CEQA, such as the failure to address a subject required to be covered in an MND or to disclose information about a project's environmental effects or alternatives, are subject to a less deferential standard than challenges to an agency's factual conclusions.[69] Even when the substantial evidence standard is applicable to agency decisions to certify an MND and approve a project, reviewing courts will not "'uncritically rely on every study or analysis presented by a project proponent in support of its position. A clearly inadequate or unsupported study is entitled to no judicial deference.'"[70]

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A. Substantial Evidence Supports a Fair Argument that the Project's Impacts on Air Quality are Potentially Significant

The MND lacks substantial evidence to support its conclusion that the Project would result in less-than-significant impacts on air quality.[71] The MND does not include any modeling of the Project's emissions during construction or operations as is typically done in CEQA documents to evaluate a project's air quality impacts; however, James Clark performed detailed emissions calculations using CalEEMod.[72] Based on his modeling, Mr. Clark identifies a potentially significant air quality impact during the construction phase of the Project.[73] Mr. Clark finds that the Project's emissions of reactive organic gases ("ROGs") during the architectural coating phase in summer months would exceed the Bay Area Air Quality Management District's ("BAAQMD") significance threshold unless

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[66] *No Oil, Inc. v. City of Los Angeles* (1974) 13 Cal.3d 68, 83.
[67] Pub. Res. Code § 21080(e)(1) (emphasis added).
[68] *Sierra Club v. State Bd. Of Forestry* (1994) 7 Cal.4th 1215, 1236.
[69] *Vineyard Area Citizens for Responsible Growth, Inc. v. City of Rancho Cordova* (2007) 40 Cal.4th 412, 435.
[70] *Berkeley Keep Jets Over the Bay Committee v. Board of Port Com'rs* (2001) 91 Cal.App.4th 1344, 1355 [internal citations omitted].
[71] MND at pp. 5-8.
[72] Clark Comments at p. 5.
[73] *Ibid.*

mitigation is imposed.[74] Mr. Clark recommends imposing a mitigation measure that requires the use of architectural coating products that have Volatile Organic Compound ("VOC") contents of less than 50 grams per liter to reduce the ROG emissions to 49.9 lbs. per day, which is under the BAAQMD threshold of significance.[75]

17 CONT

Notably, Mr. Clark's emission calculations do not include all of the Project' construction emissions due to missing details about the grading activities for the construction of the Project's bioretention basins, storm drain pipelines, wastewater and water system infrastructure improvements.[76] The Project's air quality impacts may be more severe and require additional mitigation measures upon a complete analysis of all of the Project's emissions.

B. Substantial Evidence Supports a Fair Argument that the Project's Impacts on Greenhouse Gas Emissions are Potentially Significant

The MND lacks substantial evidence to support its conclusion that the Project would not have a significant impact on GHG emissions based on a qualitative analysis of the Project's GHG emissions.[77] To support the less-than-significant determination, the MND relies on the Project's adherence to BAAQMD design standards, the California Building Code requirements, and the County's conditions of approval.[78] More specifically, the Planning Commission Staff Report for the Project explains that "[t]he applicant intends to implement the following GHG reduction methods for both buildings: generation of onsite renewable energy; habitat restoration/new vegetation; electric forklifts, build to CALGREEN Tier 1 standards; solar hot water heating; exceed Title 24 energy efficiency standards; energy conserving lighting; energy star/cool roofing; bicycle incentives; connection to recycled water; water efficient fixtures; low-impact development (LID); water efficient landscape; electric vehicle charging station installation; design to maximize

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[74] *Ibid.*
[75] *Ibid.*
[76] *Ibid.*
[77] MND at pp. 17-18.
[78] *Id.* at p. 18.

daylighting of interior spaces; and, limited grading. A condition of approval is included to require implementation of the checked Voluntary Best Management Practices Measures submitted with the project application."[79]

18 CONT

Mr. Clark reviewed the applications for Building A and Building B and found that minimal Voluntary Best Management Practices Measures had been selected by the Applicant.[80] These measures are limited to energy conserving lighting, installation of water efficient fixtures, water efficient landscape, planting of shade trees within 40 feet of the south side of the building elevation, and electric vehicle ("EV") charging, specifically, dedicated parking provided for future EV charging stations.[81] Only this limited set of measures will actually be implemented by the Applicant to reduce the Project's GHG emissions, and only these measures will be included as conditions of approval for the Project.[82] According to Mr. Clark, and contrary to statements in the Staff Report, "the Project will not involve the generation of onsite renewable energy; habitat restoration/new vegetation; electric forklifts, build to CALGREEN Tier 1 standards; solar hot water heating; exceed Title 24 energy efficiency standards; energy star/cool roofing; bicycle incentives; connection to recycled water; low-impact development (LID); design to maximize daylighting of interior spaces; and, limited grading to reduce impacts from GHG emissions."[83] There is no evidence that such measures will be required for Project operations.

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Mr. Clark therefore concludes that "[t]o the extent that these additional GHG reduction strategies are necessary to reduce the Project's GHG emissions to less than significant levels but are not required by the Project's Conditions of Approval, the Project will have a significant and unmitigated impact on GHG emissions that must be evaluated in an EIR."[84]

[79] Napa County, *Staff Report for the E&P Technology Way - Buildings A & B (Use Permits #P22-00307 and #P22-00308)* at p. 8 (November 20, 2024).
[80] Clark Comments at p. 3.
[81] *Ibid.*
[82] *Ibid.*
[83] *Id.* at pp. 3-4.
[84] *Ibid.*

C. Substantial Evidence Supports a Fair Argument that the Project's Impacts on Biological Resources are Potentially Significant

The MND lacks substantial evidence to support its conclusion that with the adoption of mitigation measures, the Project would not result in impacts on biological resources.[85] The Biological Resources Analysis acknowledges that the Project would result in the loss of non-native grassland, and ruderal habitats, but fails to adequately assess the potentially significant impacts from this habitat loss, as supported by Dr. Smallwood's comments.[86] Dr. Smallwood explains that habitat loss can cause "the immediate numerical decline of wildlife."[87] Through his own study, Dr. Smallwood has measured and quantified the impacts of habitat loss from development projects on wildlife and found that development—even with mitigation measures—results in a 66% loss of species on the site and a 48% loss of species in the project area.[88] 20

Dr. Smallwood also comments that habitat loss can "result[] in the permanent loss of productive capacity."[89] He explains that "[h]abitat fragmentation multiplies the negative effects of habitat loss on the productive capacities of biological species by preventing recruitment to habitat patches that have become too isolated or too small [internal citations omitted]."[90] Dr. Smallwood estimates that the annual loss of birds from the Project could be over 1,000 birds, many of which are otherwise protected by the state and federal Migratory Bird Treaty Acts.[91] Dr. Smallwood therefore concludes that the Project may result in a significant impact on biological resources.[92] 21

Dr. Smallwood also comments that Project-generated traffic may significantly impact biological resources on and even beyond the Project footprint including, but not limited to, California tiger salamander, California red-legged frog, and American badger.[93] "Vehicle collisions have accounted for the deaths of many 22

[85] MND at pp. 9-11.
[86] Smallwood Comments at p. 23.
[87] *Id.* at p. 24.
[88] *Id.* at pp. 23-24.
[89] *Id.* at p. 24.
[90] *Ibid.*
[91] *Id.* at p. 25.
[92] *Ibid.*
[93] *Ibid.*

thousands of amphibian, reptile, mammal, bird, and arthropod fauna, and the impacts have often been found to be significant at the population level [internal citations omitted]."[94] A study of traffic-caused wildlife mortality in Contra Costa County, California found 1,275 carcasses of 49 species of mammals, birds, amphibians, and reptiles over a 15 month period.[95] Based on Dr. Smallwood's estimates of traffic-related mortality from this Project, and the lack of any mitigation measures to reduce these impacts, Dr. Smallwood concludes that Project-generated traffic may cause significant impacts to biological resources that are not disclosed, analyzed, or mitigated in the MND.[96]

22 CONT

Dr. Smallwood also provides comments on several of the proposed mitigation measures for the Project's significant impacts on biological resources.[97] First, MM BIO-1 requires the installation of silt fencing along the conservation easement boundary to the riparian corridor.[98] Dr. Smallwood recommends that the silt fence be installed 300 feet from the southern edge of the top of bank of Sheehy Creek to lessen significant impacts to terrestrial wildlife along the riparian corridor.[99] His recommendation is based on a study which found that from the edge of an aquatic site, core terrestrial habitat can span from 159 to 209 m for amphibians and from 127 to 289 m for reptiles.[100]

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Second, for MM BIO-2 requiring a preconstruction survey for rare plants, Dr. Smallwood explains that the cited CDFW rare plant survey guidelines are for a reconnaissance survey that should be utilized to support preparation of the CEQA environmental review document and not a preconstruction survey for rare plants.[101]

24

Third, MM BIO-3 would require implementation of a preconstruction survey for nesting birds and if nests are identified, buffers must be established around the nests from construction activities.[102] Dr. Smallwood comments that the mitigation measure will not reduce the potentially significant impacts from habitat loss that he details in his comments to less-than-significant levels and that the measure

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[94] *Ibid.*
[95] *Id.* at p. 26.
[96] *Id.* at p. 27.
[97] *Id.* at pp. 27-28.
[98] MND at 11.
[99] Smallwood Comments at p. 27.
[100] *Ibid.*
[101] *Ibid.*
[102] MND at pp. 11-12.

requires additional objective criteria to be effective, particularly regarding the determination of the buffer area size for any given species.[103] Without such objective criteria, the measure's efficacy is questionable and it cannot be enforced. 25 CONT

Fourth, MM BIO-6 concerns burrowing owls and Dr. Smallwood explains that given the recent designation of burrowing owl as candidate for Threatened or Endangered status under the California Endangered Species Act ("CESA"), no take of burrowing owls is allowed and "detection surveys are needed during both the non-breeding and breeding periods, as well as a preconstruction take-avoidance survey."[104] 26

Finally, Dr. Smallwood identifies issues with the proposed mitigation measure to install exclusion fencing during the wet season in MM BIO-8.[105] He explains that unless a one-way passage is enabled, the proposed fencing could trap amphibians on the Project site. Additionally, Dr. Smallwood determines that MM BIO-8 "would not avoid substantial, highly significant impact[s] to amphibians such as to foothill yellow-legged frog. Compensatory mitigation would be warranted."[106] 27

For the foregoing reasons, Dr. Smallwood's comments provide substantial evidence supporting a fair argument that the Project's impacts on biological resources may be significant and unmitigated. An EIR must be prepared to evaluate the Project's potentially significant impacts on biological resources and all feasible mitigation measures. 28

D. Substantial Evidence Supports a Fair Argument that the Project's Impacts on Transportation are Potentially Significant

The MND fails to provide substantial evidence to support its conclusion that the Project would not result in significant transportation impacts after the implementation of MM TRANS-1.[107] 29

[103] Smallwood Comments at p. 28.
[104] *Ibid.*
[105] *Ibid.*
[106] *Ibid.*
[107] MND at pp. 25-28.

First, Mr. Smith demonstrates that the MND improperly segments the Project's VMT impacts by separately analyzing impacts of Building A and Building B.[108] This piecemealing of the environmental review of the Project violates CEQA.[109] A project under CEQA means the "whole of an action which has the potential for resulting in either a direct physical change in the environment, or reasonably foreseeable indirect physical change in the environment."[110] CEQA prohibits segmenting the review of the significant environmental impacts of a project.[111] CEQA mandates "that 'environmental considerations do not become submerged by chopping a large project into many little ones—each with a minimal potential impact on the environment—which cumulatively may have disastrous consequences.'"[112] Public agencies must construe the project broadly to capture the whole of the action and its environmental impacts.[113]

29
CONT

Before undertaking a project, the lead agency must assess the environmental impacts of all reasonably foreseeable phases of a project and a public agency may not segment a large project into two or more smaller projects in order to mask serious environmental consequences.[114] "The CEQA process is intended to be a careful examination, fully open to the public, of the environmental consequences of a given project, covering the entire project, from start to finish."[115]

Here, however, Mr. Smith explains that while the MND's air quality analysis is based on the Project's total weekday trip estimate of 218 trips, the transportation analysis piecemeals the daily trip estimates for Building A from Building B's trips and fails to consider the VMT impacts from the whole Project.[116] The MND utilizes the County's current Transportation Impact Study Guidelines' threshold of significance, which requires a project to prepare a Transportation Impact Study if it

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[108] Smith Comments at pp. 1-2.
[109] *Ibid.*
[110] 14 C.C.R. § 15378(a).
[111] *Laurel Heights Improvement Assn.,* 47 Cal. 3d at 396; *See also* Pub. Res. Code § 21002.1(d).
[112] *Id.*; *See also City of Santee v. County of San Diego* (1989) 214 Cal.App.3d 1438, 1452; *Citizens Assn. for Sensible Development of Bishop Area v. County of Inyo* (1985) 172 Cal.App.3d 151, 165.
[113] 14 C.C.R. § 15378.
[114] *See Citizens Assn. for Sensible Development of Bishop Area,* 172 Cal. App. 3d at 165–168.
[115] *Natural Resources Defense Council v. City of Los Angeles* (2002) 103 Cal.App.4th 268; *See also Whitman v. Board of Supervisors* (1979) 88 Cal.App.3d 402 (EIR for an exploratory oil well that failed to analyze the impacts associated with an proposed pipeline was inadequate and violated CEQA).
[116] Smith Comments at pp. 1-2; MND at p. 7-8, 26.

generates 110 or more net new daily vehicle trips.[117] Building A is estimated to generate an average of 71 daily trips during non-harvest months and 104 trips per day during harvest months.[118] Both estimates are under the threshold of significance.[119] Building B is anticipated to generate 114 trips per day, which exceeds the threshold and triggers the requirement for a Transportation Demand Management Plan as mitigation (MM TRANS-1).[120] Mr. Smith explains that the MND impermissibly segments the Project's VMT impacts by splitting up the Project rather than evaluating the total daily trips for both buildings, i.e., 218 trips.[121]

Mr. Smith concludes that the Project's 218 daily trips would exceed the threshold of significance.[122] Even with the mitigation for Building B, the MND estimates that the Project would result in a combined 202 VMT per day, which still exceeds the threshold of significance.[123] Therefore, the Project as a whole would cause a significant impact requiring mitigation measures to reduce these significant VMT impacts.[124] Given that there is a fair argument based on substantial evidence that the Project may have significant transportation impacts, an EIR must be prepared that fully evaluates these impacts as well as the necessary mitigation measures to lessen these impacts. 29 CONT

Second, Mr. Smith comments that the trip generation estimates for Building B are unsupported in the MND.[125] The MND estimates that Building B would require 44 parking spaces for the office uses and as stated in the Staff Report, there would be approximately 11,000 SF of office area in Building B.[126] Mr. Smith determines that Building B's office use "is not a small ancillary use to the warehouse," and would be over 16% of Building B's floor area.[127] As such, Mr. Smith states that the office uses in Building B must be analyzed based on the trip generation category for "Office" rather than "Warehouse."[128] Mr. Smith describes

[117] MND at p. 26.
[118] *Ibid.*
[119] *Ibid.*
[120] *Ibid.*
[121] Smith Comments at p. 2.
[122] *Ibid.*
[123] MND at p. 27.
[124] Smith Comments at p. 2.
[125] *Id.* at pp. 3-4.
[126] MND at p. 27; *see also* Napa County, *Staff Report for the E&P Technology Way - Buildings A & B (Use Permits #P22-00307 and #P22-00308)* at p. 13 (November 20, 2024).
[127] Smith Comments at p. 3.
[128] *Ibid.*

the substantial disparity between trip generation rates for "Office" and trip generation rates for "Warehouse."[129] He estimates that Building B's office uses would generate around 6-8 times more traffic than the same square footage of warehouse.[130] Accordingly, Mr. Smith concludes that utilizing the correct trip generation categories for Building B's uses would result in potentially significant VMT impacts that are not disclosed or mitigated in the MND.[131]

29 CONT

Therefore, the MND fails to fully disclose, analyze, and mitigate the full scope of the Project's potentially significant impacts on transportation. The County must prepare an EIR to fully disclose, analyze, and mitigate the impacts of the entire Project.

E. Substantial Evidence Supports a Fair Argument that the Project's Impacts on Agricultural Resources are Potentially Significant

The MND fails to analyze the impacts from the conversion of farmland to non-agricultural use, as required by CEQA. The MND explains that "[a]ccording to Napa County GIS the property is categorized as Farmland of Local Importance. … Undeveloped lands within the boundary of the NVBPSP are designated as Farmland of Local Importance because they include areas of soils that meet all the characteristics of Prime Farmland or of additional Farmland of Statewide Importance except for irrigation."[132] Farmland of Local Importance is "land of importance to the local economy, as defined by each county's local advisory committee and adopted by its Board of Supervisors. Farmland of Local Importance is either currently producing, or has the capability of production; but does not meet the criteria of Prime, Statewide or Unique Farmland. Authority to adopt or to recommend changes to the category of Farmland of Local Importance rests with the Board of Supervisors in each county."[133]

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The MND nevertheless concludes that "[a]lthough the site, as well as other undeveloped land in the NVBPSP area, is classified as locally important, the site

[129] *Ibid.*
[130] *Ibid.*
[131] *Ibid.*
[132] MND at p. 5; *see also* California Department of Conservation, *California Important Farmland Finder*, available at: https://maps.conservation.ca.gov/DLRP/CIFF/.
[133] *Farmland of Local Importance* (2018), available at: https://www.conservation.ca.gov/dlrp/fmmp/Documents/Farmland_of_Local_Importance_2018.pdf.

has been designated for industrial/business park uses for over 35 years. … As development in the NVBPSP area continues, the surrounding developed parcels have been reclassified as Urban and Built-up Land. The project will not result in the conversion of existing farmland. As such, there are no significant impacts to prime farmland created by the project."[134] Despite the value of the site's agricultural lands, and to justify a less-than-significant determination, the MND relies on the fact that the conversion of the site's agricultural lands has been planned for and is therefore not significant. However, the EIR for the NVBPSP identified significant, unavoidable, and irreversible adverse impacts from the conversion of agricultural lands within the NVBPSP area because the "proposed industrial area could ultimately eliminate approximately 1,730 acres of what is presently defined as 'agricultural or open land.'"[135] Since this Project would convert Farmland of Local Importance to non-agricultural uses, CEQA mandates that the impacts of this conversion be adequately disclosed, analyzed, and mitigated.

30 CONT

VI. CONCLUSION

For the reasons discussed above, the MND for the Project is wholly inadequate under CEQA. An EIR must be circulated to provide a legally adequate analysis of, and mitigation for, all of the Project's potentially significant impacts. Until an EIR is prepared and circulated, as described herein, the Project may not lawfully be approved.

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Sincerely,

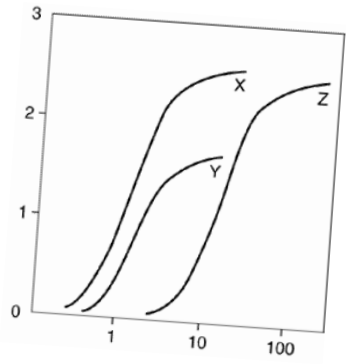
Tara C. Rengifo

Tara C. Rengifo

TCR:ljl

[134] MND at p. 5.
[135] Napa County, *Napa Valley Business Park Specific Plan & EIR* at p. 280 (Adopted July 29, 1986; amended thru October 22, 2013).

EXHIBIT A



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November 13, 2024

Adams Broadwell Joseph & Cardozo
601 Gateway Boulevard, Suite 1000
South San Francisco, CA 94080

Attn: Ms. Tara Rengifo

Subject: Comment Letter on Initial Study/Mitigated Negative Declaration (IS/MND) For E&P Technology Way - Building A & B Use Permit #'sP22-00307-UP and P22-00308-UP (APN's: 057-250-030, -031, -032), Napa County, California.

Dear Mrs. Rengifo:

At the request of Adams Broadwell Joseph & Cardozo (ABJC), Clark and Associates (Clark) has reviewed materials related to the above referenced project.

Clark's review of the materials in no way constitutes a validation of the conclusions or materials contained within the IS/MND. If we do not comment on a specific item, this does not constitute acceptance of the item.

Project Description: 32

The IS/MND prepared by the County of Napa (the County) describes the Project as consisting of two separate buildings. Building A is proposed as a 143,312 square foot (SF) building with an annual wine production capacity of 450,000 gallons. The winery uses will include grape crushing, bulk wine processing and storage, stainless steel tank and barrel storage, bottling, and office space. In addition, approximately 13,000 SF of covered outdoor work area will be located on the north side of the building. The proposal also includes 129 parking spaces and eight (8) spaces for semi-

trailers. Access will be provided by three (3) new driveways; one (1) on Technology and two (2) on Morris Court.

The winery building will provide for tank fermentation and storage for bulk wine in stainless steel tanks in a refrigerated building. The facility will be run by 16 full-time and 7 part time employees during non-harvest season. Seasonal help will increase during harvest to approximately 35 total employees. The building will be used during harvest for crushing up to 450,000 gallons of wine and tank fermentation of bulk wine and juice. Wine storage (tank and barrel) and bottling will take place on a year-round basis. Water demand and wastewater design will include demand for crush, bulk fermentation, storage, and bottling uses.

No retail sales or access for the general public is proposed. Individual clients will visit the site on occasion to hold meetings with members of the wine trade, such as their distributors, restaurants, wine shop owners and similar types of wine buyers. The only signage will be to identify the building as a winery facility.

The Building B project proposes to allow warehouse uses within the proposed 66,915 SF building. The floor area ratio (FAR) after full build out will be 22.4%, below the allowable 35%. All vehicles will enter from a new access driveway on Technology Way that runs along the eastern property line. Trucks will then off load or pick up at the rear of the building. Trucks will be able to circulate around the building in a one-way loop, exiting at a second driveway on Technology Way on the west side the building. The entrance driveway will be wide enough to accommodate two-way traffic. 32 CONT

Building B will be utilized primarily for warehousing/distribution with accessory office. The facility will be run by up to 30 employees. No user has yet been identified. There will be no retail sales and no access for the general public. The only signage will be to identify the building for the future tenant.

Both buildings include site-cast tilt-up concrete wall panels with a multi-color textured coating system and multiple score lines/reveals, storefront glazing systems, painted steel channel canopies, truck loading docks, grade level roll-up doors, and metal man-doors. Color choices include white, green, and grey painted stucco panels. The winery building also includes a covered outdoor work area for the crush pad in front of the loading docks.

The IS/MND does not provide sufficient information to justify the conclusion that the impacts are less than significant and no additional mitigation measures are required for the Project. The

analysis presented does not include an air quality analysis compiled in CalEEMOD as is typically performed in CEQA analyses. The County must compile the emission estimates in a meaningful manner in an environmental impact report (EIR) for the Project. 32 CONT

Specific Comments:

1. **The IS/MND Makes Assertions Regarding Greenhouse Gas (GHG) Reductions That Are Not Supported In The Applications For Building A and B. The Project's Impacts from Greenhouse Gas Emissions May be Significant and Unmitigated**

The IS/MND did not quantify the Project's GHG emissions and instead performed a qualitative analysis of the Project's impacts from GHG emissions pursuant to BAAQMD thresholds. According to the MND, "BAAQMD recommends that a land use project must include specified minimum design elements to ensure that the project is contributing its 'fair share' toward achieving the state's key climate goal of carbon neutrality by 2045." The MND at page 18 concludes that "[i]f the proposed project adheres to these relevant design standards identified by BAAQMD, the requirements of the California Building Code, and the County's conditions of project approval, impacts are considered less than significant."

The Staff Report for the Project states on page 8 that: "The applicant intends to implement the following GHG reduction methods for both buildings: generation of onsite renewable energy; habitat restoration/new vegetation; electric forklifts, build to CALGREEN Tier 1 standards; solar hot water heating; exceed Title 24 energy efficiency standards; energy conserving lighting; energy star/cool roofing; bicycle incentives; connection to recycled water; water efficient fixtures; low-impact development (LID); water efficient landscape; electric vehicle charging station installation; design to maximize daylighting of interior spaces; and, limited grading. A condition of approval is included to require implementation of the checked Voluntary Best Management Practices Measures submitted with the project application." 33

A review of the applications submitted for each of the buildings shows that only BMP-9 (Energy conserving lighting), BMP-14 (installation of water efficient fixtures), BMP-16 (water efficient landscaping), BMP-20 (planting of shade trees within 40 feet of the south side of the building elevation), BMP-21 (electrical vehicle charging station(s)) are checked in the applications and only these measures will be required by the Project's Conditions of Approval. Contrary to the statement in

the Staff Report, the Project will not involve the generation of onsite renewable energy; habitat restoration/new vegetation; electric forklifts, build to CALGREEN Tier 1 standards; solar hot water heating; exceed Title 24 energy efficiency standards; energy star/cool roofing; bicycle incentives; connection to recycled water; low-impact development (LID); design to maximize daylighting of interior spaces; and, limited grading to reduce impacts from GHG emissions.

I performed a quantitative analysis of the Project's GHG emissions using CalEEMOD. Using the default values within the CalEEMOD model I have calculated the following GHG emissions for the construction phase and the operational phase.

Phase	MT CO2eq
Construction	18.8 per annum (564/30 years)
Operational	
Mobile	222
Area	3.08
Energy	415
Water	95.6
Waste	61.7
Refrigeration	632
Total	1,447.8

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CONT

Based on my calculations, the incorporation of all of the mitigation measures identified in the Staff Report would reduce the Project's GHG mitigated emissions by 169 MT CO2eq per year or 12% of the total emissions. The results of the analysis are attached as an exhibit to this letter.

To the extent that these additional GHG reduction strategies are necessary to reduce the Project's GHG emissions to less than significant levels but are not required by the Project's Conditions of Approval, the Project will have a significant and unmitigated impact on GHG emissions that must be evaluated in an EIR.

2. Using The Details Outlined In The IS/MND I Have Calculated The Emissions From The Project Using CalEEMOD. Without Mitigation Emissions Of Reactive Organic Gases (ROGs) Will Exceed The BA-AQMD Significance Thresholds.

Using the details outlined in the IS/MND I have calculated the emissions from the construction phase and operational phase using CalEEMOD. The IS/MND on page 29 states that there will be grading for construction of the bioretention basins, storm drain pipelines, wastewater and water system infrastructure improvements. The amount of soil disturbance is not detailed in the IS/MND and the emissions from the additional improvements were not included in the CalEEMOD analysis since they could not be quantified. The results of the analysis are attached as an exhibit to this letter.

34

The results of the analysis show that during the construction phase of the Project (Table 2.1 of the output) emissions of Reactive Organic Gases (ROGs) will exceed the BA-AQMD significance threshold. The exceedances occur during the architectural coating phase of the Project and will reach levels of 111 lbs per day during summer months if no mitigation measure is in place. Requiring the use of architectural coating products that have VOC contents less than 50 grams per liter would reduce the ROG levels to 49.9 lbs per day, below the BA-AQMD significance threshold. The County must evaluate the impacts of the Project in an EIR

Conclusion

The facts identified and referenced in this comment letter led me to reasonably conclude that the Project could result in significant impacts if allowed to proceed. An EIR should be prepared to address these substantial concerns.

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Sincerely,



Wine Warehouse Detailed Report

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1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Wine Warehouse
Construction Start Date	1/1/2025
Operational Year	2025
Lead Agency	Napa County PBES
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.60
Precipitation (days)	38.4
Location	Morris Ct & Technology Way, California 94558, USA
County	Napa
City	Unincorporated
Air District	Bay Area AQMD
Air Basin	San Francisco Bay Area
TAZ	801
EDFZ	2
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.29

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Refrigerated Warehouse-No Rail	143	1000sqft	13.2	143,312	—	—	—	Building A

Unrefrigerated Warehouse-No Rail	66.9	1000sqft	6.87	66,915	—	—	—	Building B
Parking Lot	129	Space	1.16	0.00	—	—	—	Parking Lot For Building A
Parking Lot	82.0	Space	0.74	0.00	—	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	111	111	12.0	17.6	0.03	0.44	0.97	1.42	0.41	0.24	0.65	—	4,093	4,093	0.15	0.19	5.72	4,159
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.89	3.28	29.8	29.1	0.06	1.23	9.37	10.6	1.14	3.69	4.83	—	6,761	6,761	0.27	0.19	0.15	6,785
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	6.63	6.54	11.7	14.3	0.03	0.46	2.13	2.59	0.42	0.76	1.18	—	3,369	3,369	0.13	0.11	1.40	3,408
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.21	1.19	2.14	2.62	< 0.005	0.08	0.39	0.47	0.08	0.14	0.22	—	558	558	0.02	0.02	0.23	564
Exceeds (Daily Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Threshold	—	54.0	54.0	—	—	82.0	—	—	54.0	—	—	—	—	—	—	—	—	—
Unmit.	—	Yes	No	—	—	No	—	—	No	—	—	—	—	—	—	—	—	—
Exceeds (Average Daily)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Threshold	—	54.0	54.0	—	—	82.0	—	—	54.0	—	—	—	—	—	—	—	—	—
Unmit.	—	No	No	—	—	No	—	—	No	—	—	—	—	—	—	—	—	—

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	1.81	1.52	12.0	17.6	0.03	0.44	0.97	1.42	0.41	0.24	0.65	—	4,093	4,093	0.15	0.19	5.72	4,159
2026	111	111	11.3	17.3	0.03	0.39	0.97	1.36	0.36	0.24	0.60	—	4,063	4,063	0.15	0.19	5.34	4,128
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	3.89	3.28	29.8	29.1	0.06	1.23	9.37	10.6	1.14	3.69	4.83	—	6,761	6,761	0.27	0.19	0.15	6,785
2026	1.72	1.44	11.5	16.9	0.03	0.39	0.97	1.36	0.36	0.24	0.60	—	4,013	4,013	0.15	0.19	0.14	4,073
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	1.65	1.38	11.7	14.3	0.03	0.46	2.13	2.59	0.42	0.76	1.18	—	3,369	3,369	0.13	0.11	1.40	3,408
2026	6.63	6.54	3.64	5.37	0.01	0.13	0.28	0.41	0.12	0.07	0.19	—	1,229	1,229	0.05	0.05	0.67	1,247
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.30	0.25	2.14	2.62	< 0.005	0.08	0.39	0.47	0.08	0.14	0.22	—	558	558	0.02	0.02	0.23	564
2026	1.21	1.19	0.66	0.98	< 0.005	0.02	0.05	0.07	0.02	0.01	0.03	—	203	203	0.01	0.01	0.11	206

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	7.84	7.62	1.35	17.4	0.02	0.05	1.59	1.64	0.04	0.40	0.45	200	4,618	4,817	20.7	0.37	3,827	9,271
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	6.17	6.07	1.44	8.04	0.02	0.03	1.59	1.62	0.03	0.40	0.44	200	4,487	4,686	20.7	0.38	3,820	9,135
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	6.67	6.53	1.07	10.0	0.01	0.04	1.11	1.14	0.03	0.28	0.31	200	3,991	4,191	20.7	0.34	3,822	8,632
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.22	1.19	0.19	1.83	< 0.005	0.01	0.20	0.21	0.01	0.05	0.06	33.1	661	694	3.42	0.06	633	1,429
Exceeds (Daily Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Threshold	—	54.0	54.0	—	—	82.0	—	—	54.0	—	—	—	—	—	—	—	—	—
Unmit.	—	No	No	—	—	No	—	—	No	—	—	—	—	—	—	—	—	—
Exceeds (Average Daily)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Threshold	—	54.0	54.0	—	—	82.0	—	—	54.0	—	—	—	—	—	—	—	—	—
Unmit.	—	No	No	—	—	No	—	—	No	—	—	—	—	—	—	—	—	—
Exceeds (Annual)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Threshold	—	10.0	10.0	—	—	15.0	—	—	10.0	—	—	—	—	—	—	—	—	—
Unmit.	—	No	No	—	—	No	—	—	No	—	—	—	—	—	—	—	—	—

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.08	0.99	1.08	8.11	0.02	0.02	1.59	1.61	0.02	0.40	0.42	—	1,922	1,922	0.08	0.09	7.82	1,959
Area	6.74	6.61	0.08	9.14	< 0.005	0.02	—	0.02	0.01	—	0.01	—	37.6	37.6	< 0.005	< 0.005	—	37.7
Energy	0.02	0.01	0.19	0.16	< 0.005	0.01	—	0.01	0.01	—	0.01	—	2,482	2,482	0.39	0.04	—	2,505
Water	—	—	—	—	—	—	—	—	—	—	—	93.2	176	269	9.58	0.23	—	577
Waste	—	—	—	—	—	—	—	—	—	—	—	107	0.00	107	10.6	0.00	—	373
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3,819	3,819
Total	7.84	7.62	1.35	17.4	0.02	0.05	1.59	1.64	0.04	0.40	0.45	200	4,618	4,817	20.7	0.37	3,827	9,271
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.04	0.95	1.25	7.88	0.02	0.02	1.59	1.61	0.02	0.40	0.42	—	1,828	1,828	0.09	0.10	0.20	1,861
Area	5.11	5.11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.02	0.01	0.19	0.16	< 0.005	0.01	—	0.01	0.01	—	0.01	—	2,482	2,482	0.39	0.04	—	2,505
Water	—	—	—	—	—	—	—	—	—	—	—	93.2	176	269	9.58	0.23	—	577
Waste	—	—	—	—	—	—	—	—	—	—	—	107	0.00	107	10.6	0.00	—	373
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3,819	3,819
Total	6.17	6.07	1.44	8.04	0.02	0.03	1.59	1.62	0.03	0.40	0.44	200	4,487	4,686	20.7	0.38	3,820	9,135
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.73	0.67	0.84	5.37	0.01	0.01	1.11	1.12	0.01	0.28	0.29	—	1,314	1,314	0.06	0.07	2.41	1,339

Area	5.91	5.85	0.04	4.51	< 0.005	0.01	—	0.01	0.01	—	0.01	—	18.5	18.5	< 0.005	< 0.005	—	18.6
Energy	0.02	0.01	0.19	0.16	< 0.005	0.01	—	0.01	0.01	—	0.01	—	2,482	2,482	0.39	0.04	—	2,505
Water	—	—	—	—	—	—	—	—	—	—	—	93.2	176	269	9.58	0.23	—	577
Waste	—	—	—	—	—	—	—	—	—	—	—	107	0.00	107	10.6	0.00	—	373
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3,819	3,819
Total	6.67	6.53	1.07	10.0	0.01	0.04	1.11	1.14	0.03	0.28	0.31	200	3,991	4,191	20.7	0.34	3,822	8,632
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.13	0.12	0.15	0.98	< 0.005	< 0.005	0.20	0.20	< 0.005	0.05	0.05	—	218	218	0.01	0.01	0.40	222
Area	1.08	1.07	0.01	0.82	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.07	3.07	< 0.005	< 0.005	—	3.08
Energy	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	411	411	0.06	0.01	—	415
Water	—	—	—	—	—	—	—	—	—	—	—	15.4	29.1	44.6	1.59	0.04	—	95.6
Waste	—	—	—	—	—	—	—	—	—	—	—	17.6	0.00	17.6	1.76	0.00	—	61.7
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	632	632
Total	1.22	1.19	0.19	1.83	< 0.005	0.01	0.20	0.21	0.01	0.05	0.06	33.1	661	694	3.42	0.06	633	1,429

3. Construction Emissions Details

3.1. Grading (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.80	3.20	29.7	28.3	0.06	1.23	—	1.23	1.14	—	1.14	—	6,599	6,599	0.27	0.05	—	6,622

Dust From Material Movement	—	—	—	—	—	—	9.20	9.20	—	3.65	3.65	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.66	0.55	5.12	4.89	0.01	0.21	—	0.21	0.20	—	0.20	—	1,139	1,139	0.05	0.01	—	1,143
Dust From Material Movement	—	—	—	—	—	—	1.59	1.59	—	0.63	0.63	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	0.93	0.89	< 0.005	0.04	—	0.04	0.04	—	0.04	—	189	189	0.01	< 0.005	—	189
Dust From Material Movement	—	—	—	—	—	—	0.29	0.29	—	0.12	0.12	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.08	0.84	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	162	162	0.01	0.01	0.02	164

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.14	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	28.2	28.2	< 0.005	< 0.005	0.05	28.6
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	4.66	4.66	< 0.005	< 0.005	0.01	4.74
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.3. Building Construction (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.35	1.13	10.4	13.0	0.02	0.43	—	0.43	0.40	—	0.40	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.35	1.13	10.4	13.0	0.02	0.43	—	0.43	0.40	—	0.40	—	2,398	2,398	0.10	0.02	—	2,406

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.73	0.61	5.68	7.09	0.01	0.23	—	0.23	0.22	—	0.22	—	1,304	1,304	0.05	0.01	—	1,309
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13	0.11	1.04	1.29	< 0.005	0.04	—	0.04	0.04	—	0.04	—	216	216	0.01	< 0.005	—	217
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.39	0.36	0.25	4.08	0.00	0.00	0.73	0.73	0.00	0.17	0.17	—	766	766	0.02	0.03	3.25	779
Vendor	0.07	0.04	1.30	0.51	0.01	0.01	0.24	0.26	0.01	0.07	0.08	—	929	929	0.04	0.14	2.47	975
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.38	0.35	0.33	3.70	0.00	0.00	0.73	0.73	0.00	0.17	0.17	—	714	714	0.02	0.03	0.08	724
Vendor	0.07	0.03	1.38	0.53	0.01	0.01	0.24	0.26	0.01	0.07	0.08	—	930	930	0.04	0.14	0.06	973
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.20	0.19	0.16	1.93	0.00	0.00	0.39	0.39	0.00	0.09	0.09	—	392	392	0.01	0.02	0.76	398
Vendor	0.04	0.02	0.74	0.28	< 0.005	0.01	0.13	0.14	0.01	0.04	0.04	—	506	506	0.02	0.08	0.58	530

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.03	0.35	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	64.9	64.9	< 0.005	< 0.005	0.13	65.9
Vendor	0.01	< 0.005	0.13	0.05	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	83.7	83.7	< 0.005	0.01	0.10	87.7
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.5. Building Construction (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.28	1.07	9.85	13.0	0.02	0.38	—	0.38	0.35	—	0.35	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.28	1.07	9.85	13.0	0.02	0.38	—	0.38	0.35	—	0.35	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.36	0.30	2.76	3.63	0.01	0.11	—	0.11	0.10	—	0.10	—	671	671	0.03	0.01	—	673

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.05	0.50	0.66	< 0.005	0.02	—	0.02	0.02	—	0.02	—	111	111	< 0.005	< 0.005	—	111
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.38	0.35	0.24	3.81	0.00	0.00	0.73	0.73	0.00	0.17	0.17	—	752	752	0.02	0.03	3.00	764
Vendor	0.07	0.03	1.24	0.49	0.01	0.01	0.24	0.26	0.01	0.07	0.08	—	914	914	0.04	0.14	2.35	959
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.37	0.33	0.30	3.45	0.00	0.00	0.73	0.73	0.00	0.17	0.17	—	701	701	0.02	0.03	0.08	711
Vendor	0.07	0.03	1.31	0.50	0.01	0.01	0.24	0.26	0.01	0.07	0.08	—	914	914	0.04	0.14	0.06	957
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.09	0.08	0.93	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	198	198	0.01	0.01	0.36	201
Vendor	0.02	0.01	0.36	0.14	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	256	256	0.01	0.04	0.28	268
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.01	0.17	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	32.8	32.8	< 0.005	< 0.005	0.06	33.3
Vendor	< 0.005	< 0.005	0.07	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	42.4	42.4	< 0.005	0.01	0.05	44.4
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.7. Paving (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.91	0.76	7.12	9.94	0.01	0.32	—	0.32	0.29	—	0.29	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.25	0.25	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.04	0.39	0.54	< 0.005	0.02	—	0.02	0.02	—	0.02	—	82.8	82.8	< 0.005	< 0.005	—	83.1
Paving	0.01	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.07	0.10	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	13.7	13.7	< 0.005	< 0.005	—	13.8
Paving	< 0.005	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.04	0.65	0.00	0.00	0.12	0.12	0.00	0.03	0.03	—	128	128	< 0.005	< 0.005	0.51	130
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	6.59	6.59	< 0.005	< 0.005	0.01	6.69
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.09	1.09	< 0.005	< 0.005	< 0.005	1.11
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.9. Architectural Coating (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.12	0.86	1.13	< 0.005	0.02	—	0.02	0.02	—	0.02	—	134	134	0.01	< 0.005	—	134

Architectural	111	111	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.05	0.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	7.32	7.32	< 0.005	< 0.005	—	7.34
Architectural Coatings	6.07	6.07	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.21	1.21	< 0.005	< 0.005	—	1.22
Architectural Coatings	1.11	1.11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.05	0.76	0.00	0.00	0.15	0.15	0.00	0.03	0.03	—	150	150	< 0.005	0.01	0.60	153
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	7.75	7.75	< 0.005	< 0.005	0.01	7.87
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.28	1.28	< 0.005	< 0.005	< 0.005	1.30
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	0.51	0.47	0.52	3.87	0.01	0.01	0.76	0.77	0.01	0.19	0.20	—	917	917	0.04	0.04	3.73	935

Unrefrigerated Warehouse-No	0.56	0.52	0.57	4.24	0.01	0.01	0.83	0.84	0.01	0.21	0.22	—	1,005	1,005	0.04	0.05	4.09	1,024
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	1.08	0.99	1.08	8.11	0.02	0.02	1.59	1.61	0.02	0.40	0.42	—	1,922	1,922	0.08	0.09	7.82	1,959
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	0.50	0.45	0.60	3.76	0.01	0.01	0.76	0.77	0.01	0.19	0.20	—	872	872	0.04	0.05	0.10	888
Unrefrigerated Warehouse-No Rail	0.54	0.50	0.65	4.12	0.01	0.01	0.83	0.84	0.01	0.21	0.22	—	956	956	0.05	0.05	0.11	973
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	1.04	0.95	1.25	7.88	0.02	0.02	1.59	1.61	0.02	0.40	0.42	—	1,828	1,828	0.09	0.10	0.20	1,861
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	0.06	0.06	0.07	0.47	< 0.005	< 0.005	0.10	0.10	< 0.005	0.02	0.03	—	104	104	< 0.005	0.01	0.19	106
Unrefrigerated Warehouse-No Rail	0.07	0.06	0.08	0.51	< 0.005	< 0.005	0.11	0.11	< 0.005	0.03	0.03	—	114	114	0.01	0.01	0.21	116
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.13	0.12	0.15	0.98	< 0.005	< 0.005	0.20	0.20	< 0.005	0.05	0.05	—	218	218	0.01	0.01	0.40	222

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	1,843	1,843	0.30	0.04	—	1,861
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	378	378	0.06	0.01	—	382
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	40.5	40.5	0.01	< 0.005	—	40.9
Total	—	—	—	—	—	—	—	—	—	—	—	—	2,262	2,262	0.37	0.04	—	2,284
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	1,843	1,843	0.30	0.04	—	1,861
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	378	378	0.06	0.01	—	382
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	40.5	40.5	0.01	< 0.005	—	40.9

Total	—	—	—	—	—	—	—	—	—	—	—	—	2,262	2,262	0.37	0.04	—	2,284
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	305	305	0.05	0.01	—	308
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	62.5	62.5	0.01	< 0.005	—	63.2
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	6.70	6.70	< 0.005	< 0.005	—	6.77
Total	—	—	—	—	—	—	—	—	—	—	—	—	374	374	0.06	0.01	—	378

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	0.01	< 0.005	0.08	0.07	< 0.005	0.01	—	0.01	0.01	—	0.01	—	92.5	92.5	0.01	< 0.005	—	92.7
Unrefrigerated Warehouse-No Rail	0.01	0.01	0.11	0.09	< 0.005	0.01	—	0.01	0.01	—	0.01	—	128	128	0.01	< 0.005	—	129
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.02	0.01	0.19	0.16	< 0.005	0.01	—	0.01	0.01	—	0.01	—	221	221	0.02	< 0.005	—	221

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	0.01	< 0.005	0.08	0.07	< 0.005	0.01	—	0.01	0.01	—	0.01	—	92.5	92.5	0.01	< 0.005	—	92.7
Unrefrigerated Warehouse-No Rail	0.01	0.01	0.11	0.09	< 0.005	0.01	—	0.01	0.01	—	0.01	—	128	128	0.01	< 0.005	—	129
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.02	0.01	0.19	0.16	< 0.005	0.01	—	0.01	0.01	—	0.01	—	221	221	0.02	< 0.005	—	221
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.3	15.3	< 0.005	< 0.005	—	15.4
Unrefrigerated Warehouse-No Rail	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	21.3	21.3	< 0.005	< 0.005	—	21.3
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	36.6	36.6	< 0.005	< 0.005	—	36.7

4.3. Area Emissions by Source

4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	4.51	4.51	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.61	0.61	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	1.63	1.50	0.08	9.14	< 0.005	0.02	—	0.02	0.01	—	0.01	—	37.6	37.6	< 0.005	< 0.005	—	37.7
Total	6.74	6.61	0.08	9.14	< 0.005	0.02	—	0.02	0.01	—	0.01	—	37.6	37.6	< 0.005	< 0.005	—	37.7
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	4.51	4.51	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.61	0.61	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	5.11	5.11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.82	0.82	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.11	0.11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Landscape	0.15	0.14	0.01	0.82	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.07	3.07	< 0.005	< 0.005	—	3.08
Total	1.08	1.07	0.01	0.82	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.07	3.07	< 0.005	< 0.005	—	3.08

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	63.5	120	183	6.53	0.16	—	394
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	29.7	56.0	85.7	3.05	0.07	—	184
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	93.2	176	269	9.58	0.23	—	577
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	63.5	120	183	6.53	0.16	—	394

Unrefrigerated Warehouse-Rail	—	—	—	—	—	—	—	—	—	—	—	29.7	56.0	85.7	3.05	0.07	—	184
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	93.2	176	269	9.58	0.23	—	577
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	10.5	19.9	30.4	1.08	0.03	—	65.2
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	4.91	9.27	14.2	0.50	0.01	—	30.4
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	15.4	29.1	44.6	1.59	0.04	—	95.6

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	72.6	0.00	72.6	7.26	0.00	—	254

Unrefrig Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	33.9	0.00	33.9	3.39	0.00	—	119
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	107	0.00	107	10.6	0.00	—	373
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	72.6	0.00	72.6	7.26	0.00	—	254
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	33.9	0.00	33.9	3.39	0.00	—	119
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	107	0.00	107	10.6	0.00	—	373
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	12.0	0.00	12.0	1.20	0.00	—	42.1
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	5.61	0.00	5.61	0.56	0.00	—	19.6
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	17.6	0.00	17.6	1.76	0.00	—	61.7

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3,819	3,819
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3,819	3,819
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3,819	3,819
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3,819	3,819
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	632	632
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	632	632

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Grading	Grading	1/1/2025	3/28/2025	5.00	63.0	—
Building Construction	Building Construction	3/29/2025	5/23/2026	5.00	300	—
Paving	Paving	5/24/2026	6/21/2026	5.00	20.0	—
Architectural Coating	Architectural Coating	6/22/2026	7/20/2026	5.00	20.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Grading	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Grading	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Grading	Scrapers	Diesel	Average	2.00	8.00	423	0.48
Building Construction	Cranes	Diesel	Average	1.00	7.00	367	0.29
Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00	7.00	84.0	0.37
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Grading	—	—	—	—
Grading	Worker	20.0	11.7	LDA,LDT1,LDT2
Grading	Vendor	—	8.40	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	88.3	11.7	LDA,LDT1,LDT2
Building Construction	Vendor	34.5	8.40	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	11.7	LDA,LDT1,LDT2
Paving	Vendor	—	8.40	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	17.7	11.7	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	8.40	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	0.00	0.00	315,341	105,114	4,963

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Grading	—	—	189	0.00	—
Paving	0.00	0.00	0.00	0.00	1.90

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Refrigerated Warehouse-No Rail	0.00	0%
Unrefrigerated Warehouse-No Rail	0.00	0%
Parking Lot	1.16	100%
Parking Lot	0.74	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2025	0.00	204	0.03	< 0.005
2026	0.00	204	0.03	< 0.005

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Refrigerated Warehouse-No Rail	104	0.00	0.00	27,115	1,064	0.00	0.00	277,441
Unrefrigerated Warehouse-No Rail	114	0.00	0.00	29,720	1,166	0.00	0.00	304,104
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0	0.00	315,341	105,114	4,963

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Refrigerated Warehouse-No Rail	3,298,193	204	0.0330	0.0040	288,569
Unrefrigerated Warehouse-No Rail	676,021	204	0.0330	0.0040	400,564
Parking Lot	44,302	204	0.0330	0.0040	0.00
Parking Lot	28,161	204	0.0330	0.0040	0.00

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Refrigerated Warehouse-No Rail	33,140,900	0.00
Unrefrigerated Warehouse-No Rail	15,474,094	0.00
Parking Lot	0.00	0.00
Parking Lot	0.00	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Refrigerated Warehouse-No Rail	135	—
Unrefrigerated Warehouse-No Rail	62.9	—
Parking Lot	0.00	—
Parking Lot	0.00	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Refrigerated Warehouse-No Rail	Cold storage	R-404A	3,922	7.50	7.50	7.50	25.0

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	11.8	annual days of extreme heat
Extreme Precipitation	5.65	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	16.4	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters

Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	2	0	0	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	2	1	1	3
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	16.8
AQ-PM	35.7
AQ-DPM	23.4
Drinking Water	69.2
Lead Risk Housing	55.8
Pesticides	66.2
Toxic Releases	61.2
Traffic	83.3
Effect Indicators	—
CleanUp Sites	62.4
Groundwater	0.00
Haz Waste Facilities/Generators	82.7
Impaired Water Bodies	23.9
Solid Waste	83.9
Sensitive Population	—
Asthma	71.9

Cardio-vascular	67.0
Low Birth Weights	51.0
Socioeconomic Factor Indicators	—
Education	62.0
Housing	12.0
Linguistic	39.2
Poverty	33.8
Unemployment	36.4

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	80.85461311
Employed	75.23418452
Median HI	74.554087
Education	—
Bachelor's or higher	69.35711536
High school enrollment	100
Preschool enrollment	12.62671628
Transportation	—
Auto Access	83.51084306
Active commuting	27.38354934
Social	—
2-parent households	62.7229565
Voting	57.75696138
Neighborhood	—
Alcohol availability	76.10676248

Park access	56.71756705
Retail density	24.22687027
Supermarket access	27.9481586
Tree canopy	22.44321827
Housing	—
Homeownership	87.02681894
Housing habitability	96.41986398
Low-inc homeowner severe housing cost burden	70.11420506
Low-inc renter severe housing cost burden	97.06146542
Uncrowded housing	60.05389452
Health Outcomes	—
Insured adults	79.19928141
Arthritis	0.0
Asthma ER Admissions	56.0
High Blood Pressure	0.0
Cancer (excluding skin)	0.0
Asthma	0.0
Coronary Heart Disease	0.0
Chronic Obstructive Pulmonary Disease	0.0
Diagnosed Diabetes	0.0
Life Expectancy at Birth	25.5
Cognitively Disabled	20.1
Physically Disabled	17.3
Heart Attack ER Admissions	55.3
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	19.6

Physical Health Not Good	0.0
Stroke	0.0
Health Risk Behaviors	—
Binge Drinking	0.0
Current Smoker	0.0
No Leisure Time for Physical Activity	0.0
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	43.5
Children	32.5
Elderly	69.3
English Speaking	60.5
Foreign-born	72.3
Outdoor Workers	52.3
Climate Change Adaptive Capacity	—
Impervious Surface Cover	43.7
Traffic Density	45.1
Traffic Access	23.0
Other Indices	—
Hardship	34.8
Other Decision Support	—
2016 Voting	51.4

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	63.0
Healthy Places Index Score for Project Location (b)	73.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No

Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Land Use	Per project description of Building A and B
Construction: Construction Phases	Per model
Operations: Vehicle Data	per IS/MND

Wine Warehouse Detailed Report

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8. User Changes to Default Data

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Wine Warehouse
Construction Start Date	1/1/2025
Operational Year	2025
Lead Agency	Napa County PBES
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.60
Precipitation (days)	38.4
Location	Morris Ct & Technology Way, California 94558, USA
County	Napa
City	Unincorporated
Air District	Bay Area AQMD
Air Basin	San Francisco Bay Area
TAZ	801
EDFZ	2
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.29

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Refrigerated Warehouse-No Rail	143	1000sqft	13.2	143,312	—	—	—	Building A

Unrefrigerated Warehouse-No Rail	66.9	1000sqft	6.87	66,915	—	—	—	Building B
Parking Lot	129	Space	1.16	0.00	—	—	—	Parking Lot For Building A
Parking Lot	82.0	Space	0.74	0.00	—	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-13	Use Low-VOC Paints for Construction

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	111	111	12.0	17.6	0.03	0.44	0.97	1.42	0.41	0.24	0.65	—	4,093	4,093	0.15	0.19	5.72	4,159
Mit.	50.1	50.1	12.0	17.6	0.03	0.44	0.97	1.42	0.41	0.24	0.65	—	4,093	4,093	0.15	0.19	5.72	4,159
% Reduced	55%	55%	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.89	3.28	29.8	29.1	0.06	1.23	9.37	10.6	1.14	3.69	4.83	—	6,761	6,761	0.27	0.19	0.15	6,785
Mit.	3.89	3.28	29.8	29.1	0.06	1.23	9.37	10.6	1.14	3.69	4.83	—	6,761	6,761	0.27	0.19	0.15	6,785
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	6.63	6.54	11.7	14.3	0.03	0.46	2.13	2.59	0.42	0.76	1.18	—	3,369	3,369	0.13	0.11	1.40	3,408
Mit.	3.29	3.20	11.7	14.3	0.03	0.46	2.13	2.59	0.42	0.76	1.18	—	3,369	3,369	0.13	0.11	1.40	3,408
% Reduced	50%	51%	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.21	1.19	2.14	2.62	< 0.005	0.08	0.39	0.47	0.08	0.14	0.22	—	558	558	0.02	0.02	0.23	564
Mit.	0.60	0.58	2.14	2.62	< 0.005	0.08	0.39	0.47	0.08	0.14	0.22	—	558	558	0.02	0.02	0.23	564
% Reduced	50%	51%	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Exceeds (Daily Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Threshold	—	54.0	54.0	—	—	82.0	—	—	54.0	—	—	—	—	—	—	—	—	—
Unmit.	—	Yes	No	—	—	No	—	—	No	—	—	—	—	—	—	—	—	—
Mit.	—	No	No	—	—	No	—	—	No	—	—	—	—	—	—	—	—	—
Exceeds (Average Daily)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Threshold	—	54.0	54.0	—	—	82.0	—	—	54.0	—	—	—	—	—	—	—	—	—
Unmit.	—	No	No	—	—	No	—	—	No	—	—	—	—	—	—	—	—	—
Mit.	—	No	No	—	—	No	—	—	No	—	—	—	—	—	—	—	—	—

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	1.81	1.52	12.0	17.6	0.03	0.44	0.97	1.42	0.41	0.24	0.65	—	4,093	4,093	0.15	0.19	5.72	4,159
2026	111	111	11.3	17.3	0.03	0.39	0.97	1.36	0.36	0.24	0.60	—	4,063	4,063	0.15	0.19	5.34	4,128
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	3.89	3.28	29.8	29.1	0.06	1.23	9.37	10.6	1.14	3.69	4.83	—	6,761	6,761	0.27	0.19	0.15	6,785
2026	1.72	1.44	11.5	16.9	0.03	0.39	0.97	1.36	0.36	0.24	0.60	—	4,013	4,013	0.15	0.19	0.14	4,073
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	1.65	1.38	11.7	14.3	0.03	0.46	2.13	2.59	0.42	0.76	1.18	—	3,369	3,369	0.13	0.11	1.40	3,408
2026	6.63	6.54	3.64	5.37	0.01	0.13	0.28	0.41	0.12	0.07	0.19	—	1,229	1,229	0.05	0.05	0.67	1,247
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.30	0.25	2.14	2.62	< 0.005	0.08	0.39	0.47	0.08	0.14	0.22	—	558	558	0.02	0.02	0.23	564
2026	1.21	1.19	0.66	0.98	< 0.005	0.02	0.05	0.07	0.02	0.01	0.03	—	203	203	0.01	0.01	0.11	206

2.3. Construction Emissions by Year, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	1.81	1.52	12.0	17.6	0.03	0.44	0.97	1.42	0.41	0.24	0.65	—	4,093	4,093	0.15	0.19	5.72	4,159
2026	50.1	50.1	11.3	17.3	0.03	0.39	0.97	1.36	0.36	0.24	0.60	—	4,063	4,063	0.15	0.19	5.34	4,128
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	3.89	3.28	29.8	29.1	0.06	1.23	9.37	10.6	1.14	3.69	4.83	—	6,761	6,761	0.27	0.19	0.15	6,785
2026	1.72	1.44	11.5	16.9	0.03	0.39	0.97	1.36	0.36	0.24	0.60	—	4,013	4,013	0.15	0.19	0.14	4,073

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	1.65	1.38	11.7	14.3	0.03	0.46	2.13	2.59	0.42	0.76	1.18	—	3,369	3,369	0.13	0.11	1.40	3,408
2026	3.29	3.20	3.64	5.37	0.01	0.13	0.28	0.41	0.12	0.07	0.19	—	1,229	1,229	0.05	0.05	0.67	1,247
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.30	0.25	2.14	2.62	< 0.005	0.08	0.39	0.47	0.08	0.14	0.22	—	558	558	0.02	0.02	0.23	564
2026	0.60	0.58	0.66	0.98	< 0.005	0.02	0.05	0.07	0.02	0.01	0.03	—	203	203	0.01	0.01	0.11	206

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	7.84	7.62	1.35	17.4	0.02	0.05	1.59	1.64	0.04	0.40	0.45	200	4,618	4,817	20.7	0.37	3,827	9,271
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	6.17	6.07	1.44	8.04	0.02	0.03	1.59	1.62	0.03	0.40	0.44	200	4,487	4,686	20.7	0.38	3,820	9,135
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	6.67	6.53	1.07	10.0	0.01	0.04	1.11	1.14	0.03	0.28	0.31	200	3,991	4,191	20.7	0.34	3,822	8,632
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.22	1.19	0.19	1.83	< 0.005	0.01	0.20	0.21	0.01	0.05	0.06	33.1	661	694	3.42	0.06	633	1,429
Exceeds (Daily Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Threshold	—	54.0	54.0	—	—	82.0	—	—	54.0	—	—	—	—	—	—	—	—	—
Unmit.	—	No	No	—	—	No	—	—	No	—	—	—	—	—	—	—	—	—

Exceeds (Average Daily)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Threshold	—	54.0	54.0	—	—	82.0	—	—	54.0	—	—	—	—	—	—	—	—	—
Unmit.	—	No	No	—	—	No	—	—	No	—	—	—	—	—	—	—	—	—
Exceeds (Annual)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Threshold	—	10.0	10.0	—	—	15.0	—	—	10.0	—	—	—	—	—	—	—	—	—
Unmit.	—	No	No	—	—	No	—	—	No	—	—	—	—	—	—	—	—	—

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.08	0.99	1.08	8.11	0.02	0.02	1.59	1.61	0.02	0.40	0.42	—	1,922	1,922	0.08	0.09	7.82	1,959
Area	6.74	6.61	0.08	9.14	< 0.005	0.02	—	0.02	0.01	—	0.01	—	37.6	37.6	< 0.005	< 0.005	—	37.7
Energy	0.02	0.01	0.19	0.16	< 0.005	0.01	—	0.01	0.01	—	0.01	—	2,482	2,482	0.39	0.04	—	2,505
Water	—	—	—	—	—	—	—	—	—	—	—	93.2	176	269	9.58	0.23	—	577
Waste	—	—	—	—	—	—	—	—	—	—	—	107	0.00	107	10.6	0.00	—	373
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3,819	3,819
Total	7.84	7.62	1.35	17.4	0.02	0.05	1.59	1.64	0.04	0.40	0.45	200	4,618	4,817	20.7	0.37	3,827	9,271
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.04	0.95	1.25	7.88	0.02	0.02	1.59	1.61	0.02	0.40	0.42	—	1,828	1,828	0.09	0.10	0.20	1,861
Area	5.11	5.11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.02	0.01	0.19	0.16	< 0.005	0.01	—	0.01	0.01	—	0.01	—	2,482	2,482	0.39	0.04	—	2,505

Water	—	—	—	—	—	—	—	—	—	—	—	93.2	176	269	9.58	0.23	—	577
Waste	—	—	—	—	—	—	—	—	—	—	—	107	0.00	107	10.6	0.00	—	373
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3,819	3,819
Total	6.17	6.07	1.44	8.04	0.02	0.03	1.59	1.62	0.03	0.40	0.44	200	4,487	4,686	20.7	0.38	3,820	9,135
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.73	0.67	0.84	5.37	0.01	0.01	1.11	1.12	0.01	0.28	0.29	—	1,314	1,314	0.06	0.07	2.41	1,339
Area	5.91	5.85	0.04	4.51	< 0.005	0.01	—	0.01	0.01	—	0.01	—	18.5	18.5	< 0.005	< 0.005	—	18.6
Energy	0.02	0.01	0.19	0.16	< 0.005	0.01	—	0.01	0.01	—	0.01	—	2,482	2,482	0.39	0.04	—	2,505
Water	—	—	—	—	—	—	—	—	—	—	—	93.2	176	269	9.58	0.23	—	577
Waste	—	—	—	—	—	—	—	—	—	—	—	107	0.00	107	10.6	0.00	—	373
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3,819	3,819
Total	6.67	6.53	1.07	10.0	0.01	0.04	1.11	1.14	0.03	0.28	0.31	200	3,991	4,191	20.7	0.34	3,822	8,632
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.13	0.12	0.15	0.98	< 0.005	< 0.005	0.20	0.20	< 0.005	0.05	0.05	—	218	218	0.01	0.01	0.40	222
Area	1.08	1.07	0.01	0.82	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.07	3.07	< 0.005	< 0.005	—	3.08
Energy	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	411	411	0.06	0.01	—	415
Water	—	—	—	—	—	—	—	—	—	—	—	15.4	29.1	44.6	1.59	0.04	—	95.6
Waste	—	—	—	—	—	—	—	—	—	—	—	17.6	0.00	17.6	1.76	0.00	—	61.7
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	632	632
Total	1.22	1.19	0.19	1.83	< 0.005	0.01	0.20	0.21	0.01	0.05	0.06	33.1	661	694	3.42	0.06	633	1,429

2.6. Operations Emissions by Sector, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.08	0.99	1.08	8.11	0.02	0.02	1.59	1.61	0.02	0.40	0.42	—	1,922	1,922	0.08	0.09	7.82	1,959

Area	6.74	6.61	0.08	9.14	< 0.005	0.02	—	0.02	0.01	—	0.01	—	37.6	37.6	< 0.005	< 0.005	—	37.7
Energy	0.02	0.01	0.19	0.16	< 0.005	0.01	—	0.01	0.01	—	0.01	—	2,482	2,482	0.39	0.04	—	2,505
Water	—	—	—	—	—	—	—	—	—	—	—	93.2	176	269	9.58	0.23	—	577
Waste	—	—	—	—	—	—	—	—	—	—	—	107	0.00	107	10.6	0.00	—	373
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3,819	3,819
Total	7.84	7.62	1.35	17.4	0.02	0.05	1.59	1.64	0.04	0.40	0.45	200	4,618	4,817	20.7	0.37	3,827	9,271
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.04	0.95	1.25	7.88	0.02	0.02	1.59	1.61	0.02	0.40	0.42	—	1,828	1,828	0.09	0.10	0.20	1,861
Area	5.11	5.11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.02	0.01	0.19	0.16	< 0.005	0.01	—	0.01	0.01	—	0.01	—	2,482	2,482	0.39	0.04	—	2,505
Water	—	—	—	—	—	—	—	—	—	—	—	93.2	176	269	9.58	0.23	—	577
Waste	—	—	—	—	—	—	—	—	—	—	—	107	0.00	107	10.6	0.00	—	373
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3,819	3,819
Total	6.17	6.07	1.44	8.04	0.02	0.03	1.59	1.62	0.03	0.40	0.44	200	4,487	4,686	20.7	0.38	3,820	9,135
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.73	0.67	0.84	5.37	0.01	0.01	1.11	1.12	0.01	0.28	0.29	—	1,314	1,314	0.06	0.07	2.41	1,339
Area	5.91	5.85	0.04	4.51	< 0.005	0.01	—	0.01	0.01	—	0.01	—	18.5	18.5	< 0.005	< 0.005	—	18.6
Energy	0.02	0.01	0.19	0.16	< 0.005	0.01	—	0.01	0.01	—	0.01	—	2,482	2,482	0.39	0.04	—	2,505
Water	—	—	—	—	—	—	—	—	—	—	—	93.2	176	269	9.58	0.23	—	577
Waste	—	—	—	—	—	—	—	—	—	—	—	107	0.00	107	10.6	0.00	—	373
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3,819	3,819
Total	6.67	6.53	1.07	10.0	0.01	0.04	1.11	1.14	0.03	0.28	0.31	200	3,991	4,191	20.7	0.34	3,822	8,632
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.13	0.12	0.15	0.98	< 0.005	< 0.005	0.20	0.20	< 0.005	0.05	0.05	—	218	218	0.01	0.01	0.40	222
Area	1.08	1.07	0.01	0.82	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.07	3.07	< 0.005	< 0.005	—	3.08
Energy	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	411	411	0.06	0.01	—	415

Water	—	—	—	—	—	—	—	—	—	—	—	15.4	29.1	44.6	1.59	0.04	—	95.6
Waste	—	—	—	—	—	—	—	—	—	—	—	17.6	0.00	17.6	1.76	0.00	—	61.7
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	632	632
Total	1.22	1.19	0.19	1.83	< 0.005	0.01	0.20	0.21	0.01	0.05	0.06	33.1	661	694	3.42	0.06	633	1,429

3. Construction Emissions Details

3.1. Grading (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.80	3.20	29.7	28.3	0.06	1.23	—	1.23	1.14	—	1.14	—	6,599	6,599	0.27	0.05	—	6,622
Dust From Material Movement	—	—	—	—	—	—	9.20	9.20	—	3.65	3.65	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.66	0.55	5.12	4.89	0.01	0.21	—	0.21	0.20	—	0.20	—	1,139	1,139	0.05	0.01	—	1,143

Dust From Material Movement	—	—	—	—	—	—	1.59	1.59	—	0.63	0.63	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	0.93	0.89	< 0.005	0.04	—	0.04	0.04	—	0.04	—	189	189	0.01	< 0.005	—	189
Dust From Material Movement	—	—	—	—	—	—	0.29	0.29	—	0.12	0.12	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.08	0.84	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	162	162	0.01	0.01	0.02	164
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.14	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	28.2	28.2	< 0.005	< 0.005	0.05	28.6
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	4.66	4.66	< 0.005	< 0.005	0.01	4.74

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.2. Grading (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.80	3.20	29.7	28.3	0.06	1.23	—	1.23	1.14	—	1.14	—	6,599	6,599	0.27	0.05	—	6,622
Dust From Material Movement	—	—	—	—	—	—	9.20	9.20	—	3.65	3.65	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.66	0.55	5.12	4.89	0.01	0.21	—	0.21	0.20	—	0.20	—	1,139	1,139	0.05	0.01	—	1,143
Dust From Material Movement	—	—	—	—	—	—	1.59	1.59	—	0.63	0.63	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	0.93	0.89	< 0.005	0.04	—	0.04	0.04	—	0.04	—	189	189	0.01	< 0.005	—	189
Dust From Material Movement	—	—	—	—	—	—	0.29	0.29	—	0.12	0.12	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.08	0.84	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	162	162	0.01	0.01	0.02	164
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.14	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	28.2	28.2	< 0.005	< 0.005	0.05	28.6
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	4.66	4.66	< 0.005	< 0.005	0.01	4.74
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.3. Building Construction (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.35	1.13	10.4	13.0	0.02	0.43	—	0.43	0.40	—	0.40	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.35	1.13	10.4	13.0	0.02	0.43	—	0.43	0.40	—	0.40	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.73	0.61	5.68	7.09	0.01	0.23	—	0.23	0.22	—	0.22	—	1,304	1,304	0.05	0.01	—	1,309
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13	0.11	1.04	1.29	< 0.005	0.04	—	0.04	0.04	—	0.04	—	216	216	0.01	< 0.005	—	217
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.39	0.36	0.25	4.08	0.00	0.00	0.73	0.73	0.00	0.17	0.17	—	766	766	0.02	0.03	3.25	779
Vendor	0.07	0.04	1.30	0.51	0.01	0.01	0.24	0.26	0.01	0.07	0.08	—	929	929	0.04	0.14	2.47	975
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.38	0.35	0.33	3.70	0.00	0.00	0.73	0.73	0.00	0.17	0.17	—	714	714	0.02	0.03	0.08	724
Vendor	0.07	0.03	1.38	0.53	0.01	0.01	0.24	0.26	0.01	0.07	0.08	—	930	930	0.04	0.14	0.06	973
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.20	0.19	0.16	1.93	0.00	0.00	0.39	0.39	0.00	0.09	0.09	—	392	392	0.01	0.02	0.76	398
Vendor	0.04	0.02	0.74	0.28	< 0.005	0.01	0.13	0.14	0.01	0.04	0.04	—	506	506	0.02	0.08	0.58	530
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.03	0.35	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	64.9	64.9	< 0.005	< 0.005	0.13	65.9
Vendor	0.01	< 0.005	0.13	0.05	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	83.7	83.7	< 0.005	0.01	0.10	87.7
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.4. Building Construction (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	1.35	1.13	10.4	13.0	0.02	0.43	—	0.43	0.40	—	0.40	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.35	1.13	10.4	13.0	0.02	0.43	—	0.43	0.40	—	0.40	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.73	0.61	5.68	7.09	0.01	0.23	—	0.23	0.22	—	0.22	—	1,304	1,304	0.05	0.01	—	1,309
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13	0.11	1.04	1.29	< 0.005	0.04	—	0.04	0.04	—	0.04	—	216	216	0.01	< 0.005	—	217
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.39	0.36	0.25	4.08	0.00	0.00	0.73	0.73	0.00	0.17	0.17	—	766	766	0.02	0.03	3.25	779
Vendor	0.07	0.04	1.30	0.51	0.01	0.01	0.24	0.26	0.01	0.07	0.08	—	929	929	0.04	0.14	2.47	975
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.38	0.35	0.33	3.70	0.00	0.00	0.73	0.73	0.00	0.17	0.17	—	714	714	0.02	0.03	0.08	724
Vendor	0.07	0.03	1.38	0.53	0.01	0.01	0.24	0.26	0.01	0.07	0.08	—	930	930	0.04	0.14	0.06	973
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.20	0.19	0.16	1.93	0.00	0.00	0.39	0.39	0.00	0.09	0.09	—	392	392	0.01	0.02	0.76	398
Vendor	0.04	0.02	0.74	0.28	< 0.005	0.01	0.13	0.14	0.01	0.04	0.04	—	506	506	0.02	0.08	0.58	530
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.03	0.35	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	64.9	64.9	< 0.005	< 0.005	0.13	65.9
Vendor	0.01	< 0.005	0.13	0.05	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	83.7	83.7	< 0.005	0.01	0.10	87.7
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.5. Building Construction (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.28	1.07	9.85	13.0	0.02	0.38	—	0.38	0.35	—	0.35	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Roa Equipment	1.28	1.07	9.85	13.0	0.02	0.38	—	0.38	0.35	—	0.35	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipm ent	0.36	0.30	2.76	3.63	0.01	0.11	—	0.11	0.10	—	0.10	—	671	671	0.03	0.01	—	673
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipm ent	0.07	0.05	0.50	0.66	< 0.005	0.02	—	0.02	0.02	—	0.02	—	111	111	< 0.005	< 0.005	—	111
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.38	0.35	0.24	3.81	0.00	0.00	0.73	0.73	0.00	0.17	0.17	—	752	752	0.02	0.03	3.00	764
Vendor	0.07	0.03	1.24	0.49	0.01	0.01	0.24	0.26	0.01	0.07	0.08	—	914	914	0.04	0.14	2.35	959
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.37	0.33	0.30	3.45	0.00	0.00	0.73	0.73	0.00	0.17	0.17	—	701	701	0.02	0.03	0.08	711
Vendor	0.07	0.03	1.31	0.50	0.01	0.01	0.24	0.26	0.01	0.07	0.08	—	914	914	0.04	0.14	0.06	957
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.10	0.09	0.08	0.93	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	198	198	0.01	0.01	0.36	201
Vendor	0.02	0.01	0.36	0.14	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	256	256	0.01	0.04	0.28	268
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.01	0.17	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	32.8	32.8	< 0.005	< 0.005	0.06	33.3
Vendor	< 0.005	< 0.005	0.07	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	42.4	42.4	< 0.005	0.01	0.05	44.4
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.6. Building Construction (2026) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.28	1.07	9.85	13.0	0.02	0.38	—	0.38	0.35	—	0.35	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.28	1.07	9.85	13.0	0.02	0.38	—	0.38	0.35	—	0.35	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	0.36	0.30	2.76	3.63	0.01	0.11	—	0.11	0.10	—	0.10	—	671	671	0.03	0.01	—	673
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.05	0.50	0.66	< 0.005	0.02	—	0.02	0.02	—	0.02	—	111	111	< 0.005	< 0.005	—	111
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.38	0.35	0.24	3.81	0.00	0.00	0.73	0.73	0.00	0.17	0.17	—	752	752	0.02	0.03	3.00	764
Vendor	0.07	0.03	1.24	0.49	0.01	0.01	0.24	0.26	0.01	0.07	0.08	—	914	914	0.04	0.14	2.35	959
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.37	0.33	0.30	3.45	0.00	0.00	0.73	0.73	0.00	0.17	0.17	—	701	701	0.02	0.03	0.08	711
Vendor	0.07	0.03	1.31	0.50	0.01	0.01	0.24	0.26	0.01	0.07	0.08	—	914	914	0.04	0.14	0.06	957
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.09	0.08	0.93	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	198	198	0.01	0.01	0.36	201
Vendor	0.02	0.01	0.36	0.14	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	256	256	0.01	0.04	0.28	268
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.01	0.17	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	32.8	32.8	< 0.005	< 0.005	0.06	33.3
Vendor	< 0.005	< 0.005	0.07	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	42.4	42.4	< 0.005	0.01	0.05	44.4

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.7. Paving (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.91	0.76	7.12	9.94	0.01	0.32	—	0.32	0.29	—	0.29	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.25	0.25	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.04	0.39	0.54	< 0.005	0.02	—	0.02	0.02	—	0.02	—	82.8	82.8	< 0.005	< 0.005	—	83.1
Paving	0.01	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.07	0.10	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	13.7	13.7	< 0.005	< 0.005	—	13.8
Paving	< 0.005	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.04	0.65	0.00	0.00	0.12	0.12	0.00	0.03	0.03	—	128	128	< 0.005	< 0.005	0.51	130
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	6.59	6.59	< 0.005	< 0.005	0.01	6.69
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.09	1.09	< 0.005	< 0.005	< 0.005	1.11
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.8. Paving (2026) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.91	0.76	7.12	9.94	0.01	0.32	—	0.32	0.29	—	0.29	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.25	0.25	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.04	0.39	0.54	< 0.005	0.02	—	0.02	0.02	—	0.02	—	82.8	82.8	< 0.005	< 0.005	—	83.1
Paving	0.01	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.07	0.10	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	13.7	13.7	< 0.005	< 0.005	—	13.8
Paving	< 0.005	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.04	0.65	0.00	0.00	0.12	0.12	0.00	0.03	0.03	—	128	128	< 0.005	< 0.005	0.51	130
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	6.59	6.59	< 0.005	< 0.005	0.01	6.69
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.09	1.09	< 0.005	< 0.005	< 0.005	1.11
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.9. Architectural Coating (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.12	0.86	1.13	< 0.005	0.02	—	0.02	0.02	—	0.02	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	111	111	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.05	0.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	7.32	7.32	< 0.005	< 0.005	—	7.34
Architectural Coatings	6.07	6.07	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.21	1.21	< 0.005	< 0.005	—	1.22
Architectural Coatings	1.11	1.11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.05	0.76	0.00	0.00	0.15	0.15	0.00	0.03	0.03	—	150	150	< 0.005	0.01	0.60	153
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	7.75	7.75	< 0.005	< 0.005	0.01	7.87

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.28	1.28	< 0.005	< 0.005	< 0.005	1.30
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.10. Architectural Coating (2026) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.12	0.86	1.13	< 0.005	0.02	—	0.02	0.02	—	0.02	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	49.9	49.9	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.05	0.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	7.32	7.32	< 0.005	< 0.005	—	7.34

Architectural	2.73	2.73	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.21	1.21	< 0.005	< 0.005	—	1.22
Architectural Coatings	0.50	0.50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.05	0.76	0.00	0.00	0.15	0.15	0.00	0.03	0.03	—	150	150	< 0.005	0.01	0.60	153
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	7.75	7.75	< 0.005	< 0.005	0.01	7.87
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.28	1.28	< 0.005	< 0.005	< 0.005	1.30
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	0.51	0.47	0.52	3.87	0.01	0.01	0.76	0.77	0.01	0.19	0.20	—	917	917	0.04	0.04	3.73	935
Unrefrigerated Warehouse-No Rail	0.56	0.52	0.57	4.24	0.01	0.01	0.83	0.84	0.01	0.21	0.22	—	1,005	1,005	0.04	0.05	4.09	1,024
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	1.08	0.99	1.08	8.11	0.02	0.02	1.59	1.61	0.02	0.40	0.42	—	1,922	1,922	0.08	0.09	7.82	1,959
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	0.50	0.45	0.60	3.76	0.01	0.01	0.76	0.77	0.01	0.19	0.20	—	872	872	0.04	0.05	0.10	888

Unrefrigerated Warehouse-No Rail	0.54	0.50	0.65	4.12	0.01	0.01	0.83	0.84	0.01	0.21	0.22	—	956	956	0.05	0.05	0.11	973
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	1.04	0.95	1.25	7.88	0.02	0.02	1.59	1.61	0.02	0.40	0.42	—	1,828	1,828	0.09	0.10	0.20	1,861
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	0.06	0.06	0.07	0.47	< 0.005	< 0.005	0.10	0.10	< 0.005	0.02	0.03	—	104	104	< 0.005	0.01	0.19	106
Unrefrigerated Warehouse-No Rail	0.07	0.06	0.08	0.51	< 0.005	< 0.005	0.11	0.11	< 0.005	0.03	0.03	—	114	114	0.01	0.01	0.21	116
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.13	0.12	0.15	0.98	< 0.005	< 0.005	0.20	0.20	< 0.005	0.05	0.05	—	218	218	0.01	0.01	0.40	222

4.1.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	0.51	0.47	0.52	3.87	0.01	0.01	0.76	0.77	0.01	0.19	0.20	—	917	917	0.04	0.04	3.73	935

Unrefrigerated	0.56	0.52	0.57	4.24	0.01	0.01	0.83	0.84	0.01	0.21	0.22	—	1,005	1,005	0.04	0.05	4.09	1,024
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	1.08	0.99	1.08	8.11	0.02	0.02	1.59	1.61	0.02	0.40	0.42	—	1,922	1,922	0.08	0.09	7.82	1,959
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	0.50	0.45	0.60	3.76	0.01	0.01	0.76	0.77	0.01	0.19	0.20	—	872	872	0.04	0.05	0.10	888
Unrefrigerated Warehouse-No Rail	0.54	0.50	0.65	4.12	0.01	0.01	0.83	0.84	0.01	0.21	0.22	—	956	956	0.05	0.05	0.11	973
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	1.04	0.95	1.25	7.88	0.02	0.02	1.59	1.61	0.02	0.40	0.42	—	1,828	1,828	0.09	0.10	0.20	1,861
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	0.06	0.06	0.07	0.47	< 0.005	< 0.005	0.10	0.10	< 0.005	0.02	0.03	—	104	104	< 0.005	0.01	0.19	106
Unrefrigerated Warehouse-No Rail	0.07	0.06	0.08	0.51	< 0.005	< 0.005	0.11	0.11	< 0.005	0.03	0.03	—	114	114	0.01	0.01	0.21	116
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.13	0.12	0.15	0.98	< 0.005	< 0.005	0.20	0.20	< 0.005	0.05	0.05	—	218	218	0.01	0.01	0.40	222

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	1,843	1,843	0.30	0.04	—	1,861
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	378	378	0.06	0.01	—	382
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	40.5	40.5	0.01	< 0.005	—	40.9
Total	—	—	—	—	—	—	—	—	—	—	—	—	2,262	2,262	0.37	0.04	—	2,284
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	1,843	1,843	0.30	0.04	—	1,861
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	378	378	0.06	0.01	—	382
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	40.5	40.5	0.01	< 0.005	—	40.9

Total	—	—	—	—	—	—	—	—	—	—	—	—	2,262	2,262	0.37	0.04	—	2,284
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	305	305	0.05	0.01	—	308
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	62.5	62.5	0.01	< 0.005	—	63.2
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	6.70	6.70	< 0.005	< 0.005	—	6.77
Total	—	—	—	—	—	—	—	—	—	—	—	—	374	374	0.06	0.01	—	378

4.2.2. Electricity Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	1,843	1,843	0.30	0.04	—	1,861
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	378	378	0.06	0.01	—	382
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	40.5	40.5	0.01	< 0.005	—	40.9
Total	—	—	—	—	—	—	—	—	—	—	—	—	2,262	2,262	0.37	0.04	—	2,284

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	1,843	1,843	0.30	0.04	—	1,861
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	378	378	0.06	0.01	—	382
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	40.5	40.5	0.01	< 0.005	—	40.9
Total	—	—	—	—	—	—	—	—	—	—	—	—	2,262	2,262	0.37	0.04	—	2,284
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	305	305	0.05	0.01	—	308
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	62.5	62.5	0.01	< 0.005	—	63.2
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	6.70	6.70	< 0.005	< 0.005	—	6.77
Total	—	—	—	—	—	—	—	—	—	—	—	—	374	374	0.06	0.01	—	378

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	0.01	< 0.005	0.08	0.07	< 0.005	0.01	—	0.01	0.01	—	0.01	—	92.5	92.5	0.01	< 0.005	—	92.7
Unrefrigerated Warehouse-No Rail	0.01	0.01	0.11	0.09	< 0.005	0.01	—	0.01	0.01	—	0.01	—	128	128	0.01	< 0.005	—	129
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.02	0.01	0.19	0.16	< 0.005	0.01	—	0.01	0.01	—	0.01	—	221	221	0.02	< 0.005	—	221
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	0.01	< 0.005	0.08	0.07	< 0.005	0.01	—	0.01	0.01	—	0.01	—	92.5	92.5	0.01	< 0.005	—	92.7
Unrefrigerated Warehouse-No Rail	0.01	0.01	0.11	0.09	< 0.005	0.01	—	0.01	0.01	—	0.01	—	128	128	0.01	< 0.005	—	129
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.02	0.01	0.19	0.16	< 0.005	0.01	—	0.01	0.01	—	0.01	—	221	221	0.02	< 0.005	—	221
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.3	15.3	< 0.005	< 0.005	—	15.4

Unrefrig Warehouse-No Rail	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	21.3	21.3	< 0.005	< 0.005	—	21.3
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	36.6	36.6	< 0.005	< 0.005	—	36.7

4.2.4. Natural Gas Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	0.01	< 0.005	0.08	0.07	< 0.005	0.01	—	0.01	0.01	—	0.01	—	92.5	92.5	0.01	< 0.005	—	92.7
Unrefrigerated Warehouse-No Rail	0.01	0.01	0.11	0.09	< 0.005	0.01	—	0.01	0.01	—	0.01	—	128	128	0.01	< 0.005	—	129
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.02	0.01	0.19	0.16	< 0.005	0.01	—	0.01	0.01	—	0.01	—	221	221	0.02	< 0.005	—	221
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	0.01	< 0.005	0.08	0.07	< 0.005	0.01	—	0.01	0.01	—	0.01	—	92.5	92.5	0.01	< 0.005	—	92.7

Unrefrigerated	0.01	0.01	0.11	0.09	< 0.005	0.01	—	0.01	0.01	—	0.01	—	128	128	0.01	< 0.005	—	129
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.02	0.01	0.19	0.16	< 0.005	0.01	—	0.01	0.01	—	0.01	—	221	221	0.02	< 0.005	—	221
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.3	15.3	< 0.005	< 0.005	—	15.4
Unrefrigerated Warehouse-No Rail	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	21.3	21.3	< 0.005	< 0.005	—	21.3
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	36.6	36.6	< 0.005	< 0.005	—	36.7

4.3. Area Emissions by Source

4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	4.51	4.51	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Architectural Coatings	0.61	0.61	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	1.63	1.50	0.08	9.14	< 0.005	0.02	—	0.02	0.01	—	0.01	—	37.6	37.6	< 0.005	< 0.005	—	37.7
Total	6.74	6.61	0.08	9.14	< 0.005	0.02	—	0.02	0.01	—	0.01	—	37.6	37.6	< 0.005	< 0.005	—	37.7
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	4.51	4.51	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.61	0.61	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	5.11	5.11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.82	0.82	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.11	0.11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.15	0.14	0.01	0.82	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.07	3.07	< 0.005	< 0.005	—	3.08
Total	1.08	1.07	0.01	0.82	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.07	3.07	< 0.005	< 0.005	—	3.08

4.3.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	4.51	4.51	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.61	0.61	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	1.63	1.50	0.08	9.14	< 0.005	0.02	—	0.02	0.01	—	0.01	—	37.6	37.6	< 0.005	< 0.005	—	37.7
Total	6.74	6.61	0.08	9.14	< 0.005	0.02	—	0.02	0.01	—	0.01	—	37.6	37.6	< 0.005	< 0.005	—	37.7
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	4.51	4.51	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.61	0.61	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	5.11	5.11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.82	0.82	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Architectural Coating	0.11	0.11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.15	0.14	0.01	0.82	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.07	3.07	< 0.005	< 0.005	—	3.08
Total	1.08	1.07	0.01	0.82	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.07	3.07	< 0.005	< 0.005	—	3.08

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	63.5	120	183	6.53	0.16	—	394
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	29.7	56.0	85.7	3.05	0.07	—	184
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	93.2	176	269	9.58	0.23	—	577
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Refrigerated Warehouse-Rail	—	—	—	—	—	—	—	—	—	—	—	63.5	120	183	6.53	0.16	—	394
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	29.7	56.0	85.7	3.05	0.07	—	184
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	93.2	176	269	9.58	0.23	—	577
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	10.5	19.9	30.4	1.08	0.03	—	65.2
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	4.91	9.27	14.2	0.50	0.01	—	30.4
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	15.4	29.1	44.6	1.59	0.04	—	95.6

4.4.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Refrigerated Wareho Rail	—	—	—	—	—	—	—	—	—	—	—	63.5	120	183	6.53	0.16	—	394
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	29.7	56.0	85.7	3.05	0.07	—	184
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	93.2	176	269	9.58	0.23	—	577
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	63.5	120	183	6.53	0.16	—	394
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	29.7	56.0	85.7	3.05	0.07	—	184
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	93.2	176	269	9.58	0.23	—	577
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	10.5	19.9	30.4	1.08	0.03	—	65.2

Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	4.91	9.27	14.2	0.50	0.01	—	30.4
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	15.4	29.1	44.6	1.59	0.04	—	95.6

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	72.6	0.00	72.6	7.26	0.00	—	254
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	33.9	0.00	33.9	3.39	0.00	—	119
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	107	0.00	107	10.6	0.00	—	373
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Refrigerated Warehouse-Rail	—	—	—	—	—	—	—	—	—	—	—	72.6	0.00	72.6	7.26	0.00	—	254
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	33.9	0.00	33.9	3.39	0.00	—	119
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	107	0.00	107	10.6	0.00	—	373
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	12.0	0.00	12.0	1.20	0.00	—	42.1
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	5.61	0.00	5.61	0.56	0.00	—	19.6
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	17.6	0.00	17.6	1.76	0.00	—	61.7

4.5.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Refrigerated Wareho Rail	—	—	—	—	—	—	—	—	—	—	—	72.6	0.00	72.6	7.26	0.00	—	254
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	33.9	0.00	33.9	3.39	0.00	—	119
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	107	0.00	107	10.6	0.00	—	373
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	72.6	0.00	72.6	7.26	0.00	—	254
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	33.9	0.00	33.9	3.39	0.00	—	119
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	107	0.00	107	10.6	0.00	—	373
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	12.0	0.00	12.0	1.20	0.00	—	42.1

Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	5.61	0.00	5.61	0.56	0.00	—	19.6
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	17.6	0.00	17.6	1.76	0.00	—	61.7

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3,819	3,819
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3,819	3,819
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3,819	3,819
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3,819	3,819
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Refrigerated	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	632	632
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	632	632

4.6.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3,819	3,819
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3,819	3,819
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3,819	3,819
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3,819	3,819
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	632	632
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	632	632

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.7.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Grading	Grading	1/1/2025	3/28/2025	5.00	63.0	—
Building Construction	Building Construction	3/29/2025	5/23/2026	5.00	300	—
Paving	Paving	5/24/2026	6/21/2026	5.00	20.0	—
Architectural Coating	Architectural Coating	6/22/2026	7/20/2026	5.00	20.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Grading	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Grading	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Grading	Scrapers	Diesel	Average	2.00	8.00	423	0.48
Building Construction	Cranes	Diesel	Average	1.00	7.00	367	0.29
Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00	7.00	84.0	0.37
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Grading	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Grading	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Grading	Scrapers	Diesel	Average	2.00	8.00	423	0.48
Building Construction	Cranes	Diesel	Average	1.00	7.00	367	0.29

Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00	7.00	84.0	0.37
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Grading	—	—	—	—
Grading	Worker	20.0	11.7	LDA,LDT1,LDT2
Grading	Vendor	—	8.40	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	88.3	11.7	LDA,LDT1,LDT2
Building Construction	Vendor	34.5	8.40	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	11.7	LDA,LDT1,LDT2
Paving	Vendor	—	8.40	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT

Architectural Coating	—	—	—	—
Architectural Coating	Worker	17.7	11.7	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	8.40	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Grading	—	—	—	—
Grading	Worker	20.0	11.7	LDA,LDT1,LDT2
Grading	Vendor	—	8.40	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	88.3	11.7	LDA,LDT1,LDT2
Building Construction	Vendor	34.5	8.40	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	11.7	LDA,LDT1,LDT2
Paving	Vendor	—	8.40	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	17.7	11.7	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	8.40	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	0.00	0.00	315,341	105,114	4,963

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Grading	—	—	189	0.00	—
Paving	0.00	0.00	0.00	0.00	1.90

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Refrigerated Warehouse-No Rail	0.00	0%
Unrefrigerated Warehouse-No Rail	0.00	0%
Parking Lot	1.16	100%
Parking Lot	0.74	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2025	0.00	204	0.03	< 0.005
2026	0.00	204	0.03	< 0.005

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Refrigerated Warehouse-No Rail	104	0.00	0.00	27,115	1,064	0.00	0.00	277,441
Unrefrigerated Warehouse-No Rail	114	0.00	0.00	29,720	1,166	0.00	0.00	304,104
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.9.2. Mitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Refrigerated Warehouse-No Rail	104	0.00	0.00	27,115	1,064	0.00	0.00	277,441
Unrefrigerated Warehouse-No Rail	114	0.00	0.00	29,720	1,166	0.00	0.00	304,104
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.1.2. Mitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0	0.00	315,341	105,114	4,963

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.10.4. Landscape Equipment - Mitigated

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Refrigerated Warehouse-No Rail	3,298,193	204	0.0330	0.0040	288,569
Unrefrigerated Warehouse-No Rail	676,021	204	0.0330	0.0040	400,564
Parking Lot	44,302	204	0.0330	0.0040	0.00
Parking Lot	28,161	204	0.0330	0.0040	0.00

5.11.2. Mitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Refrigerated Warehouse-No Rail	3,298,193	204	0.0330	0.0040	288,569
Unrefrigerated Warehouse-No Rail	676,021	204	0.0330	0.0040	400,564
Parking Lot	44,302	204	0.0330	0.0040	0.00
Parking Lot	28,161	204	0.0330	0.0040	0.00

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Refrigerated Warehouse-No Rail	33,140,900	0.00
Unrefrigerated Warehouse-No Rail	15,474,094	0.00
Parking Lot	0.00	0.00
Parking Lot	0.00	0.00

5.12.2. Mitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Refrigerated Warehouse-No Rail	33,140,900	0.00
Unrefrigerated Warehouse-No Rail	15,474,094	0.00
Parking Lot	0.00	0.00
Parking Lot	0.00	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Refrigerated Warehouse-No Rail	135	—
Unrefrigerated Warehouse-No Rail	62.9	—
Parking Lot	0.00	—
Parking Lot	0.00	—

5.13.2. Mitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Refrigerated Warehouse-No Rail	135	—
Unrefrigerated Warehouse-No Rail	62.9	—
Parking Lot	0.00	—
Parking Lot	0.00	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Refrigerated Warehouse-No Rail	Cold storage	R-404A	3,922	7.50	7.50	7.50	25.0

5.14.2. Mitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Refrigerated Warehouse-No Rail	Cold storage	R-404A	3,922	7.50	7.50	7.50	25.0

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.15.2. Mitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

5.18.2.2. Mitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	11.8	annual days of extreme heat
Extreme Precipitation	5.65	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	16.4	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	2	0	0	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	2	1	1	3
Sea Level Rise	1	1	1	2

Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	16.8
AQ-PM	35.7
AQ-DPM	23.4
Drinking Water	69.2
Lead Risk Housing	55.8
Pesticides	66.2
Toxic Releases	61.2
Traffic	83.3
Effect Indicators	—
CleanUp Sites	62.4
Groundwater	0.00

Haz Waste Facilities/Generators	82.7
Impaired Water Bodies	23.9
Solid Waste	83.9
Sensitive Population	—
Asthma	71.9
Cardio-vascular	67.0
Low Birth Weights	51.0
Socioeconomic Factor Indicators	—
Education	62.0
Housing	12.0
Linguistic	39.2
Poverty	33.8
Unemployment	36.4

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	80.85461311
Employed	75.23418452
Median HI	74.554087
Education	—
Bachelor's or higher	69.35711536
High school enrollment	100
Preschool enrollment	12.62671628
Transportation	—
Auto Access	83.51084306
Active commuting	27.38354934

Social	—
2-parent households	62.7229565
Voting	57.75696138
Neighborhood	—
Alcohol availability	76.10676248
Park access	56.71756705
Retail density	24.22687027
Supermarket access	27.9481586
Tree canopy	22.44321827
Housing	—
Homeownership	87.02681894
Housing habitability	96.41986398
Low-inc homeowner severe housing cost burden	70.11420506
Low-inc renter severe housing cost burden	97.06146542
Uncrowded housing	60.05389452
Health Outcomes	—
Insured adults	79.19928141
Arthritis	0.0
Asthma ER Admissions	56.0
High Blood Pressure	0.0
Cancer (excluding skin)	0.0
Asthma	0.0
Coronary Heart Disease	0.0
Chronic Obstructive Pulmonary Disease	0.0
Diagnosed Diabetes	0.0
Life Expectancy at Birth	25.5
Cognitively Disabled	20.1
Physically Disabled	17.3

Heart Attack ER Admissions	55.3
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	19.6
Physical Health Not Good	0.0
Stroke	0.0
Health Risk Behaviors	—
Binge Drinking	0.0
Current Smoker	0.0
No Leisure Time for Physical Activity	0.0
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	43.5
Children	32.5
Elderly	69.3
English Speaking	60.5
Foreign-born	72.3
Outdoor Workers	52.3
Climate Change Adaptive Capacity	—
Impervious Surface Cover	43.7
Traffic Density	45.1
Traffic Access	23.0
Other Indices	—
Hardship	34.8
Other Decision Support	—
2016 Voting	51.4

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	63.0
Healthy Places Index Score for Project Location (b)	73.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Land Use	Per project description of Building A and B
Construction: Construction Phases	Per model
Operations: Vehicle Data	per IS/MND

Wine Warehouse Detailed Report

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8. User Changes to Default Data

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Wine Warehouse
Construction Start Date	1/1/2025
Operational Year	2025
Lead Agency	Napa County PBES
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.60
Precipitation (days)	38.4
Location	Morris Ct & Technology Way, California 94558, USA
County	Napa
City	Unincorporated
Air District	Bay Area AQMD
Air Basin	San Francisco Bay Area
TAZ	801
EDFZ	2
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.29

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Refrigerated Warehouse-No Rail	143	1000sqft	13.2	143,312	—	—	—	Building A

Unrefrigerated Warehouse-No Rail	66.9	1000sqft	6.87	66,915	—	—	—	Building B
Parking Lot	129	Space	1.16	0.00	—	—	—	Parking Lot For Building A
Parking Lot	82.0	Space	0.74	0.00	—	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-13	Use Low-VOC Paints for Construction
Transportation	T-14*	Provide Electric Vehicle Charging Infrastructure
Energy	E-1	Buildings Exceed 2019 Title 24 Building Envelope Energy Efficiency Standards
Energy	E-2	Require Energy Efficient Appliances
Energy	E-10-A	Establish Onsite Renewable Energy Systems: Generic
Water	W-5	Design Water-Efficient Landscapes

* Qualitative or supporting measure. Emission reductions not included in the mitigated emissions results.

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	111	111	12.0	17.6	0.03	0.44	0.97	1.42	0.41	0.24	0.65	—	4,093	4,093	0.15	0.19	5.72	4,159
Mit.	50.1	50.1	12.0	17.6	0.03	0.44	0.97	1.42	0.41	0.24	0.65	—	4,093	4,093	0.15	0.19	5.72	4,159
% Reduced	55%	55%	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.89	3.28	29.8	29.1	0.06	1.23	9.37	10.6	1.14	3.69	4.83	—	6,761	6,761	0.27	0.19	0.15	6,785
Mit.	3.89	3.28	29.8	29.1	0.06	1.23	9.37	10.6	1.14	3.69	4.83	—	6,761	6,761	0.27	0.19	0.15	6,785
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	6.63	6.54	11.7	14.3	0.03	0.46	2.13	2.59	0.42	0.76	1.18	—	3,369	3,369	0.13	0.11	1.40	3,408
Mit.	3.29	3.20	11.7	14.3	0.03	0.46	2.13	2.59	0.42	0.76	1.18	—	3,369	3,369	0.13	0.11	1.40	3,408
% Reduced	50%	51%	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.21	1.19	2.14	2.62	< 0.005	0.08	0.39	0.47	0.08	0.14	0.22	—	558	558	0.02	0.02	0.23	564
Mit.	0.60	0.58	2.14	2.62	< 0.005	0.08	0.39	0.47	0.08	0.14	0.22	—	558	558	0.02	0.02	0.23	564
% Reduced	50%	51%	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Exceeds (Daily Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Threshold	—	54.0	54.0	—	—	82.0	—	—	54.0	—	—	—	—	—	—	—	—	—
Unmit.	—	Yes	No	—	—	No	—	—	No	—	—	—	—	—	—	—	—	—
Mit.	—	No	No	—	—	No	—	—	No	—	—	—	—	—	—	—	—	—
Exceeds (Average Daily)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Threshold	—	54.0	54.0	—	—	82.0	—	—	54.0	—	—	—	—	—	—	—	—	—
Unmit.	—	No	No	—	—	No	—	—	No	—	—	—	—	—	—	—	—	—
Mit.	—	No	No	—	—	No	—	—	No	—	—	—	—	—	—	—	—	—

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	1.81	1.52	12.0	17.6	0.03	0.44	0.97	1.42	0.41	0.24	0.65	—	4,093	4,093	0.15	0.19	5.72	4,159
2026	111	111	11.3	17.3	0.03	0.39	0.97	1.36	0.36	0.24	0.60	—	4,063	4,063	0.15	0.19	5.34	4,128
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	3.89	3.28	29.8	29.1	0.06	1.23	9.37	10.6	1.14	3.69	4.83	—	6,761	6,761	0.27	0.19	0.15	6,785
2026	1.72	1.44	11.5	16.9	0.03	0.39	0.97	1.36	0.36	0.24	0.60	—	4,013	4,013	0.15	0.19	0.14	4,073
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	1.65	1.38	11.7	14.3	0.03	0.46	2.13	2.59	0.42	0.76	1.18	—	3,369	3,369	0.13	0.11	1.40	3,408
2026	6.63	6.54	3.64	5.37	0.01	0.13	0.28	0.41	0.12	0.07	0.19	—	1,229	1,229	0.05	0.05	0.67	1,247
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.30	0.25	2.14	2.62	< 0.005	0.08	0.39	0.47	0.08	0.14	0.22	—	558	558	0.02	0.02	0.23	564
2026	1.21	1.19	0.66	0.98	< 0.005	0.02	0.05	0.07	0.02	0.01	0.03	—	203	203	0.01	0.01	0.11	206

2.3. Construction Emissions by Year, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	1.81	1.52	12.0	17.6	0.03	0.44	0.97	1.42	0.41	0.24	0.65	—	4,093	4,093	0.15	0.19	5.72	4,159
2026	50.1	50.1	11.3	17.3	0.03	0.39	0.97	1.36	0.36	0.24	0.60	—	4,063	4,063	0.15	0.19	5.34	4,128

Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	3.89	3.28	29.8	29.1	0.06	1.23	9.37	10.6	1.14	3.69	4.83	—	6,761	6,761	0.27	0.19	0.15	6,785
2026	1.72	1.44	11.5	16.9	0.03	0.39	0.97	1.36	0.36	0.24	0.60	—	4,013	4,013	0.15	0.19	0.14	4,073
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	1.65	1.38	11.7	14.3	0.03	0.46	2.13	2.59	0.42	0.76	1.18	—	3,369	3,369	0.13	0.11	1.40	3,408
2026	3.29	3.20	3.64	5.37	0.01	0.13	0.28	0.41	0.12	0.07	0.19	—	1,229	1,229	0.05	0.05	0.67	1,247
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.30	0.25	2.14	2.62	< 0.005	0.08	0.39	0.47	0.08	0.14	0.22	—	558	558	0.02	0.02	0.23	564
2026	0.60	0.58	0.66	0.98	< 0.005	0.02	0.05	0.07	0.02	0.01	0.03	—	203	203	0.01	0.01	0.11	206

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	7.84	7.62	1.35	17.4	0.02	0.05	1.59	1.64	0.04	0.40	0.45	200	4,618	4,817	20.7	0.37	3,827	9,271
Mit.	7.83	7.62	1.30	17.4	0.02	0.05	1.59	1.63	0.04	0.40	0.44	200	3,605	3,805	20.5	0.35	3,827	8,249
% Reduced	< 0.5%	< 0.5%	3%	< 0.5%	—	7%	—	< 0.5%	8%	—	1%	—	22%	21%	1%	5%	—	11%
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	6.17	6.07	1.44	8.04	0.02	0.03	1.59	1.62	0.03	0.40	0.44	200	4,487	4,686	20.7	0.38	3,820	9,135
Mit.	6.17	6.07	1.39	8.00	0.02	0.03	1.59	1.62	0.03	0.40	0.43	200	3,474	3,674	20.5	0.36	3,820	8,113
% Reduced	< 0.5%	< 0.5%	3%	< 0.5%	—	10%	—	< 0.5%	11%	—	1%	—	23%	22%	1%	5%	—	11%

Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	6.67	6.53	1.07	10.0	0.01	0.04	1.11	1.14	0.03	0.28	0.31	200	3,991	4,191	20.7	0.34	3,822	8,632
Mit.	6.66	6.53	1.02	9.99	0.01	0.03	1.11	1.14	0.03	0.28	0.31	200	2,979	3,178	20.5	0.33	3,822	7,610
% Reduced	< 0.5%	< 0.5%	4%	< 0.5%	—	9%	—	< 0.5%	10%	—	1%	—	25%	24%	1%	5%	—	12%
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.22	1.19	0.19	1.83	< 0.005	0.01	0.20	0.21	0.01	0.05	0.06	33.1	661	694	3.42	0.06	633	1,429
Mit.	1.22	1.19	0.19	1.82	< 0.005	0.01	0.20	0.21	0.01	0.05	0.06	33.1	493	526	3.40	0.05	633	1,260
% Reduced	< 0.5%	< 0.5%	4%	< 0.5%	2%	9%	—	< 0.5%	10%	—	1%	—	25%	24%	1%	5%	—	12%
Exceeds (Daily Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Threshold	—	54.0	54.0	—	—	82.0	—	—	54.0	—	—	—	—	—	—	—	—	—
Unmit.	—	No	No	—	—	No	—	—	No	—	—	—	—	—	—	—	—	—
Mit.	—	No	No	—	—	No	—	—	No	—	—	—	—	—	—	—	—	—
Exceeds (Average Daily)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Threshold	—	54.0	54.0	—	—	82.0	—	—	54.0	—	—	—	—	—	—	—	—	—
Unmit.	—	No	No	—	—	No	—	—	No	—	—	—	—	—	—	—	—	—
Mit.	—	No	No	—	—	No	—	—	No	—	—	—	—	—	—	—	—	—
Exceeds (Annual)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Threshold	—	10.0	10.0	—	—	15.0	—	—	10.0	—	—	—	—	—	—	—	—	—
Unmit.	—	No	No	—	—	No	—	—	No	—	—	—	—	—	—	—	—	—
Mit.	—	No	No	—	—	No	—	—	No	—	—	—	—	—	—	—	—	—

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.08	0.99	1.08	8.11	0.02	0.02	1.59	1.61	0.02	0.40	0.42	—	1,922	1,922	0.08	0.09	7.82	1,959
Area	6.74	6.61	0.08	9.14	< 0.005	0.02	—	0.02	0.01	—	0.01	—	37.6	37.6	< 0.005	< 0.005	—	37.7
Energy	0.02	0.01	0.19	0.16	< 0.005	0.01	—	0.01	0.01	—	0.01	—	2,482	2,482	0.39	0.04	—	2,505
Water	—	—	—	—	—	—	—	—	—	—	—	93.2	176	269	9.58	0.23	—	577
Waste	—	—	—	—	—	—	—	—	—	—	—	107	0.00	107	10.6	0.00	—	373
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3,819	3,819
Total	7.84	7.62	1.35	17.4	0.02	0.05	1.59	1.64	0.04	0.40	0.45	200	4,618	4,817	20.7	0.37	3,827	9,271
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.04	0.95	1.25	7.88	0.02	0.02	1.59	1.61	0.02	0.40	0.42	—	1,828	1,828	0.09	0.10	0.20	1,861
Area	5.11	5.11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.02	0.01	0.19	0.16	< 0.005	0.01	—	0.01	0.01	—	0.01	—	2,482	2,482	0.39	0.04	—	2,505
Water	—	—	—	—	—	—	—	—	—	—	—	93.2	176	269	9.58	0.23	—	577
Waste	—	—	—	—	—	—	—	—	—	—	—	107	0.00	107	10.6	0.00	—	373
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3,819	3,819
Total	6.17	6.07	1.44	8.04	0.02	0.03	1.59	1.62	0.03	0.40	0.44	200	4,487	4,686	20.7	0.38	3,820	9,135
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.73	0.67	0.84	5.37	0.01	0.01	1.11	1.12	0.01	0.28	0.29	—	1,314	1,314	0.06	0.07	2.41	1,339
Area	5.91	5.85	0.04	4.51	< 0.005	0.01	—	0.01	0.01	—	0.01	—	18.5	18.5	< 0.005	< 0.005	—	18.6
Energy	0.02	0.01	0.19	0.16	< 0.005	0.01	—	0.01	0.01	—	0.01	—	2,482	2,482	0.39	0.04	—	2,505
Water	—	—	—	—	—	—	—	—	—	—	—	93.2	176	269	9.58	0.23	—	577
Waste	—	—	—	—	—	—	—	—	—	—	—	107	0.00	107	10.6	0.00	—	373

Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3,819	3,819
Total	6.67	6.53	1.07	10.0	0.01	0.04	1.11	1.14	0.03	0.28	0.31	200	3,991	4,191	20.7	0.34	3,822	8,632
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.13	0.12	0.15	0.98	< 0.005	< 0.005	0.20	0.20	< 0.005	0.05	0.05	—	218	218	0.01	0.01	0.40	222
Area	1.08	1.07	0.01	0.82	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.07	3.07	< 0.005	< 0.005	—	3.08
Energy	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	411	411	0.06	0.01	—	415
Water	—	—	—	—	—	—	—	—	—	—	—	15.4	29.1	44.6	1.59	0.04	—	95.6
Waste	—	—	—	—	—	—	—	—	—	—	—	17.6	0.00	17.6	1.76	0.00	—	61.7
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	632	632
Total	1.22	1.19	0.19	1.83	< 0.005	0.01	0.20	0.21	0.01	0.05	0.06	33.1	661	694	3.42	0.06	633	1,429

2.6. Operations Emissions by Sector, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.08	0.99	1.08	8.11	0.02	0.02	1.59	1.61	0.02	0.40	0.42	—	1,922	1,922	0.08	0.09	7.82	1,959
Area	6.74	6.61	0.08	9.14	< 0.005	0.02	—	0.02	0.01	—	0.01	—	37.6	37.6	< 0.005	< 0.005	—	37.7
Energy	0.02	0.01	0.14	0.12	< 0.005	0.01	—	0.01	0.01	—	0.01	—	1,470	1,470	0.23	0.03	—	1,483
Water	—	—	—	—	—	—	—	—	—	—	—	93.2	176	269	9.58	0.23	—	577
Waste	—	—	—	—	—	—	—	—	—	—	—	107	0.00	107	10.6	0.00	—	373
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3,819	3,819
Total	7.83	7.62	1.30	17.4	0.02	0.05	1.59	1.63	0.04	0.40	0.44	200	3,605	3,805	20.5	0.35	3,827	8,249
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.04	0.95	1.25	7.88	0.02	0.02	1.59	1.61	0.02	0.40	0.42	—	1,828	1,828	0.09	0.10	0.20	1,861
Area	5.11	5.11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Energy	0.02	0.01	0.14	0.12	< 0.005	0.01	—	0.01	0.01	—	0.01	—	1,470	1,470	0.23	0.03	—	1,483
Water	—	—	—	—	—	—	—	—	—	—	—	93.2	176	269	9.58	0.23	—	577
Waste	—	—	—	—	—	—	—	—	—	—	—	107	0.00	107	10.6	0.00	—	373
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3,819	3,819
Total	6.17	6.07	1.39	8.00	0.02	0.03	1.59	1.62	0.03	0.40	0.43	200	3,474	3,674	20.5	0.36	3,820	8,113
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.73	0.67	0.84	5.37	0.01	0.01	1.11	1.12	0.01	0.28	0.29	—	1,314	1,314	0.06	0.07	2.41	1,339
Area	5.91	5.85	0.04	4.51	< 0.005	0.01	—	0.01	0.01	—	0.01	—	18.5	18.5	< 0.005	< 0.005	—	18.6
Energy	0.02	0.01	0.14	0.12	< 0.005	0.01	—	0.01	0.01	—	0.01	—	1,470	1,470	0.23	0.03	—	1,483
Water	—	—	—	—	—	—	—	—	—	—	—	93.2	176	269	9.58	0.23	—	577
Waste	—	—	—	—	—	—	—	—	—	—	—	107	0.00	107	10.6	0.00	—	373
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3,819	3,819
Total	6.66	6.53	1.02	9.99	0.01	0.03	1.11	1.14	0.03	0.28	0.31	200	2,979	3,178	20.5	0.33	3,822	7,610
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.13	0.12	0.15	0.98	< 0.005	< 0.005	0.20	0.20	< 0.005	0.05	0.05	—	218	218	0.01	0.01	0.40	222
Area	1.08	1.07	0.01	0.82	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.07	3.07	< 0.005	< 0.005	—	3.08
Energy	< 0.005	< 0.005	0.03	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	243	243	0.04	< 0.005	—	246
Water	—	—	—	—	—	—	—	—	—	—	—	15.4	29.1	44.6	1.59	0.04	—	95.6
Waste	—	—	—	—	—	—	—	—	—	—	—	17.6	0.00	17.6	1.76	0.00	—	61.7
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	632	632
Total	1.22	1.19	0.19	1.82	< 0.005	0.01	0.20	0.21	0.01	0.05	0.06	33.1	493	526	3.40	0.05	633	1,260

3. Construction Emissions Details

3.1. Grading (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.80	3.20	29.7	28.3	0.06	1.23	—	1.23	1.14	—	1.14	—	6,599	6,599	0.27	0.05	—	6,622
Dust From Material Movement	—	—	—	—	—	—	9.20	9.20	—	3.65	3.65	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.66	0.55	5.12	4.89	0.01	0.21	—	0.21	0.20	—	0.20	—	1,139	1,139	0.05	0.01	—	1,143
Dust From Material Movement	—	—	—	—	—	—	1.59	1.59	—	0.63	0.63	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	0.93	0.89	< 0.005	0.04	—	0.04	0.04	—	0.04	—	189	189	0.01	< 0.005	—	189
Dust From Material Movement	—	—	—	—	—	—	0.29	0.29	—	0.12	0.12	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.08	0.84	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	162	162	0.01	0.01	0.02	164
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.14	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	28.2	28.2	< 0.005	< 0.005	0.05	28.6
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	4.66	4.66	< 0.005	< 0.005	0.01	4.74
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.2. Grading (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	3.80	3.20	29.7	28.3	0.06	1.23	—	1.23	1.14	—	1.14	—	6,599	6,599	0.27	0.05	—	6,622
Dust From Material Movement	—	—	—	—	—	—	9.20	9.20	—	3.65	3.65	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.66	0.55	5.12	4.89	0.01	0.21	—	0.21	0.20	—	0.20	—	1,139	1,139	0.05	0.01	—	1,143
Dust From Material Movement	—	—	—	—	—	—	1.59	1.59	—	0.63	0.63	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	0.93	0.89	< 0.005	0.04	—	0.04	0.04	—	0.04	—	189	189	0.01	< 0.005	—	189
Dust From Material Movement	—	—	—	—	—	—	0.29	0.29	—	0.12	0.12	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.08	0.84	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	162	162	0.01	0.01	0.02	164
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.14	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	28.2	28.2	< 0.005	< 0.005	0.05	28.6
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	4.66	4.66	< 0.005	< 0.005	0.01	4.74
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.3. Building Construction (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.35	1.13	10.4	13.0	0.02	0.43	—	0.43	0.40	—	0.40	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Roa Equipment	1.35	1.13	10.4	13.0	0.02	0.43	—	0.43	0.40	—	0.40	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipm ent	0.73	0.61	5.68	7.09	0.01	0.23	—	0.23	0.22	—	0.22	—	1,304	1,304	0.05	0.01	—	1,309
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipm ent	0.13	0.11	1.04	1.29	< 0.005	0.04	—	0.04	0.04	—	0.04	—	216	216	0.01	< 0.005	—	217
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.39	0.36	0.25	4.08	0.00	0.00	0.73	0.73	0.00	0.17	0.17	—	766	766	0.02	0.03	3.25	779
Vendor	0.07	0.04	1.30	0.51	0.01	0.01	0.24	0.26	0.01	0.07	0.08	—	929	929	0.04	0.14	2.47	975
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.38	0.35	0.33	3.70	0.00	0.00	0.73	0.73	0.00	0.17	0.17	—	714	714	0.02	0.03	0.08	724
Vendor	0.07	0.03	1.38	0.53	0.01	0.01	0.24	0.26	0.01	0.07	0.08	—	930	930	0.04	0.14	0.06	973
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.20	0.19	0.16	1.93	0.00	0.00	0.39	0.39	0.00	0.09	0.09	—	392	392	0.01	0.02	0.76	398
Vendor	0.04	0.02	0.74	0.28	< 0.005	0.01	0.13	0.14	0.01	0.04	0.04	—	506	506	0.02	0.08	0.58	530
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.03	0.35	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	64.9	64.9	< 0.005	< 0.005	0.13	65.9
Vendor	0.01	< 0.005	0.13	0.05	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	83.7	83.7	< 0.005	0.01	0.10	87.7
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.4. Building Construction (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.35	1.13	10.4	13.0	0.02	0.43	—	0.43	0.40	—	0.40	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.35	1.13	10.4	13.0	0.02	0.43	—	0.43	0.40	—	0.40	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	0.73	0.61	5.68	7.09	0.01	0.23	—	0.23	0.22	—	0.22	—	1,304	1,304	0.05	0.01	—	1,309
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13	0.11	1.04	1.29	< 0.005	0.04	—	0.04	0.04	—	0.04	—	216	216	0.01	< 0.005	—	217
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.39	0.36	0.25	4.08	0.00	0.00	0.73	0.73	0.00	0.17	0.17	—	766	766	0.02	0.03	3.25	779
Vendor	0.07	0.04	1.30	0.51	0.01	0.01	0.24	0.26	0.01	0.07	0.08	—	929	929	0.04	0.14	2.47	975
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.38	0.35	0.33	3.70	0.00	0.00	0.73	0.73	0.00	0.17	0.17	—	714	714	0.02	0.03	0.08	724
Vendor	0.07	0.03	1.38	0.53	0.01	0.01	0.24	0.26	0.01	0.07	0.08	—	930	930	0.04	0.14	0.06	973
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.20	0.19	0.16	1.93	0.00	0.00	0.39	0.39	0.00	0.09	0.09	—	392	392	0.01	0.02	0.76	398
Vendor	0.04	0.02	0.74	0.28	< 0.005	0.01	0.13	0.14	0.01	0.04	0.04	—	506	506	0.02	0.08	0.58	530
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.03	0.35	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	64.9	64.9	< 0.005	< 0.005	0.13	65.9
Vendor	0.01	< 0.005	0.13	0.05	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	83.7	83.7	< 0.005	0.01	0.10	87.7

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.5. Building Construction (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.28	1.07	9.85	13.0	0.02	0.38	—	0.38	0.35	—	0.35	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.28	1.07	9.85	13.0	0.02	0.38	—	0.38	0.35	—	0.35	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.36	0.30	2.76	3.63	0.01	0.11	—	0.11	0.10	—	0.10	—	671	671	0.03	0.01	—	673
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	0.07	0.05	0.50	0.66	< 0.005	0.02	—	0.02	0.02	—	0.02	—	111	111	< 0.005	< 0.005	—	111
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.38	0.35	0.24	3.81	0.00	0.00	0.73	0.73	0.00	0.17	0.17	—	752	752	0.02	0.03	3.00	764
Vendor	0.07	0.03	1.24	0.49	0.01	0.01	0.24	0.26	0.01	0.07	0.08	—	914	914	0.04	0.14	2.35	959
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.37	0.33	0.30	3.45	0.00	0.00	0.73	0.73	0.00	0.17	0.17	—	701	701	0.02	0.03	0.08	711
Vendor	0.07	0.03	1.31	0.50	0.01	0.01	0.24	0.26	0.01	0.07	0.08	—	914	914	0.04	0.14	0.06	957
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.09	0.08	0.93	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	198	198	0.01	0.01	0.36	201
Vendor	0.02	0.01	0.36	0.14	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	256	256	0.01	0.04	0.28	268
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.01	0.17	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	32.8	32.8	< 0.005	< 0.005	0.06	33.3
Vendor	< 0.005	< 0.005	0.07	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	42.4	42.4	< 0.005	0.01	0.05	44.4
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.6. Building Construction (2026) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.28	1.07	9.85	13.0	0.02	0.38	—	0.38	0.35	—	0.35	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.28	1.07	9.85	13.0	0.02	0.38	—	0.38	0.35	—	0.35	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.36	0.30	2.76	3.63	0.01	0.11	—	0.11	0.10	—	0.10	—	671	671	0.03	0.01	—	673
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.05	0.50	0.66	< 0.005	0.02	—	0.02	0.02	—	0.02	—	111	111	< 0.005	< 0.005	—	111
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.38	0.35	0.24	3.81	0.00	0.00	0.73	0.73	0.00	0.17	0.17	—	752	752	0.02	0.03	3.00	764
Vendor	0.07	0.03	1.24	0.49	0.01	0.01	0.24	0.26	0.01	0.07	0.08	—	914	914	0.04	0.14	2.35	959
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.37	0.33	0.30	3.45	0.00	0.00	0.73	0.73	0.00	0.17	0.17	—	701	701	0.02	0.03	0.08	711
Vendor	0.07	0.03	1.31	0.50	0.01	0.01	0.24	0.26	0.01	0.07	0.08	—	914	914	0.04	0.14	0.06	957
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.09	0.08	0.93	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	198	198	0.01	0.01	0.36	201
Vendor	0.02	0.01	0.36	0.14	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	256	256	0.01	0.04	0.28	268
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.01	0.17	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	32.8	32.8	< 0.005	< 0.005	0.06	33.3
Vendor	< 0.005	< 0.005	0.07	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	42.4	42.4	< 0.005	0.01	0.05	44.4
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.7. Paving (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	0.91	0.76	7.12	9.94	0.01	0.32	—	0.32	0.29	—	0.29	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.25	0.25	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.04	0.39	0.54	< 0.005	0.02	—	0.02	0.02	—	0.02	—	82.8	82.8	< 0.005	< 0.005	—	83.1
Paving	0.01	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.07	0.10	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	13.7	13.7	< 0.005	< 0.005	—	13.8
Paving	< 0.005	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.04	0.65	0.00	0.00	0.12	0.12	0.00	0.03	0.03	—	128	128	< 0.005	< 0.005	0.51	130
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	6.59	6.59	< 0.005	< 0.005	0.01	6.69
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.09	1.09	< 0.005	< 0.005	< 0.005	1.11
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.8. Paving (2026) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.91	0.76	7.12	9.94	0.01	0.32	—	0.32	0.29	—	0.29	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.25	0.25	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Roa Equipment	0.05	0.04	0.39	0.54	< 0.005	0.02	—	0.02	0.02	—	0.02	—	82.8	82.8	< 0.005	< 0.005	—	83.1
Paving	0.01	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipm ent	0.01	0.01	0.07	0.10	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	13.7	13.7	< 0.005	< 0.005	—	13.8
Paving	< 0.005	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.04	0.65	0.00	0.00	0.12	0.12	0.00	0.03	0.03	—	128	128	< 0.005	< 0.005	0.51	130
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	6.59	6.59	< 0.005	< 0.005	0.01	6.69
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.09	1.09	< 0.005	< 0.005	< 0.005	1.11
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.9. Architectural Coating (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.12	0.86	1.13	< 0.005	0.02	—	0.02	0.02	—	0.02	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	111	111	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.05	0.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	7.32	7.32	< 0.005	< 0.005	—	7.34
Architectural Coatings	6.07	6.07	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.21	1.21	< 0.005	< 0.005	—	1.22
Architectural Coatings	1.11	1.11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.05	0.76	0.00	0.00	0.15	0.15	0.00	0.03	0.03	—	150	150	< 0.005	0.01	0.60	153
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	7.75	7.75	< 0.005	< 0.005	0.01	7.87
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.28	1.28	< 0.005	< 0.005	< 0.005	1.30
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.10. Architectural Coating (2026) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.12	0.86	1.13	< 0.005	0.02	—	0.02	0.02	—	0.02	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	49.9	49.9	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.05	0.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	7.32	7.32	< 0.005	< 0.005	—	7.34
Architectural Coatings	2.73	2.73	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.21	1.21	< 0.005	< 0.005	—	1.22

Architectural Coating	0.50	0.50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.05	0.76	0.00	0.00	0.15	0.15	0.00	0.03	0.03	—	150	150	< 0.005	0.01	0.60	153
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	7.75	7.75	< 0.005	< 0.005	0.01	7.87
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.28	1.28	< 0.005	< 0.005	< 0.005	1.30
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	0.51	0.47	0.52	3.87	0.01	0.01	0.76	0.77	0.01	0.19	0.20	—	917	917	0.04	0.04	3.73	935
Unrefrigerated Warehouse-No Rail	0.56	0.52	0.57	4.24	0.01	0.01	0.83	0.84	0.01	0.21	0.22	—	1,005	1,005	0.04	0.05	4.09	1,024
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	1.08	0.99	1.08	8.11	0.02	0.02	1.59	1.61	0.02	0.40	0.42	—	1,922	1,922	0.08	0.09	7.82	1,959
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	0.50	0.45	0.60	3.76	0.01	0.01	0.76	0.77	0.01	0.19	0.20	—	872	872	0.04	0.05	0.10	888
Unrefrigerated Warehouse-No Rail	0.54	0.50	0.65	4.12	0.01	0.01	0.83	0.84	0.01	0.21	0.22	—	956	956	0.05	0.05	0.11	973
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	1.04	0.95	1.25	7.88	0.02	0.02	1.59	1.61	0.02	0.40	0.42	—	1,828	1,828	0.09	0.10	0.20	1,861
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Refrigerated Warehouse-No	0.06	0.06	0.07	0.47	< 0.005	< 0.005	0.10	0.10	< 0.005	0.02	0.03	—	104	104	< 0.005	0.01	0.19	106
Unrefrigerated Warehouse-No Rail	0.07	0.06	0.08	0.51	< 0.005	< 0.005	0.11	0.11	< 0.005	0.03	0.03	—	114	114	0.01	0.01	0.21	116
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.13	0.12	0.15	0.98	< 0.005	< 0.005	0.20	0.20	< 0.005	0.05	0.05	—	218	218	0.01	0.01	0.40	222

4.1.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	0.51	0.47	0.52	3.87	0.01	0.01	0.76	0.77	0.01	0.19	0.20	—	917	917	0.04	0.04	3.73	935
Unrefrigerated Warehouse-No Rail	0.56	0.52	0.57	4.24	0.01	0.01	0.83	0.84	0.01	0.21	0.22	—	1,005	1,005	0.04	0.05	4.09	1,024
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	1.08	0.99	1.08	8.11	0.02	0.02	1.59	1.61	0.02	0.40	0.42	—	1,922	1,922	0.08	0.09	7.82	1,959
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Refrigerated Warehouse-No Rail	0.50	0.45	0.60	3.76	0.01	0.01	0.76	0.77	0.01	0.19	0.20	—	872	872	0.04	0.05	0.10	888
Unrefrigerated Warehouse-No Rail	0.54	0.50	0.65	4.12	0.01	0.01	0.83	0.84	0.01	0.21	0.22	—	956	956	0.05	0.05	0.11	973
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	1.04	0.95	1.25	7.88	0.02	0.02	1.59	1.61	0.02	0.40	0.42	—	1,828	1,828	0.09	0.10	0.20	1,861
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	0.06	0.06	0.07	0.47	< 0.005	< 0.005	0.10	0.10	< 0.005	0.02	0.03	—	104	104	< 0.005	0.01	0.19	106
Unrefrigerated Warehouse-No Rail	0.07	0.06	0.08	0.51	< 0.005	< 0.005	0.11	0.11	< 0.005	0.03	0.03	—	114	114	0.01	0.01	0.21	116
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.13	0.12	0.15	0.98	< 0.005	< 0.005	0.20	0.20	< 0.005	0.05	0.05	—	218	218	0.01	0.01	0.40	222

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Refriger Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	1,843	1,843	0.30	0.04	—	1,861
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	378	378	0.06	0.01	—	382
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	40.5	40.5	0.01	< 0.005	—	40.9
Total	—	—	—	—	—	—	—	—	—	—	—	—	2,262	2,262	0.37	0.04	—	2,284
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	1,843	1,843	0.30	0.04	—	1,861
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	378	378	0.06	0.01	—	382
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	40.5	40.5	0.01	< 0.005	—	40.9
Total	—	—	—	—	—	—	—	—	—	—	—	—	2,262	2,262	0.37	0.04	—	2,284
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	305	305	0.05	0.01	—	308
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	62.5	62.5	0.01	< 0.005	—	63.2

Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	6.70	6.70	< 0.005	< 0.005	—	6.77
Total	—	—	—	—	—	—	—	—	—	—	—	—	374	374	0.06	0.01	—	378

4.2.2. Electricity Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	907	907	0.15	0.02	—	916
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	353	353	0.06	0.01	—	356
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	40.5	40.5	0.01	< 0.005	—	40.9
Total	—	—	—	—	—	—	—	—	—	—	—	—	1,301	1,301	0.21	0.03	—	1,313
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	907	907	0.15	0.02	—	916
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	353	353	0.06	0.01	—	356

Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	40.5	40.5	0.01	< 0.005	—	40.9
Total	—	—	—	—	—	—	—	—	—	—	—	—	1,301	1,301	0.21	0.03	—	1,313
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	150	150	0.02	< 0.005	—	152
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	58.4	58.4	0.01	< 0.005	—	59.0
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	6.70	6.70	< 0.005	< 0.005	—	6.77
Total	—	—	—	—	—	—	—	—	—	—	—	—	215	215	0.03	< 0.005	—	217

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	0.01	< 0.005	0.08	0.07	< 0.005	0.01	—	0.01	0.01	—	0.01	—	92.5	92.5	0.01	< 0.005	—	92.7
Unrefrigerated Warehouse-No Rail	0.01	0.01	0.11	0.09	< 0.005	0.01	—	0.01	0.01	—	0.01	—	128	128	0.01	< 0.005	—	129

Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.02	0.01	0.19	0.16	< 0.005	0.01	—	0.01	0.01	—	0.01	—	221	221	0.02	< 0.005	—	221
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	0.01	< 0.005	0.08	0.07	< 0.005	0.01	—	0.01	0.01	—	0.01	—	92.5	92.5	0.01	< 0.005	—	92.7
Unrefrigerated Warehouse-No Rail	0.01	0.01	0.11	0.09	< 0.005	0.01	—	0.01	0.01	—	0.01	—	128	128	0.01	< 0.005	—	129
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.02	0.01	0.19	0.16	< 0.005	0.01	—	0.01	0.01	—	0.01	—	221	221	0.02	< 0.005	—	221
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.3	15.3	< 0.005	< 0.005	—	15.4
Unrefrigerated Warehouse-No Rail	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	21.3	21.3	< 0.005	< 0.005	—	21.3
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	36.6	36.6	< 0.005	< 0.005	—	36.7

4.2.4. Natural Gas Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	0.01	< 0.005	0.07	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	89.1	89.1	0.01	< 0.005	—	89.3
Unrefrigerated Warehouse-No Rail	0.01	< 0.005	0.07	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	80.3	80.3	0.01	< 0.005	—	80.5
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.02	0.01	0.14	0.12	< 0.005	0.01	—	0.01	0.01	—	0.01	—	169	169	0.01	< 0.005	—	170
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	0.01	< 0.005	0.07	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	89.1	89.1	0.01	< 0.005	—	89.3
Unrefrigerated Warehouse-No Rail	0.01	< 0.005	0.07	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	80.3	80.3	0.01	< 0.005	—	80.5
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.02	0.01	0.14	0.12	< 0.005	0.01	—	0.01	0.01	—	0.01	—	169	169	0.01	< 0.005	—	170
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Refrigerated Warehouse-No	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	14.8	14.8	< 0.005	< 0.005	—	14.8
Unrefrigerated Warehouse-No Rail	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	13.3	13.3	< 0.005	< 0.005	—	13.3
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	< 0.005	< 0.005	0.03	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	28.0	28.0	< 0.005	< 0.005	—	28.1

4.3. Area Emissions by Source

4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	4.51	4.51	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.61	0.61	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	1.63	1.50	0.08	9.14	< 0.005	0.02	—	0.02	0.01	—	0.01	—	37.6	37.6	< 0.005	< 0.005	—	37.7
Total	6.74	6.61	0.08	9.14	< 0.005	0.02	—	0.02	0.01	—	0.01	—	37.6	37.6	< 0.005	< 0.005	—	37.7

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	4.51	4.51	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.61	0.61	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	5.11	5.11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.82	0.82	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.11	0.11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.15	0.14	0.01	0.82	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.07	3.07	< 0.005	< 0.005	—	3.08
Total	1.08	1.07	0.01	0.82	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.07	3.07	< 0.005	< 0.005	—	3.08

4.3.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Consumer Products	4.51	4.51	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.61	0.61	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	1.63	1.50	0.08	9.14	< 0.005	0.02	—	0.02	0.01	—	0.01	—	37.6	37.6	< 0.005	< 0.005	—	37.7
Total	6.74	6.61	0.08	9.14	< 0.005	0.02	—	0.02	0.01	—	0.01	—	37.6	37.6	< 0.005	< 0.005	—	37.7
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	4.51	4.51	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.61	0.61	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	5.11	5.11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.82	0.82	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.11	0.11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.15	0.14	0.01	0.82	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.07	3.07	< 0.005	< 0.005	—	3.08

Total	1.08	1.07	0.01	0.82	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.07	3.07	< 0.005	< 0.005	—	3.08

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	63.5	120	183	6.53	0.16	—	394
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	29.7	56.0	85.7	3.05	0.07	—	184
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	93.2	176	269	9.58	0.23	—	577
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	63.5	120	183	6.53	0.16	—	394
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	29.7	56.0	85.7	3.05	0.07	—	184

Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	93.2	176	269	9.58	0.23	—	577
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	10.5	19.9	30.4	1.08	0.03	—	65.2
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	4.91	9.27	14.2	0.50	0.01	—	30.4
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	15.4	29.1	44.6	1.59	0.04	—	95.6

4.4.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	63.5	120	183	6.53	0.16	—	394
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	29.7	56.0	85.7	3.05	0.07	—	184

Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	93.2	176	269	9.58	0.23	—	577
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	63.5	120	183	6.53	0.16	—	394
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	29.7	56.0	85.7	3.05	0.07	—	184
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	93.2	176	269	9.58	0.23	—	577
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	10.5	19.9	30.4	1.08	0.03	—	65.2
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	4.91	9.27	14.2	0.50	0.01	—	30.4
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	15.4	29.1	44.6	1.59	0.04	—	95.6

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	72.6	0.00	72.6	7.26	0.00	—	254
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	33.9	0.00	33.9	3.39	0.00	—	119
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	107	0.00	107	10.6	0.00	—	373
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	72.6	0.00	72.6	7.26	0.00	—	254
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	33.9	0.00	33.9	3.39	0.00	—	119
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	107	0.00	107	10.6	0.00	—	373

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	12.0	0.00	12.0	1.20	0.00	—	42.1
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	5.61	0.00	5.61	0.56	0.00	—	19.6
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	17.6	0.00	17.6	1.76	0.00	—	61.7

4.5.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	72.6	0.00	72.6	7.26	0.00	—	254
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	33.9	0.00	33.9	3.39	0.00	—	119
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	107	0.00	107	10.6	0.00	—	373

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	72.6	0.00	72.6	7.26	0.00	—	254
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	33.9	0.00	33.9	3.39	0.00	—	119
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	107	0.00	107	10.6	0.00	—	373
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	12.0	0.00	12.0	1.20	0.00	—	42.1
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	5.61	0.00	5.61	0.56	0.00	—	19.6
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	17.6	0.00	17.6	1.76	0.00	—	61.7

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3,819	3,819
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3,819	3,819
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3,819	3,819
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3,819	3,819
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	632	632
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	632	632

4.6.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Refrigerated	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3,819	3,819
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3,819	3,819
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3,819	3,819
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3,819	3,819
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	632	632
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	632	632

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.7.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Sequest	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetati	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Grading	Grading	1/1/2025	3/28/2025	5.00	63.0	—
Building Construction	Building Construction	3/29/2025	5/23/2026	5.00	300	—
Paving	Paving	5/24/2026	6/21/2026	5.00	20.0	—
Architectural Coating	Architectural Coating	6/22/2026	7/20/2026	5.00	20.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Grading	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Grading	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Grading	Scrapers	Diesel	Average	2.00	8.00	423	0.48
Building Construction	Cranes	Diesel	Average	1.00	7.00	367	0.29
Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00	7.00	84.0	0.37
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45

Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Grading	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Grading	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Grading	Scrapers	Diesel	Average	2.00	8.00	423	0.48
Building Construction	Cranes	Diesel	Average	1.00	7.00	367	0.29
Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00	7.00	84.0	0.37
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Grading	—	—	—	—

Grading	Worker	20.0	11.7	LDA,LDT1,LDT2
Grading	Vendor	—	8.40	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	88.3	11.7	LDA,LDT1,LDT2
Building Construction	Vendor	34.5	8.40	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	11.7	LDA,LDT1,LDT2
Paving	Vendor	—	8.40	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	17.7	11.7	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	8.40	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Grading	—	—	—	—
Grading	Worker	20.0	11.7	LDA,LDT1,LDT2
Grading	Vendor	—	8.40	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—

Building Construction	Worker	88.3	11.7	LDA,LDT1,LDT2
Building Construction	Vendor	34.5	8.40	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	11.7	LDA,LDT1,LDT2
Paving	Vendor	—	8.40	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	17.7	11.7	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	8.40	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	0.00	0.00	315,341	105,114	4,963

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)

Grading	—	—	189	0.00	—
Paving	0.00	0.00	0.00	0.00	1.90

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Refrigerated Warehouse-No Rail	0.00	0%
Unrefrigerated Warehouse-No Rail	0.00	0%
Parking Lot	1.16	100%
Parking Lot	0.74	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2025	0.00	204	0.03	< 0.005
2026	0.00	204	0.03	< 0.005

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Refrigerated Warehouse-No Rail	104	0.00	0.00	27,115	1,064	0.00	0.00	277,441
Unrefrigerated Warehouse-No Rail	114	0.00	0.00	29,720	1,166	0.00	0.00	304,104
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.9.2. Mitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Refrigerated Warehouse-No Rail	104	0.00	0.00	27,115	1,064	0.00	0.00	277,441
Unrefrigerated Warehouse-No Rail	114	0.00	0.00	29,720	1,166	0.00	0.00	304,104
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.1.2. Mitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0	0.00	315,341	105,114	4,963

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.10.4. Landscape Equipment - Mitigated

Season	Unit	Value

Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Refrigerated Warehouse-No Rail	3,298,193	204	0.0330	0.0040	288,569
Unrefrigerated Warehouse-No Rail	676,021	204	0.0330	0.0040	400,564
Parking Lot	44,302	204	0.0330	0.0040	0.00
Parking Lot	28,161	204	0.0330	0.0040	0.00

5.11.2. Mitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Refrigerated Warehouse-No Rail	1,623,703	204	0.0330	0.0040	278,014
Unrefrigerated Warehouse-No Rail	630,961	204	0.0330	0.0040	250,539
Parking Lot	44,302	204	0.0330	0.0040	0.00
Parking Lot	28,161	204	0.0330	0.0040	0.00

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)

Refrigerated Warehouse-No Rail	33,140,900	0.00
Unrefrigerated Warehouse-No Rail	15,474,094	0.00
Parking Lot	0.00	0.00
Parking Lot	0.00	0.00

5.12.2. Mitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Refrigerated Warehouse-No Rail	33,140,900	0.00
Unrefrigerated Warehouse-No Rail	15,474,094	0.00
Parking Lot	0.00	0.00
Parking Lot	0.00	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Refrigerated Warehouse-No Rail	135	—
Unrefrigerated Warehouse-No Rail	62.9	—
Parking Lot	0.00	—
Parking Lot	0.00	—

5.13.2. Mitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Refrigerated Warehouse-No Rail	135	—
Unrefrigerated Warehouse-No Rail	62.9	—
Parking Lot	0.00	—
Parking Lot	0.00	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Refrigerated Warehouse-No Rail	Cold storage	R-404A	3,922	7.50	7.50	7.50	25.0

5.14.2. Mitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Refrigerated Warehouse-No Rail	Cold storage	R-404A	3,922	7.50	7.50	7.50	25.0

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.15.2. Mitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

5.18.2.2. Mitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	11.8	annual days of extreme heat
Extreme Precipitation	5.65	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	16.4	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	2	0	0	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A

Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	2	1	1	3
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	16.8
AQ-PM	35.7
AQ-DPM	23.4
Drinking Water	69.2
Lead Risk Housing	55.8
Pesticides	66.2
Toxic Releases	61.2
Traffic	83.3
Effect Indicators	—
CleanUp Sites	62.4
Groundwater	0.00
Haz Waste Facilities/Generators	82.7
Impaired Water Bodies	23.9
Solid Waste	83.9
Sensitive Population	—
Asthma	71.9
Cardio-vascular	67.0
Low Birth Weights	51.0
Socioeconomic Factor Indicators	—
Education	62.0
Housing	12.0
Linguistic	39.2
Poverty	33.8
Unemployment	36.4

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	80.85461311
Employed	75.23418452
Median HI	74.554087
Education	—
Bachelor's or higher	69.35711536
High school enrollment	100
Preschool enrollment	12.62671628
Transportation	—
Auto Access	83.51084306
Active commuting	27.38354934
Social	—
2-parent households	62.7229565
Voting	57.75696138
Neighborhood	—
Alcohol availability	76.10676248
Park access	56.71756705
Retail density	24.22687027
Supermarket access	27.9481586
Tree canopy	22.44321827
Housing	—
Homeownership	87.02681894
Housing habitability	96.41986398
Low-inc homeowner severe housing cost burden	70.11420506
Low-inc renter severe housing cost burden	97.06146542
Uncrowded housing	60.05389452
Health Outcomes	—

Insured adults	79.19928141
Arthritis	0.0
Asthma ER Admissions	56.0
High Blood Pressure	0.0
Cancer (excluding skin)	0.0
Asthma	0.0
Coronary Heart Disease	0.0
Chronic Obstructive Pulmonary Disease	0.0
Diagnosed Diabetes	0.0
Life Expectancy at Birth	25.5
Cognitively Disabled	20.1
Physically Disabled	17.3
Heart Attack ER Admissions	55.3
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	19.6
Physical Health Not Good	0.0
Stroke	0.0
Health Risk Behaviors	—
Binge Drinking	0.0
Current Smoker	0.0
No Leisure Time for Physical Activity	0.0
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	43.5
Children	32.5
Elderly	69.3

English Speaking	60.5
Foreign-born	72.3
Outdoor Workers	52.3
Climate Change Adaptive Capacity	—
Impervious Surface Cover	43.7
Traffic Density	45.1
Traffic Access	23.0
Other Indices	—
Hardship	34.8
Other Decision Support	—
2016 Voting	51.4

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	63.0
Healthy Places Index Score for Project Location (b)	73.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

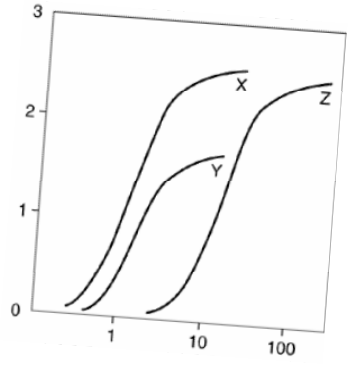
Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Land Use	Per project description of Building A and B
Construction: Construction Phases	Per model
Operations: Vehicle Data	per IS/MND



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James J. J. Clark, Ph.D.

Principal Toxicologist

Toxicology/Exposure Assessment Modeling

Risk Assessment/Analysis/Dispersion Modeling

Education:

Ph.D., Environmental Health Science, University of California, 1995

M.S., Environmental Health Science, University of California, 1993

B.S., Biophysical and Biochemical Sciences, University of Houston, 1987

Professional Experience:

Dr. Clark is a well recognized toxicologist, air modeler, and health scientist. He has 20 years of experience in researching the effects of environmental contaminants on human health including environmental fate and transport modeling (SCREEN3, AEROMOD, ISCST3, Johnson-Ettinger Vapor Intrusion Modeling); exposure assessment modeling (partitioning of contaminants in the environment as well as PBPK modeling); conducting and managing human health risk assessments for regulatory compliance and risk-based clean-up levels; and toxicological and medical literature research.

Significant projects performed by Dr. Clark include the following:

LITIGATION SUPPORT

Case: James Harold Caygle, et al, v. Drummond Company, Inc. Circuit Court for the Tenth Judicial Circuit, Jefferson County, Alabama. Civil Action. CV-2009

Client: Environmental Litgation Group, Birmingham, Alabama

Dr. Clark performed an air quality assessment of emissions from a coke factory located in Tarrant, Alabama. The assessment reviewed include a comprehensive review of air quality standards, measured concentrations of pollutants from factory, an inspection of the facility and detailed assessment of the impacts on the community. The results of the assessment and literature have been provided in a declaration to the court.

Case Result: Settlement in favor of plaintiff.

Case: Rose Roper V. Nissan North America, et al. Superior Court of the State Of California for the County Of Los Angeles – Central Civil West. Civil Action. NC041739

Client: Rose, Klein, Marias, LLP, Long Beach, California

Dr. Clark performed a toxicological assessment of an individual occupationally exposed to multiple chemicals, including benzene, who later developed a respiratory distress. A review of the individual's medical and occupational history was performed to prepare an exposure assessment. The exposure assessment was evaluated against the known outcomes in published literature to exposure to respiratory irritants. The results of the assessment and literature have been provided in a declaration to the court.

Case Result: Settlement in favor of plaintiff.

Case: O'Neil V. Sherwin Williams, et al. United States District Court Central District of California

Client: Rose, Klein, Marias, LLP, Long Beach, California

Dr. Clark performed a toxicological assessment of an individual occupationally exposed to petroleum distillates who later developed a bladder cancer. A review of the individual's medical and occupational history was performed to prepare a quantitative exposure assessment. The results of the assessment and literature have been provided in a declaration to the court.

Case Result: Summary judgment for defendants.

Case: Moore V., Shell Oil Company, et al. Superior Court of the State Of California for the County Of Los Angeles

Client: Rose, Klein, Marias, LLP, Long Beach, California

Dr. Clark performed a toxicological assessment of an individual occupationally exposed to chemicals while benzene who later developed a leukogenic disease. A review of the individual's medical and occupational history was performed to prepare a quantitative exposure assessment. The exposure assessment was evaluated against the known outcomes in published literature to exposure to refined petroleum hydrocarbons. The results of the assessment and literature have been provided in a declaration to the court.

Case Result: Settlement in favor of plaintiff.

Case: Raymond Saltonstall V. Fuller O'Brien, KILZ, and Zinsser, et al. United States District Court Central District of California

Client: Rose, Klein, Marias, LLP, Long Beach, California

Dr. Clark performed a toxicological assessment of an individual occupationally exposed to benzene who later developed a leukogenic disease. A review of the individual's medical and occupational history was performed to prepare a quantitative exposure assessment. The exposure assessment was evaluated against the known outcomes in published literature to exposure to refined petroleum hydrocarbons. The results of the assessment and literature have been provided in a declaration to the court.

Case Result: Settlement in favor of plaintiff.

Case: Richard Boyer and Elizabeth Boyer, husband and wife, V. DESCO Corporation, et al. Circuit Court of Brooke County, West Virginia. Civil Action Number 04-C-7G.

Client: Frankovitch, Anetakis, Colantonio & Simon, Morgantown, West Virginia.

Dr. Clark performed a toxicological assessment of a family exposed to chlorinated solvents released from the defendant's facility into local drinking water supplies. A review of the individual's medical and occupational history was performed to prepare a qualitative exposure assessment. The exposure assessment was evaluated against the known outcomes in published literature to exposure to chlorinated solvents. The results of the assessment and literature have been provided in a declaration to the court.

Case Result: Settlement in favor of plaintiff.

Case: JoAnne R. Cook, V. DESCO Corporation, et al. Circuit Court of Brooke County, West Virginia. Civil Action Number 04-C-9R

Client: Frankovitch, Anetakis, Colantonio & Simon, Morgantown, West Virginia.

Dr. Clark performed a toxicological assessment of an individual exposed to chlorinated solvents released from the defendant's facility into local drinking water supplies. A review of the individual's medical and occupational history was performed to prepare a qualitative exposure assessment. The exposure assessment was evaluated against the known outcomes in published literature to exposure to chlorinated solvents. The results of the assessment and literature have been provided in a declaration to the court.

Case Result: Settlement in favor of plaintiff.

Case: Patrick Allen And Susan Allen, husband and wife, and Andrew Allen, a minor, V. DESCO Corporation, et al. Circuit Court of Brooke County, West Virginia. Civil Action Number 04-C-W

Client: Frankovitch, Anetakis, Colantonio & Simon, Morgantown, West Virginia.

Dr. Clark performed a toxicological assessment of a family exposed to chlorinated solvents released from the defendant's facility into local drinking water supplies. A review of the individual's medical and occupational history was performed to prepare a qualitative exposure assessment. The exposure assessment was evaluated against the known outcomes in published literature to exposure to chlorinated solvents. The results of the assessment and literature have been provided in a declaration to the court.

Case Result: Settlement in favor of plaintiff.

Case: Michael Fahey, Susan Fahey V. Atlantic Richfield Company, et al. United States District Court Central District of California Civil Action Number CV-06 7109 JCL.

Client: Rose, Klein, Marias, LLP, Long Beach, California

Dr. Clark performed a toxicological assessment of an individual occupationally exposed to refined petroleum hydrocarbons who later developed a leukogenic disease. A review of the individual's medical and occupational history was performed to prepare a qualitative exposure assessment. The exposure assessment was evaluated against the known outcomes in published literature to exposure to refined petroleum hydrocarbons. The results of the assessment and literature have been provided in a declaration to the court.

Case Result: Settlement in favor of plaintiff.

Case: Constance Acevedo, et al., V. California Spray-Chemical Company, et al., Superior Court of the State Of California, County Of Santa Cruz. Case No. CV 146344

Dr. Clark performed a comprehensive exposure assessment of community members exposed to toxic metals from a former lead arsenate manufacturing facility. The former manufacturing site had undergone a DTSC mandated removal action/remediation for the presence of the toxic metals at the site. Opinions were presented regarding the elevated levels of arsenic and lead (in attic dust and soils) found throughout the community and the potential for harm to the plaintiffs in question.

Case Result: Settlement in favor of defendant.

Case: Michael Nawrocki V. The Coastal Corporation, Kurk Fuel Company, Pautler Oil Service, State of New York Supreme Court, County of Erie, Index Number I2001-11247

Client: Richard G. Berger Attorney At Law, Buffalo, New York

Dr. Clark performed a toxicological assessment of an individual occupationally exposed to refined petroleum hydrocarbons who later developed a leukogenic disease. A review of the individual's medical and occupational history was performed to prepare a qualitative exposure assessment. The exposure assessment was evaluated against the

known outcomes in published literature to exposure to refined petroleum hydrocarbons. The results of the assessment and literature have been provided in a declaration to the court.

Case Result: Judgement in favor of defendant.

SELECTED AIR MODELING RESEARCH/PROJECTS

Client – Confidential

Dr. Clark performed a comprehensive evaluation of criteria pollutants, air toxins, and particulate matter emissions from a carbon black production facility to determine the impacts on the surrounding communities. The results of the dispersion model will be used to estimate acute and chronic exposure concentrations to multiple contaminants and will be incorporated into a comprehensive risk evaluation.

Client – Confidential

Dr. Clark performed a comprehensive evaluation of air toxins and particulate matter emissions from a railroad tie manufacturing facility to determine the impacts on the surrounding communities. The results of the dispersion model have been used to estimate acute and chronic exposure concentrations to multiple contaminants and have been incorporated into a comprehensive risk evaluation.

Client – Los Angeles Alliance for a New Economy (LAANE), Los Angeles, California

Dr. Clark is advising the LAANE on air quality issues related to current flight operations at the Los Angeles International Airport (LAX) operated by the Los Angeles World Airport (LAWA) Authority. He is working with the LAANE and LAX staff to develop a comprehensive strategy for meeting local community concerns over emissions from flight operations and to engage federal agencies on the issue of local impacts of community airports.

Client – City of Santa Monica, Santa Monica, California

Dr. Clark is advising the City of Santa Monica on air quality issues related to current flight operations at the facility. He is working with the City staff to develop a comprehensive strategy for meeting local community concerns over emissions from flight operations and to engage federal agencies on the issue of local impacts of community airports.

Client: Omnitrans, San Bernardino, California

Dr. Clark managed a public health survey of three communities near transit fueling facilities in San Bernardino and Montclair California in compliance with California Senate Bill 1927. The survey included an epidemiological survey of the effected communities, emission surveys of local businesses, dispersion modeling to determine potential emission concentrations within the communities, and a comprehensive risk assessment of each community. The results of the study were presented to the Governor as mandated by Senate Bill 1927.

Client: Confidential, San Francisco, California

Summarized cancer types associated with exposure to metals and smoking. Researched the specific types of cancers associated with exposure to metals and smoking. Provided causation analysis of the association between cancer types and exposure for use by non-public health professionals.

Client: Confidential, Minneapolis, Minnesota

Prepared human health risk assessment of workers exposed to VOCs from neighboring petroleum storage/transport facility. Reviewed the systems in place for distribution of petroleum hydrocarbons to identify chemicals of concern (COCs), prepared comprehensive toxicological summaries of COCs, and quantified potential risks from carcinogens and non-carcinogens to receptors at or adjacent to site. This evaluation was used in the support of litigation.

Client – United Kingdom Environmental Agency

Dr. Clark is part of team that performed comprehensive evaluation of soil vapor intrusion of VOCs from former landfill adjacent residences for the United Kingdom's Environment

Agency. The evaluation included collection of liquid and soil vapor samples at site, modeling of vapor migration using the Johnson Ettinger Vapor Intrusion model, and calculation of site-specific health based vapor thresholds for chlorinated solvents, aromatic hydrocarbons, and semi-volatile organic compounds. The evaluation also included a detailed evaluation of the use, chemical characteristics, fate and transport, and toxicology of chemicals of concern (COC). The results of the evaluation have been used as a briefing tool for public health professionals.

EMERGING/PERSISTENT CONTAMINANT RESEARCH/PROJECTS

Client: Ameren Services, St. Louis, Missouri

Managed the preparation of a comprehensive human health risk assessment of workers and residents at or near an NPL site in Missouri. The former operations at the Property included the servicing and repair of electrical transformers, which resulted in soils and groundwater beneath the Property and adjacent land becoming impacted with PCB and chlorinated solvent compounds. The results were submitted to U.S. EPA for evaluation and will be used in the final ROD.

Client: City of Santa Clarita, Santa Clarita, California

Dr. Clark is managing the oversight of the characterization, remediation and development activities of a former 1,000 acre munitions manufacturing facility for the City of Santa Clarita. The site is impacted with a number of contaminants including perchlorate, unexploded ordinance, and volatile organic compounds (VOCs). The site is currently under a number of regulatory consent orders, including an Immanent and Substantial Endangerment Order. Dr. Clark is assisting the impacted municipality with the development of remediation strategies, interaction with the responsible parties and stakeholders, as well as interfacing with the regulatory agency responsible for oversight of the site cleanup.

Client: Confidential, Los Angeles, California

Prepared comprehensive evaluation of perchlorate in environment. Dr. Clark evaluated the production, use, chemical characteristics, fate and transport, toxicology, and remediation of perchlorate. Perchlorates form the basis of solid rocket fuels and have recently been detected in water supplies in the United States. The results of this research

were presented to the USEPA, National GroundWater, and ultimately published in a recent book entitled *Perchlorate in the Environment.*

Client – Confidential, Los Angeles, California

Dr. Clark is performing a comprehensive review of the potential for pharmaceuticals and their by-products to impact groundwater and surface water supplies. This evaluation will include a review if available data on the history of pharmaceutical production in the United States; the chemical characteristics of various pharmaceuticals; environmental fate and transport; uptake by xenobiotics; the potential effects of pharmaceuticals on water treatment systems; and the potential threat to public health. The results of the evaluation may be used as a briefing tool for non-public health professionals.

PUBLIC HEALTH/TOXICOLOGY

Client: Brayton Purcell, Novato, California

Dr. Clark performed a toxicological assessment of residents exposed to methyl-tertiary butyl ether (MTBE) from leaking underground storage tanks (LUSTs) adjacent to the subject property. The symptomology of residents and guests of the subject property were evaluated against the known outcomes in published literature to exposure to MTBE. The study found that residents had been exposed to MTBE in their drinking water; that concentrations of MTBE detected at the site were above regulatory guidelines; and, that the symptoms and outcomes expressed by residents and guests were consistent with symptoms and outcomes documented in published literature.

Client: Confidential, San Francisco, California

Identified and analyzed fifty years of epidemiological literature on workplace exposures to heavy metals. This research resulted in a summary of the types of cancer and non-cancer diseases associated with occupational exposure to chromium as well as the mortality and morbidity rates.

Client: Confidential, San Francisco, California

Summarized major public health research in United States. Identified major public health research efforts within United States over last twenty years. Results were used as a briefing tool for non-public health professionals.

Client: Confidential, San Francisco, California

Quantified the potential multi-pathway dose received by humans from a pesticide applied indoors. Part of team that developed exposure model and evaluated exposure concentrations in a comprehensive report on the plausible range of doses received by a specific person. This evaluation was used in the support of litigation.

Client: Covanta Energy, Westwood, California

Evaluated health risk from metals in biosolids applied as soil amendment on agricultural lands. The biosolids were created at a forest waste cogeneration facility using 96% whole tree wood chips and 4 percent green waste. Mass loading calculations were used to estimate Cr(VI) concentrations in agricultural soils based on a maximum loading rate of 40 tons of biomass per acre of agricultural soil. The results of the study were used by the Regulatory agency to determine that the application of biosolids did not constitute a health risk to workers applying the biosolids or to residences near the agricultural lands.

Client – United Kingdom Environmental Agency

Oversaw a comprehensive toxicological evaluation of methyl-*tertiary* butyl ether (M*t*BE) for the United Kingdom's Environment Agency. The evaluation included available data on the production, use, chemical characteristics, fate and transport, toxicology, and remediation of M*t*BE. The results of the evaluation have been used as a briefing tool for public health professionals.

Client – Confidential, Los Angeles, California

Prepared comprehensive evaluation of *tertiary* butyl alcohol (TBA) in municipal drinking water system. TBA is the primary breakdown product of M*t*BE, and is suspected to be the primary cause of M*t*BE toxicity. This evaluation will include available information on the production, use, chemical characteristics, fate and transport in the environment, absorption, distribution, routes of detoxification, metabolites, carcinogenic potential, and remediation of TBA. The results of the evaluation were used as a briefing tool for non-public health professionals.

Client – Confidential, Los Angeles, California

Prepared comprehensive evaluation of methyl *tertiary* butyl ether (MTBE) in municipal drinking water system. MTBE is a chemical added to gasoline to increase the octane

rating and to meet Federally mandated emission criteria. The evaluation included available data on the production, use, chemical characteristics, fate and transport, toxicology, and remediation of MTBE. The results of the evaluation have been were used as a briefing tool for non-public health professionals.

Client – Ministry of Environment, Lands & Parks, British Columbia

Dr. Clark assisted in the development of water quality guidelines for methyl tertiary-butyl ether (MTBE) to protect water uses in British Columbia (BC). The water uses to be considered includes freshwater and marine life, wildlife, industrial, and agricultural (e.g., irrigation and livestock watering) water uses. Guidelines from other jurisdictions for the protection of drinking water, recreation and aesthetics were to be identified.

Client: Confidential, Los Angeles, California

Prepared physiologically based pharmacokinetic (PBPK) assessment of lead risk of receptors at middle school built over former industrial facility. This evaluation is being used to determine cleanup goals and will be basis for regulatory closure of site.

Client: Kaiser Venture Incorporated, Fontana, California

Prepared PBPK assessment of lead risk of receptors at a 1,100-acre former steel mill. This evaluation was used as the basis for granting closure of the site by lead regulatory agency.

RISK ASSESSMENTS/REMEDIAL INVESTIGATIONS

Client: Confidential, Atlanta, Georgia

Researched potential exposure and health risks to community members potentially exposed to creosote, polycyclic aromatic hydrocarbons, pentachlorophenol, and dioxin compounds used at a former wood treatment facility. Prepared a comprehensive toxicological summary of the chemicals of concern, including the chemical characteristics, absorption, distribution, and carcinogenic potential. Prepared risk characterization of the carcinogenic and non-carcinogenic chemicals based on the exposure assessment to quantify the potential risk to members of the surrounding community. This evaluation was used to help settle class-action tort.

Client: Confidential, Escondido, California

Prepared comprehensive Preliminary Endangerment Assessment (PEA) of dense non-aqueous liquid phase hydrocarbon (chlorinated solvents) contamination at a former printed circuit board manufacturing facility. This evaluation was used for litigation support and may be used as the basis for reaching closure of the site with the lead regulatory agency.

Client: Confidential, San Francisco, California

Summarized epidemiological evidence for connective tissue and autoimmune diseases for product liability litigation. Identified epidemiological research efforts on the health effects of medical prostheses. This research was used in a meta-analysis of the health effects and as a briefing tool for non-public health professionals.

Client: Confidential, Bogotá, Columbia

Prepared comprehensive evaluation of the potential health risks associated with the redevelopment of a 13.7 hectares plastic manufacturing facility in Bogotá, Colombia The risk assessment was used as the basis for the remedial goals and closure of the site.

Client: Confidential, Los Angeles, California

Prepared comprehensive human health risk assessment of students, staff, and residents potentially exposed to heavy metals (principally cadmium) and VOCs from soil and soil vapor at 12-acre former crude oilfield and municipal landfill. The site is currently used as a middle school housing approximately 3,000 children. The evaluation determined that the site was safe for the current and future uses and was used as the basis for regulatory closure of site.

Client: Confidential, Los Angeles, California

Managed remedial investigation (RI) of heavy metals and volatile organic chemicals (VOCs) for a 15-acre former manufacturing facility. The RI investigation of the site included over 800 different sampling locations and the collection of soil, soil gas, and groundwater samples. The site is currently used as a year round school housing approximately 3,000 children. The Remedial Investigation was performed in a manner

that did not interrupt school activities and met the time restrictions placed on the project by the overseeing regulatory agency. The RI Report identified the off-site source of metals that impacted groundwater beneath the site and the sources of VOCs in soil gas and groundwater. The RI included a numerical model of vapor intrusion into the buildings at the site from the vadose zone to determine exposure concentrations and an air dispersion model of VOCs from the proposed soil vapor treatment system. The Feasibility Study for the Site is currently being drafted and may be used as the basis for granting closure of the site by DTSC.

Client: Confidential, Los Angeles, California

Prepared comprehensive human health risk assessment of students, staff, and residents potentially exposed to heavy metals (principally lead), VOCs, SVOCs, and PCBs from soil, soil vapor, and groundwater at 15-acre former manufacturing facility. The site is currently used as a year round school housing approximately 3,000 children. The evaluation determined that the site was safe for the current and future uses and will be basis for regulatory closure of site.

Client: Confidential, Los Angeles, California

Prepared comprehensive evaluation of VOC vapor intrusion into classrooms of middle school that was former 15-acre industrial facility. Using the Johnson-Ettinger Vapor Intrusion model, the evaluation determined acceptable soil gas concentrations at the site that did not pose health threat to students, staff, and residents. This evaluation is being used to determine cleanup goals and will be basis for regulatory closure of site.

Client –Dominguez Energy, Carson, California

Prepared comprehensive evaluation of the potential health risks associated with the redevelopment of 6-acre portion of a 500-acre oil and natural gas production facility in Carson, California. The risk assessment was used as the basis for closure of the site.

Kaiser Ventures Incorporated, Fontana, California

Prepared health risk assessment of semi-volatile organic chemicals and metals for a fifty-year old wastewater treatment facility used at a 1,100-acre former steel mill. This evaluation was used as the basis for granting closure of the site by lead regulatory agency.

ANR Freight - Los Angeles, California

Prepared a comprehensive Preliminary Endangerment Assessment (PEA) of petroleum hydrocarbon and metal contamination of a former freight depot. This evaluation was as the basis for reaching closure of the site with lead regulatory agency.

Kaiser Ventures Incorporated, Fontana, California

Prepared comprehensive health risk assessment of semi-volatile organic chemicals and metals for 23-acre parcel of a 1,100-acre former steel mill. The health risk assessment was used to determine clean up goals and as the basis for granting closure of the site by lead regulatory agency. Air dispersion modeling using ISCST3 was performed to determine downwind exposure point concentrations at sensitive receptors within a 1 kilometer radius of the site. The results of the health risk assessment were presented at a public meeting sponsored by the Department of Toxic Substances Control (DTSC) in the community potentially affected by the site.

Unocal Corporation - Los Angeles, California

Prepared comprehensive assessment of petroleum hydrocarbons and metals for a former petroleum service station located next to sensitive population center (elementary school). The assessment used a probabilistic approach to estimate risks to the community and was used as the basis for granting closure of the site by lead regulatory agency.

Client: Confidential, Los Angeles, California

Managed oversight of remedial investigation most contaminated heavy metal site in California. Lead concentrations in soil excess of 68,000,000 parts per billion (ppb) have been measured at the site. This State Superfund Site was a former hard chrome plating operation that operated for approximately 40-years.

Client: Confidential, San Francisco, California

Coordinator of regional monitoring program to determine background concentrations of metals in air. Acted as liaison with SCAQMD and CARB to perform co-location sampling and comparison of accepted regulatory method with ASTM methodology.

Client: Confidential, San Francisco, California

Analyzed historical air monitoring data for South Coast Air Basin in Southern California and potential health risks related to ambient concentrations of carcinogenic metals and volatile organic compounds. Identified and reviewed the available literature and calculated risks from toxins in South Coast Air Basin.

IT Corporation, North Carolina

Prepared comprehensive evaluation of potential exposure of workers to air-borne VOCs at hazardous waste storage facility under SUPERFUND cleanup decree. Assessment used in developing health based clean-up levels.

Professional Associations

American Public Health Association (APHA)
Association for Environmental Health and Sciences (AEHS)
American Chemical Society (ACS)
California Redevelopment Association (CRA)
International Society of Environmental Forensics (ISEF)
Society of Environmental Toxicology and Chemistry (SETAC)

Publications and Presentations:

Books and Book Chapters

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EXHIBIT B

Shawn Smallwood, PhD
3108 Finch Street
Davis, CA 95616

Tara Rengifo
Adams Broadwell Joseph & Cardozo
601 Gateway Boulevard, Suite 1000
South San Francisco, CA 94080

15 November 2024

RE: E&P Technology Way - Building A & B

Dear Ms. Rengifo,

I write to comment on potentially significant impacts to biological resources from the proposed E&P Technology Way - Building A & B, which I understand would add one 143,312 sf warehouse and a 13,000 sf outbuilding, and another 66,915 sf warehouse for a total 223,227 sf, along with 211 total parking spaces and spaces for eight semi-trailers located on Technology Way in the Napa Valley Business Park Specific Plan area, County of Napa, California. I comment on the characterization of the existing environmental setting and on the analyses of impacts to biological resources in FirstCarbon Solutions (2024) and the County's Initial Study/Mitigated Negative Declaration (IS/MND). 36

My qualifications for preparing expert comments are the following. I hold a Ph.D. degree in Ecology from University of California at Davis, where I also worked as a post-graduate researcher in the Department of Agronomy and Range Sciences. My research has been on animal density and distribution, habitat selection, wildlife interactions with the anthrosphere, and conservation of rare and endangered species. I authored many papers on these and other topics. I served as Chair of the Conservation Affairs Committee for The Wildlife Society – Western Section. I am a member of The Wildlife Society and Raptor Research Foundation, and I've lectured part-time at California State University, Sacramento. I was Associate Editor of wildlife biology's premier scientific journal, The Journal of Wildlife Management, as well as of Biological Conservation, and I was on the Editorial Board of Environmental Management. I have performed wildlife surveys in California for thirty-seven years. My CV is attached. 37

EXISTING ENVIRONMENTAL SETTING

The first step in analysis of potential project impacts to biological resources is to accurately characterize the existing environmental setting, including the wildlife community, key ecological relationships, and known and ongoing threats to special-status species. A reasonably accurate characterization of the environmental setting can provide the baseline against which to analyze potential project impacts. For this reason, characterization of the environmental setting, including its regional setting, is one of the CEQA's essential analytical steps. Methods to achieve this first step typically include (1) surveys of the site for biological resources, and (2) reviews of literature, databases and local experts for documented occurrences of special-status species. In the case of the proposed project, this first step remains incomplete and misleading. 38

Environmental Setting informed by Field Surveys

To the CEQA's primary objective to disclose potential environmental impacts of a proposed project, the analysis should be informed of which biological species are known to occur at the proposed project site, which special-status species are likely to occur, as well as the limitations of the survey effort directed to the site. Analysts need this information to characterize the environmental setting as a basis for opining on, or predicting, potential project impacts to biological resources. 39

The IS/MND (p. 10) reports that "The Biological Resources Analysis was prepared by FCS in January 2024 (updated February 2024) to determine if any biological resources were *potentially present*…" (emphasis added) But this reporting is misleading. FirstCarbon Solutions (2024) had a biologist survey the project site on 8 December 2022 to record "the location and identity of all plant and animal species *encountered*." (emphasis added) FirstCarbon Solutions' statement of objectives differs from the objective claimed in the IS/MND. A reconnaissance survey cannot achieve the objective claimed in the IS/MND. 40

The reconnaissance survey began at 11:00 hours, but FirstCarbon Solutions (2024) did not report how long the survey lasted. Without knowing how long the survey lasted, the survey result cannot be fully interpreted. Survey duration imparts a large influence over which species are detected and how many species are detected. 41

The 11:00 start time would have had the effect of limiting the number of species detected. I have found that a late morning start time detects 34% fewer species than an early morning start time (Figure 1). 42

FirstCarbon Solutions (2024) detected 13 taxa of vertebrate wildlife, four (31%) of which the biologist was unable to identify to species. For comparison, I have detected 69 species of vertebrate wildlife in only 8.56 hours of visual-scan surveys at three locations within 700 m of the project site (Tables 1 and 2). Thirteen of these species were special-status species. At a cluster of three other project sites that I surveyed 4,345 m (2.7 miles) south-southeast of the project site, I or one or more of three consulting firms detected 44 species of vertebrate wildlife, including nine special-status species (Table 3). Inclusive of the findings from these surveys, I am aware of 113 species of vertebrate wildlife, including 22 special-status species within only 2.7 miles of the project site. Again, FirstCarbon Solutions (2024) detected only 13 taxa of vertebrate wildlife, or only 11% of the number of species known to the local project area by professional biologists. FirstCarbon Solutions' (2024) reconnaissance survey effort was grossly deficient, and its results ill-suited for characterizing the existing environmental setting. 43

FirstCarbon Solutions (2024) failed to implement the CDFW (2018) survey guidelines for rare plants. FirstCarbon Solutions (2024) should have disclosed that the guidelines were available and should have been implemented. 44

Figure 1. *Numbers of vertebrate wildlife species detected in visual-scan surveys as proportions of the maximum number detected among 5 surveys per project site, and as a function of start time during the day. The red symbols represent the Greentree project site in Vacaville, and the blue symbols represent the Kassis site in Rancho Cordova, spring and summer 2022.*

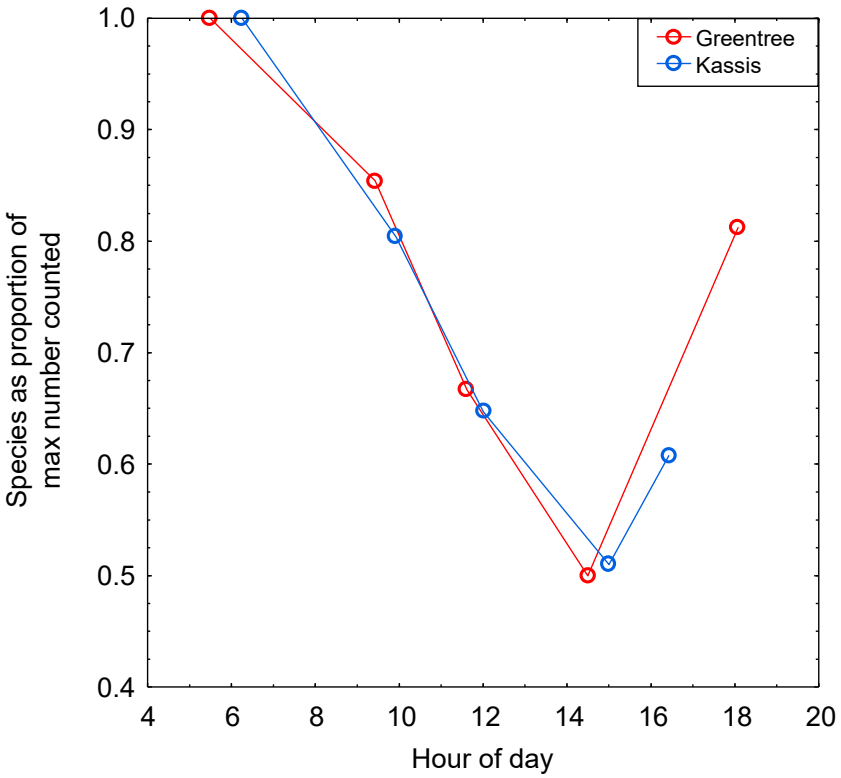


Table 1. *Species of wildlife I observed during 3.9 hours of survey at a site 1,380 m north-northeast of the project site on 9 May 2024, and during 3.08 hours at a site 1,100 m north of the project site on 15 July 2018 and 16 July.*

Common name	***Species name***	**Status[1]**	**Notes**
Western fence lizard	*Sceloporus occidentalis*		
Canada goose	*Branta canadensis*		Pair nesting
Mallard	*Anas platyrhynchos*		Flew to land at wastewater ponds
California quail	*Callipepla californica*		
Rock pigeon	*Columba livia*	Non-native	
Band-tailed pigeon	*Patagioenas fasciata*		Flock flew over
Eurasian collared-dove	*Streptopelia decaocto*	Non-native	
Mourning dove	*Zenaida macroura*		
White-throated swift	*Aeronautes saxatalis*		
Anna's hummingbird	*Calypte anna*		
American coot	*Fulica americana*		
Wild turkey	*Meleagris gallopavo*	Re-introduced	
Killdeer	*Charadrius vociferus*		
Greater yellowlegs	*Tringa melanoleuca*		
Bonaparte's gull	*Chroicocephalus philadelphia*		
California gull	*Larus californicus*	BCC, TWL	

Common name	***Species name***	**Status[1]**	**Notes**
Herring gull	*Larus argentatus*		
Forster's tern	*Sterna forstreri*		
Great egret	*Ardea alba*		Flyover
Double-crested cormorant	*Nannopterum auritum*	TWL	
Turkey vulture	*Cathartes aura*	BOP	
White-tailed kite	*Elanus leucurus*	CFP, BOP	
Northern harrier	*Circus cyaneus*	BCC, SSC3, BOP	Harassed turkey vulture, likely to defend nest
Cooper's hawk	*Accipiter cooperii*	TWL, BOP	Chased nesting RTHA
Red-tailed hawk	*Buteo jamaicensis*	BOP	Nest with at least 2 chicks
Swainson's hawk	*Buteo swainsoni*	CT, BOP	
Belted kingfisher	*Ceryle alcyon*		
American kestrel	*Falco sparverius*	BOP	
Western kingbird	*Tyrannus verticalis*		Nest in Eucalyptus
Black phoebe	*Sayornis nigricans*		
Say's phoebe	*Sayornis saya*		
California scrub-jay	*Aphelocoma californica*		Nesting
American crow	*Corvus brachyrhynchos*		
Common raven	*Corvus corax*		
Tree swallow	*Tachycineta bicolor*		Nesting
Northern rough-winged swallow	*Stelgidopteryx serripennis*		
Barn swallow	*Hirundo rustica*		
Cliff swallow	*Petrochelidon pyrrhonota*		
Oak titmouse	*Baeolophus inornatus*	BCC	
Bushtit	*Psaltriparus minimus*		
Northern mockingbird	*Mimus polyglottos*		
European starling	*Sturnus vulgaris*	Non-native	
Western bluebird	*Sialia mexicana*		
Hermit thrush	*Catharus guttatus*		
American robin	*Turdus migratorius*		
Spotted towhee	*Pipilo maculatus*		
Purple finch	*Haemorhous purpureus*		
House finch	*Haemorphous mexicanus*		
Lesser goldfinch	*Spinus psaltria*		Collecting nest material
American goldfinch	*Spinus tristis*		
Samuel's song sparrow	*Melospiza melodia samuelis*	SSC3	
California towhee	*Melozone crissalis*		
Bullock's oriole	*Icterus bullockii*		
Red-winged blackbird	*Agelaius phoeniceus*		Nesting

Common name	***Species name***	**Status[1]**	**Notes**
Brown-headed cowbird	*Molothrus ater*		
Brewer's blackbird	*Euphagus cyanocephalus*		
Great-tailed grackle	*Quiscalus mexicanus*		Fledglings
Western tanager	*Piranga ludoviciana*		
Black-headed grosbeak	*Pheucticus melanocephalus*		
Black-tailed jackrabbit	*Lepus californicus*		
Botta's pocket gopher	*Thomomys bottae*		
California vole	*Microtus californicus*		
Columbian black-tailed deer	*Odocoileus hemionus ssp. columbianus*		

[1] Listed as FT or FE = federal threatened or endangered, CT or CE = California threatened or endangered, CFP = California Fully Protected (CFG Code 3511), SSC = California Species of Special Concern, BCC = U.S. Fish and Wildlife Service Bird of Conservation Concern, TWL = Taxa to Watch List (Shuford and Gardali 2008), and BOP = Birds of Prey (California Fish and Game Code 3503.5).

Table 2. *Species of wildlife I observed during an evening visit* from 17:15 to 18:50 hours *on 21 April 2018 at the site of the proposed Napa Airport Corporate Center, 2,200 m south of the project site. Blue-highlighted species are those I did not detect in survey results listed in Table 1.*

Species	***Scientific name***	**Status[1]**
Great blue heron	*Ardea herodias*	
Great egret	*Casmerodius albus*	
Canada goose	*Branta canadensis*	
Mallard	*Anas platyrhynchos*	
Gadwall	*Anas strepera*	
Killdeer	*Charadrius vociferus*	
Greater yellowlegs	*Tringa melanoleuca*	
Turkey vulture	*Cathartes aura*	BOP
Cooper's hawk	*Accipiter cooperi*	BOP, TWL
Red-tailed hawk	*Buteo jamaicensis*	BOP
Red-shouldered hawk	*Buteo lineatus*	BOP
White-tailed kite	*Elanus leucurus*	CFP, TWL
American kestrel	*Falco sparverius*	BOP
Mourning dove	*Zenaida macroura*	
Rock pigeon	*Columba livea*	Non-native
Eurasian collared-dove	*Streptopelia decaocto*	Non-native
Black phoebe	*Sayornis nigricans*	
Barn swallow	*Hirundo rustica*	
Northern rough-winged swallow	*Stelgidopteryx serripennis*	
Cliff swallow	*Hirundo pyrrhonota*	
Common raven	*Corvus corax*	
American crow	*Corvus brachyrhynchos*	

Species	***Scientific name***	**Status[1]**
American robin	*Turdus migratorius*	
Northern mockingbird	*Mimus polyglottos*	
European starling	*Sturnus vulgaris*	Non-native
White-crowned sparrow	*Zonotrichia leucophrys*	
Western meadowlark	*Sturnella neglecta*	
Red-winged blackbird	*Agelaius phoeniceus*	
Brewer's blackbird	*Euphagus cyanocephalus*	
Brown-headed cowbird	*Molothrus ater*	
American goldfinch	*Carduelis tristis*	
House finch	*Carpodacus mexicanus*	
Pocket gopher	*Thomomys bottae*	
Black-tailed jackrabbit	*Lepus californicus*	
Coyote	*Canis latrans*	
Western fence lizard	*Sceloporus occidentalis*	

[1] Listed as BOP = California Department of Fish and Wildlife Code 3503.5 (Birds of prey), TWL = Taxa to Watch List (Shuford and Gardali 2008).

Table 3. *Species of wildlife I observed during visits on 23 January 2019 and 5 January 2021 at the site of the proposed SDG Commerce 217 Warehouse*, during an *offsite visit during my 2021 survey that includes a walk along Napa River and Bay Trails just south and west of the project site, during surveys conducted by myself (KSS), Monk & Associates (M&A), Pinecrest Research Corp, (PRC), and FirstCarbon Solutions (FCS). These surveys were completed only 4,345 m south-southeast of the E & P Technology Way project site. Blue-highlighted species are those I did not detect in survey results listed in Tables 1 and 2.*

Species	***Scientific name***	**Status[1]**	**KSS 2019**	**KSS 2021**	**KSS offsite 2019, 2021**	**M&A 2006-2019**	**PRC 2023**	**FCS 2023**
Sierran treefrog	*Pseudacris sierra*		X		X	X		
Western fence lizard	*Sceloporus occidentalis*					X		
Canada goose	*Branta canadensis*		X			X	X	X
Northern shoveler	*Anas clypeata*				X			
Mallard	*Anas platyrhynchos*		X				X	X
California quail	*Callipepla californica*		X			X		
Wild turkey	*Meleagris gallopavo*	Non-native				X	X	
Pied-billed grebe	*Podilymbus podiceps*				X			
Ring-necked pheasant	*Phasianus colchicus*	Non-native				X		
Mourning dove	*Zenaida macroura*		X		X	X	X	X
Eurasian collared-dove	*Streptopelia decaocto*	Non-native	X			X		
Black-chinned hummingbird	*Archilochus alexandri*		X					
Anna's hummingbird	*Calypte anna*		X	X	X	X	X	X
Allen's hummingbird	*Selasphorus sasin*	BCC					X	
Virginia rail	*Rallus limicola*					X		
American coot	*Fulica americana*				X		X	X
Black-necked stilt	*Himantopus mexicanus*				X			
American avocet	*Recurvirostra americanus*				X			
Killdeer	*Charadrius vociferus*						X	
Long-billed dowitcher	*Limnodromus scolopaceus*				X			
Least sandpiper	*Caladris minutilla*				X			
Ring-billed gull	*Larus delawarensis*		X		X			

Species	***Scientific name***	**Status[1]**	**KSS 2019**	**KSS 2021**	**KSS offsite 2019, 2021**	**M&A 2006-2019**	**PRC 2023**	**FCS 2023**
California gull	*Larus californicus*	BCC, TWL					X	X
Herring gull	*Larus argentatus*		X		X			
American white pelican	*Pelacanus erythrorhynchos*	SSC1, BCC					X	X
Great blue heron	*Ardea herodias*					X	X	X
Turkey vulture	*Cathartes aura*	BOP			X	X	X	X
Osprey	*Pandion haliaetus*	TWL, BOP				X	X	
White-tailed kite	*Elanus leucurus*	CFP, BOP				X	X	X
Northern harrier	*Circus cyaneus*	BCC, SSC3, BOP	X		X			
Cooper's hawk	*Accipiter cooperii*	WL, BOP	X					
Bald eagle	*Haliaeetus leucocephalus*	CE, BGEPA, BOP	X					
Red-shouldered hawk	*Buteo lineatus*	BOP			X	X	X	X
Red-tailed hawk	*Buteo jamaicensis*	BOP	X	X	X	X	X	
Barn owl	*Tyto alba*	BOP				X		
Great horned owl	*Bubo virginianus*	BOP	X					
Belted kingfisher	*Ceryle alcyon*					X		
Nuttall's woodpecker	*Picoides nuttallii*	BCC	X		X	X	X	X
Northern flicker	*Colaptes auratus*		X	X	X	X	X	X
American kestrel	*Falco sparverius*	BOP	X		X	X		
Peregrine falcon	*Falco peregrinus*	BOP			X		X	
Black phoebe	*Sayornis nigricans*		X		X	X	X	X
Say's phoebe	*Sayornis saya*		X		X	X		
California scrub-jay	*Aphelocoma californica*		X			X	X	X
American crow	*Corvus brachyrhynchos*		X	X		X	X	X
Common raven	*Corvus corax*		X		X	X	X	X
Hutton's vireo	*Vireo huttoni*		X					
Chestnut-backed chickadee	*Poecile rufescens*					X	X	X
Tree swallow	*Tachycineta bicolor*					X	X	X

Species	***Scientific name***	**Status[1]**	**KSS 2019**	**KSS 2021**	**KSS offsite 2019, 2021**	**M&A 2006-2019**	**PRC 2023**	**FCS 2023**
Northern rough-winged swallow	*Stelgidopteryx serripennis*		X					
Violet-green swallow	*Tachycineta thalassina*						X	
Barn swallow	*Hirundo rustica*		X			X		
Cliff swallow	*Petrochelidon pyrrhonota*					X	X	X
Bushtit	*Psatriparus minimus*		X	X		X		
Wrentit	*Chamaea fasciata*	BCC				X		
Ruby-crowned kinglet	*Regulus calendula*					X	X	X
Cedar waxwing	*Bombycilla cedrorum*						X	X
Brown creeper	*Certhia americana*					X	X	
Rock wren	*Salpinctes obsoletus*						X	X
Bewick's wren	*Thryomanes bewickii*					X	X	X
House wren	*Troglodytes aedon*		X				X	X
Marsh wren	*Cistothorus palustris*				X	X		
Northern mockingbird	*Mimus polyglottos*		X		X	X	X	
European starling	*Sturnus vulgaris*	Non-native	X	X	X	X	X	X
Western bluebird	*Sialia mexicana*		X			X	X	X
Hermit thrush	*Catharus guttatus*						X	X
American robin	*Turdus migratorius*					X	X	X
House sparrow	*Passer domesticus*	Non-native				X	X	
American pipit	*Anthus rubescens*						X	
House finch	*Carpodacus mexicanus*		X		X	X	X	X
Purple finch	*Haemorhous purpureus*						X	X
Lesser goldfinch	*Carduelis psaltria*				X	X	X	X
American goldfinch	*Carduelis tristis*		X				X	X
Fox sparrow	*Passerella iliaca*				X		X	X
Dark-eyed junco	*Junco hyemalis*		X	X	X	X	X	X
White-crowned sparrow	*Zonotrichia leucophrys*		X		X	X	X	X
Golden-crowned sparrow	*Zonotrichia atricapilla*		X		X		X	X

Species	***Scientific name***	**Status[1]**	**KSS 2019**	**KSS 2021**	**KSS offsite 2019, 2021**	**M&A 2006-2019**	**PRC 2023**	**FCS 2023**
Savannah sparrow	*Passerculus sandwichensis*					X		
Song sparrow	*Melospiza melodia*				X	X	X	X
Lincoln's sparrow	*Melospiza lincolnii*				X			
California towhee	*Pipilo crissalis*		X		X		X	X
Spotted towhee	*Pipilo maculatus*					X		
Western meadowlark	*Sturnella neglecta*		X					
Bullock's oriole	*Icterus bullockii*	BCC				X		
Red-winged blackbird	*Agelaius phoeniceus*		X		X	X	X	X
Brown-headed cowbird	*Molothrus ater*				X	X	X	X
Brewer's blackbird	*Euphagus cyanocephalus*		X		X	X	X	
Yellow-rumped warbler	*Setophaga coronata*		X	X	X	X	X	X
Black-tailed jackrabbit	*Lepus californicus*					X	X	X
Botta's pocket gopher	*Thomomys bottae*				X			
Western gray squirrel	*Sciurus griseus*					X		
California ground squirrel	*Otospermophilus beecheyi*				X	X		
Raccoon	*Procyon lotor*			X				
Coyote	*Canis latrans*					X		
House cat	*Felis catus*					X	X	X
Mule deer	*Odocoileus hemionus*						X	X
Columbian black-tailed deer	*Odocoileus hemionus ssp. columbianus*					X		
California vole	*Microtus californicus*						X	X

[1] Listed as FT or FE = federal threatened or endangered, CT or CE = California threatened or endangered, CFP = California Fully Protected (CFG Code 3511), SSC = California Species of Special Concern, BCC = U.S. Fish and Wildlife Service Bird of Conservation Concern, TWL = Taxa to Watch List (Shuford and Gardali 2008), and BOP = Birds of Prey (California Fish and Game Code 3503.5).

No surveys were performed for bats, nor were any live-trapping surveys performed for small mammals. With a single survey completed in December, no survey effort was made for reptiles. 45

FirstCarbon Solutions (2024) is also inconsistent with its analysis. It reports on the one hand, "…the Sheehy Creek riparian corridor … provide[s] high quality habitat for a variety of plant and animal species commonly associated with wetland and riparian habitats in the County." And on the other hand, it reports "The project area does not contain significant natural biological communities or habitat for special-status species due to the history of disking and lack of vegetation present currently … Therefore, impacts to sensitive upland terrestrial biological communities in the footprint of the proposed development would not be anticipated." The Sheehy Creek riparian corridor is the foundation of a natural biological community (Ohmart 1994, Ballard et al. 2004, Andy 2020), and such communities do not function at anywhere close to full potential in isolation from neighboring uplands such as occur on the project site (Lee and Rotenberry 2015). 46

Environmental Setting informed by Desktop Review

The purpose of literature and database review and of consulting with local experts is to inform the field survey, and to augment interpretation of its outcome. Analysts need this information to identify which species are known to have occurred at or near the project site, and to identify which other special-status species could conceivably occur at the site due to geographic range overlap and migration flight paths. 47

FirstCarbon Solutions (2024) does not report having reviewed eBird (https://eBird.org) or iNaturalist (https://www.inaturalist.org) for documented occurrence records at or near the project site. Instead, FirstCarbon Solutions (2024) queried the California Natural Diversity Data Base (CNDDB) for documented occurrences of special-status species, but it did so within an unreported distance from the project site. I could not determine whether the query was to the project site, to the USGS Quad inclusive of the site, or within one or more Quads surrounding the Quad inclusive of the site. It is impossible to fully interpret the results of the CNDDB query without knowing the locations on and around the project site that were reviewed on the database. 48

Moreover, by relying on the CNDDB query, FirstCarbon Solutions (2024) screens out many special-status species from further consideration in the characterization of the wildlife community as part of the existing environmental setting (see the differences in species analyzed by myself and FirstCArbon Solutions in Table 4). The CNDDB is not designed to support absence determinations or to screen out species from characterization of a site's wildlife community. As noted by the CNDDB, "*The CNDDB is a positive sighting database. It does not predict where something may be found. We map occurrences only where we have documentation that the species was found at the site. There are many areas of the state where no surveys have been conducted and therefore there is nothing on the map. That does not mean that there are no special status species present.*" FirstCarbon Solutions (2024) misuses the CNDDB. 49

The CNDDB relies entirely on volunteer reporting from biologists who were allowed access to whatever properties they report from. Many properties have never been surveyed by biologists. Many properties have been surveyed, but the survey outcomes never reported to the CNDDB. Many properties have been surveyed multiple times, but not all survey outcomes reported to the CNDDB. Furthermore, the CNDDB is interested only in the findings of special-status species, which means that species more recently assigned special status will have been reported many fewer times to the CNDDB than were species assigned special status since the inception of the CNDDB. The lack of many CNDDB records for species recently assigned special status had nothing to do with whether the species' geographic ranges overlapped the project site, but rather more to do with the brief time for records to have accumulated since the species were assigned special status. And because negative findings are not reported to the CNDDB, the CNDDB cannot provide the basis for estimating occurrence likelihoods, either. 50

In my assessment based on database reviews and site visits, 125 special-status species of wildlife are known to occur near enough to the site to warrant analysis of occurrence potential (Table 4). Of these species, eight were recorded on or just next to the project site, and another 46 (37%) species have been documented within 1.5 miles of the site ('Very close'), another 25 (20%) within 1.5 and 4 miles ('Nearby'), and another 41 (33%) within 4 to 30 miles ('In region'). Nearly two-thirds (63%) of the species in Table 4 below have been reportedly seen within 4 miles of the project site. The site therefore supports multiple special-status species of wildlife, and it carries the potential for supporting many more special-status species of wildlife based on proximity of recorded occurrences. The site is far richer in special-status species than is characterized in FirstCarbon Solutions (2024). 51

FirstCarbon Solutions (2024) analyzes only 51 (41%) of the special-status species in Table 4 for occurrence potential, having omitted from its analysis 74 (59%) of the special-status species in Table 4. Of the species omitted from FirstCarbon Solutions's (2024) analysis, four have been recorded on the project site, 32 have been recorded within 1.5 miles of the site, 18 have been recorded between 1.5 and 4 miles of the site, and 20 have been recorded between 4 and 30 miles of the site. Of the 51 species analyzed for occurrence likelihood by FirstCarbon Solutions (2024), FirstCarbon Solutions (2024) determines only eight to have potential to occur, and six of these determined to have low potential. Of the seven special-status species determined to have low potential, three have been recorded within 1.5 miles of the project site. Of the 31 special-status species determined to have very low occurrence potential, three have been documented on the project site, eight have been recorded within 1.5 miles of the site, and three have been recorded between 1.5 and 4 miles of the site. Of the 13 special-status species FirstCarbon Solutions (2024) determines to have no potential for occurrence, one has been documented on the project site, two within 1.5 miles, and three between 1.5 and 4 miles from the site. On the whole, FirstCarbon Solutions (2024) analyses of occurrence likelihoods are inaccurate and fail to serve as a baseline for performing impacts analysis. 52

Table 4. *Occurrence likelihoods of special-status bird species at or near the proposed project site, according to eBird/iNaturalist records (https://eBird.org, https://www.inaturalist.org) and on-site survey findings, where "Very close" indicates within 1.5 miles of the site, "nearby" indicates within 1.5 and 4 miles, and "in region" indicates within 4 and 30 miles, and "in range" means the species' geographic range overlaps the site.*

Common name	***Species name***	**Status[1]**	**IS/MND occurrence potential**	**Data base records, Site visits**
Conservancy fairy shrimp	*Branchinecta conservatio*	FE		In region
Vernal pool fairy shrimp	*Branchinecta lynchi*	FT	None	In region
California freshwater shrimp	*Syncaris pacifica*	FE, CE	None	In region
Monarch	*Danaus plexippus*	FC	Very low	Nearby
Marin Elfin butterfly	*Callophrys mossii marinensis*	SSC	Very low	In region
Obscure bumble bee	*Bombus caliginosus*	SSC	Low	In region
Crotch's bumble bee	*Bombus crotchii*	CCE	Medium	Nearby
Western bumble bee	*Bombus occidentalis*	CCE	Low	In range
California tiger salamander	*Ambystoma californiense*	FT, CT, WL	Very low	In region
California giant salamander	*Dicamptodon ensatus*	SSC	Very low	In region
Red-bellied newt	*Taricha rivularis*	SSC	None	In region
Foothill yellow-legged frog	*Rana boylii*	CT, SSC	Low	In region
California red-legged frog	*Rana draytonii*	FT, SSC	Low	In region
Western pond turtle	*Emys marmorata*	SSC	None	Nearby
Brant	*Branta bernicla*	SSC2		Nearby
Cackling goose (Aleutian)	*Branta hutchinsii leucopareia*	WL		Very close
Redhead	*Aythya americana*	SSC2		Very close
Harlequin duck	*Histrionicus histrionicus*	SSC2		In region
Barrow's goldeneye	*Bucephala islandica*	SSC		Very close
Western grebe	*Aechmophorus occidentalis*	BCC		Very close
Clark's grebe	*Aechmophorus clarkii*	BCC		Very close
Western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	FT, CE	Very low	In region
Black swift	*Cypseloides niger*	SSC3, BCC	None	Nearby
Vaux's swift	*Chaetura vauxi*	SSC2		Very close
Calliope hummingbird	*Selasphorus calliope*	BCC		Nearby
Rufous hummingbird	*Selasphorus rufus*	BCC		Very close

Common name	***Species name***	**Status[1]**	**IS/MND occurrence potential**	**Data base records, Site visits**
Allen's hummingbird	*Selasphorus sasin*	BCC		Very close
Ridgway's rail (San Francisco Bay)	*Rallus obsoletus obsoletus*	FE, CE, CFP	None	Nearby
Yellow rail	*Coturnicops noveboracensis*	BCC, SSC	None	In region
Black oystercatcher	*Haematopus bachmani*	BCC		In region
Mountain plover	*Charadrius montanus*	SSC2, BCC		In region
Snowy plover	*Charadrius nivosus*	BCC		Nearby
Western snowy plover	*Charadrius nivosus nivosus*	FT, SSC	None	In region
Long-billed curlew	*Numenius americanus*	WL		Very close
Marbled godwit	*Limosa fedoa*	BCC		Very close
Black turnstone	*Arenaria melanocephala*	BCC		Nearby
Red knot (Pacific)	*Calidris canutus*	BCC		Nearby
Pectoral sandpiper	*Calidris melanotos*	BCC		Nearby
Short-billed dowitcher	*Limnodromus griseus*	BCC		Very close
Wandering tattler	*Tringa incana*	BCC		Nearby
Lesser yellowlegs	*Tringa flavipes*	BCC		Very close
Willet	*Tringa semipalmata*	BCC		Very close
Laughing gull	*Leucophaeus atricilla*	WL		In region
Heermann's gull	*Larus heermanni*	BCC		In region
Western gull	*Larus occidentalis*	BCC		Very close
California gull	*Larus californicus*	BCC, TWL		Very close
California least tern	*Sternula antillarum browni*	FE, CE, CFP		Nearby
Black tern	*Chlidonias niger*	SSC2, BCC		Nearby
Elegant tern	*Thalasseus elegans*	BCC, WL		Nearby
Black skimmer	*Rynchops niger*	BCC, SSC3		In region
Common loon	*Gavia immer*	SSC		Nearby
Brandt's cormorant	*Urile penicillatus*	BCC		In region
Double-crested cormorant	*Phalacrocorax auritus*	WL		Very close
American white pelican	*Pelacanus erythrorhynchos*	SSC1		Very close

Common name	***Species name***	**Status[1]**	**IS/MND occurrence potential**	**Data base records, Site visits**
California brown pelican	*Pelecanus occidentalis californicus*	FP		Nearby
Least bittern	*Ixobrychus exilis*	SSC2		In region
White-faced ibis	*Plegadis chihi*	WL		Very close
Turkey vulture	*Cathartes aura*	BOP		On site
Osprey	*Pandion haliaetus*	WL, BOP	Very low	Very close
White-tailed kite	*Elanus luecurus*	CFP, BOP	Very low	On site
Golden eagle	*Aquila chrysaetos*	BGEPA, CFP, BOP, WL	Low	Very close
Northern harrier	*Circus cyaneus*	BCC, SSC3, BOP	Low	Very close
Sharp-shinned hawk	*Accipiter striatus*	WL, BOP	Very low	On site
Cooper's hawk	*Accipiter cooperii*	WL, BOP	None	On site
Bald eagle	*Haliaeetus leucocephalus*	CE, BGEPA, BOP	Very low	Very close
Red-shouldered hawk	*Buteo lineatus*	BOP		Very close
Swainson's hawk	*Buteo swainsoni*	CT, BOP	Very low	On site
Red-tailed hawk	*Buteo jamaicensis*	BOP		On site
Ferruginous hawk	*Buteo regalis*	WL, BOP	Low	Very close
Rough-legged hawk	*Buteo lagopus*	BOP		Very close
American barn owl	*Tyto furcata*	BOP		Very close
Western screech-owl	*Megascops kennicotti*	BOP		Nearby
Great horned owl	*Bubo virginianus*	BOP		Very close
Burrowing owl	*Athene cunicularia*	BCC, SSC2, BOP, CCE	Very low	Very close - CNDDB
Long-eared owl	*Asio otus*	BCC, SSC3, BOP		In region
Short-eared owl	*Asia flammeus*	BCC, SSC3, BOP		In region
Northern saw-whet owl	*Aegolius acadicus*	BOP		Nearby
Northern pygmy-owl	*Glaucidium gnoma*	BOP		Nearby
Lewis's woodpecker	*Melanerpes lewis*	BCC		Very close
Nuttall's woodpecker	*Picoides nuttallii*	BCC		Very close
American kestrel	*Falco sparverius*	BOP		On site
Merlin	*Falco columbarius*	WL, BOP		Very close

Common name	***Species name***	**Status[1]**	**IS/MND occurrence potential**	**Data base records, Site visits**
Peregrine falcon	*Falco peregrinus*	BOP	Very low	Very close
Prairie falcon	*Falco mexicanus*	WL, BOP	Very low	Very close
Olive-sided flycatcher	*Contopus cooperi*	BCC, SSC2		Nearby
Willow flycatcher	*Empidonax trailii*	CE		Very close
Vermilion flycatcher	*Pyrocephalus rubinus*	SSC2		In region
Loggerhead shrike	*Lanius ludovicianus*	SSC2		On site
Yellow-billed magpie	*Pica nuttalli*	BCC		In region
Oak titmouse	*Baeolophus inornatus*	BCC		Very close
California horned lark	*Eremophila alpestris actia*	WL	None	Very close
Bank swallow	*Riparia riparia*	CT	None	Very close
Purple martin	*Progne subis*	SSC2	Very low	Very close
Wrentit	*Chamaea fasciata*	BCC		Very close
California thrasher	*Toxostoma redivivum*	BCC		Very close
Cassin's finch	*Haemorhous cassinii*	BCC		In region
Lawrence's goldfinch	*Spinus lawrencei*	BCC		Very close
Grasshopper sparrow	*Ammodramus savannarum*	SSC2	Very low	Nearby
Samuel's song sparrow	*Melospiza melodia samuelis*	BCC, SSC	Very low	Very close
Black-chinned sparrow	*Spizella atrogularis*	BCC		In region
Bell's sparrow	*Amphispiza b. belli*	WL		Nearby
Yellow-breasted chat	*Icteria virens*	SSC3	Very low	Nearby
Yellow-headed blackbird	*Xanthocephalus xanthocephalus*	SSC3		Very close
Bullock's oriole	*Icterus bullockii*	BCC		Very close
Tricolored blackbird	*Agelaius tricolor*	CT, BCC, SSC1	Very low	Very close
Lucy's warbler	*Leiothlypis luciae*	SSC3		In region
Virginia's warbler	*Leiothlypis virginiae*	WL, BCC		In region
San Francisco common yellowthroat	*Geothlypis trichas sinuosa*	SSC3, BCC	Very low	In range
Yellow warbler	*Setophaga petechia*	SSC2	Very low	Very close
Summer tanager	*Piranga rubra*	SSC1		Nearby
Little brown bat	*Myotis lucifugus*	WBWG: M		In region

Common name	***Species name***	**Status**[1]	**IS/MND occurrence potential**	**Data base records, Site visits**
Yuma myotis	*Myotis yumanensis*	WBWG: LM	Very low	In region
Long-eared myotis	*Myotis evotis*	WBWG: M	Very low	In region
Fringed myotis	*Myotis thysanodes*	WBWG: H	Very low	In range
Long-legged myotis	*Myotis volans*	WBWG: H	Very low	In range
Canyon bat	*Parastrellus hesperus*	WBWG: M		In region
Silver-haired bat	*Lasionycteris noctivagans*	WBWG: M	Very low	In region
Hoary bat	*Lasiurus cinereus*	WBWG: M	Very low	In region
Western red bat	*Lasiurus blossevillii*	SSC, WBWG: H	Very low	In region
Townsend's big-eared bat	*Corynorhinus townsendii*	SSC, WBWG: H	Very low	In region
Pallid bat	*Antrozous pallidus*	SSC, WBWG: H	Very low	In region
Big free-tailed bat	*Nyctinomops macrotis*	SSC, WBWG: MH	Very low	In range
Salt-marsh harvest mouse	*Reithrodontomys raviventris*	FE, CE, FP	None	In region
American badger	*Taxidea taxus*	SSC	None	In region
Mountain lion	*Puma concolor*	SA		In region

[1] Listed as FT or FE = federal threatened or endangered, FC = federal candidate for listing, BCC = U.S. Fish and Wildlife Service Bird of Conservation Concern, CT or CE = California threatened or endangered, CCT or CCE = Candidate California threatened or endangered, CFP = California Fully Protected (California Fish and Game Code 3511), SSC = California Species of Special Concern (not threatened with extinction, but rare, very restricted in range, declining throughout range, peripheral portion of species' range, associated with habitat that is declining in extent), SSC1, SSC2 and SSC3 = California Bird Species of Special Concern priorities 1, 2 and 3, respectively (Shuford and Gardali 2008), WL = Taxa to Watch List (Shuford and Gardali 2008), and BOP = Birds of Prey (CFG Code 3503.5), and WBWG = Western Bat Working Group with priority rankings, of low (L), moderate (M), and high (H).

The occurrence likelihood analyses of FirstCarbon Solutions (2024) include too many errors and omissions:

- Western yellow-billed cuckoo is not only Endangered under CESA, but also Threatened under FESA;
- Bald eagle is not a California Species of Special Concern, but is listed as Endangered under CESA and protected by the Bald and Golden Eagle Protection Act and by California's Birds of Prey Code;
- Golden eagle is not a California Species of Special Concern, but is also California Fully Protected, protected by the Bald and Golden Eagle Protection Act and by California's Birds of Prey Code, and is on California's Watch List;
- Northern harrier is not listed as Threatened under FESA and CESA;
- Ferruginous hawk is not a California Species of Special Concern, but is protected by California's Birds of Prey Code, and is on California's Watch List;
- Burrowing owl is no longer just a California Species of Special Concern, but is now a Candidate for listing as Threatened or Endangered under CESA;
- Peregrine falcon is not a California Species of Special Concern, but is protected by California's Birds of Prey Code; 53
- Prairie falcon is not a California Species of Special Concern, but is protected by California's Birds of Prey Code and is on California's Watch List;
- The horned larks that occur in the Napa area are not the subspecies referred to as California horned lark, and the subspecies that is referred to as California horned lark is not a California Species of Special Concern;
- Bank swallow is not listed as Endangered in either the FESA or CESA, but rather as Threatened under CESA;
- Purple martin is not listed as Endangered in either the FESA or CESA, but rather as a California Species of Special Concern priority level 2;
- Tricolored blackbird is not only a California Species of Special Concern, but is also listed as Threatened under CESA and a USFWS Bird of Conservation Concern;
- Long-eared myotis is not a California Species of Special Concern, but is designated by the Western Bat Working Group as moderate conservation concern;

- Fringed myotis is not a California Species of Special Concern, but is designated by the Western Bat Working Group as high conservation concern;
- Long-legged myotis is not a California Species of Special Concern, but is designated by the Western Bat Working Group as high conservation concern;
- Silver-haired bat is not a California Species of Special Concern, but is designated by the Western Bat Working Group as moderate conservation concern;
- Hoary bat is not a California Species of Special Concern, but it is designated by the Western Bat Working Group as moderate conservation concern.

53 CONT

FirstCarbon Solutions (2024) also does not give valid reasons for why each of the special-status species it analyses should be determined to have no potential or low potential for occurrence. A frequent explanation is that the project site provides foraging habitat but no nesting habitat; however, this explanation introduces a contrived bifurcation of habitat that lacks scientific foundation. No animals can successfully breed without finding sufficient forage during the breeding and non-breeding seasons, and that also goes for winter migrants such as ferruginous hawk and merlin.

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Another frequent explanation is that the project site fails to provide some habitat feature that FirstCarbon Solutions (2024) claims the species must have in order to survive. FirstCarbon Solutions (2024) describes the habitat of each species to be unrealistically narrow, and in so doing fails to cite sources in support of its habitat descriptions. For example, FirstCarbon Solutions (2024) explains that American badgers required "Open grassland habitats with plenty of prey," and then claims that no suitable habitat occurs in the project area. It is unclear what "plenty of prey" means, or from where how this notion came about, but I have found American badgers in many environments such as grasslands, savannas, oak woodlands, conifer forests, chaparral, and on agricultural landscapes. FirstCarbon Solutions (2024) points out that the nearest record is two miles from the project site, insinuating that two miles is too far from the site to consider the occurrence of badgers as likely. Two miles is a trivial distance to American badgers, as it is about a fifth the distance foraging badger can cover in a night.

55

In another example, the occurrence likelihood of bald eagle is reportedly very low because "No suitable nesting or foraging habitat exists in the project area," as according to FirstCarbon Solutions (2024: App. B), the species "Nests in forests, forages over lakes and streams." I observed bald eagles at a research site for nearly 10 years. Bald eagles are not limited to forests for nesting, nor do they only forage over lakes and streams. In fact, they hunt ground squirrels and other mammals and birds on annual grasslands and other environments. I observed a bald eagle only 2.7 miles from the project site (Photos 1 and 2). A bald eagle only 2.7 miles from the project site is essentially at the project site. Bald eagles fly 2.7 miles in about five minutes.

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The same determination based on the same reasoning is applied to peregrine falcon in FirstCarbon Solutions (2024). But again, I saw a peregrine falcon only 2.7 miles from the project site. The determination of very low likelihood of occurrence is inaccurate.

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Photos 1 and 2. *A juvenile bald eagle flew along the eucalyptus trees only 2.7 miles south-southeast of the project site on 23 January 2019. On 5 January 2021, Bay Trail visitors informed me that two bald eagles had been living in the area that winter.*





In another example, FirstCarbon solutions (2024: App. B) determines pond turtle to have no occurrence potential on the project site. This determination is inaccurate. Pond turtles occur in streams, and they nest on adjacent upland environments. 58

There are many other examples of occurrence likelihood determinations that are inaccurate and poorly founded, but I want to focus on two more examples – the burrowing owl and Swainson's hawk. FirstCarbon solutions (2024: App. B) determines the occurrence likelihood of burrowing owl to be very low. No reason for this determination is provided other than the insinuation that the disturbed nature of the site would discourage burrowing owls. However, burrowing owls are well known to occur on disturbed soils (e.g., Smallwood and Morrison 2018). Furthermore, an occurrence record exists only 0.15 miles (240 m) from the project site. An occurrence record this close is essentially on the project site, because burrowing owls typically forage out to 400 m from their burrows. Regardless of whether one considers the occurrence record on site, even the determination of a very low occurrence likelihood -- which I dispute – warrants the implementation of the CDFW (2012) survey protocol. 59

There are three types of surveys recommended and described in the CDFW's (2012) survey and mitigation guidelines: (1) Habitat assessment, (2) Detection surveys, and (3) Preconstruction survey. The habitat assessment is intended to evaluate the likelihood that the site supports burrowing owls, and to decide whether detection surveys should be performed. The detection surveys, otherwise described as either breeding-season or non-breeding-season surveys, are intended to detect whether the site truly supports burrowing owls, and if so where and how many. The preconstruction survey, otherwise known as a take-avoidance survey, is intended to determine whether burrowing owls immigrated to the site since completion of the detection survey, or returned to the site since passive or active relocations were performed as mitigation. The three types of survey carry distinct but inter-related purposes, and they are to be completed in chronological order. 60

The first two types of survey support impacts analysis, whereas the third type of survey is a mitigation measure. Burrowing owls can be determined absent based on evidence derived from the habitat assessment or evidence derived from the detection survey, but only if the surveys achieved the minimum standards of CDFW (2012). Whereas an absence determination naturally follows from the negative findings of properly performed detection surveys, the following three questions drawn from CDFW (2012) must be answered negatively to determine absence based on the habitat assessment, which thus far is the only type of survey completed for burrowing owls at the project site: 61

A) Are there occurrence records nearby the project site?
B) Is the site's vegetation cover and height typical of where burrowing owls are found?
C) Are there fossorial mammals present which typically construct burrows useable by burrowing owls, or are there surrogate cavities that can serve as nest sites?

If the answers to these questions are compellingly negative, then detection surveys are not necessary, but they could be implemented to make certain the site is absent of

burrowing owls. If the answers to these questions are affirmative or not compellingly negative, then it should be assumed that burrowing owl habitat exists on the site until detection surveys prove otherwise. 61 CONT

The answer to question A is affirmative, as an occurrence record is located only 0.15 miles from the project site, which is essentially on the site. The answer to question B is affirmative, as the vegetation height on the project site is intentionally kept low for "weed abatement," pretty much just the way burrowing owls like it. The answer to question C is unknown, as the reconnaissance survey of 8 December 2022 was grossly deficient and it was performed at a time of year when ground squirrels are least abundant and least active. I have seen ground squirrels near the project site, thereby indicating a higher likelihood of burrowing owl presence. With two of the three answers solidly affirmative, and answer to the third likely affirmative, burrowing owl habitat needs to be assumed on the site, followed by detection surveys consistent with CDFW (2012). Considering that a listing petition has been submitted to the California Fish and Game Commission in response to an ongoing rapid decline of burrowing owls across California (Miller 2024), and considering that CDFW (2024) endorsed consideration of the listing petition and the Commission voted unanimously to protect western burrowing owls throughout California as a "candidate" species under CESA on October 10, 2024, it is my opinion that the proposed project would result in potentially significant adverse impacts to burrowing owls unless breeding-season detection surveys are implemented to the standards of CDFW (2012). 62

Lastly in terms of examples, FirstCarbon Solutions (2024: App. B) determines the occurrence likelihood of Swainson's hawk to be very low. Having researched Swainson's hawks over many years (Smallwood 1995), it is my opinion that FirstCarbon Solutions' habitat description is inaccurate. Swainson's hawks forage over many more vegetation covers that grassland (Smallwood 1995). Moreover, Swainson's hawks forage over disturbed ground, especially while the ground is undergoing disturbance (Smallwood 1995). FirstCarbon Solutions' is also at odds with its reporting that the nearest Swainson's hawk occurrence record is a mere 0.25 miles from the project site. In flight time, 0.25 miles is a matter of seconds before the Swainson's hawk is over the project site. 63

At p. 9, the IS/MND attempts to defend the County's failure to implement the Swainson's hawk detection survey protocol as unnecessary: "This recovery success and expansion of SWHA range has been well-documented in other environmental documents from projects in the region, which have not been required to provide SWHA mitigation for foraging habitat." However, I have read some of the other environmental documents from projects in the region, and the analysis in these documents lack a quantitative basis for the claim that Swainson's hawks have been expanding in the project area. In fact, with all the new warehouses and other structures that have been recently added to the landscape, the notion that Swainson's hawks have expanded in the area is hard to believe; Swainson's hawks do not find forage on rooftops and blacktops. 64

The IS/MND (p. 9) attempts another approach to downplay the County's failure to implement the appropriate survey and mitigation guidelines, "While Swainson's hawk's 65

nests are protected, foraging habitat mitigation has generally not been required in the business park area." However, this excuse is only an admission that the County has so far failed to comply with the CEQA by not implementing the CDFW (2000) survey and mitigation guidelines. 65 CONT

Finally, the IS/MND (p 9) attempts to downplay potential impacts to Swainson's hawks by claiming that the loss of 23.66 acres of foraging habitat would take only 0.16% of potential foraging habitat. I have to assume that the 0.16% figure would apply to an average Swainson's hawk home range, as otherwise it makes no sense. If this is so, then the 0.16% of foraging habitat that is lost is the 0.16% that makes the difference between persistence and extirpation, then the 0.16% would be of critical importance. The IS/MND goes on to speculate wildly that there exists plenty of habitat of better quality located elsewhere. The Swainson's hawks at issue are those that occur at the project site, and not somewhere else. The IS/MND's speculations do not qualify as a serious analysis of potential impacts. 66

POTENTIALLY SIGNIFICANT BIOLOGICAL IMPACTS

An impacts analysis should consider whether and how a proposed project would affect members of a species, larger demographic units of the species, the whole of a species, and ecological communities. The accuracy of this analysis depends on an accurate characterization of the existing environmental setting. In the case of the proposed project, the existing environmental setting has not been accurately characterized, and several important types of potential project impacts have been inadequately analyzed. These types of impacts include habitat loss and wildlife-automobile collision mortality, discussed below. 67

HABITAT LOSS

FirstCarbon Solutions (2024) found that the proposed project will result in the loss of non-native, grassland and ruderal habitats, but the MND (p. 10) explains that the project site is previously disturbed, located within an existing industrial/business park, and there is "No evidence of wildlife corridors, raptor nests, wildlife dens, burrows or other unique or sensitive biological habitats or resources are located on site." The MND (p. 10) therefore concludes that there would not be significant impacts to wildlife or other sensitive habitat. 68

The proposed project would result in potentially significant adverse biological impacts. Noriko Smallwood and I measured the impacts of habitat loss to wildlife caused by mitigated development projects, such as by industrial warehouses. We revisited 80 sites of proposed projects that we had originally surveyed in support of comments on CEQA review documents (Smallwood and Smallwood 2023). We revisited the sites to repeat the survey methods at the same time of year, the same start time in the day, and the same methods and survey duration to measure the effects of mitigated development on wildlife. We structured the experiment in a before-after, control-impact experimental design, as some of the sites had been developed since our initial survey and some had remained undeveloped. We found that mitigated development resulted in a 66% loss of 69

species on site, and 48% loss of species in the project area. Counts of vertebrate animals declined 90%. “Development impacts measured by the mean number of species detected per survey were greatest for amphibians (-100%), followed by mammals (-86%), grassland birds (-75%), raptors (-53%), special-status species (-49%), all birds as a group (-48%), non-native birds (-44%), and synanthropic birds (-28%). Our results indicated that urban development substantially reduced vertebrate species richness and numerical abundance, even after richness and abundance had likely already been depleted by the cumulative effects of loss, fragmentation, and degradation of habitat in the urbanizing environment,” and despite the mitigation measures per existing policies and regulations. We also specifically tested for the effects of projects to wildlife in neighboring habitats, and we found significant decreases in species richness and overall abundance in those areas as well. 69 CONT

Habitat loss not only results in the immediate numerical decline of wildlife, but it also results in permanent loss of productive capacity. Habitat fragmentation multiplies the negative effects of habitat loss on the productive capacities of biological species by preventing recruitment to habitat patches that have become too isolated or too small (Smallwood 2015). In the case of birds, two methods exist for estimating the loss of productive capacity that would be caused by the project. One method would involve surveys to count the number of bird nests and chicks produced. The alternative method would be to infer productive capacity from estimates of total nest density elsewhere. 70

Several studies have estimated total avian nest density at locations that had likewise been highly fragmented. Two study sites in grassland/wetland/woodland complexes within agricultural matrices had total bird nesting densities of 32.8 and 35.8 nests per acre (Young 1948, Yahner 1982) for an average 34.3 nests per acre. To acquire a total nest density closer to conditions in California, I surveyed various patches of vegetation cover in northern California throughout the breeding seasons of 2023 and 2024. I surveyed a 1.32-acre patch of riparian forest in Rancho Cordova where I estimated 28.79 nests/acre, a 2.95-acre patch of grassland/wetland adjacent to riparian forest east of Davis, where I estimated 5.08 nests/acre in 2024, and a 9.42-acre patch of annually disked grassland adjacent to riparian forest in Rancho Cordova, where I estimated 5.47 nests/acre. Applying 28.79 nests/acre to the 6.13 acres of riparian, and the mean 5.275 between my grassland estimates to the 14.2 acres of the project site covered by periodically disked grassland would predict an annual average 251 nest sites on the project site. Assuming 1.39 broods per nest site, which is the average among 322 North American bird species I asked Noriko Smallwood to review, then I predict the project would cost California 349 nest attempts/year. 71

The loss of 251 nest sites and 349 nest attempts per year would qualify as significant impacts that have not been analyzed in the IS/MND. But the impacts would not end with the immediate loss of nest sites. The reproductive capacity of the site would be lost. The average number of fledglings per nest in Young’s (1948) study was 2.9. Assuming Young’s (1948) study site typifies bird productivity, the project would prevent the production of 41 fledglings per year. Assuming an average bird generation time of 5 years, the lost capacity of both breeders and annual fledgling production can be estimated from an equation in Smallwood (2022): {(nests/year × chicks/nest × number 72

of years) + (2 adults/nest × nests/year) × (number of years ÷ years/generation)} ÷ (number of years) = 1,113 birds per year denied to California. 72 CONT

Most if not all the estimated 1,113 birds that annually could be lost to the project are protected by the federal Migratory Bird Treaty Act and by California's Migratory Bird Protection Act, both of which most strongly protect breeding migratory birds. It is my opinion that the proposed project would result in potentially significant adverse biological impacts. 73

TRAFFIC IMPACTS TO WILDLIFE

Project-generated traffic would endanger wildlife that must, for various reasons, cross roads used by the project's traffic to get to and from the project site (Photos 3—5), including along roads far from the project footprint. Vehicle collisions have accounted for the deaths of many thousands of amphibian, reptile, mammal, bird, and arthropod fauna, and the impacts have often been found to be significant at the population level (Forman et al. 2003). Across North America traffic impacts have taken devastating tolls on wildlife (Forman et al. 2003). In Canada, 3,562 birds were estimated killed per 100 km of road per year (Bishop and Brogan 2013), and the US estimate of avian mortality on roads is 2,200 to 8,405 deaths per 100 km per year, or 89 million to 340 million total per year (Loss et al. 2014). Local impacts can be more intense than nationally. 74



Photo 3. *A Gambel's quail dashes across a road* on *3 April 2021. Such road crossings are usually successful, but too often prove fatal to the animal. Photo by Noriko Smallwood.*



Photo 4. *Mourning dove killed by vehicle on a California road. Photo by Noriko Smallwood, 21 June 2020.*



Photo 5. *Raccoon killed on Road 31 just east of Highway 505 in Solano County. Photo taken on 10 November 2018.*

The nearest study of traffic-caused wildlife mortality was performed along a 2.5-mile stretch of Vasco Road in Contra Costa County, California. Fatality searches in this study found 1,275 carcasses of 49 species of mammals, birds, amphibians and reptiles over 15 months of searches (Mendelsohn et al. 2009). This fatality number needs to be adjusted for the proportion of fatalities that were not found due to scavenger removal and searcher error. This adjustment is typically made by placing carcasses for searchers to find (or not find) during their routine periodic fatality searches. This step was not taken at Vasco Road (Mendelsohn et al. 2009), but it was taken as part of another study next to Vasco Road (Brown et al. 2016). Brown et al.'s (2016) adjustment factors for carcass persistence resembled those of Santos et al. (2011). Also applying searcher detection rates from Brown et al. (2016), the adjusted total number of fatalities was estimated at 9,462 animals killed by traffic on the road. This fatality number projected over 1.25 years and 2.5 miles of road translates to 3,028 wild animals per mile per year. In terms comparable to the national estimates, the estimates from the Mendelsohn et al. (2009) study would translate to 188,191 animals killed per 100 km of road per year, or 22 times that of Loss et al.'s (2014) upper bound estimate and 53 times the Canadian estimate. An analysis is needed of whether increased traffic generated by the project site would similarly result in local impacts on wildlife. 75

Special-status species that could suffer project-generated, traffic-collision mortality in the areas surrounding the project site include California tiger salamander, California red-legged frog, American badger, among many others listed in Table 4. 76

For wildlife vulnerable to front-end collisions and crushing under tires, road mortality can be predicted from the study of Mendelsohn et al. (2009) as a basis. My analysis of the Mendelsohn et al. (2009) data resulted in an estimated 3,028 animals killed per mile along a county road in Contra Costa County. The estimated numbers of fatalities were 1.75% birds, 26.4% mammals (many mice and pocket mice, but also ground squirrels, desert cottontails, striped skunks, American badgers, raccoons, and others), 67.4% amphibians (large numbers of California tiger salamanders and California red-legged frogs, but also Sierran treefrogs, western toads, arboreal salamanders, slender salamanders and others), and 4.4% reptiles (many western fence lizards, but also skinks, alligator lizards, and snakes of various species). VMT is useful for predicting wildlife mortality because I was able to quantify miles traveled along the studied reach of Vasco Road during the time period of the Mendelsohn et al. (2009) study, hence enabling a rate of fatalities per VMT that can be projected to other sites, assuming similar collision fatality rates. 77

Predicting project-generated traffic impacts to wildlife

The IS/MND predicts 1,227 daily VMT for the winery and 1,345 daily VMT for the warehouse, which projected to a year predicts 938,780 annual VMT. During the Mendelsohn et al. (2009) study, 19,500 cars traveled Vasco Road daily, so the vehicle miles that contributed to my estimate of non-volant fatalities was 19,500 cars and trucks × 2.5 miles × 365 days/year × 1.25 years = 22,242,187.5 vehicle miles per 9,462 wildlife fatalities, or 2,351 vehicle miles per fatality. This rate divided into the predicted annual VMT would predict 399 vertebrate wildlife fatalities per year. 78

Based on my analysis, the project-generated traffic may cause substantial, significant impacts to wildlife. The IS/MND does not analyze this potential impact, nor does it propose to mitigate it. Mitigation measures to improve wildlife safety along roads are available and are feasible, and they need exploration for their suitability with the proposed project. Given the predicted level of project-generated, traffic-caused mortality, and the lack of any proposed mitigation, it is my opinion that the proposed project would result in potentially significant adverse biological impacts. 79

MITIGATION

Mitigation Measure BIO-1: *Install silt fencing along the Conservation Easement boundary to the riparian corridor*.

Should the project go forward, the silt fencing would need to be placed farther from the riparian corridor than the depicted in the IS/MND. According to Semlitsch and Bodie (2003), “Core terrestrial habitat [from aquatic habitat] ranged from 159 to 290 m for amphibians and from 127 to 289 m for reptiles from the edge of the aquatic site." To avoid direct impacts to terrestrial wildlife along the riparian corridor, I recommend the silt fence be placed 300 feet from the southern edge of the top of bank of Sheehy Creek. 80

Mitigation Measure BIO-2: *Implement CDFW (2018) as a preconstruction survey for rare plants.*

This measure misrepresents CDFW (2018) as a preconstruction survey rather than as a reconnaissance survey. The CDFW (2018) rare plant survey guidelines are intended to support the preparation of the CEQA review document. Implementation of CDFW (2018) would not qualify as a legitimate mitigation measure, as it was never intended to serve as a mitigation measure. 81

Mitigation Measure BIO-3: *Implement preconstruction survey for nesting birds, and if nests are found, a biologist shall establish buffers to construction activities.*

If the project goes forward, preconstruction surveys for nesting birds should be performed. However, the survey would not detect all of the available nests, nor would it prevent the loss of productive capacity I predict above under Habitat Loss. 82

Furthermore, the language of this mitigation allows a single individual to make a subjective decision, outside the public's view, to determine the buffer area for any given species. This measure lacks objective criteria, and is unenforceable. 82 CONT

Mitigation Measure BIO-6: *Implement CDFW (2012) habitat assessment and surveys for wintering burrowing owls.*

This measure makes little sense, and as written would not be consistent with CDFW (2012). A habitat assessment has already been completed, and the findings already warrant detection surveys. The detection surveys that are needed are breeding-season surveys consistent with CDFW's (2012) protocol. These surveys are intended to be completed prior to the issuance of the CEQA review document, not afterwards. The habitat assessment and detection surveys are not intended to be mitigation measures, as clearly stated in CDFW (2012). 83

The burrowing owl has been designated a Candidate for listing as Threatened or Endangered under CESA. No take of burrowing owls is allowed. Detection surveys are needed during both the non-breeding and breeding periods, as well as a preconstruction take-avoidance survey.

Mitigation Measure BIO-8: *Install exclusion fencing during the wet season.*

Should the project go forward, exclusion fencing should be installed and monitored for integrity over the winter months, but passage would need to be accommodated from the project site toward Sheehy Creek, and prevented from Sheehy Creek toward the project site. Unless this one-way passage is enabled, the amphibians the fencing is installed to protect would instead trap the amphibians on the project site. Even if the fencing would prevent some amphibians from being crushed by heavy machinery, it would not avoid the loss of habitat along with the productive capacity of that habitat. The measure would not avoid a substantial, highly significant impact to amphibians such as to foothill yellow-legged frog. Compensatory mitigation would be warranted. 84

Thank you for your attention,

Shawn Smallwood

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Shawn Smallwood, Ph.D.

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Curriculum Vitae

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Born May 3, 1963 in Sacramento, California. Married, father of two.

Ecologist

Expertise

- Finding solutions to controversial problems related to wildlife interactions with human industry, infrastructure, and activities;
- Wildlife monitoring and field study using GPS, thermal imaging, behavior surveys;
- Using systems analysis and experimental design principles to identify meaningful ecological patterns that inform management decisions.

Education

Ph.D. Ecology, University of California, Davis. September 1990.
M.S. Ecology, University of California, Davis. June 1987.
B.S. Anthropology, University of California, Davis. June 1985.
Corcoran High School, Corcoran, California. June 1981.

Experience

- 480 professional publications, including:
- 83 peer reviewed publications
- 24 in non-reviewed proceedings
- 371 reports, declarations, posters and book reviews
- 8 in mass media outlets
- 87 public presentations of research results

Editing for scientific journals: Guest Editor, *Wildlife Society Bulletin*, 2012-2013, of invited papers representing international views on the impacts of wind energy on wildlife and how to mitigate the impacts. Associate Editor, *Journal of Wildlife Management*, March 2004 to 30 June 2007. Editorial Board Member, *Environmental Management*, 10/1999 to 8/2004. Associate Editor, *Biological Conservation*, 9/1994 to 9/1995.

Member, Alameda County Scientific Review Committee (SRC), August 2006 to April 2011. The five-member committee investigated causes of bird and bat collisions in the Altamont Pass Wind Resource Area, and recommended mitigation and monitoring measures. The SRC

reviewed the science underlying the Alameda County Avian Protection Program, and advised the County on how to reduce wildlife fatalities.

Consulting Ecologist, 2004-2007, California Energy Commission (CEC). Provided consulting services as needed to the CEC on renewable energy impacts, monitoring and research, and produced several reports. Also collaborated with Lawrence-Livermore National Lab on research to understand and reduce wind turbine impacts on wildlife.

Consulting Ecologist, 1999-2013, U.S. Navy. Performed endangered species surveys, hazardous waste site monitoring, and habitat restoration for the endangered San Joaquin kangaroo rat, California tiger salamander, California red-legged frog, California clapper rail, western burrowing owl, salt marsh harvest mouse, and other species at Naval Air Station Lemoore; Naval Weapons Station, Seal Beach, Detachment Concord; Naval Security Group Activity, Skaggs Island; National Radio Transmitter Facility, Dixon; and, Naval Outlying Landing Field Imperial Beach.

Part-time Lecturer, 1998-2005, California State University, Sacramento. Instructed Mammalogy, Behavioral Ecology, and Ornithology Lab, Contemporary Environmental Issues, Natural Resources Conservation.

Senior Ecologist, 1999-2005, BioResource Consultants. Designed and implemented research and monitoring studies related to avian fatalities at wind turbines, avian electrocutions on electric distribution poles across California, and avian fatalities at transmission lines.

Chairman, Conservation Affairs Committee, The Wildlife Society--Western Section, 1999-2001. Prepared position statements and led efforts directed toward conservation issues, including travel to Washington, D.C. to lobby Congress for more wildlife conservation funding.

Systems Ecologist, 1995-2000, Institute for Sustainable Development. Headed ISD’s program on integrated resources management. Developed indicators of ecological integrity for large areas, using remotely sensed data, local community involvement and GIS.

Associate, 1997-1998, Department of Agronomy and Range Science, University of California, Davis. Worked with Shu Geng and Mingua Zhang on several studies related to wildlife interactions with agriculture and patterns of fertilizer and pesticide residues in groundwater across a large landscape.

Lead Scientist, 1996-1999, National Endangered Species Network. Informed academic scientists and environmental activists about emerging issues regarding the Endangered Species Act and other environmental laws. Testified at public hearings on endangered species issues.

Ecologist, 1997-1998, Western Foundation of Vertebrate Zoology. Conducted field research to determine the impact of past mercury mining on the status of California red-legged frogs in Santa Clara County, California.

Senior Systems Ecologist, 1994-1995, EIP Associates, Sacramento, California. Provided consulting services in environmental planning, and quantitative assessment of land units for their

conservation and restoration opportunities basedon ecological resource requirements of 29 special-status species. Developed ecological indicators for prioritizing areas within Yolo County to receive mitigation funds for habitat easements and restoration.

Post-Graduate Researcher, 1990-1994, Department of Agronomy and Range Science, *U.C. Davis*. Under Dr. Shu Geng's mentorship, studied landscape and management effects on temporal and spatial patterns of abundance among pocket gophers and species of Falconiformes and Carnivora in the Sacramento Valley. Managed and analyzed a data base of energy use in California agriculture. Assisted with landscape (GIS) study of groundwater contamination across Tulare County, California.

Work experience in graduate school: Co-taught Conservation Biology with Dr. Christine Schonewald, 1991 & 1993, UC Davis Graduate Group in Ecology; Reader for Dr. Richard Coss's course on Psychobiology in 1990, UC Davis Department of Psychology; Research Assistant to Dr. Walter E. Howard, 1988-1990, UC Davis Department of Wildlife and Fisheries Biology, testing durable baits for pocket gopher management in forest clearcuts; Research Assistant to Dr. Terrell P. Salmon, 1987-1988, UC Wildlife Extension, Department of Wildlife and Fisheries Biology, developing empirical models of mammal and bird invasions in North America, and a rating system for priority research and control of exotic species based on economic, environmental and human health hazards in California. Student Assistant to Dr. E. Lee Fitzhugh, 1985-1987, UC Cooperative Extension, Department of Wildlife and Fisheries Biology, developing and implementing statewide mountain lion track count for long-term monitoring.

Fulbright Research Fellow, Indonesia, 1988. Tested use of new sampling methods for numerical monitoring of Sumatran tiger and six other species of endemic felids, and evaluated methods used by other researchers.

Projects

Repowering wind energy projects through careful siting of new wind turbines using map-based collision hazard models to minimize impacts to volant wildlife. Funded by wind companies (principally NextEra Renewable Energy, Inc.), California Energy Commission and East Bay Regional Park District, I have collaborated with a GIS analyst and managed a crew of five field biologists performing golden eagle behavior surveys and nocturnal surveys on bats and owls. The goal is to quantify flight patterns for development of predictive models to more carefully site new wind turbines in repowering projects. Focused behavior surveys began May 2012 and continue. Collision hazard models have been prepared for seven wind projects, three of which were built. Planning for additional repowering projects is underway.

Test avian safety of new mixer-ejector wind turbine (MEWT). Designed and implemented a before-after, control-impact experimental design to test the avian safety of a new, shrouded wind turbine developed by Ogin Inc. (formerly known as FloDesign Wind Turbine Corporation). Supported by a $718,000 grant from the California Energy Commission's Public Interest Energy Research program and a 20% match share contribution from Ogin, I managed a crew of seven field biologists who performed periodic fatality searches and behavior surveys, carcass detection trials, nocturnal behavior surveys using a thermal camera, and spatial analyses with the collaboration of a GIS

analyst. Field work began 1 April 2012 and ended 30 March 2015 without Ogin installing its MEWTs, but we still achieved multiple important scientific advances.

Reduce avian mortality due to wind turbines at Altamont Pass. Studied wildlife impacts caused by 5,400 wind turbines at the world's most notorious wind resource area. Studied how impacts are perceived by monitoring and how they are affected by terrain, wind patterns, food resources, range management practices, wind turbine operations, seasonal patterns, population cycles, infrastructure management such as electric distribution, animal behavior and social interactions.

Reduce avian mortality on electric distribution poles. Directed research toward reducing bird electrocutions on electric distribution poles, 2000-2007. Oversaw 5 founds of fatality searches at 10,000 poles from Orange County to Glenn County, California, and produced two large reports.

Cook *et al*. v. Rockwell International *et al*., No. 90-K-181 (D. Colorado). Provided expert testimony on the role of burrowing animals in affecting the fate of buried and surface-deposited radioactive and hazardous chemical wastes at the Rocky Flats Plant, Colorado. Provided expert reports based on four site visits and an extensive document review of burrowing animals. Conducted transect surveys for evidence of burrowing animals and other wildlife on and around waste facilities. Discovered substantial intrusion of waste structures by burrowing animals. I testified in federal court in November 2005, and my clients were subsequently awarded a $553,000,000 judgment by a jury. After appeals the award was increased to two billion dollars.

Hanford Nuclear Reservation Litigation. Provided expert testimony on the role of burrowing animals in affecting the fate of buried radioactive wastes at the Hanford Nuclear Reservation, Washington. Provided three expert reports based on three site visits and extensive document review. Predicted and verified a certain population density of pocket gophers on buried waste structures, as well as incidence of radionuclide contamination in body tissue. Conducted transect surveys for evidence of burrowing animals and other wildlife on and around waste facilities. Discovered substantial intrusion of waste structures by burrowing animals.

Expert testimony and declarations on proposed residential and commercial developments, gas-fired power plants, wind, solar and geothermal projects, water transfers and water transfer delivery systems, endangered species recovery plans, Habitat Conservation Plans and Natural Communities Conservation Programs. Testified before multiple government agencies, Tribunals, Boards of Supervisors and City Councils, and participated with press conferences and depositions. Prepared expert witness reports and court declarations, which are summarized under Reports (below).

Protocol-level surveys for special-status species. Used California Department of Fish and Wildlife and US Fish and Wildlife Service protocols to search for California red-legged frog, California tiger salamander, arroyo southwestern toad, blunt-nosed leopard lizard, western pond turtle, giant kangaroo rat, San Joaquin kangaroo rat, San Joaquin kit fox, western burrowing owl, Swainson's hawk, Valley elderberry longhorn beetle and other special-status species.

Conservation of San Joaquin kangaroo rat. Performed research to identify factors responsible for the decline of this endangered species at Lemoore Naval Air Station, 2000-2013, and implemented habitat enhancements designed to reverse the trend and expand the population.

Impact of West Nile Virus on yellow-billed magpies. Funded by Sacramento-Yolo Mosquito and Vector Control District, 2005-2008, compared survey results pre- and post-West Nile Virus epidemic for multiple bird species in the Sacramento Valley, particularly on yellow-billed magpie and American crow due to susceptibility to WNV.

Workshops on HCPs. Assisted Dr. Michael Morrison with organizing and conducting a 2-day workshop on Habitat Conservation Plans, sponsored by Southern California Edison, and another 1-day workshop sponsored by PG&E. These Workshops were attended by academics, attorneys, and consultants with HCP experience. We guest-edited a Proceedings published in Environmental Management.

Mapping of biological resources along Highways 101, 46 and 41. Used GPS and GIS to delineate vegetation complexes and locations of special-status species along 26 miles of highway in San Luis Obispo County, 14 miles of highway and roadway in Monterey County, and in a large area north of Fresno, including within reclaimed gravel mining pits.

GPS mapping and monitoring at restoration sites and at Caltrans mitigation sites. Monitored the success of elderberry shrubs at one location, the success of willows at another location, and the response of wildlife to the succession of vegetation at both sites. Also used GPS to monitor the response of fossorial animals to yellow star-thistle eradication and natural grassland restoration efforts at Bear Valley in Colusa County and at the decommissioned Mather Air Force Base in Sacramento County.

Mercury effects on Red-legged Frog. Assisted Dr. Michael Morrison and US Fish and Wildlife Service in assessing the possible impacts of historical mercury mining on the federally listed California red-legged frog in Santa Clara County. Also measured habitat variables in streams.

Opposition to proposed No Surprises rule. Wrote a white paper and summary letter explaining scientific grounds for opposing the incidental take permit (ITP) rules providing ITP applicants and holders with general assurances they will be free of compliance with the Endangered Species Act once they adhere to the terms of a "properly functioning HCP." Submitted 188 signatures of scientists and environmental professionals concerned about No Surprises rule US Fish and Wildlife Service, National Marine Fisheries Service, all US Senators.

Natomas Basin Habitat Conservation Plan alternative. Designed narrow channel marsh to increase the likelihood of survival and recovery in the wild of giant garter snake, Swainson's hawk and Valley Elderberry Longhorn Beetle. The design included replication and interspersion of treatments for experimental testing of critical habitat elements. I provided a report to Northern Territories, Inc.

Assessments of agricultural production system and environmental technology transfer to China. Twice visited China and interviewed scientists, industrialists, agriculturalists, and the Directors of the Chinese Environmental Protection Agency and the Department of Agriculture to assess the need and possible pathways for environmental clean-up technologies and trade opportunities between the US and China.

Yolo County Habitat Conservation Plan. Conducted landscape ecology study of Yolo County to spatially prioritize allocation of mitigation efforts to improve ecosystem functionality within the

County from the perspective of 29 special-status species of wildlife and plants. Used a hierarchically structured indicators approach to apply principles of landscape and ecosystem ecology, conservation biology, and local values in rating land units. Derived GIS maps to help guide the conservation area design, and then developed implementation strategies.

Mountain lion track count. Developed and conducted a carnivore monitoring program throughout California since 1985. Species counted include mountain lion, bobcat, black bear, coyote, red and gray fox, raccoon, striped skunk, badger, and black-tailed deer. Vegetation and land use are also monitored. Track survey transect was established on dusty, dirt roads within randomly selected quadrats.

Sumatran tiger and other felids. Upon award of Fulbright Research Fellowship, I designed and initiated track counts for seven species of wild cats in Sumatra, including Sumatran tiger, fishing cat, and golden cat. Spent four months on Sumatra and Java in 1988, and learned Bahasa Indonesia, the official Indonesian language.

Wildlife in agriculture. Beginning as post-graduate research, I studied pocket gophers and other wildlife in 40 alfalfa fields throughout the Sacramento Valley, and I surveyed for wildlife along a 200 mile road transect since 1989 with a hiatus of 1996-2004. The data are analyzed using GIS and methods from landscape ecology, and the results published and presented orally to farming groups in California and elsewhere. I also conducted the first study of wildlife in cover crops used on vineyards and orchards.

Agricultural energy use and Tulare County groundwater study. Developed and analyzed a data base of energy use in California agriculture, and collaborated on a landscape (GIS) study of groundwater contamination across Tulare County, California.

Pocket gopher damage in forest clear-cuts. Developed gopher sampling methods and tested various poison baits and baiting regimes in the largest-ever field study of pocket gopher management in forest plantations, involving 68 research plots in 55 clear-cuts among 6 National Forests in northern California.

Risk assessment of exotic species in North America. Developed empirical models of mammal and bird species invasions in North America, as well as a rating system for assigning priority research and control to exotic species in California, based on economic, environmental, and human health hazards.

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Comments on Environmental Documents

I was retained or commissioned to comment on environmental planning and review documents, including:

- The Villages of Lakeview EIR (2017; 28 pp);
- Notes on Proposed Study Options for Trail Impacts on Northern Spotted Owl (2017; 4 pp);
- San Gorgonio Crossings EIR (2017; 22 pp);
- Replies to responses on Jupiter Project IS and MND (2017; 12 pp);
- MacArthur Transit Village Project Modified 2016 CEQA Analysis (2017; 12 pp);
- Central SoMa Plan DEIR (2017; 14 pp);
- Colony Commerce Center Specific Plan DEIR (2016; 16 pp);
- Fairway Trails Improvements MND (2016; 13 pp);
- Review of Avian-Solar Science Plan (2016; 28 pp);
- Replies to responses on Initial Study for Pyramid Asphalt (2016; 5 pp);
- Initial Study for Pyramid Asphalt (2016; 4 pp);
- Agua Mansa Distribution Warehouse Project Initial Study (2016; 14 pp);
- Santa Anita Warehouse IS and MND (2016; 12 pp);
- CapRock Distribution Center III DEIR (2016: 12 pp);
- Orange Show Logistics Center Initial Study and MND (2016; 9 pp);
- City of Palmdale Oasis Medical Village Project IS and MND (2016; 7 pp);
- Comments on proposed rule for incidental eagle take (2016, 49 pp);
- Grapevine Specific and Community Plan FEIR (2016; 25 pp);
- Grapevine Specific and Community Plan DEIR (2016; 15 pp);
- Clinton County Zoning Ordinance for Wind Turbine siting (2016);
- Hallmark at Shenandoah Warehouse Project Initial Study (2016; 6 pp);
- Tri-City Industrial Complex Initial Study (2016; 5 pp);
- Hidden Canyon Industrial Park Plot Plan 16-PP-02 (2016; 12 pp);
- Kimball Business Park DEIR (2016; 10 pp);
- Jupiter Project IS and MND (2016; 9 pp);
- Revised Draft Giant Garter Snake Recovery Plan of 2015 (2016, 18 pp);
- Palo Verde Mesa Solar Project Draft Environmental Impact Report (2016; 27 pp);

- Reply Witness Statement on Fairview Wind Project, Ontario, Canada (2016; 14 pp);
- Fairview Wind Project, Ontario, Canada (2016; 41 pp);
- Supplementary Reply Witness Statement Amherst Island Wind Farm, Ontario (2015, 38 pp);
- Witness Statement on Amherst Island Wind Farm, Ontario (2015, 31 pp);
- Second Reply Witness Statement on White Pines Wind Farm, Ontario (2015, 6 pp);
- Reply Witness Statement on White Pines Wind Farm, Ontario (2015, 10 pp);
- Witness Statement on White Pines Wind Farm, Ontario (2015, 9 pp);
- Proposed Section 24 Specific Plan Agua Caliente Band of Cahuilla Indians DEIS (2015, 9 pp);
- Replies to comments 24 Specific Plan Agua Caliente Band of Cahuilla Indians FEIS (2015, 6 pp);
- Willow Springs Solar Photovoltaic Project DEIR (2015; 28 pp);
- Sierra Lakes Commerce Center Project DEIR (2015, 9 pp);
- Columbia Business Center MND (2015; 8 pp);
- West Valley Logistics Center Specific Plan DEIR (2015, 10 pp);
- World Logistic Center Specific Plan FEIR (2015, 12 pp);
- Bay Delta Conservation Plan EIR/EIS (2014, 21 pp);
- Addison Wind Energy Project DEIR (2014, 32 pp);
- Response to Comments on the Addison Wind Energy Project DEIR (2014, 15 pp);
- Addison and Rising Tree Wind Energy Project FEIR (2014, 12 pp);
- Alta East Wind Energy Project FEIS (2013, 23 pp);
- Blythe Solar Power Project Staff Assessment, California Energy Commission (2013, 16 pp);
- Clearwater and Yakima Solar Projects DEIR (2013, 9 pp);
- Cuyama Solar Project DEIR (2014, 19 pp);
- Draft Desert Renewable Energy Conservation Plan (DRECP) EIR/EIS (2015, 49 pp);
- Kingbird Solar Photovoltaic Project EIR (2013, 19 pp);
- Lucerne Valley Solar Project Initial Study & Mitigated Negative Declaration (2013, 12 pp);
- Palen Solar Electric Generating System Final Staff Assessment of California Energy Commission, (2014, 20 pp);
- Rebuttal testimony on Palen Solar Energy Generating System (2014, 9 pp);
- Rising Tree Wind Energy Project DEIR (2014, 32 pp);
- Response to Comments on the Rising Tree Wind Energy Project DEIR (2014, 15 pp);
- Soitec Solar Development Project Draft PEIR (2014, 18 pp);
- Comment on the Biological Opinion (08ESMF-00-2012-F-0387) of Oakland Zoo expansion on Alameda whipsnake and California red-legged frog (2014; 3 pp);
- West Antelope Solar Energy Project Initial Study and Negative Declaration (2013, 18 pp);
- Willow Springs Solar Photovoltaic Project DEIR (2015, 28 pp);
- Alameda Creek Bridge Replacement Project DEIR (2015, 10 pp);
- Declaration on Tule Wind project FEIR/FEIS (2013; 24 pp);
- Sunlight Partners LANDPRO Solar Project Mitigated Negative Declaration (2013; 11 pp);
- Declaration in opposition to BLM fracking (2013; 5 pp);
- Rosamond Solar Project Addendum EIR (2013; 13 pp);
- Pioneer Green Solar Project EIR (2013; 13 pp);
- Reply to Staff Responses to Comments on Soccer Center Solar Project Mitigated Negative

Declaration (2013; 6 pp);
- Soccer Center Solar Project Mitigated Negative Declaration (2013; 10 pp);
- Plainview Solar Works Mitigated Negative Declaration (2013; 10 pp);
- Reply to the County Staff's Responses on comments to Imperial Valley Solar Company 2 Project (2013; 10 pp);
- Imperial Valley Solar Company 2 Project (2013; 13 pp);
- FRV Orion Solar Project DEIR (PP12232) (2013; 9 pp);
- Casa Diablo IV Geothermal Development Project (3013; 6 pp);
- Reply to Staff Responses to Comments on Casa Diablo IV Geothermal Development Project (2013; 8 pp);
- FEIS prepared for Alta East Wind Project (2013; 23 pp);
- Metropolitan Air Park DEIR, City of San Diego (2013;);
- Davidon Homes Tentative Subdivision Map and Rezoning Project DEIR (2013; 9 pp);
- Analysis of Biological Assessment of Oakland Zoo Expansion Impacts on Alameda Whipsnake (2013; 10 pp);
- Declaration on Campo Verde Solar project FEIR (2013; 11pp);
- Neg Dec comments on Davis Sewer Trunk Rehabilitation (2013; 8 pp);
- Declaration on North Steens Transmission Line FEIS (2012; 62 pp);
- City of Lancaster Revised Initial Study for Conditional Use Permits 12-08 and 12-09, Summer Solar and Springtime Solar Projects (2012; 8 pp);
- J&J Ranch, 24 Adobe Lane Environmental Review (2012; 14 pp);
- Reply to the County Staff's Responses on comments to Hudson Ranch Power II Geothermal Project and the Simbol Calipatria Plant II (2012; 8 pp);
- Hudson Ranch Power II Geothermal Project and the Simbol Calipatria Plant II (2012; 9 pp);
- Desert Harvest Solar Project EIS (2012; 15 pp);
- Solar Gen 2 Array Project DEIR (2012; 16 pp);
- Ocotillo Sol Project EIS (2012; 4 pp);
- Beacon Photovoltaic Project DEIR (2012; 5 pp);
- Declaration on Initial Study and Proposed Negative Declaration for the Butte Water District 2012 Water Transfer Program (2012; 11 pp);
- Mount Signal and Calexico Solar Farm Projects DEIR (2011; 16 pp);
- City of Elk Grove Sphere of Influence EIR (2011; 28 pp);
- Comment on Sutter Landing Park Solar Photovoltaic Project MND (2011; 9 pp);
- Statement of Shawn Smallwood, Ph.D. Regarding Proposed Rabik/Gudath Project, 22611 Coleman Valley Road, Bodega Bay (CPN 10-0002) (2011; 4 pp);
- Declaration of K. Shawn Smallwood on Biological Impacts of the Ivanpah Solar Electric Generating System (ISEGS) (2011; 9 pp);
- Comments on Draft Eagle Conservation Plan Guidance (2011; 13 pp);
- Comments on Draft EIR/EA for Niles Canyon Safety Improvement Project (2011; 16 pp);
- Declaration of K. Shawn Smallwood, Ph.D., on Biological Impacts of the Route 84 Safety Improvement Project (2011; 7 pp);
- Rebuttal Testimony of Witness #22, K. Shawn Smallwood, Ph.D, on Behalf of Intervenors Friends of The Columbia Gorge & Save Our Scenic Area (2010; 6 pp);
- Prefiled Direct Testimony of Witness #22, K. Shawn Smallwood, Ph.D, on Behalf of

Intervenors Friends of the Columbia Gorge & Save Our Scenic Area. Comments on Whistling Ridge Wind Energy Power Project DEIS, Skamania County, Washington (2010; 41 pp);

- Evaluation of Klickitat County's Decisions on the Windy Flats West Wind Energy Project (2010; 17 pp);
- St. John's Church Project Draft Environmental Impact Report (2010; 14 pp.);
- Initial Study/Mitigated Negative Declaration for Results Radio Zone File #2009-001 (2010; 20 pp);
- Rio del Oro Specific Plan Project Final Environmental Impact Report (2010;12 pp);
- Answers to Questions on 33% RPS Implementation Analysis Preliminary Results Report (2009: 9 pp);
- SEPA Determination of Non-significance regarding zoning adjustments for Skamania County, Washington. Second Declaration to Friends of the Columbia Gorge, Inc. and Save Our Scenic Area (Dec 2008; 17 pp);
- Comments on Draft 1A Summary Report to CAISO (2008; 10 pp);
- County of Placer's Categorical Exemption of Hilton Manor Project (2009; 9 pp);
- Protest of CARE to Amendment to the Power Purchase and Sale Agreement for Procurement of Eligible Renewable Energy Resources Between Hatchet Ridge Wind LLC and PG&E (2009; 3 pp);
- Tehachapi Renewable Transmission Project EIR/EIS (2009; 142 pp);
- Delta Shores Project EIR, south Sacramento (2009; 11 pp + addendum 2 pp);
- Declaration of Shawn Smallwood in Support of Care's Petition to Modify D.07-09-040 (2008; 3 pp);
- The Public Utility Commission's Implementation Analysis December 16 Workshop for the Governor's Executive Order S-14-08 to implement a 33% Renewable Portfolio Standard by 2020 (2008; 9 pp);
- The Public Utility Commission's Implementation Analysis Draft Work Plan for the Governor's Executive Order S-14-08 to implement a 33% Renewable Portfolio Standard by 2020 (2008; 11 pp);
- Draft 1A Summary Report to California Independent System Operator for Planning Reserve Margins (PRM) Study (2008; 7 pp.);
- SEPA Determination of Non-significance regarding zoning adjustments for Skamania County, Washington. Declaration to Friends of the Columbia Gorge, Inc. and Save Our Scenic Area (Sep 2008; 16 pp);
- California Energy Commission's Preliminary Staff Assessment of the Colusa Generating Station (2007; 24 pp);
- Rio del Oro Specific Plan Project Recirculated Draft Environmental Impact Report (2008: 66 pp);
- Replies to Response to Comments Re: Regional University Specific Plan Environmental Impact Report (2008; 20 pp);
- Regional University Specific Plan Environmental Impact Report (2008: 33 pp.);
- Clark Precast, LLC's "Sugarland" project, Negative Declaration (2008: 15 pp.);
- Cape Wind Project Draft Environmental Impact Statement (2008; 157 pp.);
- Yuba Highlands Specific Plan (or Area Plan) Environmental Impact Report (2006; 37 pp.);
- Replies to responses to comments on Mitigated Negative Declaration of the proposed

Mining Permit (MIN 04-01) and Modification of Use Permit 96-02 at North Table Mountain (2006; 5 pp);

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- Windy Point Wind Farm Environmental Review and EIS (2006; 14 pp and 36 Powerpoint slides in reply to responses to comments);
- Shiloh I Wind Power Project EIR (2005; 18 pp);
- Buena Vista Wind Energy Project Notice of Preparation of EIR (2004; 15 pp);
- Negative Declaration of the proposed Callahan Estates Subdivision (2004; 11 pp);
- Negative Declaration of the proposed Winters Highlands Subdivision (2004; 9 pp);
- Negative Declaration of the proposed Winters Highlands Subdivision (2004; 13 pp);
- Negative Declaration of the proposed Creekside Highlands Project, Tract 7270 (2004; 21 pp);
- On the petition California Fish and Game Commission to list the Burrowing Owl as threatened or endangered (2003; 10 pp);
- Conditional Use Permit renewals from Alameda County for wind turbine operations in the Altamont Pass Wind Resource Area (2003; 41 pp);
- UC Davis Long Range Development Plan of 2003, particularly with regard to the Neighborhood Master Plan (2003; 23 pp);
- Anderson Marketplace Draft Environmental Impact Report (2003: 18 pp + 3 plates of photos);
- Negative Declaration of the proposed expansion of Temple B'nai Tikyah (2003: 6 pp);
- Antonio Mountain Ranch Specific Plan Public Draft EIR (2002: 23 pp);
- Response to testimony of experts at the East Altamont Energy Center evidentiary hearing on biological resources (2002: 9 pp);
- Revised Draft Environmental Impact Report, The Promenade (2002: 7 pp);
- Recirculated Initial Study for Calpine's proposed Pajaro Valley Energy Center (2002: 3 pp);
- UC Merced -- Declaration of Dr. Shawn Smallwood in support of petitioner's application for temporary restraining order and preliminary injunction (2002: 5 pp);
- Replies to response to comments in Final Environmental Impact Report, Atwood Ranch Unit III Subdivision (2003: 22 pp);
- Draft Environmental Impact Report, Atwood Ranch Unit III Subdivision (2002: 19 pp + 8 photos on 4 plates);
- California Energy Commission Staff Report on GWF Tracy Peaker Project (2002: 17 pp + 3 photos; follow-up report of 3 pp);
- Initial Study and Negative Declaration, Silver Bend Apartments, Placer County (2002: 13 pp);
- UC Merced Long-range Development Plan DEIR and UC Merced Community Plan DEIR (2001: 26 pp);
- Initial Study, Colusa County Power Plant (2001: 6 pp);
- Comments on Proposed Dog Park at Catlin Park, Folsom, California (2001: 5 pp + 4 photos);
- Pacific Lumber Co. (Headwaters) Habitat Conservation Plan and Environmental Impact Report (1998: 28 pp);
- Final Environmental Impact Report/Statement for Issuance of Take authorization for listed

species within the MSCP planning area in San Diego County, California (Fed. Reg. 62 (60): 14938, San Diego Multi-Species Conservation Program) (1997: 10 pp);

- Permit (PRT-823773) Amendment for the Natomas Basin Habitat Conservation Plan, Sacramento, CA (Fed. Reg. 63 (101): 29020-29021) (1998);
- Draft Recovery Plan for the Giant Garter Snake (*Thamnophis gigas*). (Fed. Reg. 64(176): 49497-49498) (1999: 8 pp);
- Review of the Draft Recovery Plan for the Arroyo Southwestern Toad (*Bufo microscaphus californicus*) (1998);
- Ballona West Bluffs Project Environmental Impact Report (1999: oral presentation);
- California Board of Forestry's proposed amended Forest Practices Rules (1999);
- Negative Declaration for the Sunset Skyranch Airport Use Permit (1999);
- Calpine and Bechtel Corporations' Biological Resources Implementation and Monitoring Program (BRMIMP) for the Metcalf Energy Center (2000: 10 pp);
- California Energy Commission's Final Staff Assessment of the proposed Metcalf Energy Center (2000);
- US Fish and Wildlife Service Section 7 consultation with the California Energy Commission regarding Calpine and Bechtel Corporations' Metcalf Energy Center (2000: 4 pp);
- California Energy Commission's Preliminary Staff Assessment of the proposed Metcalf Energy Center (2000: 11 pp);
- Site-specific management plans for the Natomas Basin Conservancy's mitigation lands, prepared by Wildlands, Inc. (2000: 7 pp);
- Affidavit of K. Shawn Smallwood in Spirit of the Sage Council, et al. (Plaintiffs) vs. Bruce Babbitt, Secretary, U.S. Department of the Interior, et al. (Defendants), Injuries caused by the No Surprises policy and final rule which codifies that policy (1999: 9 pp).

Comments on other Environmental Review Documents:

- Proposed Regulation for California Fish and Game Code Section 3503.5 (2015: 12 pp);
- Statement of Overriding Considerations related to extending Altamont Winds, Inc.'s Conditional Use Permit PLN2014-00028 (2015; 8 pp);
- Draft Program Level EIR for Covell Village (2005; 19 pp);
- Bureau of Land Management Wind Energy Programmatic EIS Scoping document (2003: 7 pp.);
- NEPA Environmental Analysis for Biosafety Level 4 National Biocontainment Laboratory (NBL) at UC Davis (2003: 7 pp);
- Notice of Preparation of UC Merced Community and Area Plan EIR, on behalf of The Wildlife Society—Western Section (2001: 8 pp.);
- Preliminary Draft Yolo County Habitat Conservation Plan (2001; 2 letters totaling 35 pp.);
- Merced County General Plan Revision, notice of Negative Declaration (2001: 2 pp.);
- Notice of Preparation of Campus Parkway EIR/EIS (2001: 7 pp.);
- Draft Recovery Plan for the bighorn sheep in the Peninsular Range (*Ovis candensis*) (2000);
- Draft Recovery Plan for the California Red-legged Frog (*Rana aurora draytonii*), on behalf of The Wildlife Society—Western Section (2000: 10 pp.);
- Sierra Nevada Forest Plan Amendment Draft Environmental Impact Statement, on behalf of The Wildlife Society—Western Section (2000: 7 pp.);

- State Water Project Supplemental Water Purchase Program, Draft Program EIR (1997);
- Davis General Plan Update EIR (2000);
- Turn of the Century EIR (1999: 10 pp);
- Proposed termination of Critical Habitat Designation under the Endangered Species Act (Fed. Reg. 64(113): 31871-31874) (1999);
- NOA Draft Addendum to the Final Handbook for Habitat Conservation Planning and Incidental Take Permitting Process, termed the HCP 5-Point Policy Plan (Fed. Reg. 64(45): 11485 - 11490) (1999; 2 pp + attachments);
- Covell Center Project EIR and EIR Supplement (1997).

Position Statements I prepared the following position statements for the Western Section of The Wildlife Society, and one for nearly 200 scientists:

- Recommended that the California Department of Fish and Game prioritize the extermination of the introduced southern water snake in northern California. The Wildlife Society--Western Section (2001);
- Recommended that The Wildlife Society—Western Section appoint or recommend members of the independent scientific review panel for the UC Merced environmental review process (2001);
- Opposed the siting of the University of California's 10th campus on a sensitive vernal pool/grassland complex east of Merced. The Wildlife Society--Western Section (2000);
- Opposed the legalization of ferret ownership in California. The Wildlife Society--Western Section (2000);
- Opposed the Proposed "No Surprises," "Safe Harbor," and "Candidate Conservation Agreement" rules, including permit-shield protection provisions (Fed. Reg. Vol. 62, No. 103, pp. 29091-29098 and No. 113, pp. 32189-32194). This statement was signed by 188 scientists and went to the responsible federal agencies, as well as to the U.S. Senate and House of Representatives.

Posters at Professional Meetings

Leyvas, E. and K. S. Smallwood. 2015. Rehabilitating injured animals to offset and rectify wind project impacts. Conference on Wind Energy and Wildlife Impacts, Berlin, Germany, 9-12 March 2015.

Smallwood, K. S., J. Mount, S. Standish, E. Leyvas, D. Bell, E. Walther, B. Karas. 2015. Integrated detection trials to improve the accuracy of fatality rate estimates at wind projects. Conference on Wind Energy and Wildlife Impacts, Berlin, Germany, 9-12 March 2015.

Smallwood, K. S. and C. G. Thelander. 2005. Lessons learned from five years of avian mortality research in the Altamont Pass WRA. AWEA conference, Denver, May 2005.

Neher, L., L. Wilder, J. Woo, L. Spiegel, D. Yen-Nakafugi, and K.S. Smallwood. 2005. Bird's eye view on California wind. AWEA conference, Denver, May 2005.

Smallwood, K. S., C. G. Thelander and L. Spiegel. 2003. Toward a predictive model of avian

fatalities in the Altamont Pass Wind Resource Area. Windpower 2003 Conference and Convention, Austin, Texas.

Smallwood, K.S. and Eva Butler. 2002. Pocket Gopher Response to Yellow Star-thistle Eradication as part of Grassland Restoration at Decommissioned Mather Air Force Base, Sacramento County, California. White Mountain Research Station Open House, Barcroft Station.

Smallwood, K.S. and Michael L. Morrison. 2002. Fresno kangaroo rat (*Dipodomys nitratoides*) Conservation Research at Resources Management Area 5, Lemoore Naval Air Station. White Mountain Research Station Open House, Barcroft Station.

Smallwood, K.S. and E.L. Fitzhugh. 1989. Differentiating mountain lion and dog tracks. Third Mountain Lion Workshop, Prescott, AZ.

Smith, T. R. and K. S. Smallwood. 2000. Effects of study area size, location, season, and allometry on reported *Sorex* shrew densities. Annual Meeting of the Western Section of The Wildlife Society.

Presentations at Professional Meetings and Seminars

Repowering the Altamont Pass. Altamont Symposium, The Wildlife Society – Western Section, 5 February 2017.

Developing methods to reduce bird mortality in the Altamont Pass Wind Resource Area, 1999-2007. Altamont Symposium, The Wildlife Society – Western Section, 5 February 2017.

Conservation and recovery of burrowing owls in Santa Clara Valley. Santa Clara Valley Habitat Agency, Newark, California, 3 February 2017.

Mitigation of Raptor Fatalities in the Altamont Pass Wind Resource Area. Raptor Research Foundation Meeting, Sacramento, California, 6 November 2015.

From burrows to behavior: Research and management for burrowing owls in a diverse landscape. California Burrowing Owl Consortium meeting, 24 October 2015, San Jose, California.

The Challenges of repowering. Keynote presentation at Conference on Wind Energy and Wildlife Impacts, Berlin, Germany, 10 March 2015.

Research Highlights Altamont Pass 2011-2015. Scientific Review Committee, Oakland, California, 8 July 2015.

Siting wind turbines to minimize raptor collisions: Altamont Pass Wind Resource Area. US Fish and Wildlife Service Golden Eagle Working Group, Sacramento, California, 8 January 2015.

Evaluation of nest boxes as a burrowing owl conservation strategy. Sacramento Chapter of the Western Section, The Wildlife Society. Sacramento, California, 26 August 2013.

Predicting collision hazard zones to guide repowering of the Altamont Pass. Conference on wind

power and environmental impacts. Stockholm, Sweden, 5-7 February 2013.

Impacts of Wind Turbines on Wildlife. California Council for Wildlife Rehabilitators, Yosemite, California, 12 November 2012.

Impacts of Wind Turbines on Birds and Bats. Madrone Audubon Society, Santa Rosa, California, 20 February 2012.

Comparing Wind Turbine Impacts across North America. California Energy Commission Staff Workshop: Reducing the Impacts of Energy Infrastructure on Wildlife, 20 July 2011.

Siting Repowered Wind Turbines to Minimize Raptor Collisions. California Energy Commission Staff Workshop: Reducing the Impacts of Energy Infrastructure on Wildlife, 20 July 2011.

Siting Repowered Wind Turbines to Minimize Raptor Collisions. Alameda County Scientific Review Committee meeting, 17 February 2011

Comparing Wind Turbine Impacts across North America. Conference on Wind energy and Wildlife impacts, Trondheim, Norway, 3 May 2011.

Update on Wildlife Impacts in the Altamont Pass Wind Resource Area. Raptor Symposium, The Wildlife Society—Western Section, Riverside, California, February 2011.

Siting Repowered Wind Turbines to Minimize Raptor Collisions. Raptor Symposium, The Wildlife Society - Western Section, Riverside, California, February 2011.

Wildlife mortality caused by wind turbine collisions. Ecological Society of America, Pittsburgh, Pennsylvania, 6 August 2010.

Map-based repowering and reorganization of a wind farm to minimize burrowing owl fatalities. California burrowing Owl Consortium Meeting, Livermore, California, 6 February 2010.

Environmental barriers to wind power. Getting Real About Renewables: Economic and Environmental Barriers to Biofuels and Wind Energy. A symposium sponsored by the Environmental & Energy Law & Policy Journal, University of Houston Law Center, Houston, 23 February 2007.

Lessons learned about bird collisions with wind turbines in the Altamont Pass and other US wind farms. Meeting with Japan Ministry of the Environment and Japan Ministry of the Economy, Wild Bird Society of Japan, and other NGOs Tokyo, Japan, 9 November 2006.

Lessons learned about bird collisions with wind turbines in the Altamont Pass and other US wind farms. Symposium on bird collisions with wind turbines. Wild Bird Society of Japan, Tokyo, Japan, 4 November 2006.

Responses of Fresno kangaroo rats to habitat improvements in an adaptive management framework. California Society for Ecological Restoration (SERCAL) 13th Annual Conference, UC Santa

Barbara, 27 October 2006.

Fatality associations as the basis for predictive models of fatalities in the Altamont Pass Wind Resource Area. EEI/APLIC/PIER Workshop, 2006 Biologist Task Force and Avian Interaction with Electric Facilities Meeting, Pleasanton, California, 28 April 2006.

Burrowing owl burrows and wind turbine collisions in the Altamont Pass Wind Resource Area. The Wildlife Society - Western Section Annual Meeting, Sacramento, California, February 8, 2006.

Mitigation at wind farms. Workshop: Understanding and resolving bird and bat impacts. American Wind Energy Association and Audubon Society. Los Angeles, CA. January 10 and 11, 2006.

Incorporating data from the California Wildlife Habitat Relationships (CWHR) system into an impact assessment tool for birds near wind farms. Shawn Smallwood, Kevin Hunting, Marcus Yee, Linda Spiegel, Monica Parisi. Workshop: Understanding and resolving bird and bat impacts. American Wind Energy Association and Audubon Society. Los Angeles, CA. January 10 and 11, 2006.

Toward indicating threats to birds by California's new wind farms. California Energy Commission, Sacramento, May 26, 2005.

Avian collisions in the Altamont Pass. California Energy Commission, Sacramento, May 26, 2005.

Ecological solutions for avian collisions with wind turbines in the Altamont Pass Wind Resource Area. EPRI Environmental Sector Council, Monterey, California, February 17, 2005.

Ecological solutions for avian collisions with wind turbines in the Altamont Pass Wind Resource Area. The Wildlife Society—Western Section Annual Meeting, Sacramento, California, January 19, 2005.

Associations between avian fatalities and attributes of electric distribution poles in California. The Wildlife Society - Western Section Annual Meeting, Sacramento, California, January 19, 2005.

Minimizing avian mortality in the Altamont Pass Wind Resources Area. UC Davis Wind Energy Collaborative Forum, Palm Springs, California, December 14, 2004.

Selecting electric distribution poles for priority retrofitting to reduce raptor mortality. Raptor Research Foundation Meeting, Bakersfield, California, November 10, 2004.

Responses of Fresno kangaroo rats to habitat improvements in an adaptive management framework. Annual Meeting of the Society for Ecological Restoration, South Lake Tahoe, California, October 16, 2004.

Lessons learned from five years of avian mortality research at the Altamont Pass Wind Resources Area in California. The Wildlife Society Annual Meeting, Calgary, Canada, September 2004.

The ecology and impacts of power generation at Altamont Pass. Sacramento Petroleum Association,

Sacramento, California, August 18, 2004.

Burrowing owl mortality in the Altamont Pass Wind Resource Area. California Burrowing Owl Consortium meeting, Hayward, California, February 7, 2004.

Burrowing owl mortality in the Altamont Pass Wind Resource Area. California Burrowing Owl Symposium, Sacramento, November 2, 2003.

Raptor Mortality at the Altamont Pass Wind Resource Area. National Wind Coordinating Committee, Washington, D.C., November 17, 2003.

Raptor Behavior at the Altamont Pass Wind Resource Area. Annual Meeting of the Raptor Research Foundation, Anchorage, Alaska, September, 2003.

Raptor Mortality at the Altamont Pass Wind Resource Area. Annual Meeting of the Raptor Research Foundation, Anchorage, Alaska, September, 2003.

California mountain lions. Ecological & Environmental Issues Seminar, Department of Biology, California State University, Sacramento, November, 2000.

Intra- and inter-turbine string comparison of fatalities to animal burrow densities at Altamont Pass. National Wind Coordinating Committee, Carmel, California, May, 2000.

Using a Geographic Positioning System (GPS) to map wildlife and habitat. Annual Meeting of the Western Section of The Wildlife Society, Riverside, CA, January, 2000.

Suggested standards for science applied to conservation issues. Annual Meeting of the Western Section of The Wildlife Society, Riverside, CA, January, 2000.

The indicators framework applied to ecological restoration in Yolo County, California. Society for Ecological Restoration, September 25, 1999.

Ecological restoration in the context of animal social units and their habitat areas. Society for Ecological Restoration, September 24, 1999.

Relating Indicators of Ecological Health and Integrity to Assess Risks to Sustainable Agriculture and Native Biota. International Conference on Ecosystem Health, August 16, 1999.

A crosswalk from the Endangered Species Act to the HCP Handbook and real HCPs. Southern California Edison, Co. and California Energy Commission, March 4-5, 1999.

Mountain lion track counts in California: Implications for Management. Ecological & Environmental Issues Seminar, Department of Biological Sciences, California State University, Sacramento, November 4, 1998.

“No Surprises” -- Lack of science in the HCP process. California Native Plant Society Annual Conservation Conference, The Presidio, San Francisco, September 7, 1997.

In Your Interest. A half hour weekly show aired on Channel 10 Television, Sacramento. In this episode, I served on a panel of experts discussing problems with the implementation of the Endangered Species Act. Aired August 31, 1997.

Spatial scaling of pocket gopher (*Geomyidae*) density. Southwestern Association of Naturalists 44th Meeting, Fayetteville, Arkansas, April 10, 1997.

Estimating prairie dog and pocket gopher burrow volume. Southwestern Association of Naturalists 44th Meeting, Fayetteville, Arkansas, April 10, 1997.

Ten years of mountain lion track survey. Fifth Mountain Lion Workshop, San Diego, February 27, 1996.

Study and interpretive design effects on mountain lion density estimates. Fifth Mountain Lion Workshop, San Diego, February 27, 1996.

Small animal control. Session moderator and speaker at the California Farm Conference, Sacramento, California, Feb. 28, 1995.

Small animal control. Ecological Farming Conference, Asylomar, California, Jan. 28, 1995.

Habitat associations of the Swainson's Hawk in the Sacramento Valley's agricultural landscape. 1994 Raptor Research Foundation Meeting, Flagstaff, Arizona.

Alfalfa as wildlife habitat. Seed Industry Conference, Woodland, California, May 4, 1994.

Habitats and vertebrate pests: impacts and management. Managing Farmland to Bring Back Game Birds and Wildlife to the Central Valley. Yolo County Resource Conservation District, U.C. Davis, February 19, 1994.

Management of gophers and alfalfa as wildlife habitat. Orland Alfalfa Production Meeting and Sacramento Valley Alfalfa Production Meeting, February 1 and 2, 1994.

Patterns of wildlife movement in a farming landscape. Wildlife and Fisheries Biology Seminar Series: Recent Advances in Wildlife, Fish, and Conservation Biology, U.C. Davis, Dec. 6, 1993.

Alfalfa as wildlife habitat. California Alfalfa Symposium, Fresno, California, Dec. 9, 1993.

Management of pocket gophers in Sacramento Valley alfalfa. California Alfalfa Symposium, Fresno, California, Dec. 8, 1993.

Association analysis of raptors in a farming landscape. Plenary speaker at Raptor Research Foundation Meeting, Charlotte, North Carolina, Nov. 6, 1993.

Landscape strategies for biological control and IPM. Plenary speaker, International Conference on Integrated Resource Management and Sustainable Agriculture, Beijing, China, Sept. 11, 1993.

Landscape Ecology Study of Pocket Gophers in Alfalfa. Alfalfa Field Day, U.C. Davis, July 1993.

Patterns of wildlife movement in a farming landscape. Spatial Data Analysis Colloquium, U.C. Davis, August 6, 1993.

Sound stewardship of wildlife. Veterinary Medicine Seminar: Ethics of Animal Use, U.C. Davis. May 1993.

Landscape ecology study of pocket gophers in alfalfa. Five County Grower's Meeting, Tracy, California. February 1993.

Turbulence and the community organizers: The role of invading species in ordering a turbulent system, and the factors for invasion success. Ecology Graduate Student Association Colloquium, U.C. Davis. May 1990.

Evaluation of exotic vertebrate pests. Fourteenth Vertebrate Pest Conference, Sacramento, California. March 1990.

Analytical methods for predicting success of mammal introductions to North America. The Western Section of the Wildlife Society, Hilo, Hawaii. February 1988.

A state-wide mountain lion track survey. Sacramento County Dept Parks and Recreation. April 1986.

The mountain lion in California. Davis Chapter of the Audubon Society. October 1985.

Ecology Graduate Student Seminars, U.C. Davis, 1985-1990: Social behavior of the mountain lion; Mountain lion control; Political status of the mountain lion in California.

Other forms of Participation at Professional Meetings

- Scientific Committee, Conference on Wind energy and Wildlife impacts, Berlin, Germany, March 2015.

- Scientific Committee, Conference on Wind energy and Wildlife impacts, Stockholm, Sweden, February 2013.

- Workshop co-presenter at Birds & Wind Energy Specialist Group (BAWESG) Information sharing week, Bird specialist studies for proposed wind energy facilities in South Africa, Endangered Wildlife Trust, Darling, South Africa, 3-7 October 2011.

- Scientific Committee, Conference on Wind energy and Wildlife impacts, Trondheim, Norway, 2-5 May 2011.

- Chair of Animal Damage Management Session, The Wildlife Society, Annual Meeting, Reno, Nevada, September 26, 2001.

- Chair of Technical Session: Human communities and ecosystem health: Comparing perspectives and making connection. Managing for Ecosystem Health, International Congress on Ecosystem Health, Sacramento, CA August 15-20, 1999.

- Student Awards Committee, Annual Meeting of the Western Section of The Wildlife Society, Riverside, CA, January, 2000.

- Student Mentor, Annual Meeting of the Western Section of The Wildlife Society, Riverside, CA, January, 2000.

Printed Mass Media

Smallwood, K.S., D. Mooney, and M. McGuinness. 2003. We must stop the UCD biolab now. Op-Ed to the Davis Enterprise.

Smallwood, K.S. 2002. Spring Lake threatens Davis. Op-Ed to the Davis Enterprise.

Smallwood, K.S. Summer, 2001. Mitigation of habitation. The Flatlander, Davis, California.

Entrikan, R.K. and K.S. Smallwood. 2000. Measure O: Flawed law would lock in new taxes. Op-Ed to the Davis Enterprise.

Smallwood, K.S. 2000. Davis delegation lobbies Congress for Wildlife conservation. Op-Ed to the Davis Enterprise.

Smallwood, K.S. 1998. Davis Visions. The Flatlander, Davis, California.

Smallwood, K.S. 1997. Last grab for Yolo's land and water. The Flatlander, Davis, California.

Smallwood, K.S. 1997. The Yolo County HCP. Op-Ed to the Davis Enterprise.

Radio/Television

PBS News Hour,

FOX News, Energy in America: Dead Birds Unintended Consequence of Wind Power Development, August 2011.

KXJZ Capital Public Radio -- Insight (Host Jeffrey Callison). Mountain lion attacks (with guest Professor Richard Coss). 23 April 2009;

KXJZ Capital Public Radio -- Insight (Host Jeffrey Callison). Wind farm Rio Vista Renewable Power. 4 September 2008;

KQED QUEST Episode #111. Bird collisions with wind turbines. 2007;

KDVS Speaking in Tongues (host Ron Glick), Yolo County HCP: 1 hour. December 27, 2001;

KDVS Speaking in Tongues (host Ron Glick), Yolo County HCP: 1 hour. May 3, 2001;

KDVS Speaking in Tongues (host Ron Glick), Yolo County HCP: 1 hour. February 8, 2001;

KDVS Speaking in Tongues (host Ron Glick & Shawn Smallwood), California Energy Crisis: 1 hour. Jan. 25, 2001;

KDVS Speaking in Tongues (host Ron Glick), Headwaters Forest HCP: 1 hour. 1998;

Davis Cable Channel (host Gerald Heffernon), Burrowing owls in Davis: half hour. June, 2000;

Davis Cable Channel (hosted by Davis League of Women Voters), Measure O debate: 1 hour. October, 2000;

KXTV 10, In Your Interest, The Endangered Species Act: half hour. 1997.

Reviews of Journal Papers (Scientific journals for whom I've provided peer review)

Journal	**Journal**
American Naturalist	Journal of Animal Ecology
Journal of Wildlife Management	Western North American Naturalist
Auk	Journal of Raptor Research
Biological Conservation	National Renewable Energy Lab reports
Canadian Journal of Zoology	Oikos
Ecosystem Health	The Prairie Naturalist
Environmental Conservation	Restoration Ecology
Environmental Management	Southwestern Naturalist
Functional Ecology	The Wildlife Society--Western Section Trans.
Journal of Zoology (London)	Proc. Int. Congress on Managing for Ecosystem Health
Journal of Applied Ecology	Transactions in GIS
Ecology	Tropical Ecology
Wildlife Society Bulletin	Peer J
Biological Control	The Condor

Committees

- Scientific Review Committee, Alameda County, Altamont Pass Wind Resource Area
- Ph.D. Thesis Committee, Steve Anderson, University of California, Davis
- MS Thesis Committee, Marcus Yee, California State University, Sacramento

Other Professional Activities or Products

Testified in Federal Court in Denver during 2005 over the fate of radio-nuclides in the soil at Rocky Flats Plant after exposure to burrowing animals. My clients won a judgment of $553,000,000. I have also testified in many other cases of litigation under CEQA, NEPA, the Warren-Alquist Act, and other environmental laws. My clients won most of the cases for which I testified.

Testified before Environmental Review Tribunals in Ontario, Canada regarding proposed White Pines, Amherst Island, and Fairview Wind Energy projects.

Testified in Skamania County Hearing in 2009 on the potential impacts of zoning the County for development of wind farms and hazardous waste facilities.

Testified in deposition in 2007 in the case of O'Dell et al. vs. FPL Energy in Houston, Texas.

Testified in Klickitat County Hearing in 2006 on the potential impacts of the Windy Point Wind Farm.

Memberships in Professional Societies

The Wildlife Society
Raptor Research Foundation

Honors and Awards

Fulbright Research Fellowship to Indonesia, 1987
J.G. Boswell Full Academic Scholarship, 1981 college of choice
Certificate of Appreciation, The Wildlife Society—Western Section, 2000, 2001
Northern California Athletic Association Most Valuable Cross Country Runner, 1984
American Legion Award, Corcoran High School, 1981, and John Muir Junior High, 1977
CIF Section Champion, Cross Country in 1978
CIF Section Champion, Track & Field 2 mile run in 1981
National Junior Record, 20 kilometer run, 1982
National Age Group Record, 1500 meter run, 1978

Community Activities

District 64 Little League Umpire, 2003-2007
Dixon Little League Umpire, 2006-07
Davis Little League Chief Umpire and Board member, 2004-2005
Davis Little League Safety Officer, 2004-2005
Davis Little League Certified Umpire, 2002-2004
Davis Little League Scorekeeper, 2002
Davis Visioning Group member
Petitioner for Writ of Mandate under the California Environmental Quality Act against City of Woodland decision to approve the Spring Lake Specific Plan, 2002
Served on campaign committees for City Council candidates

Representative Clients/Funders

Law Offices of Stephan C. Volker
Blum Collins, LLP
Eric K. Gillespie Professional Corporation
Law Offices of Berger & Montague
Lozeau | Drury LLP
Law Offices of Roy Haber
Law Offices of Edward MacDonald
Law Office of John Gabrielli
Law Office of Bill Kopper
Law Office of Donald B. Mooney
Law Office of Veneruso & Moncharsh
Law Office of Steven Thompson
Law Office of Brian Gaffney
California Wildlife Federation
Defenders of Wildlife
Sierra Club
National Endangered Species Network
Spirit of the Sage Council
The Humane Society
Hagens Berman LLP
Environmental Protection Information Center
Goldberg, Kamin & Garvin, Attorneys at Law
Californians for Renewable Energy (CARE)
Seatuck Environmental Association
Friends of the Columbia Gorge, Inc.
Save Our Scenic Area
Alliance to Protect Nantucket Sound
Friends of the Swainson's Hawk
Alameda Creek Alliance
Center for Biological Diversity
California Native Plant Society
Endangered Wildlife Trust
and BirdLife South Africa
AquAlliance
Oregon Natural Desert Association
Save Our Sound
G3 Energy and Pattern Energy
Emerald Farms
Pacific Gas & Electric Co.
Southern California Edison Co.
Georgia-Pacific Timber Co.
Northern Territories Inc.
David Magney Environmental Consulting
Wildlife History Foundation
NextEra Energy Resources, LLC
Ogin, Inc.
EDF Renewables
National Renewable Energy Lab
Altamont Winds LLC
Salka Energy
Comstocks Business (magazine)
BioResource Consultants
Tierra Data
Black and Veatch
Terry Preston, Wildlife Ecology Research Center
EcoStat, Inc.
US Navy
US Department of Agriculture
US Forest Service
US Fish & Wildlife Service
US Department of Justice
California Energy Commission
California Office of the Attorney General
California Department of Fish & Wildlife
California Department of Transportation
California Department of Forestry
California Department of Food & Agriculture
Ventura County Counsel
County of Yolo
Tahoe Regional Planning Agency
Sustainable Agriculture Research & Education Program
Sacramento-Yolo Mosquito and Vector Control District
East Bay Regional Park District
County of Alameda
Don & LaNelle Silverstien
Seventh Day Adventist Church
Escuela de la Raza Unida
Susan Pelican and Howard Beeman
Residents Against Inconsistent Development, Inc.
Bob Sarvey
Mike Boyd
Hillcroft Neighborhood Fund
Joint Labor Management Committee, Retail Food Industry
Lisa Rocca
Kevin Jackson
Dawn Stover and Jay Letto
Nancy Havassy
Catherine Portman (for Brenda Cedarblade)
Ventus Environmental Solutions, Inc.
Panorama Environmental, Inc.
Adams Broadwell Professional Corporation

Representative special-status species experience

Common name	Species name	Description
Field experience		
California red-legged frog	*Rana aurora draytonii*	Protocol searches; Many detections
Foothill yellow-legged frog	*Rana boylii*	Presence surveys; Many detections
Western spadefoot	*Spea hammondii*	Presence surveys; Few detections
California tiger salamander	*Ambystoma californiense*	Protocol searches; Many detections
Coast range newt	*Taricha torosa torosa*	Searches and multiple detections
Blunt-nosed leopard lizard	*Gambelia sila*	Detected in San Luis Obispo County
California horned lizard	*Phrynosoma coronatum frontale*	Searches; Many detections
Western pond turtle	*Clemmys marmorata*	Searches; Many detections
San Joaquin kit fox	*Vulpes macrotis mutica*	Protocol searches; detections
Sumatran tiger	*Panthera tigris*	Track surveys in Sumatra
Mountain lion	*Puma concolor californicus*	Research and publications
Point Arena mountain beaver	*Aplodontia rufa nigra*	Remote camera operation
Giant kangaroo rat	*Dipodomys ingens*	Detected in Cholame Valley
San Joaquin kangaroo rat	*Dipodomys nitratoides*	Monitoring & habitat restoration
Monterey dusky-footed woodrat	*Neotoma fuscipes luciana*	Non-target captures and mapping of dens
Salt marsh harvest mouse	*Reithrodontomys raviventris*	Habitat assessment, monitoring
Salinas harvest mouse	*Reithrodontomys megalotus distichlus*	Captures; habitat assessment
Bats		Thermal imaging surveys
California clapper rail	*Rallus longirostris*	Surveys and detections
Golden eagle	*Aquila chrysaetos*	Numerical & behavioral surveys
Swainson’s hawk	*Buteo swainsoni*	Numerical & behavioral surveys
Northern harrier	*Circus cyaeneus*	Numerical & behavioral surveys
White-tailed kite	*Elanus leucurus*	Numerical & behavioral surveys
Loggerhead shrike	*Lanius ludovicianus*	Large area surveys
Least Bell’s vireo	*Vireo bellii pusillus*	Detected in Monterey County
Willow flycatcher	*Empidonax traillii extimus*	Research at Sierra Nevada breeding sites
Burrowing owl	*Athene cunicularia hypugia*	Numerical & behavioral surveys
Valley elderberry longhorn beetle	*Desmocerus californicus dimorphus*	Monitored success of relocation and habitat restoration
Analytical		
Arroyo southwestern toad	*Bufo microscaphus californicus*	Research and report.
Giant garter snake	*Thamnophis gigas*	Research and publication
Northern goshawk	*Accipiter gentilis*	Research and publication
Northern spotted owl	*Strix occidentalis*	Research and reports
Alameda whipsnake	*Masticophis lateralis euryxanthus*	Expert testimony

EXHIBIT C

SMITH ENGINEERING & MANAGEMENT

November 12, 2024

Ms. Tara Rengifo
Adams Broadwell Joseph & Cardozo
601 Gateway Boulevard, Suite 1000
South San Francisco, CA 94080-7037

Subject: E & P Technology **Way – Building A & B** ISMND
P24006

Dear Ms. Rengifo:

Per your request, I reviewed the Draft Initial Study Mitigated Negative Declaration (the "ISMND") for the E & P Technology Way – Building A & B Project (the "Project") in the County of Napa (the "County"). My review is with respect to transportation and circulation considerations.

My qualifications to perform this review include registration as a Civil and Traffic Engineer in California, over 50 years professional consulting practice in these fields and both preparation and review of the traffic and transportation components of numerous environmental documents prepared under the California Environmental Quality Act ("CEQA"). My professional resume is attached hereto.

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My comments follow.

The Transportation Section of the ISMND Evaluates the VMT of the Two Components of the Project Independently of One Another. This Is a Project Segmentation or Piecemealing That Is Improper Under CEQA.

The ISMND at pages 1 and 2 identifies the proposed development as a single project comprised of 2 components, a winery ("Building A") and a warehouse ("Building B"). Moreover, the air quality and public health analysis in the MND at pages 7-8 estimates "the project is anticipated to generate 218 total weekday trips. However, the Transportation Section, at page 26, does not consider the VMT of the Project as a whole as required by CEQA. Instead, it independently

evaluates the winery in Building A as having an average of 71 daily trips during non-harvest months and 104 trips per day during harvest months. Based on the trip calculations for Building A alone, the MND states no further VMT analysis is required under the OPR guidance "that, absent substantial evidence otherwise, the addition of 110 or fewer daily trips could be presumed to have a less than significant VMT impact."

The MND at page 27 determines that the Building B warehouse would generate 114 trips per day, which would exceed the 110 trip threshold, and requires the implementation of a Transportation Demand Management Plan (MM TRANS-1). Segmenting the transportation analysis for Building A from Building B is clear piecemealing and violates CEQA. Building A and Building B, i.e., the Project as a whole, would have an estimated 218 daily trips, which is well more than the 110 daily trip maximum for presumption of a less than significant VMT impact. The Project's impact on VMT must be analyzed for the whole of the action and since the Project as a whole would exceed the threshold, there would be a significant and unavoidable impact on VMT. Mitigation measure(s) are necessary to reduce these significant impacts on VMT for the Project to less than significant levels. 85 CONT

Omissions in the Project Description

The Project Description lacks information about the number and frequency of clients that will visit Building A. The ISMND states at page 2 that no retail sales or access for the general public is proposed. However, the ISMND does state at page 2 that "Individual clients will visit the site on occasion to hold meetings with members of the wine trade, such as their distributors, restaurants, wine shop owners and similar types of wine buyers."

The ISMND provides no information about how frequently such gatherings would occur and the numbers of attendees. Due to these omissions in the Project Description, the transportation analysis provides no information about the traffic and VMT associated with such meetings. The Project's Transportation Impact Study at page 7 explains that the anticipated trip generation for Building A was estimated using the Napa County Winery Trip Generation Worksheet. Appendix C to the study includes this worksheet, which puts zero as the maximum daily visitation during the harvest and non-harvest seasons. Only full-time and part-time employees are considered in the trip generation analysis for Building A even though the MND acknowledges that there will be client meetings at the facility during operations. The Project Description must be revised to include information about how frequently such gatherings would occur and the numbers of attendees and the Project's VMT analysis must be revised accordingly.

The Trip Generation Estimates for Building B are Unsupported

For Building B (the warehouse), where a staff of 30 employees is indicated, 82 parking spaces are to be provided. The staff report at page 7 states that 38 of the 82 to be provided are "for the warehouse" and 44 are "for the office". An estimated 11,000 square feet of office space 9the square footage that would typically be needed to support 44 office workers) in Building B is over 16 percent of the building's floor area and thus the office component is not a small ancillary use to the warehouse.

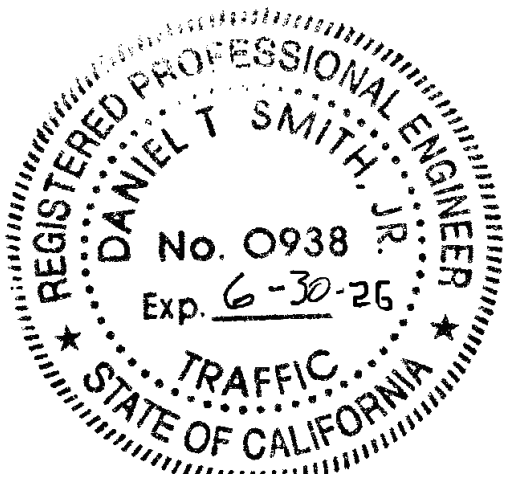
The office uses in Building B should have been analyzed using *Trip Generation, 11th Edition* Land Use Category 710 "Office" instead of Land Use Category 150 "Warehouse". That authoritative reference source indicates office use generates 10.84 trips per thousand square feet daily, 1.52 trips per thousand in the AM peak hour and 1.44 trips per thousand in the PM peak hour whereas warehouse use generates only 1.71 trips per thousand square feet daily, 0.19 per thousand in the AM peak and 0.18 trips per thousand in the PM peak, In other words, depending on the time period under consideration, office use generates between 6 and 8 times more traffic than the same square footage of warehouse. Had the analysis considered an office component, both the trip totals and the VMT generation of Building B would be significantly increased. These impacts are undisclosed and unmitigated in the MND. 85 CONT

Conclusion

Given the above, the ISMND's transportation section is inadequate and an EIR must be prepared.

Sincerely,

Smith Engineering & Management
A California Corporation



Daniel T. Smith Jr., P.E.
President

SMITH ENGINEERING & MANAGEMENT

DANIEL T. SMITH, Jr.
President

EDUCATION

Bachelor of Science, Engineering and Applied Science, Yale University, 1967
Master of Science, Transportation Planning, University of California, Berkeley, 1968

PROFESSIONAL REGISTRATION

California No. 21913 (Civil) Nevada No. 7969 (Civil) Washington No. 29337 (Civil)
California No. 938 (Traffic) Arizona No. 22131 (Civil)

PROFESSIONAL EXPERIENCE

Smith Engineering & Management, 1993 to present. President.
DKS Associates, 1979 to 1993. Founder, Vice President, Principal Transportation Engineer.
De Leuw, Cather & Company, 1968 to 1979. Senior Transportation Planner.
Personal specialties and project experience include:

Litigation Consulting. Provides consultation, investigations and expert witness testimony in highway design, transit design and traffic engineering matters including condemnations involving transportation access issues; traffic accidents involving highway design or traffic engineering factors; land use and development matters involving access and transportation impacts; parking and other traffic and transportation matters.

Urban Corridor Studies/Alternatives Analysis. Principal-in-charge for State Route (SR) 102 Feasibility Study, a 35-mile freeway alignment study north of Sacramento. Consultant on I-280 Interstate Transfer Concept Program, San Francisco, an AA/EIS for completion of I-280, demolition of Embarcadero freeway, substitute light rail and commuter rail projects. Principal-in-charge, SR 238 corridor freeway/expressway design/environmental study, Hayward (Calif.) Project manager, Sacramento Northeast Area multi-modal transportation corridor study. Transportation planner for I-80N West Terminal Study, and Harbor Drive Traffic Study, Portland, Oregon. Project manager for design of surface segment of Woodward Corridor LRT, Detroit, Michigan. Directed staff on I-80 National Strategic Corridor Study (Sacramento-San Francisco), US 101-Sonoma freeway operations study, SR 92 freeway operations study, I-880 freeway operations study, SR 152 alignment studies, Sacramento RTD light rail systems study, Tasman Corridor LRT AA/EIS, Fremont-Warm Springs BART extension plan/EIR, SRs 70/99 freeway alternatives study, and Richmond Parkway (SR 93) design study.

Area Transportation Plans. Principal-in charge for transportation element of City of Los Angeles General Plan Framework, shaping nations largest city two decades into 21'st century. Project manager for the transportation element of 300-acre Mission Bay development in downtown San Francisco. Mission Bay involves 7 million gsf office/commercial space, 8,500 dwelling units, and community facilities. Transportation features include relocation of commuter rail station; extension of MUNI-Metro LRT; a multi-modal terminal for LRT, commuter rail and local bus; removal of a quarter mile elevated freeway; replacement by new ramps and a boulevard; an internal roadway network overcoming constraints imposed by an internal tidal basin; freeway structures and rail facilities; and concept plans for 20,000 structured parking spaces. Principal-in-charge for circulation plan to accommodate 9 million gsf of office/commercial growth in downtown Bellevue (Wash.). Principal-in-charge for 64 acre, 2 million gsf multi-use complex for FMC adjacent to San Jose International Airport. Project manager for transportation element of Sacramento Capitol Area Plan for the state governmental complex, and for Downtown Sacramento Redevelopment Plan. Project manager for Napa (Calif.) General Plan Circulation Element and Downtown Riverfront Redevelopment Plan, on parking program for downtown Walnut Creek, on downtown transportation plan for San Mateo and redevelopment plan for downtown Mountain View (Calif.), for traffic circulation and safety plans for California cities of Davis, Pleasant Hill and Hayward, and for Salem, Oregon.

TRAFFIC • TRANSPORTATION • MANAGEMENT
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Transportation Centers. Project manager for Daly City Intermodal Study which developed a $7 million surface bus terminal, traffic access, parking and pedestrian circulation improvements at the Daly City BART station plus development of functional plans for a new BART station at Colma. Project manager for design of multi-modal terminal (commuter rail, light rail, bus) at Mission Bay, San Francisco. In Santa Clarita Long Range Transit Development Program, responsible for plan to relocate system's existing timed-transfer hub and development of three satellite transfer hubs. Performed airport ground transportation system evaluations for San Francisco International, Oakland International, Sea-Tac International, Oakland International, Los Angeles International, and San Diego Lindberg.

Campus Transportation. Campus transportation planning assignments for UC Davis, UC Berkeley, UC Santa Cruz and UC San Francisco Medical Center campuses; San Francisco State University; University of San Francisco; and the University of Alaska and others. Also developed master plans for institutional campuses including medical centers, headquarters complexes and research & development facilities.

Special Event Facilities. Evaluations and design studies for football/baseball stadiums, indoor sports arenas, horse and motor racing facilities, theme parks, fairgrounds and convention centers, ski complexes and destination resorts throughout western United States.

Parking. Parking programs and facilities for large area plans and individual sites including downtowns, special event facilities, university and institutional campuses and other large site developments; numerous parking feasibility and operations studies for parking structures and surface facilities; also, resident preferential parking .

Transportation System Management & Traffic Restraint. Project manager on FHWA program to develop techniques and guidelines for neighborhood street traffic limitation. Project manager for Berkeley, (Calif.), Neighborhood Traffic Study, pioneered application of traffic restraint techniques in the U.S. Developed residential traffic plans for Menlo Park, Santa Monica, Santa Cruz, Mill Valley, Oakland, Palo Alto, Piedmont, San Mateo County, Pasadena, Santa Ana and others. Participated in development of photo/radar speed enforcement device and experimented with speed humps. Co-author of Institute of Transportation Engineers reference publication on neighborhood traffic control.

Bicycle Facilities. Project manager to develop an FHWA manual for bicycle facility design and planning, on bikeway plans for Del Mar, (Calif.), the UC Davis and the City of Davis. Consultant to bikeway plans for Eugene, Oregon, Washington, D.C., Buffalo, New York, and Skokie, Illinois. Consultant to U.S. Bureau of Reclamation for development of hydraulically efficient, bicycle safe drainage inlets. Consultant on FHWA research on effective retrofits of undercrossing and overcrossing structures for bicyclists, pedestrians, and handicapped.

MEMBERSHIPS

Institute of Transportation Engineers Transportation Research Board

PUBLICATIONS AND AWARDS

Residential Street Design and Traffic Control, with W. Homburger *et al*. Prentice Hall, 1989.

Co-recipient, Progressive Architecture Citation, *Mission Bay Master Plan*, with I.M. Pei WRT Associated, 1984.

Residential Traffic Management, State of the Art Report, U.S. Department of Transportation, 1979.

Improving The Residential Street Environment, with Donald Appleyard et al., U.S. Department of Transportation, 1979.

Strategic Concepts in Residential Neighborhood Traffic Control, International Symposium on Traffic Control Systems, Berkeley, California, 1979.

Planning and Design of Bicycle Facilities: Pitfalls and New Directions, Transportation Research Board, Research Record 570, 1976.

Co-recipient, Progressive Architecture Award, *Livable Urban Streets, San Francisco Bay Area and London*, with Donald Appleyard, 1979.

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