Letter 45

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VIA U.S. MAIL AND EMAIL

Heidi Tschudin, MRIC Contract Planner
City of Davis
Department of Community Development and Sustainability
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Re: Draft Environmental Impact Report for Mace Ranch Innovation Center Project (SCH # 2014112012)

Dear Ms. Tschudin:

45-1 On behalf of Davis Residents for Responsible Development, we submit these comments on the Draft Environmental Impact Report ("DEIR") for the Mace Ranch Innovation Center Project ("Project"). The Project involves the development of a 2,654,000 square-foot Mace Ranch Innovation Center ("MRIC") on 212 agricultural acres in unincorporated Yolo County, for research, office, and research and development ("R&D") uses, with up to 10 percent supportive commercial uses including a 160,000 square-foot, 150-room hotel and conference center, and 100,000 square feet of retail such as shopping, dining, and fitness center uses. The Project includes 64.6 acres of green spaces including a 5.1-acre recreational park. The Project also contemplates future development of the 16.5-acre "Mace Triangle" area with up to 71,056 square feet of general commercial uses, including 45,900 of research, office, and R&D uses, and up to 25,155 square feet of retail, with potential for expansion of the existing Ikeda farm stand.

The DEIR purports to evaluate Project Alternative 7, the Mixed-Use Alternative, in the same level of detail as the above-described Project. The Mixed-Use Alternative would include 850 residential units within the MRIC. The DEIR concludes that this Project alternative is environmentally superior to the proposed

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Project, and applies the same development assumptions and mitigation measures for the Mixed-Use Alternative as it does for the proposed Project.[1]

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As explained more fully below, the DEIR does not comply with the requirements of the California Environmental Quality Act ("CEQA"). The City may not approve the Project until an adequate DEIR is prepared and circulated for public review and comment.

I. INTRODUCTION

A. Interest of Davis Residents for Responsible Development

Davis Residents for Responsible Development ("Davis 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 environmental and public service impacts of the Project. The association includes Patrick O'Brien, Jorge Gomez, the International Brotherhood of Electrical Workers Local 340, Plumbers and Pipefitters Local 447, Sheet Metal Workers Local 104, and their members and their families who live and/or work in the City of Davis and Yolo County.

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Individual members of Davis Residents and its affiliated organizations live, work, recreate, and raise their families in Yolo County, including the City of Davis. They would be directly affected by the Project's environmental and health and safety impacts. Individual members may also work on the Project itself. They will be first in line to be exposed to any health and safety hazards that exist onsite. Davis Residents has an interest in enforcing environmental laws that encourage sustainable development and ensure a safe working environment for its members. Environmentally detrimental projects can jeopardize future jobs by making it more difficult and more expensive for business and industry to expand in the region, and by making it less desirable for businesses to locate and people to live there.

B. Lack of Timely Information and Potential Need to Submit Further Comments

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[1] DEIR, pp. 2-10, 2-11.

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On October 12, 2015, Davis Residents submitted a written request for all materials referenced or relied on in the DEIR. CEQA requires that all referenced documents be made available for the entire public comment period.[2] On October 16th the City mailed Davis Residents a compact disc containing a bibliography and a copy of DEIR reference documents.[3] After reviewing the documents and in the process of preparing these comments, however, Davis Residents submitted additional requests for DEIR reference documents by e-mail to the City's Project planners, on November 6th and November 9th. The City has not yet provided the requested documents, which relate to traffic, air quality, and land use.

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In addition, on October 12, 2015 Davis Residents submitted a Public Records Act request for all documents related to the proposed Project. The City provided some responsive records on November 5, 2015, but indicated that it was still in the process of compiling responsive records and would provide them by November 13, 2015, the day after the close of the public comment period on the DEIR.

Given the fact that Davis Residents has not yet received copies of requested DEIR reference materials and other public documents related to the Project, Davis Residents has not had sufficient time to review the relevant Project documents and supporting materials prior to the close of the comment period. This compromises our ability to fully understand the Project and to develop meaningful comments. For these reasons, we reserve the right to supplement these comments before the Project reaches the City for approval, including but not limited to the areas of traffic, air quality (and greenhouse gas emissions), and land use.

C. Summary of DEIR's Informational and Analytical Deficiencies

45-4

As these comments will demonstrate, the DEIR fails to comply with the requirements of CEQA and may not be used as the basis for approving the Project. It fails in significant aspects to perform its function as an informational document that is meant "to provide public agencies and the public in general with detailed

[2] Pub. Resources Code § 21092(b)(1); CEQA Guidelines § 15072(g)(4).
[3] The City's response to our Public Records Act request contains almost no e-mail correspondence. It is unclear whether the City intends to further supplement its response under the Public Records Act, but it seems likely that the City is in possession of additional documents related to the Project. If the City is withholding any documents on the basis of privilege, the Public Records Act requires that the City disclose this to us in writing. Gov. Code § 6255; *Haynie v. Superior Court* (2001) 26 Cal.4th 1061, 1074-1075.

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information about the effect which a proposed project is likely to have on the environment" and "to list ways in which the significant effects of such a project might be minimized."[4]

Substantial evidence indicates that the Project is likely to cause significant adverse impacts. The DEIR is legally defective due to its failure to adequately identify, evaluate and mitigate these potentially significant impacts. The errors and deficiencies of the DEIR include the following:

- The Project description is inadequate to undertake a "project level" CEQA review, because (1) the MRIC site design is conceptual in nature without adequate assurance regarding the allowable scope of future design changes; (2) redevelopment of the Mace Triangle site lacks even a preliminary plan; (3) there is too much uncertainty related to offsite Project components; and (4) the Mixed Use Alternative lacks basic, fundamental details such as the proposed square footage of residential development.

- Development of the Project site is split into four arbitrary "phases" for construction despite the fact that there is no formal development proposal or proposed construction schedule for the Project. This leads to an underestimation of environmental impacts, and inadequate mitigation measures to protect human health and the environment.

- There are numerous and significant flaws in the calculations used to support the air quality analysis, including: (1) an improper reduction in the calculated lot acreage compared to the actual size of the Project site; (2) failure to calculate construction emissions associated with Project features such as parking areas; (3) unsupported reductions in commercial and construction worker trip lengths; (4) an estimation of "vehicle miles travelled" that is not supported by evidence, and in any case is not properly included in emissions calculations; (5) failure to perform a Health Risk Assessment to analyze health hazards from diesel particulate matter and related emissions;

[4] *Laurel Heights Improvement Assn. v. Regents of University of California* (1988) 47 Cal.3d 376, 391.

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(6) using unrealistic and inaccurate calculations of construction-related air pollution; and (7) failing to calculate emissions associated with off-site Project construction requirements.

- The Project will have significant unmitigated impacts on biological resources, including an imperiled population of burrowing owls that lives immediately adjacent to the Project site, wildlife that depend on the Yolo Bypass Wildlife Area, and Swainson's hawks, for which the DEIR concludes that impacts are "significant and unavoidable" without considering all feasible mitigation measures such as providing additional substitute foraging habitat.

- The risk of exposing workers and nearby residents to hazardous materials was not adequately investigated because the DEIR relies on 90% fewer soil samples collected from the MRIC site than is standard protocol, a basic Phase I Environmental Site Assessment is completely lacking for the Mace Triangle site, previously abandoned gas wells on the Project site lack adequate investigation, and there is no assessment of potential hazards at offsite areas that will be disturbed by the Project.

- Impacts associated with the Mixed Use Alternative are not adequately identified, quantified, and mitigated.

- Mitigation of most Project impacts has been improperly deferred to a later date.

- Cumulative impacts are not properly analyzed.

- The DEIR does not ensure that the Project will comply with the landscape irrigation reduction requirements mandated by the Governor's April 1, 2015 Executive Order B-29-15.

The DEIR must be withdrawn and revised to address these errors and deficiencies. Because of the substantial omissions in the information disclosed in the DEIR, revisions necessary to comply with CEQA will be, by definition, significant. In addition, substantial revision will be required to address impacts

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that were not disclosed in the DEIR. Because these revisions are significant, the revised DEIR will need to be recirculated for additional public comment.

We prepared our comments regarding the DEIR analyses with the assistance of air quality and hazards experts Mr. Matthew Hagemann and Ms. Jessie Jaeger and biological resources expert Scott Cashen. Their comments are attached to this letter as Attachments A and B, along with each expert's curriculum vitae. The City must respond to these expert comments separately and individually.

II. CEQA REQUIRES THE DISCLOSURE OF ALL POTENTIALLY SIGNIFICANT PROJECT IMPACTS AND THE INCORPORATION OF ALL FEASIBLE MITIGATION MEASURES NECESSARY TO REDUCE SUCH IMPACTS TO BELOW A LEVEL OF SIGNIFICANCE

45-5

CEQA has two basic purposes. First, CEQA is designed to inform decisionmakers and the public about the potential, significant environmental effects of a project.[5] Except in certain limited circumstances, CEQA requires that an agency analyze the potential environmental impacts of its proposed actions in an environmental impact report ("EIR").[6] An EIR's purpose is to inform the public and its responsible officials of the environmental consequences of their decisions before they are made. Thus, an EIR "protects not only the environment but also informed self-government."[7]

To fulfill this function, the discussion of impacts in an EIR must be detailed, complete, and "reflect a good faith effort at full disclosure."[8] CEQA requires an EIR to disclose all potential direct and indirect, significant environmental impacts of a project.[9] In addition, an adequate EIR must contain the facts and analysis necessary to support its conclusions.[10]

The second purpose of CEQA is to require public agencies to avoid or reduce environmental damage when possible by requiring appropriate mitigation measures

[5] CEQA "Guidelines," 14 Cal. Code Regs. § 15002(a)(1).
[6] See, e.g., Pub. Resources Code § 21100.
[7] *Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal.3d 553, 564.
[8] CEQA Guidelines § 15151; *San Joaquin Raptor/Wildlife Rescue Center v. County of Stanislaus* (1994) 27 Cal.App.4th 713, 721-722.
[9] Pub. Resources Code § 21100(b)(1); CEQA Guidelines § 15126.2(a).
[10] See *Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal.3d 553, 568.

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and through the consideration of environmentally superior alternatives.[11] If an EIR identifies potentially significant impacts, it must then propose and evaluate mitigation measures to minimize these impacts.[12] CEQA imposes an affirmative obligation on agencies to avoid or reduce environmental harm by adopting feasible project alternatives or mitigation measures.[13] Without an adequate analysis and description of feasible mitigation measures, it would be impossible for agencies relying upon the EIR to meet this obligation.

As discussed in detail below, the DEIR fails to meet either of these two key goals of CEQA. The DEIR fails to adequately and completely describe the Project and the Project setting and fails to disclose and evaluate all potentially significant environmental impacts of the Project. In addition, it proposes mitigation measures that are inadequate, unenforceable, vague or so undefined that it is impossible to evaluate their effectiveness.

III. THE PROJECT DESCRIPTION IS INSUFFICIENT TO ALLOW FOR MEANINGFUL CEQA REVIEW

45-6

The courts have repeatedly held that "[a]n accurate, stable and finite project description is the *sine qua non* of an informative and legally sufficient EIR."[14] CEQA requires the lead agency to describe the project with enough particularity to enable environmental review.[15] "A curtailed or distorted project description may stultify the objectives of the reporting process."[16] "Only through an accurate view of the project may affected outsiders and public decision-makers balance the proposal's benefit against its environmental cost . . ."[17] As articulated by the court in *County of Inyo v. City of Los Angeles*, "a curtailed, enigmatic or unstable project description draws a red herring across the path of public input."[18]

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[11] CEQA Guidelines § 15002(a)(2)-(3); see also, *Berkeley Keep Jets Over the Bay Committee v. Board of Port Commissioners* (2001) 91 Cal.App.4th 1344, 1354; *Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal.3d 553, 564; *Laurel Heights Improvement Assn. v. Regents of University of California* (1988) 47 Cal.3d 376, 391, 400.
[12] Pub. Resources Code §§ 21002.1(a), 21100(b)(3).
[13] Pub. Resources Code §§ 21002-21002.1.
[14] *County of Inyo v. City of Los Angeles* (1977) 71 Cal.App.3d 185, 193.
[15] *Id.* at 192.
[16] *Id.* at 192-193.
[17] *Id.*
[18] *Id.* at 198.

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The project description here fails to meet this basic threshold because it offers a broad, enigmatic and inconclusive Project description. The DEIR is touted as a "project-level analysis" of both the MRIC development and the Mace Triangle redevelopment.[19] However, there are many unstable and uncertain components of these proposed developments. First, the preliminary plan for the MRIC is "conceptual" in nature, and although it sets forth "logical" zone restrictions for density, building square footage, and land uses, there is no indication that the City intends to make these zones enforceable through mandatory conditions of approval. The DEIR acknowledges that the final development plan for the MRIC may change, and although it describes in detail the land use and square footage limitations set forth in the preliminary plan, the DEIR does not indicate whether and how these limitations will be made mandatory components of the approved Project.[20]

45-7

Second, the Project description is inadequate because the DEIR provides almost no detail about the allowable land uses, building densities, or preliminary layout of the proposed Mace Triangle Planned Development ("P–D") district. Under the City's Municipal Code, every proposed P–D district requires a preliminary plan showing densities, building layouts, parking, open space, and other features that are "reasonably necessary to properly interpret and evaluate" the proposal.[21] Environmental review of a P–D district is intended to be based on this preliminary plan.[22]

The DEIR states that the City anticipates approximately 49,901 square feet of new research, office, or R&D uses, and 25,155 square feet of ancillary retail on the Mace Triangle site through redevelopment.[23] This is the only information provided about the proposed P–D district. Without an accurate description of the proposed allowable land uses, densities, and preliminary layout of the P–D district, neither the City nor the public can analyze the potential environmental impacts associated with rezoning the Mace Triangle parcels into a P–D district. Again, the Project description fails to meet basic parameters for CEQA review and fails to meet the basic requirements for rezoning under the Municipal Code.

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[19] DEIR p. 1-4.
[20] DEIR pp. 3-22, 8-6. In fact, in June 2015 the Applicant withdrew its application for a Tentative Subdivision Map because of the "broad range of variables yet to be determined as part of the land use entitlement process." (Letter from Matthew Keasling to Mike Webb dated July 12, 2015.)
[21] Davis Municipal Code §§ 40.22.050, 40.22.060.
[22] *Id.*
[23] DEIR p. 3-53.

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Third, the DEIR allows for numerous "alternatives" for the essential offsite components of the Project. Water supplies may come from the existing 12-inch City water main located along Mace Boulevard, or from the 20-inch water main connected to the City's nearby water tank.[24] Wastewater may be carried north from the Project site through a new 8-inch main connecting to an existing 42-inch main, or may be carried east from the Project site through a new main connected to an existing 21-inch main, or a parallel line may be installed.[25] Traffic improvements associated with the Project may take three different forms.[26] Needed improvements to City Fire Department facilities may also take three different forms.[27] Finally, offsite stormwater control features may take three different forms.[28] It is impossible to gauge the impacts of the Project without basic concrete information about the offsite utility upgrades, traffic improvements, public safety and stormwater facilities that will be required as part of the Project. The failure to provide a stable Project description for these offsite improvements not only prevents an accurate assessment of their associated environmental impacts, but also results in legal problems with "deferred mitigation" (discussed below).

45-8

Fourth, the DEIR states that the Mixed Use Alternative ("MUA"), which includes 850 residential units, is "evaluated at a level of detail that is equal to the analysis of the proposed project."[29] It is clear, however, that this alternative was analyzed as an afterthought. The City's Notice of Preparation of a DEIR for the Project did not indicate that residential land uses were under consideration, and in fact stated that the Project would "maintain the City's slow growth policy by prohibiting residential uses within the site."[30]

45-9

The DEIR includes a separate chapter analyzing the MUA, but provides almost no detail about this alternative other than the number of residential units and the potential location of residential buildings. The DEIR provides no information about the size or expected square footage of the residential building

[24] DEIR pp. 3-39, 3-54.
[25] DEIR pp. 2-99, 3-39 to 3-43, 3-54.
[26] DEIR pp. 2-81 to 2-85, 2-111 to 2-116.
[27] DEIR p. 2-108.
[28] DEIR p. 8-97.
[29] DEIR p. 7-1.
[30] DEIR, Appendix A, p. 9.

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development, other than to indicate that the buildings may be up to 85 feet tall.[31] This is not sufficient information to evaluate the MUA at a project level under CEQA. The problems that stem from this inadequate Project description are further discussed below.

IV. THE CITY LACKS SUBSTANTIAL EVIDENCE TO SUPPORT ITS CONCLUSIONS IN THE DEIR REGARDING THE PROJECT'S SIGNIFICANT IMPACTS AND FAILS TO INCORPORATE ALL FEASIBLE MITIGATION

There are currently no detailed development proposals submitted for the MRIC site, yet the DEIR purports to divide its analysis into four separate but similar phases. Each phase would involve the construction of between 540,000 and 714,000 square feet of new buildings, and the Mixed Use Alternative adds 300 residential units each in Phases 2 and 3 and 250 units in Phase 4.[32]

45-10

The City does not propose any development limitations or mitigation measures that would make this arbitrary division of construction activities enforceable, yet it presumes that the Project site would not be operational until 20 years from now, in 2035. As a result, the DEIR underestimates the Project's potential construction-related impacts on air quality (including pollutants that exacerbate asthma, cancer, and other health risks), GHG emissions, noise, traffic, and other impacts that would occur if the MRIC site is developed at a more rapid pace.

Conveniently, the DEIR's projected delay in buildout of the MRIC site until 2035, and the projected delay in residential construction until Phase 2, results in significantly lower estimated air pollution impacts and other impacts, which in turn results in fewer requirements for standard mitigation measures designed to protect public health. The Yolo County Air Pollution Control District ("YCAPCD") has adopted thresholds of significance for air pollution during construction that are based on yearly emissions of pollution from a construction site. It is projected that

[31] DEIR p. 8-6.
[32] DEIR pp. 2-4, 3-16, 8-24 to 8-26.

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air pollutant emissions from construction equipment will be drastically reduced over the next 20 years.[33]

45-10 Cont'd

Therefore, by estimating that the bulk of construction will occur later in time and be spread out over 20 years, without putting in place any restrictions to ensure that a slow buildout will occur, the DEIR reaches the artificial conclusion that there will be no adverse impacts on air quality during construction. The DEIR requires no mitigation measures in the shorter term, such as cleaner burning construction equipment and fuels, increased dust suppression techniques, and other requirements that are routinely imposed on large construction projects in California.

There is not substantial evidence in the record to support the City's decision to spread its analysis of Project impacts on the MRIC site over the next 20 years. Such a long buildout period is speculative, and it arbitrarily avoids a what would otherwise be an inevitable conclusion of environmentally significant impacts that require mitigation. The problems associated with the City's approach are further discussed below.

B. The DEIR Fails to Adequately Disclose, Analyze, and Mitigate Significant Air Quality Impacts

45-11

The DEIR relies on estimates of Project air pollution emissions that were calculated using the California Emissions Estimator Model ("CalEEMod"). As explained by Mr. Hagemann and Ms. Jaeger, CalEEMod provides recommended default inputs (based on Project information) and outputs (emissions estimates) for construction projects using site specific information such as land use type, meteorological data, total lot acreage, building sizes, and typical equipment associated with the project type.[34] If more specific project information is known the user can change the default values and input project-specific values, but CEQA requires that such changes be justified by substantial evidence.[35]

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[33] *See* DEIR, Appendix C (calculations for air pollutant emissions drop significantly between 2017 and 2035).
[34] Hagemann and Jaeger Comments, **Attachment A**, p. 5.
[35] *Ibid.*; CalEEMod User Guide, pp. 2, 9, *available at:* http://www.caleemod.com/

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Once all of the values are inputted into the model, the Project's construction and operational emissions are calculated and "output" files are generated. The CalEEMod output files for the Project are found in Appendix C and Appendix E of the DEIR. Mr. Hagemann and Ms. Jaeger closely reviewed these output files to determine whether accurate parameters were utilized when calculating the Project's air pollutant emissions. They analyzed which default values were changed in favor of different "user defined" values.[36] They found that for both criteria air pollutants and greenhouse gas emissions ("GHGs"), a number of the values inputted into the model were inconsistent with information disclosed in the DEIR, and resulted in an underestimation of Project impacts. Accordingly, in their opinion, "an updated air quality and greenhouse gas assessment and an updated DEIR should be prepared to adequately assess the impacts that construction and operation of the Project will have on regional air quality and global climate change."[37] These flaws are discussed in detail below.

1. Project Size and Land Uses Not Accurately Calculated

45-12

The first flaw with the air quality modeling for the Project is that CalEEMod requires its users to input not only the square feet of building development on a project site but also the total acreage of the lot to be developed. For this Project the CalEEMod output files show that although the total square feet of building development was input into the model, the total lot area was listed as only 63.88 acres, even though the Project lot area for the MRIC site is 212 acres and for the Mace Triangle site is 16.5 acres. Mr. Hagemann and Ms. Jaeger concluded that reducing the calculation of emissions associated with construction to less than one-third of the entire Project area results in "a huge underestimation of Project emissions."[38]

45-13

Second, the CalEEMod output files show that there was no calculation of construction-related emissions associated with building the Project's parking areas, green spaces, and transit plaza, which comprise a significant area of development.[39]

[36] *Ibid.* (citing CalEEMod User Guide, pp. 7, 13, *available at:* http://www.caleemod.com/, and noting that "a key feature of the CalEEMod program is the 'remarks' feature, where the user explains why a default setting was replaced by a 'user defined' value").
[37] *Ibid.*, p. 5.
[38] *Ibid.*, p. 6.
[39] *Ibid.*,.

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Below is a highlight of DEIR Table 3-2 showing these land uses for the proposed MRIC development:

Table 3-2
MRIC – Summary of Uses by Type

Land Use	Size
Research; Office; R&D	*1,510,000 sf*
Manufacturing; Research	*884,000 sf*
Ancillary Retail	*100,000 sf*
Hotel/Conference	*160,000 sf (150 rooms)*
Green Space	*64.6 acres*
Landscaped Parking	*12.6 acres*
Transit Plaza	*0.6 acres*
Total Acres	**212 acres**
Total square footage	**2,654,000 sf**

An excerpt from the CalEEMod output files, below, shows that the proposed "Green Space," "Parking," and "Transit Plaza" land uses (outlined in red above) were not included in the air modeling conducted for the DEIR:

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Research & Development	1,510.00	1000sqft	34.66	1,510,000.00	0
Research & Development	45.90	1000sqft	1.05	45,901.00	0
Manufacturing	884.00	1000sqft	20.29	884,000.00	0
Hotel	150.00	Room	5.00	217,900.00	0
Regional Shopping Center	100.00	1000sqft	2.30	100,000.00	0
Regional Shopping Center	25.16	1000sqft	0.58	25,155.00	0

As explained by Mr. Hagemann and Ms. Jaeger, these errors resulted in a significant underestimation of Project impacts, because lot size and land use types "are used throughout CalEEMod in determining default variables and emission factors that go into the model's calculations," such as the estimation of emissions from construction-related mobile sources.

45-14

Third, in addition to the fact that the CalEEMod calculations do not include any estimations for parking area construction, the Project design drawings show that 80.3 acres of the MRIC site would be dedicated to parking, which is inconsistent with the DEIR's estimation of only 12.6 acres of parking.[40] Inputting an accurate acreage for parking is critical to obtaining an accurate estimate of construction emissions from paving equipment and other construction equipment

[40] *Ibid.*, p. 7.

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associated with building parking structures.[41] These inconsistencies must be addressed in a revised DEIR.

2. Construction and Commercial Trips to and From the Project Site Are Underestimated

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The CalEEmod calculations estimate that there will be zero "hauling trips" to and from the Project site at all times during construction. In effect, this means that haul trucks would never be needed to transport construction waste, soil, or other materials. This "zero haul" estimate is unrealistic. Moreover, the commercial and construction worker trip lengths to and from the Project site were reduced from the Yolo County defaults, based on undisclosed "vehicle miles of travel data from the traffic consultant."[42] The DEIR suggests that this "VMT" data was obtained from a combination of reports and other data, but the City has not yet responded to Davis Residents' written request for this supporting information.[43] As explained by Mr. Hagemann and Ms. Jaeger, the CalEEMod default trip lengths for commercial and construction worker trips are location-specific and should not be reduced without substantial evidence to support such a deviation.[44]

3. VMT Estimates Are Unsupported and Associated Emissions Are Incorrectly Calculated

45-16

The DEIR provides an estimation of daily vehicle miles travelled ("VMT") for a Project operational date of 2035, but the only supporting evidence for this estimation is a "personal communication" with a traffic consultant.[45] The DEIR must be revised to explain the methodology used to calculate the estimated VMT associated with Project operations.

Even if the daily VMT estimate were accurate, the CalEEMod output files use a VMT that is underestimated by 37% from the VMT estimate provided in the

[41] *Ibid.* pp. 7-8.
[42] *Ibid.* pp. 8-9 (citing DEIR, Appendix C).
[43] DEIR p. 4.14-18; email from Ellen Wehr to Katherine Hess, Zoe Mirabile, and Heidi Tschudin dated November 6, 2015.
[44] Hagemann and Jaeger Comments, p. 9.
[45] *Ibid.*; DEIR p. 4.7-24; "personal communication" memo with Bob Grandy dated Feb. 6, 2015.

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DEIR.[46] This means that criteria air pollution and GHG emissions associated with Project operations are also underestimated accordingly.

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Mr. Hagemann and Ms. Jaeger prepared updated CalEEMod output files based on corrected inputs, including corrected land uses and commercial and worker trip lengths. These output files are conservative, because the information needed to correct other parameters discussed above was not readily available. The corrected output files show a significant increase in estimated air pollution, in amounts that exceed the 10-ton annual threshold for emissions of nitrogen oxides (NOx) during construction, and also exceed three established thresholds of significance during Project operation.[47] Moreover, GHG emissions are projected to exceed regional thresholds by 10% more than projected in the DEIR.[48] These results show new and significantly increased environmental impacts from the Project, and an updated and corrected air quality analysis must be prepared and circulated for public review.

4. Diesel Particulate Matter Emissions Are Inadequately Evaluated and a Health Risk Assessment Should Be Prepared

45-17

Despite the large size of the Project and the close proximity of sensitive receptors, the DEIR does not include a Health Risk Assessment ("HRA"), which is a report that is routinely used to calculate the increased risk of cancer and other health hazards associated with exposure to Project emissions such as diesel particulate matter ("DPM"). The DEIR states that an HRA was not prepared because construction-related particulate matter would generally be below the threshold of significance for meeting the California Ambient Air Quality Standards ("CAAQS"), and construction would be only a "temporary" source of pollution.[49]

As explained by Mr. Hagemann and Ms. Jaeger, however, this justification is flawed. First, the estimated construction period, 18 years, is anything but temporary. The Office of Environmental Health Hazard Assessment ("OEHHA") has rejected this same reasoning, and in its most recent guidelines recommend that any project with a construction period of more than two months in duration should be evaluated for cancer risks to nearby sensitive receptors.[50]

[46] *Ibid.*, p. 9; DEIR, Appendix C, p. 560 and Appendix E, p. 222.
[47] *Ibid.*, pp. 10-11, and attachments.
[48] *Ibid.* p. 11.
[49] DEIR pp. 4.3-33, 4.3-34.
[50] Hagemann and Jaeger Comments, p. 12.

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Second, the cancer risks associated with construction-related emissions are not comparable to the CAAQS. The CAAQS are designed as general "ambient" air quality standards that encompasses all activities and emissions in an entire region, whereas the standards used in a Health Risk Assessment are designed as site-specific standards to protect those in the immediate vicinity of a project site. Accordingly, the YSAQMD has adopted a cancer risk standard of 10 in one million. In the opinion of Mr. Hagemann and Ms. Jaeger, "simply comparing the construction PM10 emissions to CAAQs thresholds is inadequate," and is also inconsistent with other CEQA evaluations recently conducted by the City for other large development projects, such as the Nishi Gateway Project, in which the YSAQMD's cancer risk threshold of 10 in one million was used.[51]

Mr. Hagemann and Ms. Jaeger prepared a simple HRA using the particular matter emissions estimates and sensitive receptor locations from the DEIR, and applying HRA methodologies prescribed by OEHHA.[52] This basic assessment is conservative, because as discussed above the emissions estimates in the DEIR are incorrect. Nevertheless, their simple HRA estimates cancer risks for adults, children, and infants near the Project site of 96, 430, and 205 in one million, respectively. This is much higher than the YSAQMD threshold of significance of 10 in one million. This new significant impact must be further analyzed and addressed in a revised DEIR.

5. Construction-related Air Quality Modeling Is Unrealistic and Results in an Underestimation of Project Impacts

45-19

As discussed above, the DEIR attempts to spread construction of the Project out over 20 years without any enforceable limitations on development. The modeling used to support the DEIR's analysis of air quality impacts during Project construction acknowledges that the specific assumptions about phased development are "speculative," and does not attempt to quantify emissions associated with constructing each Project phase.[53] It does, however, model the development of the Project over 20 years as "one phase," purportedly for the purpose of providing a

[51] *Ibid.*, p. 13.
[52] *Ibid.*
[53] DEIR p. 4.3-21.

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conservative estimate of construction-related emissions.[54] In fact, the DEIR does not provide a conservative estimate of emissions, because the use of one fictitious 20-year construction phase distorts and underestimates the emissions that will occur during construction, particularly in the closest upcoming years.

The DEIR estimates that Phase 1 would encompass 48 acres of land and 540,000 square feet of building construction, Phases 2 and 3 would each encompass 29 acres of land and 700,000 square feet of building construction, and Phase 4 would encompass 86 acres of land and 714,000 acres of construction.[55] Site access would first be provided to Phase 1 in the southern portion of the Project site, and development would "move out" to the center, north, and east, "gradually extending" away from the City's urbanized areas.[56]

The CalEEMod calculations used to predict air pollution during construction requires the lead agency to estimate the timing of certain activities such as site grading, building construction, and other activities. The CalEEMod calculations contained in DEIR Appendix C does not make an estimate about the buildout of different Project phases—which for purposes of making a conservative estimate should anticipate that some phases may overlap. Instead, the duration of construction was "modified" so as to occur in one slow phase and so that various aspects of construction do not overlap at all.[57]

The CalEEMod calculations do not reflect the phased development of portions of the Project site and do not reflect what is likely to occur on the Project site. Instead, the calculations estimate emissions using the following unrealistic construction schedule for the entire Project site:

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[54] DEIR p. 4.3-21.
[55] DEIR pp. 3-43 to 3-47. As discussed later in these comments, the CalEEMod calculations in DEIR Appendix C do not include any estimation of construction emissions under the Mixed Use Alternative.
[56] DEIR pp. 3-43, 3-46.
[57] DEIR p. 4.3-21.

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Construction activity	Timing of activity	Total number of work days
Site preparation	July 2017 – Jan. 2018	150
Grading	Jan. 2018 – Aug. 2019	395
Paving	Aug. 2019 – Aug. 2020	280
Building construction and painting	Aug. 2020 – June 2035	3,860

Modeling the construction period with such exorbitantly long construction phases results in three outcomes: (1) because none of the major construction activities overlap, on average no more than eight pieces of construction equipment are anticipated on the Project site at any one time, which reduces the average level of pollutants emitted from the site; (2) the bulk of construction activity will occur many years into the future, when estimated air pollution emissions from construction equipment are much lower;[58] and (3) combining the first two factors together results in "annual emissions estimates" far lower than under a realistic construction schedule, creating the illusion that construction emissions will not be significant, when in fact they will be significant.[59]

It is unrealistic to assume that it will take 150 working days to prepare the Project site for grading (i.e. remove vegetation), 395 working days to grade the site (an average of .6 acres of grading per day), 280 working days to install paving, and 3,860 working days to construct and paint Project buildings. The CalEEMod default assumptions for a project of this size and type are 40 days for site preparation, 110 days for grading, 75 days for paving, 1,110 days for building, and 75 days for architectural coatings (painting).[60] These default assumptions are based on surveys of similarly sized construction projects.[61]

By spreading out Project construction over one fictitious 20-year continuous phase, the DEIR overestimates the number of Project construction days by 3,175 more days than the CalEEMod default for a project of similar size and type. As a

[58] *See* DEIR, Appendix C, modeling runs p. 9.
[59] DEIR p. 4.3-24 (Table 4.3-6).
[60] *Ibid.*, p. 2.
[61] CalEEMod User's Guide, p. 24, *available at*: http://www.caleemod.com/

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result, the DEIR concludes that the highest annual emissions for nitrogen oxides ("NOx") is only 7.6 tons per year, which falls below the annual YSAPCD threshold of 10 tons per year.[62] This calculation is entirely fictitious. 7.6 tons represents the highest annual emissions resulting from the CalEEMod calculations, and because the calculations spread out Project construction and extended the default number of working days by 225%, the highest annual emissions estimates are for 2018, which was calculated to include *only* site preparation and grading.[63]

45-19 Cont'd

In reality, even if the City does put limitations on the Project to ensure that construction phasing occurs, the first phase of construction would begin in 2017 and would encompass site preparation, grading, paving and building construction on at least 48 acres, over a much quicker time period than provided in the DEIR. The CalEEMod defaults, and a common-sense assumption, is that site preparation, grading, paving, and the beginning of building construction would likely all occur in the first year on Phase 1 construction. This would result in significantly higher emissions estimates that would trigger the requirement for health-protective mitigation.

The emissions disclosed in the DEIR are substantially underestimated and do not represent what is reasonably likely to occur. Accordingly, the DEIR's findings pertaining to Project construction emissions are not supported by substantial evidence and fail to disclose and mitigate significant air quality impacts. Had the DEIR not gone to such great lengths to alter the CalEEMod default assumptions, it would not have reached the conclusion that construction emissions will be below the threshold of significance. The result may be a cost savings for the Project Applicant but it is an undue threat to health and air quality for the City's residents and workers.

6. Offsite Construction Is Improperly Excluded from Emissions Calculations

45-20

The Project will require offsite construction, and most if not all of the offsite construction activities will need to occur early on in the development of the Project site. First, an offsite stormwater detention area or pumping station will need to be constructed, which may involve significant excavation and grading activities over

[62] DEIR p. 4.3-24.
[63] DEIR, Appendix C, Air Quality, Unmitigated, Yolo County, Annual, pp. 4, 9.

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45-20 Cont'd

an area that is equal to or greater than the size of the Project site.[64] It can reasonably be assumed that the activity of creating this stormwater detention area, which involves removing and stockpiling topsoil from up to 327 acres of City-owned property, excavating up to 2.5 feet, and replacing the topsoil, will occur at a similar time as the development of the Project site.[65] This would result in a significant increase in the volume of construction-related air pollution emissions, which would certainly exceed the threshold of significance under CEQA, requiring mitigation.

45-21

Second, the Project will involve offsite construction of sewer lines, and will likely also require upgrades to potable water lines and related pumping stations. These upgrades would take place during the initial phase of Project development, yet the DEIR does not analyze the associated construction-related air pollutant emissions. Third, the proposed Project mitigation for traffic will involve the offsite construction of traffic features, and the impacts of that mitigation are not accounted for in the DEIR's impacts analysis. In sum, the air quality emissions analysis is not only unrealistic in terms of on-site construction activities, but is also lacking a key analysis of offsite construction activities.

B. The DEIR Fails to Adequately Disclose, Analyze, and Mitigate Significant Impacts to Biological Resources

1. Impacts to Burrowing Owls

45-22

As described by biological resources expert Scott Cashen, the DEIR fails to disclose the fact that burrowing owls are nearly extirpated in Yolo County, and have suffered a precipitous decline in population numbers of 77% in recent years.[66] Last year it was estimated that only 15 pairs of burrowing owls remained in Yolo County.[67] The DEIR must disclose this information so that the public and decision-makers can adequately assess the Project's potential impacts. The DEIR also incorrectly claims that burrowing owls have not been identified on or near the Project site since 2005, when in fact a pair of burrowing owls has nested in the adjacent lot on Fermi Place for at least the past two years, and this year produced 5

[64] DEIR, p. 8-97.
[65] *Ibid.*
[66] Comments of Scott Cashen, **Attachment B**, p. 2.
[67] *Ibid.*

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to 7 offspring.[68] There is additional evidence that owls were observed on the Project site itself in 2014 and 2015.[69]

Not only does the DEIR fail to report this critical information, but "protocol" level surveys for owls were never conducted, even though the California Department of Fish and Wildlife's ("CDFW") 2012 guidance on burrowing owls recommends such surveys. Mr. Cashen's comments explain in detail why these surveys are critical to establishing an adequate description of the environmental setting and for devising effective mitigation strategies.[70] According to Mr. Cashen, and particularly given the new information described above, the results of protocol-level surveys must be circulated for review by the public and resources agencies such as CDFW, in a revised DEIR.[71]

Mr. Cashen also explains that the proposed mitigation technique of "passive relocation" is discouraged by CDFW. If passive relocation is determined to be the only option after consideration of other avoidance and minimization techniques, there may be risks to burrowing owls, which should be considered a significant impact under CEQA.[72] In fact, without certain measures in place, passive relocation would likely have adverse impacts. The DEIR does not require these protective measures.[73]

Mr. Cashen also concludes that the proposed mitigation for burrowing owls is insufficient in other ways. It is his opinion that compensatory mitigation should be required as a matter of course, that the protocol for pre-construction surveys must be strengthened, that minimum buffers must be established, biologist qualifications established, triggers for mitigation firmly established, and management practices and performance standards established for mitigation sites.[74] This is particularly important because the City's mitigation site at the Yolo County Grasslands Regional Park has been ineffective for conserving burrowing owl populations.[75]

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[68] *Ibid.*
[69] *Ibid.*
[70] *Ibid.*, p. 3.
[71] *Ibid.* pp. 3-4.
[72] *Ibid.* p. 4.
[73] *Ibid.*
[74] *Ibid.* pp. 5-6.
[75] *Ibid.* p. 7.

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In Mr. Cashen's professional opinion, the Project "would cause the extirpation of the breeding territory that occurs near the intersection of Second Street and Mace Boulevard," and "would accelerate the decline of burrowing owls in Yolo County." This significant impact is not adequately analyzed or mitigated in the DEIR.

2. Impacts to Swainson's Hawks

The City's rationale for why impacts to Swainson's hawk foraging habitat are "significant and unavoidable" is not clearly articulated.[76] According to the DEIR, this finding is based on the fact that the Project site is "outside the City limits" and not "anticipated in any City environmental documents." This rationale and conclusion must be further explained.

45-23

In order to make a finding of a significant and unavoidable impact the City must first demonstrate that it has imposed all feasible mitigation measures. As described by Mr. Cashen, "the DEIR fails to demonstrate why the City could not impose a higher habitat compensation ratio (e.g., 3:1), or why the City could not require other measures that would promote Swainson's hawk conservation (e.g., a scientific study)."[77] In Mr. Cashen's professional opinion, "a higher habitat compensation ratio could reduce Project impacts to a less-than-significant level."[78] This possibility must be explored in a revised DEIR.

3. Impacts to Yolo Bypass Wildlife Area

The Project site is located only 2.5 miles west of the Yolo Bypass Wildlife Area, with vacant agricultural farmland in between. The Project will result in a significant increase in reflective glass, nighttime lighting, and new drainage and landscape features attractive to birds that rely on the Yolo Bypass. Moreover, all stormwater drainage leaving the Project site will be discharged through a drainage channel directly into the Yolo Bypass, which provides habitat for birds and salmon.

45-24

The Yolo Bypass Wildlife Area provides very important biological habitat, serving as a key stopover for migratory birds along the Pacific Flyway, and a

[76] *Ibid.* p. 4.
[77] *Ibid.*
[78] *Ibid.*

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rearing area for salmon and other fish species.[79] CEQA's regulatory guidelines provide that "[k]nowledge of the regional setting is critical to the assessment of environmental impacts."[80] This level of detail is necessary to "permit the significant effects of the Project to be considered in the full environmental context."[81] The DEIR fails to accurately and adequately describe the location of the Project in relation to migratory bird corridors and wildlife habitat areas in the vicinity of the Project site. Without an accurate description of this environmental setting the Project's potential impacts to biological resources are not fully disclosed. To comply with CEQA, the EIR must be revised to include a description of the Yolo Bypass Wildlife Area that accurately portrays its ecological significance.

45-25

Migrating birds that utilize the Yolo Bypass are sensitive to nighttime lighting and other attractions that could draw them away from their feeding grounds and cause disorientation and stress that results in exhaustion, predation, decreased reproduction and other impacts. The DEIR's analysis of lighting focuses on compliance with the City's nighttime lighting standards, but does not provide any description of the types of lighting that will be allowed on the Project site, the height and number of light poles, or their brightness. The Project site is located near an important migratory bird stopover area, and increased nighttime lighting could have potentially significant adverse effects on birds. Bird disorientation from nighttime lighting is a well-known phenomenon:

- "Light fixation is a constant bird hazard .... Hundreds of terrestrial bird species fly and migrate under cover of night. While the mechanisms for birds' attraction to artificial night lighting are not well understood, its hazards to birds have been well documented."[82]

- "Our data show that chronic low intensities of light at night can dramatically affect the reproductive system [of birds]. ... [W]e call

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[79] *See e.g.:* http://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/docs/cmnt081712/sldmwa/sommeretal2001b.pdf;
[80] CEQA Guidelines § 15125(d).
[81] *Id.*
[82] International Dark-Sky Association, "Effects of Artificial Light at Night on Wildlife," *available at* http://www.darksky.org/assets/documents/PG2-wildlife-bw.pdf

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for collaboration between scientists and policy makers to limit the impact of light pollution on animals and ecosystems."[83]

- "Researchers have used radar imagery to determine how birds respond to lit environments. The observations found that once they fly through a lit environment they'll return to that lit source and then hesitate to leave it."[84]

- "Artificial night lighting affects the natural behavior of many animal species. It can disturb development, activity patterns, and hormone-regulated processes, such as the internal clock mechanism; *see references* in Rich and Longcore (2006). Probably the best-known effect, however, is that many species are attracted to, and disoriented by, sources of artificial light, a phenomenon called positive phototaxis. Apart from insects, birds that migrate during the night are especially affected (Verheijen 1958). This may cause direct mortality, or may have indirect negative effects through the depletion of their energy reserves. Reviewing the literature, Gauthreaux and Belser (2006) conclude that "all evidence indicates that the increasing use of artificial light at night is having an adverse effect on populations of birds, particularly those that typically migrate at night."[85]

Light pollution is considered a serious threat to ecological communities because it has the potential to alter physiology, behavior, and population ecology of wildlife.[86] The DEIR lacks adequate information about the lighting that will be installed at the Project site, including the abundance of lights, the maximum luminous emittance (intensity) of bulbs, and the location of light fixtures. This

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[83] Abstract from Dominoni, Quetting, and Partecke, *Long-Term Effects of Chronic Light Pollution on Seasonal Functions of European Blackbirds (Turdus merula)* (2013), *available at:* http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0085069;jsessionid=67A0B84F31C6AC10244327B64679FF68

[84] Flap.org, *Lights and Nighttime Collisions, available at:* http://www.flap.org/lights.php.

[85] Poot et al., *Green light for nocturnally migrating birds*, Ecology and Society 13(2): 47 (2008), *available at:* http://www.ecologyandsociety.org/vol13/iss2/art47/

[86] T. Longcore and C. Rich, *Ecological light pollution*. Frontiers in Ecology and the Environment 2: 191-198 (2004), *available at:* http://www.urbanwildlands.org/Resources/LongcoreRich2004.pdf

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information is essential to assessing the impacts of the Project's lighting on sensitive biological resources.

The only mitigation measure for nighttime lighting is for the Project Applicant to submit a "lighting plan" to the City in the future, which limits light trespass and glare beyond the Project site "to a reasonable level," and complies with the Municipal Code.[87] This mitigation measure is designed to address human perceptions of nighttime lighting, not biological disturbance. The DEIR does not adequately disclose, analyze, or mitigate the potentially significant impacts of increased nighttime lighting within the mostly undeveloped buffer surrounding the Yolo Bypass Wildlife Area.

There are also a potentially significant impacts from Project noise and pollutants entering the Yolo Bypass Wildlife Area. First, the DEIR indicates that in order to accommodate increased stormwater flows from the Project site, either a large agricultural field will need to be excavated by up to 2.5 feet adjacent to the Yolo Bypass, or a new stormwater pumping station will be installed.[88] The disruption to wildlife associated with either of these activities must be addressed and mitigated. Second, the DEIR indicates that the Project site may be used for "special events that require amplified noise."[89] This would also create a potentially significant disturbance for wildlife in the Yolo Bypass Wildlife Area. Overall, the impacts of nighttime lighting and noise disturbance must be addressed and mitigated in a recirculated DEIR.

C. The DEIR Fails to Adequately Disclose, Analyze, and Mitigate Significant Impacts from Hazardous Materials

1. Additional Sampling is Necessary to Determine if Pesticide Residuals Exist on the MRIC Site

45-26

Organochlorine pesticides such as DDT, DDE, and chlordane were used from the 1940s until the 1970s when they were banned. These compounds can persist in the soil for hundreds of years. The California Department of Toxic Substances Control ("DTSC") states that DDT and similar substances "are ubiquitous" in soil

[87] DEIR p. 2-14.
[88] DEIR p. 8-98.
[89] DEIR p. 8-5.

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that is being developed for new uses, "due to heavy agricultural usage prior to cancellation in 1972."[90]

Exposure to DDT can result in headaches, nausea, and convulsions, and the U.S. EPA identifies DDT and DDE as probable human carcinogens. Chlordane has also been classified as a probable human carcinogen by the U.S. EPA, and exposure can result in neurological effects. The California Department of Health has recently identified pesticides as an asthma trigger.[91] During earthmoving activities, construction workers and neighboring residents, some located only hundreds of feet from the Project site, may be exposed, via inhalation of dust, to Project site soils that might contain harmful levels of pesticide residuals associated with historic agricultural activities on the site, causing toxic effects and an increase in the incidence of asthma.

The DEIR includes the results of soil samples collected on the MRIC portion of the Project site and analyzed for residual pesticides, but as explained by Mr. Hagemann and Ms. Jaeger "these samples were not collected according to protocol established by the California Department of Toxic Substances Control (DTSC)."[92] The MRIC site was historically used for agriculture, and the DEIR acknowledges the potential for residual concentrations of organochlorine pesticides such as DDT, DDE, and chlordane, to be present in soils at the Project site.

To evaluate potential health risks from exposure to pesticides, a sampling program was undertaken at the MRIC site that included an analysis of organochlorine pesticides in soil. However, the sampling program does not provide a reliable basis for making decisions about potential pesticide risks. As discussed by Mr. Hagemann and Ms. Jaeger:

> [S]hortcuts were taken in the amount of samples that were collected for analysis. The DTSC sampling guidance calls for the collection of a far greater number of soil samples than were collected under the program conducted for the DEIR. In the Phase I Environmental Site Assessment (ESA) commissioned by the applicant for the DEIR, only 34 soil samples were collected for the characterization of the presence

[90] Comments of M. Hagemann and J. Jaeger, **Attachment A**, p. 2.
[91] *Ibid.*, p. 2.
[92] *Ibid.*, p. 1.

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of organochlorine pesticides in the soil. This effort is admittedly only 10% that which is required by DTSC for adequate characterization.[93]

45-26 Cont'd

The Phase I ESA prepared for the MRIC site acknowledges that "DTSC guidance called for 200 soil sample locations being distributed over the 212-acre Site."[94] However, "at the request of the Client," the sampling was reduced "to ten percent of the recommended sampling locations for the agricultural fields in order to gain an initial understanding of chemicals present in soil."[95]

The results of the Phase I study are unreliable for determining potential pesticide health risks to construction workers and nearby residents who may be exposed during construction. According to Mr. Hagemann and Ms. Jaeger, "a proper investigation that includes the protocol sampling and analysis of 200 soil borings for potential pesticide contamination should be undertaken," and "a full understanding of health risks can only be gained with an investigation that is based on a sampling program consistent with DTSC guidance."[96] Additional samples need to be collected and compared to health-based regulatory screening levels in a revised DEIR.

2. No Soil Sampling Was Conducted on the Mace Triangle Site, or on Offsite Parcels That Will Be Subject to Project Disturbance

45-27

In contrast to the inadequate number of soil samples collected on the MRIC portion of the Project site, zero soil sampling was conducted at the Mace Triangle site for pesticide residuals in soils. Mitigation Measure 4.8-2(c) states that a soil sampling workplan shall be submitted for later approval by the Yolo County Environmental Health Department, but without knowing what the soil sampling plan will be, and particularly in light of the inadequate sampling on the MRIC site, there is no assurance that the results will be reliable or that the public and workers will be protected. As noted by Mr. Hagemann and Ms. Jaeger, "the deferral of pesticide sampling at the Mace Triangle site does not allow for disclosure of potentially hazardous conditions that may pose health risks to construction workers and neighboring residents."[97] Instead of waiting for future development to trigger

[93] *Ibid.*, p. 2 (citing DEIR p. 4.8-16).
[94] *Ibid.*
[95] *Ibid.*
[96] *Ibid.*
[97] *Ibid.*, p. 3.

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pesticide sampling, sampling should be conducted now and included in a revised DEIR.

45-27 Cont'd

The DEIR also indicates that a large area of agricultural land near the Project site may be scraped of topsoil, excavated up to a depth of 2.5 feet, and the topsoil replaced in order to provide stormwater control for the Project site.[98] Offsite utilities and traffic improvements will also be required. The DEIR does not include any pesticide sampling requirements for these areas, or call for soil sampling in strict accordance with DTSC protocol. In the opinion of Mr. Hagemann and Ms. Jaeger, "the potential for residual pesticides to be present" in the agricultural soils where significant excavation may occur soil is high.[99] This is a new potentially significant impact that must be identified, analyzed, and properly mitigated in a revised DEIR.

3. Potential Hazards from Abandoned Gas Wells at Mace Triangle Site and MRIC

45-28

No Phase I ESA was prepared for the Mace Triangle site for inclusion in the DEIR, and therefore the DEIR does not disclose the existence of potential hazards there. However, Mr. Hagemann and Ms. Jaeger discovered records of two former "dry gas" wells abandoned on the site in the 1980's.[100] "Hazards posed by improperly abandoned wells include risk of explosion, fire, and exposure to toxic components of natural gas which include benzene, a known human carcinogen."[101] The City needs to investigate the previous abandonment techniques for these two wells and must impose any mitigation that is necessary to ensure the wells do not pose a safety risk or a risk to human health. Any necessary mitigation, which may include re-abandonment of the wells in a safe manner, should be included in the revised DEIR.[102]

The Phase I ESA conducted on the MRIC site disclosed the existence of a former well that was abandoned in 1974. Again, in the opinion of Mr. Hagemann and Ms. Jaeger, the techniques used to abandon this well need to be evaluated in a revised DEIR, and mitigation imposed as necessary, including potential re-

[98] DEIR p. 8-97.
[99] Hagemann and Jaeger Comments, **Attachment A**, p. 4.
[100] *Ibid.*
[101] *Ibid.*, pp. 4-5.
[102] *Ibid.*, p. 5.

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abandonment of the well.[103] In sum, the DEIR lacks substantial evidence to conclude that the risks of public and worker exposure to hazardous materials is less than significant.

D. The Mixed Use Alternative Is Not Adequately Analyzed

45-29

There are numerous inadequacies in the DEIR's analysis of the Mixed Use Alternative ("MUA"). First, regarding aesthetic impacts, the MUA would allow residential and hotel buildings up to 85 feet in height, and R&D buildings up to 65 feet in height, 10 feet taller than the proposed maximum height for hotel buildings and R&D buildings under the proposed Project.[104] The MUA would also have a much higher density, with a 0.82 floor-to-area ratio ("FAR"), as opposed to a 0.5 FAR for the proposed Project.[105] The DEIR concludes that aesthetic impacts would be "significant and unavoidable," but instead of exploring potentially feasible mitigation measures to reduce the significance of this impact, the DEIR improperly concludes that mitigation measures are "not required."[106] The DEIR also fails to analyze the significant impacts of adding more nighttime lighting and taller buildings to the Project design, which will create more significant aesthetic and biological resources impacts that need to be analyzed and mitigated.

45-30

Regarding air quality impacts, the DEIR reasons that because the MUA involves the "same area of disturbance as the proposed project, the construction-related criteria air pollutant emissions would likely be similar to what is expected for the proposed project."[107] This conclusion is not supportable. Adding 850 new housing units to the Project and increasing the density of development on the Project by more than 30% is a *significant* change that will require a corresponding increase in construction workers, construction material deliveries, construction equipment, and construction activities. The DEIR indicates that the MUA was analyzed using the CalEEMod computer model, but the CalEEMod calculations attached to the DEIR do not include any calculations of the development of housing units under the MUA.[108] The City has not yet responded to Davis Residents' request for more information regarding these revised CalEEMod calculations. In

[103] *Ibid.*
[104] DEIR p. 8-6.
[105] DEIR p. 8-9.
[106] DEIR p. 8-32.
[107] DEIR p. 8-40.
[108] DEIR, Appendix C, Air Quality Modeling Results.

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general, however, the fact that the CalEEMod calculations of maximum annual NOx pollution from construction equipment did not change *at all* with the addition of 850 new residential units lends support to the argument that the City's approach to modeling construction emissions is entirely unrealistic and is not protective of public health.

45-31 Regarding the health risks of diesel particulate matter, noise impacts, and other construction-related impacts, the DEIR does not acknowledge or analyze the likelihood of significant impacts to residents living in the first phase of residential development on the Project site during the period when subsequent construction phases will occur.[109] This is a significant oversight in the DEIR analysis.

45-32 Regarding public services, the DEIR does not contain any analysis of how the introduction of almost 400 new school children to the eastern part of the City would be accommodated by the City's school system or whether new school facilities would need to be constructed. The DEIR's reliance on the possibility of school impact fees is inadequate.[110] Moreover, regarding impacts to fire fighting services, the DEIR improperly relies on one personal communication with the City Fire Chief on February 5, 2015, in which the Fire Chief stated that Station 33 can adequately serve the proposed Project (although he expressed concern about impacts to back-up fire service downtown).[111] In February 2015 the City was not proposing to add up to 850 residential units to the Project, and therefore the Fire Chief's statements do not necessarily hold true for the MUA.

These are only several examples of the inadequacies of the DEIR's analysis of the MUA. If the City proposes to rely on the DEIR to approve the MUA, it must first recirculate the DEIR with a more detailed Project description and a corrected and more robust analysis of the associated environmental impacts.

45-33 **F. The DEIR Contains Numerous Examples of "Deferred Mitigation," Which Is Not Allowed Under CEQA**

[109] *See e.g.* DEIR p. 8-112 (discussing noise impacts to a nearby church but not to onsite residential receptors).
[110] DEIR p. 8-132.
[111] DEIR p. 8-188.

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It is improper to defer the formulation of mitigation measures under CEQA.[112] Courts have imposed several parameters for the adequacy of mitigation measures. First, the lead agency may not defer the formulation of mitigation measures until a future time unless the EIR also specifies the specific performance standards capable of mitigating the project's impacts to a less than significant level.[113] Deferral is impermissible where an agency "simply requires a project applicant to obtain a ... report and then comply with any recommendations that may be made in the report."[114] Second, a public agency may not rely on mitigation measures of uncertain efficacy or feasibility.[115] Third, "[m]itigation measures must be fully enforceable through permit conditions, agreements, or other legally binding instruments."[116] Fourth, mitigation measures that are vague or so undefined that it is impossible to evaluate their effectiveness are legally inadequate.[117]

Many of the mitigation measures in the DEIR simply call for further studies and reports, without meaningful performance standards and without the opportunity for further public involvement. These include the following Mitigation Measures:

- 4.1-3 (future lighting plans must limit light trespass and glare to a "reasonable" level);
- 4.4-4(b) (burrowing owl mitigation "may include" compensatory mitigation—or may not);
- 4.5-1 and 4.5-2 (future cultural studies may or may not produce "sufficient data," and if so, an evaluation of unspecified mitigation will be reviewed by the City, and "might include" avoidance of cultural resources, or Project redesign);

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[112] CEQA Guidelines § 15126.4(a)(1)(B);
[113] *Endangered Habitats League v. County of Orange* (2005) 131 Cal.App.4th 777, 793-94; *Defend the Bay v. City of Irvine* (2004) 119 Cal.App.4th 1261, 1275.
[114] *Defend the Bay v. City of Irvine* (2004) 119 Cal.App.4th 1261, 1275.
[115] *Kings County Farm Bureau v. City of Hanford* (1990) 221 Cal.App.3d 692, 727 (finding groundwater purchase agreement inadequate mitigation measure because no record evidence existed that replacement water was available).
[116] CEQA Guidelines § 15126.4(a)(2).
[117] *San Franciscans for Reasonable Growth v. City & County of San Francisco* (1984) 151 Cal.App.3d 61,79.

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- 4.8-2(b) and (c) (future analysis of hazardous materials shall include "soil sampling");
- 4.9-1 (future drainage reports may recommend on-site or off-site measures, channel modification, or other unspecified measures);
- 4.11-4 (future noise report shall include "a detailed list" of noise reduction measures needed);
- 4.14-1 and 4.14-2 (future traffic studies shall determine when traffic mitigation will be installed, what measures will be installed, and whether payment of fees is an acceptable alternative);
- 4.14-5 (future neighborhood traffic calming plan will use measures "proven in other neighborhoods");
- 4.14-6(a) (future travel demand management program may select from any number of strategies in an attempt to achieve trip reduction);
- 4.14-9(b) (future bicycle/pedestrian study shall evaluate bicycle and pedestrian crossing options, with consideration of "construction costs");
- 4.15-3 (future monitoring and study of the sewer system by the Project Applicant could result in required sewer upgrades or replacement);
- 5-19 (future payments of mitigation fees for impacts to fire-fighting services may be used in any number of undisclosed ways);
- 5-22 (future travel route management strategies will be developed); and
- 5-26(a) (future wastewater treatment plant analysis could result in future plans for capacity improvements).

Not only do these measures lack adequate performance criteria and contain uncertainties about their efficacy and feasibility, but the implementation of a

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45-33 Cont'd

number of these measures will result in potentially significant environmental impacts that must be analyzed as part of the DEIR process. The deferral of mitigation, and the lack of analysis of the impacts of mitigation, is a violation of CEQA.

V. THE CITY HAS NOT REQUIRED THE PROJECT TO COMPLY WITH LANDSCAPE IRRIGATION REQUIREMENTS OF THE GOVERNOR'S EXECUTIVE ORDER NUMBER B-29-15

45-34

The State of California is in its fifth straight year of drought. On April 1, 2015, the Governor of California issued Executive Order B-29-15, declaring a continued state of emergency and ordering expedited actions to mitigate the effects of drought.[118] One requirement of the Executive Order is that "newly constructed homes and buildings" shall be prohibited from irrigating with potable water "that is not delivered by drip or microspray systems."[119]

To implement this new requirement, the State Water Resources Control Board adopted emergency regulations that prohibit "irrigation with potable water of landscapes outside of newly constructed homes and buildings in a manner inconsistent with regulations or other requirements established by the California Building Standards Commission and the Department of Housing and Community Development."[120] The Building Standards Commission and the Department of Housing and Community Development adopted temporary emergency regulations to implement the mandates of Executive Order B-29-15 on May 29, 2015, and are now in the process of finalizing more permanent regulations.[121] The DEIR does not ensure that the Project will comply with the mandates of Executive Order B-29-15.

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[118] Executive Order B-29-15, *available at*: http://gov.ca.gov/docs/4.1.15_Executive_Order.pdf (April 2015).
[119] *Ibid.*, p. 2.
[120] 23 Cal. Code Regs. § 864(a)(8), *available at:* http://www.waterboards.ca.gov/waterrights/water_issues/programs/drought/docs/emergency_regulations/adopted_regs_womarkup.pdf ; http://www.waterboards.ca.gov/waterrights/water_issues/programs/drought/docs/emergency_regulations/proposed_emergency_regulations_25percent_faq.pdf, p. 3.
[121] http://www.documents.dgs.ca.gov/bsc/2015TriCycle/MWELO/BSC-EF-01-15-ISOR-Pt11.pdf

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VI. CONCLUSION

It is essential that the City's EIR adequately identify and analyze the Project's foreseeable direct, indirect and cumulative impacts. It is also imperative that any and all feasible mitigation measures be presented and discussed. Indeed, CEQA requires nothing less. As discussed above, the Project will result in significant impacts in a number of areas, including air quality, biological resources, and hazardous materials. The DEIR continues to mischaracterize, underestimate, or fail to identify many of these impacts. Furthermore, many of the mitigation measures relied upon by the DEIR will not in fact mitigate impacts to the extent claimed, and in certain cases will cause other significant impacts that are not properly analyzed.

45-35

A Draft EIR must be recirculated if: (1) it reveals new substantial environmental impacts not disclosed in the draft EIR; (2) it reveals a substantial increase in the severity of impacts (unless mitigated); (3) comments have been received that identify new feasible mitigation measures, but the feasible mitigation measures are not adopted; or (4) it is so fundamentally and basically inadequate and conclusory in nature that public comment on the draft EIR was essentially meaningless.[122]

The courts have held that the failure to recirculate an EIR turns the process of environmental evaluation into a "useless ritual" which could jeopardize "responsible decision-making."[123] Both the opportunity to comment and the preparation of written responses to those comments are crucial parts of the EIR process.

These comments have identified substantial environmental impacts that were again not discussed at all in the DEIR or were not meaningfully considered. These include direct and cumulative impacts on air quality, biological resources, and hazardous materials. The DEIR must be withdrawn, revised and recirculated to properly evaluate these impacts.[124]

[122] CEQA Guidelines § 15088.5, subd. (a).
[123] *Sutter Sensible Planning v. Sutter County Board,* (1981) 122 Cal.App.3d 813, 822.
[124] CEQA Guidelines § 15088.5, subd. (a).

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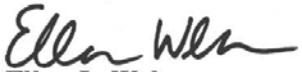
45-35 Cont'd

These comments have also identified feasible mitigation measures for significant, unmitigated impacts that have not been evaluated or proposed for adoption by the DEIR. Under CEQA Guidelines, a Draft EIR must be revised and recirculated to allow for public comment on these unadopted, feasible mitigation measures.[125] These deficiencies result in an DEIR "so fundamentally inadequate and conclusory in nature that public comment on the draft was in effect meaningless."[126]

The DEIR must be revised to correct its errors, fully disclose and evaluate all Project impacts and to identify feasible mitigation that is enforceable and effective. Once those corrections are made, recirculation for public comment and review of these revisions is required. The DEIR must be revised again in order to resolve its inadequacies and must be recirculated for public review and comment.

Sincerely,



Ellen L. Wehr

ELW:ljl

Enclosure: CD w/attachments

[125] *Id.*
[126] *Laurel Heights Improvement Association v. Regents of the University of California* (1993) 6 Cal.4th 1112, 1130.

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45-36

ATTACHMENT A

Letter 45 Cont'd

SWAPE Technical Consultation, Data Analysis and Litigation Support for the Environment

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November 12, 2015

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

Subject: Comments on the Mace Ranch Innovation Center Project

Dear Ms. Wehr:

We have reviewed the August 2015 Draft Environmental Impact Report (DEIR) for the Mace Ranch Innovation Center Project ("Project"). The DEIR proposes the development of 228.58 acres in the City of Davis to include approximately 2,654,000 square feet of innovation center uses, of which up to 260,000 square feet may be developed with supportive commercial uses. Specifically, the Mace Ranch Innovation Center (MRIC), which is 212 acres, proposes to include space for research and development, office space, ancillary retail, a hotel and conference center, green space, a transit plaza, and parking lots. In addition, the DEIR includes the 16.49-acre Mace Triangle within the overall project boundaries. This space is currently occupied, but the EIR evaluates the potential for expansion of the Ikedas farm stand currently on the property and additional urban development on site. The DEIR anticipates that the future development of the Mace Triangle will include research/office/R&D land use and ancillary retail.

45-36 Cont'd

Our review concludes that the DEIR fails to adequately evaluate the Project's Hazards and Hazardous Waste, Air Quality, and Greenhouse Gas (GHG) impacts. An updated DEIR should be prepared to address these issues, and should incorporate additional mitigation measures, where necessary.

Hazards and Hazardous Waste

Additional Sampling is Necessary to Determine if Pesticide Residuals Exist

The DEIR includes the results of soil samples that were collected on the MRIC portion of the Project site for the analysis of pesticides; however, these samples were not collected according to protocol established by the California Department of Toxic Substances Control (DTSC). Additional samples need to be collected and compared to health-based regulatory screening levels in a revised DEIR.

45-37

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The MRIC site has historically been used for agricultural operations and the DEIR acknowledges the potential for residual concentrations of organochlorine pesticides, which include DDT, DDE, and chlordane, to be present in soils at the Project site. To evaluate potential health risks from exposure to pesticides, a sampling program was undertaken for the DEIR at the MRIC site that included the analysis of organochlorine pesticides in soil. The sampling program falls short in providing a reliable basis for decision making about potential pesticide risks because shortcuts were taken in the amount of samples that were collected for analysis.

45-37 Cont'd

The DTSC sampling guidance[1] calls for the collection of a far greater number of soil samples than were collected under the program conducted for the DEIR. In the Phase I Environmental Site Assessment (ESA)[2] commissioned by the applicant for the DEIR, only 34 soil samples were collected for the characterization of the presence of organochlorine pesticides in the soil (p. 4.8-16). This effort is admittedly only 10% that which is required by DTSC for adequate characterization. The Phase I ESA states (p. 15):

> The DTSC guidance called for 200 soil sample locations being distributed over the 212-acre Site. At the request of the Client, the sampling was reduced to ten percent of the recommended sampling locations for the agricultural fields in order to gain an initial understanding of chemicals present in soil.

Therefore, the results of this study are unreliable for determining potential pesticide health risks to construction workers and nearby residents who may be exposed during construction. The Phase I ESA pesticide sampling was designed only to gain an "initial understanding" of the presence of pesticide residuals in soil. This study should be supplemented in a revised DEIR with the results of an investigation that would include the sampling and analysis of 200 soil borings for potential pesticide contamination. A full understanding of health risks can only be gained with an investigation that is based on a sampling program consistent with DTSC guidance.

45-38

The Project site has been farmed since at least 1957, according to the Phase I ESA (p. i). Organochlorine pesticides, such as DDT, DDE, and chlordane, were used from the 1940s[3] until they were banned in the 1970s. Despite being banned for about 40 years, these compounds can persist in soil for hundreds of years.[4] The California Department of Toxic Substances Control (DTSC) states:

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[1] https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0CB4QFjAAahUKEwjowMaQ34jJAhVR52MKHbUpAPg&url=http%3A%2F%2Fcommonground.edrnet.com%2Ffiles%2F7de4dce8ab%2FAg-Guidance-Rev-3-August-7-2008.pdf&usg=AFQjCNH5ncLvW3vrJdfvFES5bBsLvTxQvg&cad=rja

[2] Phase I Environmental Site Assessment, Mace Ranch Innovation Center, January 6, 2015

[3] U.S. EPA, DDT – A Brief History and Status. http://www2.epa.gov/ingredients-used-pesticide-products/ddt-brief-history-and-status

[4] Agency for Toxic Substances and Disease Registry, Public Health Statement for DDT, DDE, and DDD http://www.atsdr.cdc.gov/phs/phs.asp?id=79&tid=20

Letter 45 Cont'd

45-38 Cont'd

> DDT is ubiquitous to California soil due to heavy agricultural usage prior to cancellation in 1972. Therefore, agricultural land which is currently being developed or considered for new uses [...] frequently contains DDT.[5]

Exposure to DDT can result in headaches, nausea, and convulsions.[6] The U.S. EPA identifies DDT and DDE as probable human carcinogens.[7] Chlordane has also been classified as a probable human carcinogen by the U.S. EPA and exposure can result in neurological effects such as headaches, irritability, dizziness, and nausea.[8]

During earthmoving activities, construction workers and neighboring residents, some located as close as 700 feet from the Project site may be exposed, via inhalation of dust, to Project site soils which may contain harmful levels of pesticide residuals associated with agricultural activities on the site. In addition to toxic effects posed by organochlorine pesticides, workers and neighbors may be subjected to an increase in the incidence of asthma, as shown by recent research.[9] A report prepared by the California Department of Health identifies pesticides as an asthma trigger.[10]

In contrast to the weak attempt that was made at the MRIC portion of the Project site, zero sampling has been conducted at the Mace Triangle for pesticide residuals in soils. Mitigation Measure 4.8-2(c) for Mace Triangle states:

> A soil sampling and analysis workplan shall be submitted for approval to Yolo County Environmental Health Department. The sampling and analysis plan will meet the requirements of the Department of Toxic Substances Control Interim Guidance for Sampling Agricultural Properties (2008).

The Mace Triangle, like the MRIC site, has a long history of cultivation, and the DEIR acknowledges that organochlorine pesticides may be present in Project soils at that location. The DEIR states (p. 4.8-17):

> Persistent pesticides may be present in the Mace Triangle site soils, which could result in adverse effects to construction workers. Therefore, prior to future development of the Mace Triangle, soil sampling shall be completed by the Phase I ESA.

The deferral of pesticide sampling at the Mace Triangle site does not allow for disclosure of potentially hazardous conditions that may pose health risks to construction workers and neighboring residents. Instead of waiting for "future development" to trigger pesticide sampling, sampling should be conducted now and included in a revised DEIR. Only with such disclosure can the public be assured that the sampling was conducted in strict accordance with DTSC protocol and in a manner that would produce reliable results.

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[5] Office of the Science Advisor, DDT in Soil: Guidance for the Assessment of Health Risks to Humans. http://www.dtsc.ca.gov/AssessingRisk/upload/chap8.pdf, p. 11.
[6] http://www.epa.gov/ttn/atw/hlthef/dde.html
[7] http://www.atsdr.cdc.gov/toxfaqs/tf.asp?id=80&tid=20
[8] U.S. EPA, Chlordane. http://www.epa.gov/ttnatw01/hlthef/chlordan.html
[9] http://www.ncbi.nlm.nih.gov/pubmed/21368619
[10] http://www.cdph.ca.gov/programs/caphi/Documents/AsthmaStrategicPlan.5-5-08.pdf, p. 50

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Letter 45 Cont'd

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The DEIR also indicates that a large area of agricultural land near the Project site may be scraped of topsoil, excavated up to a depth of 2.5 feet, and the topsoil replaced in order to provide stormwater control for the Project site.[11] The DEIR does not include any pesticide sampling results for this area, nor does it call for soil sampling in strict accordance with DTSC protocol once the final stormwater retention area is identified. The potential for residual pesticides to be present in this soil is high. This is a new significant impact that must be identified, analyzed, and properly mitigated in a revised DEIR.

A Phase I ESA is Necessary for Mace Triangle

As noted, pesticide sampling has not been conducted at the Mace Triangle portion of the Project site. The lack of sampling raises the need for a Phase I ESA to be conducted at the Mace Triangle especially in light of findings we made in the review of the Project.

45-39

We found, through access of the California Division of Oil, Gas & Geothermal Resources (DOGGR) Wellfinder website[12], two abandoned wells to be located on the Mace Triangle.

Information from the DOGGR website shows that Well API 11320714 was a "dry gas" well abandoned in 1982 and Well API 11320239 to have been a "dry gas" well abandoned in 1986.

A Phase I ESA should be conducted during the CEQA review process by a licensed professional to determine if the wells pose a hazard to construction workers or future occupants of the site. Hazards

[11] DEIR, p. 8-97.
[12] http://www.conservation.ca.gov/dog/Pages/Wellfinder.aspx

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45-39 Cont'd

posed by improperly abandoned wells include risk of explosion, fire, and exposure to toxic components of natural gas which include benzene, a known human carcinogen.[13]

A revised DEIR needs to be prepared to include an evaluation of the abandonment techniques for the two wells and any mitigation that is necessary to ensure the wells do not pose a safety risk or a risk to human health. Any necessary mitigation, to include well reabandonment, should be included in the revised DEIR.

Abandoned Well at the MRIC needs to be evaluated

45-40

The DEIR identifies one abandoned gas well at the MRIC site, Well API 11320162, to have been abandoned on May 2, 1974 (p. 4.8-4). As explained, this well should be evaluated for safety risks and risks to human health. Mitigation, if necessary, should be included in a revised DEIR.

Air Quality & Greenhouse Gas

Incorrect Input Parameters Used to Estimate Project Emissions

45-41

The DEIR relies on emissions calculated from the *California Emissions Estimator Model Version* CalEEMod.2013.2.2 ("CalEEMod").[14] CalEEMod provides recommended default values based on site specific information, such as land use type, meteorological data, total lot acreage, project type and typical equipment associated with project type. If more specific project information is known, the user can change the default values and input project-specific values, but CEQA requires that such changes be justified by substantial evidence.[15] Once all the values are inputted into the model, the Project's construction and operational emissions are calculated, and "output files" are generated. These output files, which can be found in Appendix C and Appendix E of the DEIR, disclose to the reader what parameters were utilized in calculating the Project's air pollutant emissions, and make known which default values were changed as well as provide a justification for the values selected.[16]

When reviewing the Project's CalEEMod output files for both criteria air pollutant and greenhouse gas emissions, we found that several of the values inputted into the model are not consistent with information disclosed in the DEIR. An updated air quality and greenhouse gas assessment and an updated DEIR should be prepared to adequately assess the impacts that construction and operation of the Project will have on regional air quality and global climate change.

[13] http://www.ecohearth.com/eco-zine/green-issues/1609-abandoned-leaking-oil-wells-natural-gas-well-leaks-disaster.html and https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=8&ved=0CEgQFjAHahUKEwi2x9WN64jJAhVUzmMKHXJRCVo&url=ftp%3A%2F%2Fftp.conservation.ca.gov%2Fpub%2Foil%2FSB4DEIR%2Fdocs%2FGW_Chilingar_and_Endres_2005.pdf&usg=AFQjCNHhv6V2Sim6aTWLDRnfjHdAgvkz0w&cad=rja

[14] CalEEMod website, *available at*: http://www.caleemod.com/

[15] CalEEMod User Guide, pp. 2, 9, *available at:* http://www.caleemod.com/

[16] CalEEMod User Guide, pp. 7, 13, *available at:* http://www.caleemod.com/ (A key feature of the CalEEMod program is the "remarks" feature, where the user explains why a default setting was replaced by a "user defined" value. These remarks are included in the report.)

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45-42

Project Size and Land Use are Inconsistent with Project Description

The Project's CalEEMod output files show that the "Land Use Types" and "Sizes" utilized in the emissions model are inconsistent with information disclosed in the DEIR. The DEIR states that the proposed Project encompasses a total of 228.58 acres, which consists of the 212-acre MRIC site and the 16.49-acre Mace Triangle site (DIER, p. 3-1). However, review of the CalEEMod output files for both the air quality and greenhouse gas assessment indicate that emissions were modeled assuming a total of only 63.88 acres of development. This is less than one-third of the entire Project area, resulting in a huge underestimation of Project emissions.

Additionally, the land uses in the CalEEMod output file do not correspond to the proposed land uses in the DEIR. Table 3-2 of the DEIR provides a summary of the anticipated land uses for the proposed MRIC development (see excerpts below).

Table 3-2
MRIC – Summary of Uses by Type

Land Use	Size
Research, Office, R&D	*1,510,000 sf*
Manufacturing; Research	*884,000 sf*
Ancillary Retail	*100,000 sf*
Hotel/Conference	*160,000 sf (150 rooms)*
Green Space	*64.6 acres*
Landscaped Parking	*12.6 acres*
Transit Plaza	*0.6 acres*
Total Acres	**212 acres**
Total square footage	**2,654,000 sf**

However, the "Green Space", "Landscaped Parking", and "Transit Plaza" proposed land uses (outlined in red) for the MRIC were not included in the air modeling conducted in the DEIR, as shown in the excerpt below.

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Research & Development	1,510.00	1000sqft	34.66	1,510,000.00	0
Research & Development	45.90	1000sqft	1.05	45,901.00	0
Manufacturing	884.00	1000sqft	20.29	884,000.00	0
Hotel	150.00	Room	5.00	217,800.00	0
Regional Shopping Center	100.00	1000sqft	2.30	100,000.00	0
Regional Shopping Center	25.16	1000sqft	0.58	25,155.00	0

The inconsistencies in the proposed "Land Uses" and "Sizes" present a significant issue. The land use types and size features are used throughout CalEEMod in determining default variables and emission factors that go into the model's calculations. For example, each land use has an established trip rate critical for mobile source calculations.[17]

[17] CalEEMod User's Guide, p. 15, 16, *available at:* http://www.caleemod.com/

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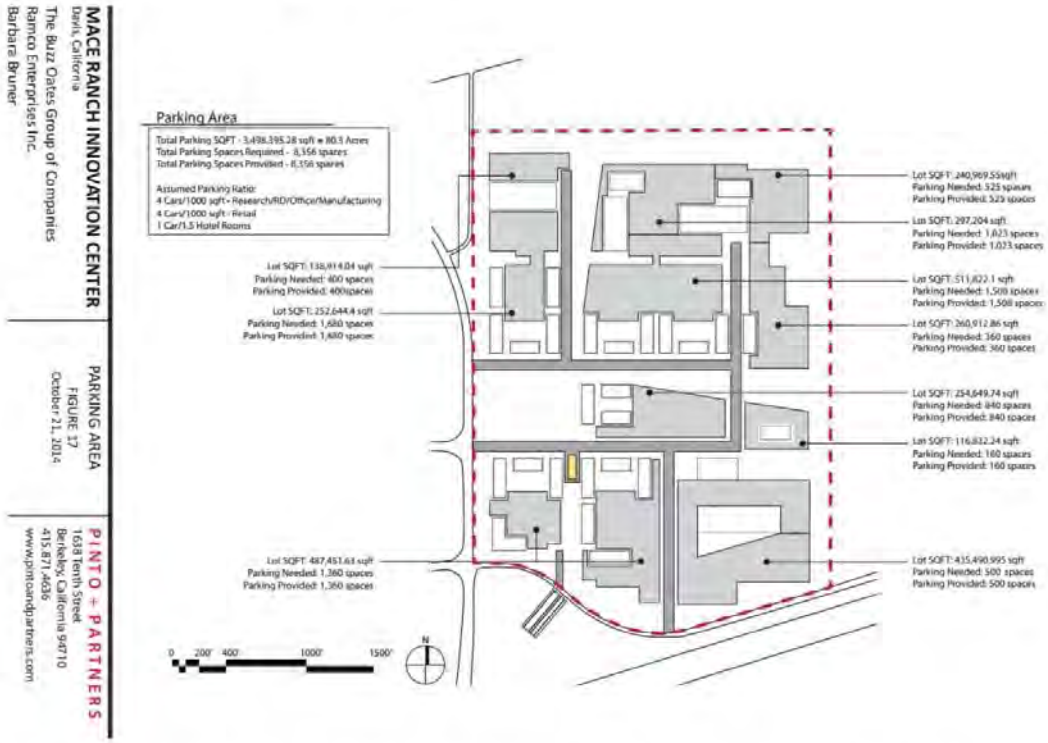
Furthermore, Figure 17 of the City's Project Documents depicts the proposed parking area for the Project and demonstrates that the total parking area will encompass 80.3 acres of the Project site and consist of 8,356 spaces (see figure below). [18]



This is inconsistent with Table 3-2 of the DEIR, which states that landscaped parking will only be 12.6 acres, and is inconsistent with the DEIR's CalEEMod modeling inputs, which failed to include construction of any type of parking.

By omitting this information in the emissions model, the DEIR greatly underestimates the emissions that would be produced during construction of the proposed parking lots. CalEEMod uses the parking input values to estimate the total acreage of paving that would be required for the Project.[19] Paving such a large area of the Project site will require the use of additional construction equipment, which will produce emissions. The emissions from these additional pieces of construction equipment are unaccounted for in the DEIR's emissions model. Furthermore, emissions from architectural coating activities, electricity usage from outdoor lighting, ventilation, and elevators in the proposed parking structures are unaccounted for.[20] By failing to include any of the proposed parking land uses in the

[18] "Figure 17 Parking Area." Mace Ranch Innovation Center, *available at:* http://documents.cityofdavis.org/Media/Default/Documents/PDF/CDD/ED/projects/Innovation-Centers/Mace-Ranch/Project-Files/Project-Figures/MRIC%20Figure%2017%20Parking%20Area.pdf
[19] CalEEMod User's Guide, p. 14, *available at:* http://www.caleemod.com/
[20] CalEEMod User's Guide, p. 3, *available at:* http://www.caleemod.com/

Letter 45 Cont'd

CalEEMod analysis, emissions from paving of the parking area were not included. Furthermore, emissions from construction of the parking area and application of architectural coating were not included. Therefore, the overall Project emissions are greatly underestimated and an updated CalEEMod model should be prepared.

45-42 Cont'd

Overall, the DEIR fails to clearly describe the sizes of the proposed land uses for the Project. These inconsistencies present a significant issue, in that land use types and size features are used throughout CalEEMod in determining default variables and emission factors that go into the model's calculations. Each land use has an established trip rate critical for mobile source calculations.[21] Parking and transit plaza land uses will have emissions associated with them as a result of paving and grading activities, all of which are unaccounted for because they are omitted from the CalEEMod model. Due to the discrepancies between various parts of the DEIR with regards to land use and size, an updated EIR should be provided that clearly demonstrates these factors and an updated CalEEMod model must be conducted in order for the air quality assessment to accurately estimate Project emissions.

No Hauling Trips Inputted in Model

The DEIR states that, "Because the proposed project would result in construction-related emissions below the applicable thresholds of significance and would comply with applicable YSAQMD rules, regulations, and best management practices for dust, construction activities associated with development of the proposed project would result in a less-than-significant impact to air quality" (DEIR, p. 4.3-25). However, according to the CalEEMod output files, no hauling trips were applied for any phase of construction. As previously mentioned, construction is assumed to occur over an 18- year period. By not inputting hauling trips for any phase, the model is estimating emissions with the assumption that no hauling will occur at any point during the entire 18-year construction period. This assumption is completely unrealistic and unsubstantiated, considering the size of the proposed Project. Heavy-duty hauling trucks would be required for the delivery of construction equipment to and from the site, as well as for transporting construction waste off-site.[22] Furthermore, the DEIR anticipates that 224.42 acres of the Project site will undergo grading activities (p. 4.3-21), which would likely require movement of material off-site via heavy-duty hauling trucks. Failing to include any hauling trips in the emissions modeling for the Project is unrealistic and artificially lowers construction emissions. Therefore, an updated air quality and greenhouse gas assessment should be conducted to accurately reflect the Project's impact on regional air quality and climate change.

45-43

Reduction of Operational Trip Lengths

The CalEEMod output files for both criteria air pollutants and greenhouse gas emissions show that the operational trip lengths for non-residential trip types were reduced slightly without proper justification. The commercial-customer (C-C) and commercial-nonwork (C-NW) trip lengths were decreased from the default value of 6.60 miles to 5.81 miles, and the commercial-work (C-W) trip length was decreased from 14.70 miles to 13.41 miles. CalEEMod allows the user to change default values to project-specific

45-44

[21] CalEEMod User's Guide, p. 15, 16, *available at:* http://www.caleemod.com/
[22] Heavy Equipment Hauling & Dump Truck Services in Vermont & NH, *available at:* http://www.dandctransportation.com/index.php?option=com_content&view=article&id=3&Itemid=3

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45-44 Cont'd

input values, but requires that such changes be justified by substantial evidence.[23] However, the only user entered comment in the CalEEMod output files in regards to the decrease in trip length is, "Based on VMT data from traffic consultant." This does not provide any justification or further insight on the reasoning behind the change in trip lengths. Furthermore, the DEIR states that, "Forecasts of project vehicle miles of travel (VMT) was estimated by utilizing a combination of vehicle trip generation estimates as well as trip length data based on household locations in the Economic Evaluation of Innovation Park Proposals (BAE, March 2015), California Household Travel Survey (CHTS) data, and census data." (p. 4.14-18). We were unable to verify the origin of the shortened trip length within the documents available to us and no further information was provided on where to find the data referenced.

Because it is vague as to where the shortened trip lengths were derived from and there is no justification for the change, default trip lengths should be used. According to Appendix A of the CalEEMod User's Guide, each trip type has an associated default trip length which is based on the location and urbanization characteristics selected in CalEEMod. These trip length values are supplied directly by each district or county, or the default state average is used.[24] Since the default values are specific for each location, they are appropriate to use instead of the unjustified shortened trip lengths. An updated DEIR should be prepared to include a model that correctly estimates the Project's air pollution emissions.

Utilized Incorrect Value for Vehicle Miles Traveled

The DEIR states that, "The project-specific daily VMT of 196,000 provided by Fehr & Peers, Inc. for year 2035 was also applied to the project modeling" (p. 4.7-24). In an effort to verify this value, we attempted to review the vehicle miles traveled (VMT) analysis conducted by Fehr & Peers, Inc. However, the only source cited for this was "Personal communication with Bob Grandy, Principal. February 6, 2015" (DEIR, p. 4.3-22). Review of this communication did not provide any insight into the methodology used to calculate the 196,000 VMT at Project build-out. Because of this, we were unable to verify whether or not this value is correct.

45-45

Regardless, assuming that the daily 196,000 VMT is correct, this would result in an annual average VMT of 71,540,000 (196,000 x 365 days). However, the total average annual VMT in both the mitigated annual greenhouse gas CalEEMod output file (Appendix E, pp.222) and the mitigated annual air quality CalEEMod output file (Appendix C, pp. 560) is 44,987,351. The annual vehicle miles traveled used in the DEIR's emissions models are underestimated by 26,552,649 VMT, which is inconsistent with information disclosed in the DEIR. As a result, the operational emissions, in particular NO_x and greenhouse gas emissions from mobile sources, are greatly underestimated.

[23] CalEEMod User Guide, pp. 2, 9, *available at:* http://www.caleemod.com/
[24] "Appendix A Calculation Details for CalEEMod." California Air Pollution Control Officers Association, July 2013, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/caleemod-appendixa.pdf?sfvrsn=2, p. 21

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Updated Analysis Indicates Increase in Pollutant Emissions

In an effort to more accurately estimate the Project's emissions, we prepared an updated CalEEMod model that includes more site specific information and corrected input parameters. The updated CalEEMod output files are included as an attachment to this letter. The following parameters, summarized in the table below were adjusted in an effort to more accurately reflect the Project criteria discussed in the DEIR.

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CalEEMod Parameter	IS/MND Model Input		SWAPE Model Input	
Land Use	Research & Development	1,510,000 SF	Research & Development	1,510,000 SF
	Research & Development	45,901 SF	Research & Development	45,901 SF
	Manufacturing	884,000 SF	Manufacturing	884,000 SF
	Hotel	150 Rooms 217,800 SF	Hotel	150 Rooms 160,000 SF
	Regional Shopping Center	100,000 SF	Regional Shopping Center	100,000 SF
	Regional Shopping Center	25,155SF	Regional Shopping Center	25,155SF
	Open Space	-	Open Space	64.6 Acres
	Parking Lot	-	Parking Lot	8,356 Spaces 80.3 Acres
	Transit Plaza	-	Transit Plaza	0.6 Acres
Vehicle Trip Length	Commercial-Costumer	6.43	Commercial-Costumer	6.60
	Commercial-Non Work	6.43	Commercial-Non Work	6.60
	Commercial-Work	13.41	Commercial-Work	14.70

The land use input data reflects the land uses discussed in the DEIR. To conduct a conservative analysis, we used the data regarding Parking land use found in Figure 17 of the Project Documents, located on the City of Davis' webpage. Because we were unable to verify the 196,000 daily VMT provided in the DEIR, we relied upon the default trip operational trip rates and trip lengths.

When correct input parameters are used to model emissions, we find that the Project's construction-related criteria air pollutant emissions increase significantly compared to the DEIR's model. Furthermore, we find that the Project's construction-related NO_x emissions exceed the 10 tons per year construction threshold set forth by the Yolo-Solano Air Quality Management District (YSAQMD) (see table below).[25]

Maximum Unmitigated Project Construction-Related Emissions			
	ROG (tons/yr)	NO_x (tons/yr)	PM_{10} (lbs/day)
DEIR Model	2.41	7.64	21.05
SWAPE Model	3.57	10.04	45.50
Threshold	**10**	**10**	**80**
Exceedance	*No*	***Yes***	*No*

[25] "Handbook for Assessing and Mitigating Air Quality Impacts." Yolo-Solano Air Quality Management District, July 2007, *available at:* http://www.ysaqmd.org/documents/CEQAHandbook2007.pdf

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The Project's operation-related criteria air pollutant emissions also increase significantly when compared to the DEIR's model (see table below).

Unmitigated Project Operational Emissions			
	ROG (tons/yr)	NO_x (tons/yr)	PM_{10} (lbs/day)
DEIR Model	19.5	18.8	139.0
SWAPE Model	33.7	19.7	139.5
Threshold	**10**	**10**	**80**
Exceedance	***Yes***	***Yes***	***Yes***
Percent Increase	**73%**	**5%**	**0.41%**

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The DEIR states that because the YSAQMD has not adopted thresholds of significance for GHG emissions, it is recommended that the Project's GHG analysis be conducted, consistent with the Sacramento Metropolitan Air Quality Management District's (SMAQMD) approach (DEIR, p. 4.7-19). According to the DEIR, the SMAQMD has established a threshold for both construction and operational GHG emissions of 1,100 $MTCO_2e$/year (p. 4.7-27). While the DEIR model already exceeded this threshold, our model with the correct parameter shows that GHG emissions increase by approximately 10 percent and further exceed the threshold (see table below).

Proposed Project Mitigated GHG Emissions at Buildout ($MTCO_2e$/yr)		
	DEIR Model	SWAPE Model
Construction	159	345
Operational	24,040	26,249
Total	**24,199**	**26,594**

It should be noted that our model still most likely underestimates emissions, as there are several incorrect input parameters we were unable to change due to lack of information. Therefore, the Project's emissions could be higher than the emissions estimated in the SWAPE model. When correct modeling parameters are used, the Project's criteria air pollutant and GHG emissions increase greatly and construction-related NO_x emissions, as well as operational emissions exceed the established threshold. Due to these reasons an updated DEIR must be prepared to adequately model the Project's emissions.

Diesel Particulate Matter Emissions Inadequately Evaluated

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The DEIR concludes that the health risk posed to nearby sensitive receptors from exposure to DPM emissions released during Project construction would be less than significant, yet fails to quantify the risk and compare it to the Project-specific threshold of 10 in one million (p. 4.3-34). The DEIR attempts to justify the omission of an actual health risk assessment, stating:

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"Because the project's construction-related concentration of PM_{10} would be below the CAAQS, and health risks associated with exposure to DPM or any TAC are correlated with high concentrations over a long period of exposure (e.g., over a 70-year lifetime), the temporary, intermittent construction-related DPM emissions would not be expected to cause any health risks to any nearby sensitive receptors. As such, project construction would not be expected to expose sensitive receptors to substantial concentrations of DPM" (p. 4.3-33, 4.3-34).

This justification is flawed for several reasons.

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First, the DEIR assumes that because construction would occur over a period of time shorter than 70 years, health risk from construction activities would be less than significant. However, construction of the proposed Project is anticipated to occur over an 18-year period. It is absurd to assume that 18 years of construction is a short duration of time, as implied by the DEIR, as it more than one-quarter of the 70-year lifetime exposure. Furthermore, omission of a quantified health risk due to the assumption that construction would occur over a short period of time is inconsistent with the most recent guidance published by the Office of Environmental Health Hazard Assessment (OEHHA), the organization responsible for providing recommendations and guidance on how to conduct health risk assessments in California. In February of 2015, OEHHA released its most recent *Risk Assessment Guidelines: Guidance Manual for Preparation of Health Risk Assessments*, which was formally adopted in March of 2015.[26] This guidance document describes the types of projects that warrant the preparation of a health risk assessment. Construction of the Project will produce emissions of DPM, a human carcinogen, through the exhaust stacks of construction equipment for approximately 216 months, or 78,840 days. The OEHHA document recommends that all short-term projects lasting at least two months be evaluated for cancer risks to nearby sensitive receptors.[27] This recommendation reflects the most recent health risk assessment policy, and as such, an assessment of health risks to nearby residential receptors from Project construction should be included in a revised CEQA evaluation for the Project.

Second, comparing construction PM_{10} emissions to the 24-hour and annual average California Ambient Air Quality Standards (CAAQS) threshold is inadequate. The DEIR states that, "Nonetheless, to ensure concentrations of DPM would not exceed the established CAAQS for PM10 emissions, which as stated is the maximum amount of pollutant that can be present in outdoor air without harm to public health..." (p. 4.3-33). While CAAQS thresholds are legal limits on outdoor air pollutants that are designed to protect the health of California residents, it does not provide a quantified cancer risk from the Project. Simply comparing the construction PM_{10} emissions to CAAQs thresholds is inadequate and not consistent with other CEQA evaluations conducted within the area, such as the Nishi Gateway Project, in which a cancer risk of 10 in one million or hazard index greater than 1.0 was used.[28] In an effort to

[26] "Risk Assessment Guidelines Guidance Manual for Preparation of Health Risk Assessments." OEHHA, February 2015, *available at:* http://oehha.ca.gov/air/hot_spots/hotspots2015.html
[27] "Risk Assessment Guidelines Guidance Manual for Preparation of Health Risk Assessments." OEHHA, February 2015, *available at:* http://oehha.ca.gov/air/hot_spots/2015/2015GuidanceManual.pdf, p. 8-18
[28] "Nishi Gateway Project: Air Quality." Draft Environmental Impact Report, *available at:* http://documents.cityofdavis.org/Media/Default/Documents/PDF/CDD/ED/projects/Innovation-Centers/Nishi/Draft-EIR/4.03-Air-Quality.pdf

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demonstrate this, we prepared a simple health risk assessment, utilizing the highest annual average concentration of PM_{10} at nearby sensitive receptors disclosed in the DEIR. The result of our assessment, as described below, demonstrates that construction-related DPM emissions may result in a potentially significant health risk impact.

According to the DEIR, "...the highest annual average concentration of PM_{10} associated with project construction at a nearby sensitive receptor was estimated using AERMOD to be 1.17 $\mu g/m^3$..." (p. 4.3-33). We calculated excess cancer risk for each sensitive receptor location, for adults, children, and infant receptors using applicable HRA methodologies prescribed by OEHHA. OEHHA recommends the use of Age Sensitivity Factors (ASFs) to account for the heightened susceptibility of young children to the carcinogenic toxicity of air pollution. [29] According to the revised guidance, quantified cancer risk should be multiplied by a factor of ten during the first two years of life (infant), and by a factor of three for the subsequent fourteen years of life (child aged two until sixteen). The results of our calculations are shown below.

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Parameter	Description	Units	Adult	Child	Infant
Cair	Concentration	$\mu g/m^3$	1.17	1.17	1.17
DBR	Daily breathing rate	L/kg-day	302	581	581
EF	Exposure Frequency	days/year	350	350	350
ED	Exposure Duration	years	18	14	2
AT	Averaging Time	days	25550	25550	25550
	Inhaled Dose	(mg/kg-day)	8.7E-05	1.3E-04	1.9E-05
CPF	Cancer Potency Factor	1/(mg/kg-day)	1.1	1.1	1.1
ASF	Age Sensitivity Factor	-	1	3	10
	Cancer Risk		**9.58E-05**	**4.30E-04**	**2.05E-04**

The excess cancer risk to adults, children, and infants during Project construction for sensitive receptors approximately 660 feet away from the Project site are 96, 430, and 205 in one million, respectively. Consistent with OEHHA guidance, exposure was assumed to begin in the infantile stage of life to provide the most conservative estimate of air quality hazards. The infantile, child, and adult exposure for sensitive receptors exceed the YSAQMD threshold of 10 in one million. In addition, this health risk uses the annual average concentration disclosed in the DEIR, which was calculated from CalEEMod output files that contain incorrect input parameters. As a result, emissions are underestimated and a refined health risk must be prepared to examine the air quality impacts generated by Project construction using an updated CalEEMod model that includes site-specific information.

[29] "Risk Assessment Guidelines Guidance Manual for Preparation of Health Risk Assessments." OEHHA, February 2015, *available at:* http://oehha.ca.gov/air/hot_spots/2015/2015GuidanceManual.pdf

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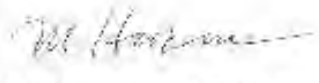
Sincerely,



Matt Hagemann, P.G., C.Hg.

Jessie Jaeger

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Cont'd

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Matthew F. Hagemann, P.G., C.Hg., QSD, QSP

Geologic and Hydrogeologic Characterization
Industrial Stormwater Compliance
Investigation and Remediation Strategies
Litigation Support and Testifying Expert
CEQA Review

Education:

M.S. Degree, Geology, California State University Los Angeles, Los Angeles, CA, 1984.
B.A. Degree, Geology, Humboldt State University, Arcata, CA, 1982.

Professional Certifications:

California Professional Geologist
California Certified Hydrogeologist
Qualified SWPPP Developer and Practitioner

Professional Experience:

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Matt has 25 years of experience in environmental policy, assessment and remediation. He spent nine years with the U.S. EPA in the RCRA and Superfund programs and served as EPA's Senior Science Policy Advisor in the Western Regional Office where he identified emerging threats to groundwater from perchlorate and MTBE. While with EPA, Matt also served as a Senior Hydrogeologist in the oversight of the assessment of seven major military facilities undergoing base closure. He led numerous enforcement actions under provisions of the Resource Conservation and Recovery Act (RCRA) while also working with permit holders to improve hydrogeologic characterization and water quality monitoring.

Matt has worked closely with U.S. EPA legal counsel and the technical staff of several states in the application and enforcement of RCRA, Safe Drinking Water Act and Clean Water Act regulations. Matt has trained the technical staff in the States of California, Hawaii, Nevada, Arizona and the Territory of Guam in the conduct of investigations, groundwater fundamentals, and sampling techniques.

Positions Matt has held include:

- Founding Partner, Soil/Water/Air Protection Enterprise (SWAPE) (2003 – present);
- Geology Instructor, Golden West College, 2010 – 2104;
- Senior Environmental Analyst, Komex H2O Science, Inc. (2000 -- 2003);

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- Executive Director, Orange Coast Watch (2001 – 2004);
- Senior Science Policy Advisor and Hydrogeologist, U.S. Environmental Protection Agency (1989–1998);
- Hydrogeologist, National Park Service, Water Resources Division (1998 – 2000);
- Adjunct Faculty Member, San Francisco State University, Department of Geosciences (1993 – 1998);
- Instructor, College of Marin, Department of Science (1990 – 1995);
- Geologist, U.S. Forest Service (1986 – 1998); and
- Geologist, Dames & Moore (1984 – 1986).

Senior Regulatory and Litigation Support Analyst:

With SWAPE, Matt's responsibilities have included:

- Lead analyst and testifying expert in the review of over 100 environmental impact reports since 2003 under CEQA that identify significant issues with regard to hazardous waste, water resources, water quality, air quality, Valley Fever, greenhouse gas emissions, and geologic hazards. Make recommendations for additional mitigation measures to lead agencies at the local and county level to include additional characterization of health risks and implementation of protective measures to reduce worker exposure to hazards from toxins and Valley Fever.
- Stormwater analysis, sampling and best management practice evaluation at industrial facilities.
- Manager of a project to provide technical assistance to a community adjacent to a former Naval shipyard under a grant from the U.S. EPA.
- Technical assistance and litigation support for vapor intrusion concerns.
- Lead analyst and testifying expert in the review of environmental issues in license applications for large solar power plants before the California Energy Commission.
- Manager of a project to evaluate numerous formerly used military sites in the western U.S.
- Manager of a comprehensive evaluation of potential sources of perchlorate contamination in Southern California drinking water wells.
- Manager and designated expert for litigation support under provisions of Proposition 65 in the review of releases of gasoline to sources drinking water at major refineries and hundreds of gas stations throughout California.
- Expert witness on two cases involving MTBE litigation.
- Expert witness and litigation support on the impact of air toxins and hazards at a school.
- Expert witness in litigation at a former plywood plant.

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With Komex H2O Science Inc., Matt's duties included the following:

- Senior author of a report on the extent of perchlorate contamination that was used in testimony by the former U.S. EPA Administrator and General Counsel.
- Senior researcher in the development of a comprehensive, electronically interactive chronology of MTBE use, research, and regulation.
- Senior researcher in the development of a comprehensive, electronically interactive chronology of perchlorate use, research, and regulation.
- Senior researcher in a study that estimates nationwide costs for MTBE remediation and drinking water treatment, results of which were published in newspapers nationwide and in testimony against provisions of an energy bill that would limit liability for oil companies.
- Research to support litigation to restore drinking water supplies that have been contaminated by MTBE in California and New York.

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- Expert witness testimony in a case of oil production-related contamination in Mississippi.
- Lead author for a multi-volume remedial investigation report for an operating school in Los Angeles that met strict regulatory requirements and rigorous deadlines.

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- Development of strategic approaches for cleanup of contaminated sites in consultation with clients and regulators.

Executive Director:

As Executive Director with Orange Coast Watch, Matt led efforts to restore water quality at Orange County beaches from multiple sources of contamination including urban runoff and the discharge of wastewater. In reporting to a Board of Directors that included representatives from leading Orange County universities and businesses, Matt prepared issue papers in the areas of treatment and disinfection of wastewater and control of the discharge of grease to sewer systems. Matt actively participated in the development of countywide water quality permits for the control of urban runoff and permits for the discharge of wastewater. Matt worked with other nonprofits to protect and restore water quality, including Surfrider, Natural Resources Defense Council and Orange County CoastKeeper as well as with business institutions including the Orange County Business Council.

Hydrogeology:

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As a Senior Hydrogeologist with the U.S. Environmental Protection Agency, Matt led investigations to characterize and cleanup closing military bases, including Mare Island Naval Shipyard, Hunters Point Naval Shipyard, Treasure Island Naval Station, Alameda Naval Station, Moffett Field, Mather Army Airfield, and Sacramento Army Depot. Specific activities were as follows:

- Led efforts to model groundwater flow and contaminant transport, ensured adequacy of monitoring networks, and assessed cleanup alternatives for contaminated sediment, soil, and groundwater.
- Initiated a regional program for evaluation of groundwater sampling practices and laboratory analysis at military bases.
- Identified emerging issues, wrote technical guidance, and assisted in policy and regulation development through work on four national U.S. EPA workgroups, including the Superfund Groundwater Technical Forum and the Federal Facilities Forum.

At the request of the State of Hawaii, Matt developed a methodology to determine the vulnerability of groundwater to contamination on the islands of Maui and Oahu. He used analytical models and a GIS to show zones of vulnerability, and the results were adopted and published by the State of Hawaii and County of Maui.

As a hydrogeologist with the EPA Groundwater Protection Section, Matt worked with provisions of the Safe Drinking Water Act and NEPA to prevent drinking water contamination. Specific activities included the following:

- Received an EPA Bronze Medal for his contribution to the development of national guidance for the protection of drinking water.
- Managed the Sole Source Aquifer Program and protected the drinking water of two communities through designation under the Safe Drinking Water Act. He prepared geologic reports, conducted public hearings, and responded to public comments from residents who were very concerned about the impact of designation.

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- Reviewed a number of Environmental Impact Statements for planned major developments, including large hazardous and solid waste disposal facilities, mine reclamation, and water transfer.

Matt served as a hydrogeologist with the RCRA Hazardous Waste program. Duties were as follows:

- Supervised the hydrogeologic investigation of hazardous waste sites to determine compliance with Subtitle C requirements.
- Reviewed and wrote "part B" permits for the disposal of hazardous waste.
- Conducted RCRA Corrective Action investigations of waste sites and led inspections that formed the basis for significant enforcement actions that were developed in close coordination with U.S. EPA legal counsel.
- Wrote contract specifications and supervised contractor's investigations of waste sites.

With the National Park Service, Matt directed service-wide investigations of contaminant sources to prevent degradation of water quality, including the following tasks:

- Applied pertinent laws and regulations including CERCLA, RCRA, NEPA, NRDA, and the Clean Water Act to control military, mining, and landfill contaminants.
- Conducted watershed-scale investigations of contaminants at parks, including Yellowstone and Olympic National Park.
- Identified high-levels of perchlorate in soil adjacent to a national park in New Mexico and advised park superintendent on appropriate response actions under CERCLA.
- Served as a Park Service representative on the Interagency Perchlorate Steering Committee, a national workgroup.
- Developed a program to conduct environmental compliance audits of all National Parks while serving on a national workgroup.
- Co-authored two papers on the potential for water contamination from the operation of personal watercraft and snowmobiles, these papers serving as the basis for the development of nation-wide policy on the use of these vehicles in National Parks.
- Contributed to the Federal Multi-Agency Source Water Agreement under the Clean Water Action Plan.

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Policy:

Served senior management as the Senior Science Policy Advisor with the U.S. Environmental Protection Agency, Region 9. Activities included the following:

- Advised the Regional Administrator and senior management on emerging issues such as the potential for the gasoline additive MTBE and ammonium perchlorate to contaminate drinking water supplies.
- Shaped EPA's national response to these threats by serving on workgroups and by contributing to guidance, including the Office of Research and Development publication, Oxygenates in Water: Critical Information and Research Needs.
- Improved the technical training of EPA's scientific and engineering staff.
- Earned an EPA Bronze Medal for representing the region's 300 scientists and engineers in negotiations with the Administrator and senior management to better integrate scientific principles into the policy-making process.
- Established national protocol for the peer review of scientific documents.

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Geology:

With the U.S. Forest Service, Matt led investigations to determine hillslope stability of areas proposed for timber harvest in the central Oregon Coast Range. Specific activities were as follows:

- Mapped geology in the field, and used aerial photographic interpretation and mathematical models to determine slope stability.
- Coordinated his research with community members who were concerned with natural resource protection.
- Characterized the geology of an aquifer that serves as the sole source of drinking water for the city of Medford, Oregon.

As a consultant with Dames and Moore, Matt led geologic investigations of two contaminated sites (later listed on the Superfund NPL) in the Portland, Oregon, area and a large hazardous waste site in eastern Oregon. Duties included the following:

- Supervised year-long effort for soil and groundwater sampling.
- Conducted aquifer tests.
- Investigated active faults beneath sites proposed for hazardous waste disposal.

Teaching:

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From 1990 to 1998, Matt taught at least one course per semester at the community college and university levels:

- At San Francisco State University, held an adjunct faculty position and taught courses in environmental geology, oceanography (lab and lecture), hydrogeology, and groundwater contamination.
- Served as a committee member for graduate and undergraduate students.
- Taught courses in environmental geology and oceanography at the College of Marin.

Matt taught physical geology (lecture and lab and introductory geology at Golden West College in Huntington Beach, California from 2010 to 2014.

Invited Testimony, Reports, Papers and Presentations:

Hagemann, M.F., 2008. Disclosure of Hazardous Waste Issues under CEQA. Presentation to the Public Environmental Law Conference, Eugene, Oregon.

Hagemann, M.F., 2008. Disclosure of Hazardous Waste Issues under CEQA. Invited presentation to U.S. EPA Region 9, San Francisco, California.

Hagemann, M.F., 2005. Use of Electronic Databases in Environmental Regulation, Policy Making and Public Participation. Brownfields 2005, Denver, Coloradao.

Hagemann, M.F., 2004. Perchlorate Contamination of the Colorado River and Impacts to Drinking Water in Nevada and the Southwestern U.S. Presentation to a meeting of the American Groundwater Trust, Las Vegas, NV (served on conference organizing committee).

Hagemann, M.F., 2004. Invited testimony to a California Senate committee hearing on air toxins at schools in Southern California, Los Angeles.

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Cont'd

Brown, A., Farrow, J., Gray, A. and **Hagemann, M.**, 2004. An Estimate of Costs to Address MTBE Releases from Underground Storage Tanks and the Resulting Impact to Drinking Water Wells. Presentation to the Ground Water and Environmental Law Conference, National Groundwater Association.

Hagemann, M.F., 2004. Perchlorate Contamination of the Colorado River and Impacts to Drinking Water in Arizona and the Southwestern U.S. Presentation to a meeting of the American Groundwater Trust, Phoenix, AZ (served on conference organizing committee).

Hagemann, M.F., 2003. Perchlorate Contamination of the Colorado River and Impacts to Drinking Water in the Southwestern U.S. Invited presentation to a special committee meeting of the National Academy of Sciences, Irvine, CA.

Hagemann, M.F., 2003. Perchlorate Contamination of the Colorado River. Invited presentation to a tribal EPA meeting, Pechanga, CA.

Hagemann, M.F., 2003. Perchlorate Contamination of the Colorado River. Invited presentation to a meeting of tribal repesentatives, Parker, AZ.

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Hagemann, M.F., 2003. Impact of Perchlorate on the Colorado River and Associated Drinking Water Supplies. Invited presentation to the Inter-Tribal Meeting, Torres Martinez Tribe.

Hagemann, M.F., 2003. The Emergence of Perchlorate as a Widespread Drinking Water Contaminant. Invited presentation to the U.S. EPA Region 9.

Hagemann, M.F., 2003. A Deductive Approach to the Assessment of Perchlorate Contamination. Invited presentation to the California Assembly Natural Resources Committee.

Hagemann, M.F., 2003. Perchlorate: A Cold War Legacy in Drinking Water. Presentation to a meeting of the National Groundwater Association.

Hagemann, M.F., 2002. From Tank to Tap: A Chronology of MTBE in Groundwater. Presentation to a meeting of the National Groundwater Association.

Hagemann, M.F., 2002. A Chronology of MTBE in Groundwater and an Estimate of Costs to Address Impacts to Groundwater. Presentation to the annual meeting of the Society of Environmental Journalists.

Hagemann, M.F., 2002. An Estimate of the Cost to Address MTBE Contamination in Groundwater (and Who Will Pay). Presentation to a meeting of the National Groundwater Association.

Hagemann, M.F., 2002. An Estimate of Costs to Address MTBE Releases from Underground Storage Tanks and the Resulting Impact to Drinking Water Wells. Presentation to a meeting of the U.S. EPA and State Underground Storage Tank Program managers.

Hagemann, M.F., 2001. From Tank to Tap: A Chronology of MTBE in Groundwater. Unpublished report.

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Cont'd

Hagemann, M.F., 2001. Estimated Cleanup Cost for MTBE in Groundwater Used as Drinking Water. Unpublished report.

Hagemann, M.F., 2001. Estimated Costs to Address MTBE Releases from Leaking Underground Storage Tanks. Unpublished report.

Hagemann, M.F., and VanMouwerik, M., 1999. Potential Water Quality Concerns Related to Snowmobile Usage. Water Resources Division, National Park Service, Technical Report.

VanMouwerik, M. and **Hagemann, M.F.** 1999, Water Quality Concerns Related to Personal Watercraft Usage. Water Resources Division, National Park Service, Technical Report.

Hagemann, M.F., 1999, Is Dilution the Solution to Pollution in National Parks? The George Wright Society Biannual Meeting, Asheville, North Carolina.

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Hagemann, M.F., 1997, The Potential for MTBE to Contaminate Groundwater. U.S. EPA Superfund Groundwater Technical Forum Annual Meeting, Las Vegas, Nevada.

Hagemann, M.F., and Gill, M., 1996, Impediments to Intrinsic Remediation, Moffett Field Naval Air Station, Conference on Intrinsic Remediation of Chlorinated Hydrocarbons, Salt Lake City.

Hagemann, M.F., Fukunaga, G.L., 1996, The Vulnerability of Groundwater to Anthropogenic Contaminants on the Island of Maui, Hawaii. Hawaii Water Works Association Annual Meeting, Maui, October 1996.

Hagemann, M. F., Fukanaga, G. L., 1996, Ranking Groundwater Vulnerability in Central Oahu, Hawaii. Proceedings, Geographic Information Systems in Environmental Resources Management, Air and Waste Management Association Publication VIP-61.

Hagemann, M.F., 1994. Groundwater Characterization and Cleanup at Closing Military Bases in California. Proceedings, California Groundwater Resources Association Meeting.

Hagemann, M.F. and Sabol, M.A., 1993. Role of the U.S. EPA in the High Plains States Groundwater Recharge Demonstration Program. Proceedings, Sixth Biennial Symposium on the Artificial Recharge of Groundwater.

Hagemann, M.F., 1993. U.S. EPA Policy on the Technical Impracticability of the Cleanup of DNAPL-contaminated Groundwater. California Groundwater Resources Association Meeting.

Letter 45
Cont'd

Hagemann, M.F., 1992. Dense Nonaqueous Phase Liquid Contamination of Groundwater: An Ounce of Prevention... Proceedings, Association of Engineering Geologists Annual Meeting, v. 35.

Other Experience:

Selected as subject matter expert for the California Professional Geologist licensing examination, 2009-2011.

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Cont'd

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JESSIE MARIE JAEGER

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EDUCATION

UNIVERSITY OF CALIFORNIA, LOS ANGELES **B.S. CONSERVATION BIOLOGY & ENVIRONMENTAL SCIENCES** *JUNE 2014*

PROJECT EXPERIENCE

SOIL WATER AIR PROTECTION ENTERPRISE ***SANTA MONICA, CA***

AIR QUALITY SPECIALIST

SENIOR ANALYST: CEQA ANALYSIS & MODELING

- Calculated roadway, stationary source, and cumulative impacts for risk and hazard analyses at proposed land use projects.
- Quantified criteria air pollutant and greenhouse gas emissions released during construction and operational activities of proposed land use projects using CalEEMod and EMFAC2011 emission factors.
- Utilized AERSCREEN, a screening dispersion model, to determine the ambient air concentrations at sensitive receptor locations.
- Organized presentations containing figures and tables comparing results of particulate matter analyses to CEQA thresholds.
- Prepared reports that discuss results of the health risk analyses conducted for several land use redevelopment projects.

SENIOR ANALYST: GREENHOUSE GAS MODELING AND DETERMINATION OF SIGNIFICANCE

- Quantified greenhouse gas (GHG) emissions of a "business as usual" scenario for proposed land use projects using CalEEMod.
- Determined compliance of proposed projects with AB 32 GHG reduction targets, with measures described in CARB's Scoping Plan for each land use sector, and with GHG significance thresholds recommended by various Air Quality Management Districts in California.
- Produced tables and figures that compare the results of the GHG analyses to applicable CEQA thresholds and reduction targets.

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PROJECT MANAGER: OFF-GASSING OF FORMALDEHYDE FROM FLOORING PRODUCTS

- Determined the appropriate standard test methods to effectively measure formaldehyde emissions from flooring products.
- Compiled and analyzed laboratory testing data. Produced tables, charts, and graphs to exhibit emission levels.
- Compared finalized testing data to Proposition 65 No Significant Risk Level (NSRL) and to CARB's Phase 2 Standard.
- Prepared a final analytical report and organized supporting data for use as Expert testimony in environmental litigation.
- Participated in meetings with clients to discuss project strategy and identify solutions to achieve short and long term goals.

PROJECT ANALYST: EXPOSURE ASSESSMENT OF CONTAMINANTS EMITTED BY INCINERATOR

- Reviewed and organized sampling data, and determined the maximum levels of arsenic, dioxin, and lead in soil samples.
- Determined cumulative and hourly particulate deposition of incinerator and modeled particle dispersion locations using GIS and AERMOD.
- Conducted risk assessment using guidance set forth by the Office of Environmental Health Hazard Assessment (OEHHA).
- Utilized LeadSpread8 to evaluate exposure, and the potential adverse health effects from exposure, to lead in the environment.
- Compared final results of assessment to the Environmental Protection Agency's (EPA) Regional Screening Levels (RSLs).

ACCOMPLISHMENTS

- **Recipient**, Bruins Advantage Scholarship, University of California, Los Angeles ***SEPT 2010 – JUNE 2014***
- **Academic Honoree**, Dean's List, University of California, Los Angeles ***SEPT 2013 – JUNE 2014***
- **Academic Wellness Director**, UCLA Undergraduate Students Associated Council ***SEPT 2013 – JUNE 2014***
- **Student Groups Support Committee Member**, UCLA Undergraduate Students Associated Council ***SEPT 2012 – JUNE 2013***

Letter 45 Cont'd

Scott Cashen, M.S.—Independent Biological Resources Consultant

November 12, 2015

Ms. Ellen L. Wehr
Adams Broadwell Joseph & Cardozo
520 Capitol Mall, Suite 350
Sacramento, CA 95814

Subject: Comments on the Draft Environmental Impact Report Prepared for the Mace Ranch Innovation Center Project

Dear Ms. Wehr:

This letter contains my comments on the Draft Environmental Impact Report ("DEIR") prepared by the City of Davis ("City") for the Mace Ranch Innovation Center Project ("Project"). I am an environmental biologist with 23 years of professional experience in wildlife ecology and natural resource management. I have served as a biological resources expert for over 100 proposed projects in California. My experience and scope of work in this regard has included assisting various clients with evaluations of biological resource issues, reviewing environmental compliance documents prepared pursuant to the California Environmental Quality Act ("CEQA") and the National Environmental Policy Act ("NEPA"), and submitting written comments in response to CEQA and NEPA documents. I have provided written and oral testimony to the California Energy Commission, California Public Utilities Commission, and U.S. district courts. My educational background includes a B.S. in Resource Management from the University of California at Berkeley, and a M.S. in Wildlife and Fisheries Science from the Pennsylvania State University. A true and correct copy of my curriculum vitae is attached to this letter.

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I have gained particular knowledge of the biological resource issues associated with the Project through my work on numerous other projects in the Project region. The comments herein are based on my review of the environmental documents prepared for the Project, a review of scientific literature pertaining to biological resources known to occur in the Project area, consultations with other biological resource experts, and the knowledge and experience I have acquired during more than 23 years of working in the field of natural resources management.

3264 Hudson Avenue, Walnut Creek, CA 94597

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THE DEIR FAILS TO ADEQUATELY DESCRIBE EXISTING CONDITIONS

Burrowing owls have been nearly extirpated from Yolo County. In 2007 there were 63 nesting pairs of burrowing owls in the county. By 2014, only 15 pairs remained (a 77% decline).[1] The DEIR fails to disclose the perilous status of burrowing owls in Yolo County, which is critical to the public and decision makers being able to evaluate the relative severity of Project impacts to the local and regional burrowing owl populations.

The DEIR suggests burrowing owls have not nested at (or near) the Project site since 2005.[2] This information is incorrect. A pair of burrowing owls has nested in a vacant lot near the intersection of Second Street and Mace Boulevard for at least the past two years.[3] The pair produced 5 to 7 offspring in 2015, which suggests it has an important role in persistence of the local population.[4]

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There is additional evidence that a pair of burrowing owls may have nested on the Project site in 2014 and 2015. The eBird database has a record of a male and female burrowing owl exhibiting territorial behavior on the "east side of CR 104 just as the road straightens out from the curve from Mace Blvd" in 2014.[5] Several observers reported seeing burrowing owls at that same location again in 2015.[6]

Although the Project site provides suitable foraging and nesting habitat for burrowing owls, the Applicant's consultant, Sycamore Environmental Consultants ("Sycamore"), did not conduct the surveys needed to determine whether burrowing owls occur at the site. Indeed, Sycamore's effort to locate owls was limited to two reconnaissance surveys conducted well after cessation of the burrowing owl nesting season.[7]

Data from protocol "detection" surveys are required to fully assess existing conditions, analyze Project impacts, and formulate appropriate mitigation. Pre-construction "take avoidance" surveys, such as those proposed in the DEIR, are not an accepted substitute for the "detection" surveys recommended by the California Department of Fish and Wildlife ("CDFW").[8] Moreover, deferring focused burrowing owl surveys until after

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[1] *See* <http://www.davisenterprise.com/local-news/ag-environment/burrowing-owl-populations-take-a-nosedive/>.

[2] DEIR, p. 4.4-26.

[3] *See* <http://www.davisenterprise.com/local-news/ag-environment/workers-express-concern-for-burrowing-owls/>.

[4] *See* <http://www.davisenterprise.com/local-news/ag-environment/workers-express-concern-for-burrowing-owls/>. *See also* eBird. 2015. eBird: An online database of bird distribution and abundance [web application]. eBird, Ithaca, New York. Checklist #S23981579. Available at: <http://www.ebird.org>. (Accessed: 2015 Nov 12).

[5] eBird. 2015. eBird: An online database of bird distribution and abundance [web application]. eBird, Ithaca, New York. Checklist #S17252690. Available at: <http://www.ebird.org>. (Accessed: 2015 Nov 12).

[6] *Ibid.*

[7] DEIR, Appendix D.1, Table 1. (*Sycamore's report provides no evidence that the two botanists searched for burrowing owls during the 19 May 2015 botanical survey*).

[8] *See definitions In:* California Department of Fish and Game. 2012. Staff Report on Burrowing Owl Mitigation. Available at: <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=83843>. Appendix D.

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completion of the CEQA review process prevents full disclosure of Project impacts. This precludes the public, resource agencies, and scientific community from being able to submit informed comments pertaining to Project impacts, and from having those comments vetted during the environmental review process.

It is difficult to devise an effective mitigation strategy without a thorough understanding of existing conditions, and thus the extent of Project impacts. This is precisely why the CDFW, California Burrowing Owl Consortium, and others have stressed the need for protocol surveys during the CEQA review process. CDFW's Staff Report on Burrowing Owl Mitigation ("Staff Report") states:

> "The following three progressive steps are effective in evaluating whether projects will result in impacts to burrowing owls. The information gained from these steps will inform any subsequent avoidance, minimization and mitigation measures. The steps for project impact evaluations are: 1) habitat assessment, 2) surveys, and 3) impact assessment….Adequate information about burrowing owls present in and adjacent to an area that will be disturbed by a project or activity will enable the Department, reviewing agencies and the public to effectively assess potential impacts and will guide the development of avoidance, minimization, and mitigation measures…Detailed information, such as approximate home ranges of each individual or of family units, as well as foraging areas as related to the proposed project, will be important to document for evaluating impacts, planning avoidance measure implementation and for mitigation measure performance monitoring."[9]

Similarly, California Burrowing Owl Consortium mitigation guidelines state:

> "There is often inadequate information about the presence of owls on a project site until ground disturbance is imminent. When this occurs there is usually insufficient time to evaluate impacts to owls and their habitat. The absence of standardized field survey methods *impairs adequate and consistent impact assessment during regulatory review processes, which in turn reduces the possibility of effective mitigation.*"[10]

CDFW's Staff Report provides additional evidence that the City has improperly deferred existing conditions. The Staff Report states: "[a]ny new burrowing owl colonizing the project site after the CEQA document has been adopted may constitute changed circumstances that *should be addressed in a re-circulated CEQA document*."[11]

Because the Applicant's consultant failed to implement the CDFW survey protocol, the City lacks the information needed to fully disclose and evaluate Project impacts to burrowing owls, and perhaps more importantly, to ensure effective mitigation. As a result, the City must require the Applicant to conduct the protocol surveys described in CDFW's 2012 Staff Report, and the results of those surveys need to be released in a

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[9] *Ibid*, pp. 5, 6 and 29.

[10] *See p. i In:* The California Burrowing Owl Consortium. 1993. Burrowing Owl Survey Protocol and Mitigation Guidelines. [emphasis added].

[11] California Department of Fish and Game. 2012. Staff Report on Burrowing Owl Mitigation. Available at: <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=83843>, p. 10. [emphasis added].

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revised CEQA document so that they can be thoroughly vetted by the public, resource agencies, and decision makers during the CEQA review process.

PROJECT IMPACT ISSUES

Burrowing Owl

Mitigation incorporated into the DEIR includes "passive relocation" of burrowing owls. Passive relocation entails the installation of one-way doors in burrow openings to temporarily or permanently evict burrowing owls and prevent burrow re-occupation. CDFW's Staff Report on Burrowing Owl Mitigation discourages passive relocation of owls and recommends consideration of all other possible avoidance and minimization before passive relocation is implemented.[12] Because the City does not have data on the current status and distribution of burrowing owls on the Project site, it is unable to consider all other possible avoidance and minimization measures prior to Project construction.

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Although the CDFW has established protocols for passive relocation (i.e., burrow exclusion), there still may be a risk to burrowing owls, especially if passive relocation is not done properly. This conclusion is expressly supported by the CDFW, which has concluded: "[e]xclusion in and of itself is not a take avoidance, minimization or mitigation method. Eviction of burrowing owls is a potentially significant impact under CEQA."[13] Specifically, temporary or permanent closure of burrows may result in: (a) significant loss of burrows and habitat for reproduction and other life history requirements; (b) increased stress on burrowing owls and reduced reproductive rates; (c) increased depredation; (d) increased energetic costs; and (e) risks posed by having to find and compete for available burrows.[14] The City must disclose and analyze the effects of passive relocation if those techniques might be implemented at the Project site.

A full analysis of potential impacts from passive relocation is further supported by research that indicates most translocation projects have resulted in fewer breeding pairs of burrowing owls at the mitigation site than at the original site, and that translocation projects generally have failed to produce self-sustaining populations.[15] Investigators attribute the limited success of translocation to: (a) strong site tenacity exhibited by burrowing owls, and (b) potential risks associated with forcing owls to move into unfamiliar and perhaps less preferable habitats.[16]

Research has shown that passive relocation is most likely to be successful when: (1) there are suitable replacement burrows within 100 meters of the destroyed burrow(s); (2) there

[12] *Ibid.*

[13] *Ibid.*

[14] *Ibid.*

[15] Smith BW, JR Belthoff. 2001. Burrowing owls and development: short-distance nest burrow relocation to minimize construction impacts. J. Raptor Research 35:385-391.

[16] *Ibid.*

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is sufficient, protected foraging habitat adjacent to the replacement burrow(s); and (3) a Burrowing Owl Exclusion Plan has been developed and subsequently approved by the CDFW.[17] Because the DEIR does not require these three elements, passive relocation of owls from the Project site would likely result in significant impacts to the species.

Swainson's Hawk

According to the DEIR: "because the 229-acre project site is currently outside of the existing City limits, and the loss of foraging habitat associated with urbanization of the project site has not heretofore been anticipated in any City environmental documents, the permanent loss of Swainson's hawk foraging habitat as a result of development on the project site would remain *significant and unavoidable.*"[18]

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The City's rationale is unclear. Specifically, it is unclear why the lack of analysis in previous (unspecified) environmental documents would make Project impacts significant and unavoidable. I agree the Project would significantly impact Swainson's hawk foraging habitat. However, before the City can conclude Project impacts would be significant and unavoidable it first must demonstrate that it has imposed all feasible mitigation measures.

The DEIR requires the Applicant to provide one acre of habitat compensation for each acre of habitat directly impacted by the Project (i.e., a 1:1 ratio). The DEIR fails to demonstrate why the City could not impose a higher habitat compensation ratio (e.g., 3:1), or why the City could not require other measures that would promote Swainson's hawk conservation (e.g., a scientific study). Although analysis would be required, it is my professional opinion that a higher habitat compensation ratio could reduce Project impacts to a less-than-significant level.

PROJECT MITIGATION ISSUES

Burrowing Owl

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The DEIR requires compensatory mitigation for Project impacts to burrowing owls, but only if nesting owls are detected on the Project site during a pre-construction survey. It states: "[i]f the survey does not identify any nesting burrowing owls on the MRIC site, further mitigation is not required."[19] The City's proposed mitigation does not ensure Project impacts to burrowing owls would be less than significant.

First, habitat loss, degradation, and fragmentation are the greatest threats to burrowing owls in California.[20] Significant impacts to burrowing owls due to habitat loss,

[17] California Department of Fish and Game. 2012. Staff Report on Burrowing Owl Mitigation. pp. 10 and 11. Available at: <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=83843>.

[18] DEIR, p. 4.4-64.

[19] DEIR, p. 4.4-59.

[20] California Department of Fish and Game. 2012. Staff Report on Burrowing Owl Mitigation. Available at: <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=83843>, p. 22.

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degradation, and fragmentation are not limited to owls on the Project site. Adult male burrowing owls home ranges have been documented to comprise anywhere from 280 acres to 600 acres or more.[21] As a result, the burrowing owls that occur near the intersection of Second Street and Mace Boulevard undoubtedly use the Project site as foraging habitat. The Project would eliminate the foraging habitat needed to sustain those owls. As a result, mitigating Project impacts to a less-than-significant level requires compensatory habitat even if the Applicant can avoid nest sites within the Project footprint.

Second, the DEIR does not require a nesting season survey for burrowing owls. It simply requires a pre-construction ("take avoidance") survey for burrowing owls no less than 14 days prior to construction.[22] Therefore, the DEIR allows the Applicant to destroy nesting habitat and forgo additional mitigation as long as it times its construction activities to occur outside of the nesting season. This would result in significant, indirect impacts to burrowing owls attempting to return to the Project site to nest (burrowing owls migrate and exhibit strong site tenacity). To formulate effective mitigation, the City must first gain an understanding of existing conditions by conducting nesting season surveys that adhere to the CDFW survey protocol.

According to the DEIR:

> "If active burrowing owl dens are found within the survey area in an area where disturbance would occur, the project applicant shall implement measures consistent with the applicable portions of the March 7, 2012, CDFW's Staff Report on Burrowing Owl Mitigation guidelines. If needed, as determined by the biologist, the formulation of avoidance and minimization approaches would be developed in coordination with the CDFW. The avoidance and minimization approaches would likely include burrow avoidance buffers during the nesting season (February to August). For burrowing owls present on-site, outside of the nesting season, passive exclusion of owls from the burrows could be utilized with the approval of CDFW. Advance planning with CDFW would be necessary prior to the initiation of the take avoidance survey to plan for contingencies in the event that owls are present on-site."[23]

This condition is too vague to ensure Project impacts would be mitigated to a less-than-significant level. The City must identify the specific measures that would be required if active burrowing owl dens are detected and it must describe how those measures are consistent with CDFW's Staff Report. Furthermore, the City must provide minimum standards for the buffers (including the buffer size and activities that would be prohibited within the buffers), and it must establish a mechanism that ensures coordination with the CDFW. This issue is confounded because the DEIR fails to establish minimum qualifications for the biologist that would determine whether avoidance and minimization measures are warranted, and under what circumstances such measures would be "needed."

[21] *Ibid*, p. 21.
[22] DEIR, p. 4.4-59.
[23] DEIR, p. 4.4-60.

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The DEIR goes on to state:

> "the project applicant shall provide compensatory mitigation for the permanent loss of burrowing owl habitat consistent with the March 7, 2012, CDFW's Staff Report on Burrowing Owl Mitigation. Such mitigation may include the permanent protection of land, which is deemed to be suitable burrowing owl habitat through a conservation easement deeded to a non-profit conservation organization or public agency with a conservation mission, or the purchase of burrowing owl conservation bank credits from a CDFW-approved burrowing owl conservation bank."[24]

The DEIR's provision for habitat compensation "consistent with" CDFW's Staff Report is too vague to be evaluated. CDFW's Staff Report states:

> "the current scientific literature supports the conclusion that mitigation for permanent habitat loss necessitates replacement with an equivalent or greater habitat area for breeding, foraging, wintering, dispersal, presence of burrows, burrow surrogates, presence of fossorial mammal dens, well drained soils, and abundant and available prey within close proximity to the burrow."[25]

To enable an assessment of the proposed mitigation, the City must specify whether the Applicant will be required to provide an equivalent or greater habitat area (i.e., approximately 229 acres) as compensatory mitigation for Project impacts to burrowing owls. It also must identify: (a) permissible locations for the mitigation site; (b) the timing of habitat acquisition in relation to Project disturbance activities; (c) the management practices that would be required at the mitigation site; (d) performance standards for evaluating success of the mitigation site; and (e) the monitoring and reporting program that would be implemented to ensure success. These variables are essential to evaluating the City's proposed mitigation, because most mitigation sites—including the City's mitigation site at the Yolo County Grasslands Regional Park—have been ineffective in conserving burrowing owl populations.[26]

Conclusion

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Burrowing owls tend to return to breed near the location of birth (i.e., "philopatry"); the species rarely establishes breeding populations in new areas or recolonizes areas from which once-productive breeding populations have been extirpated. As a result, it is my professional opinion that the Project would cause the extirpation of the breeding territory that occurs near the intersection of Second Street and Mace Boulevard, and that it would accelerate the decline of burrowing owls in Yolo County. The DEIR that was prepared

[24] *Ibid.*

[25] California Department of Fish and Game. 2012. Staff Report on Burrowing Owl Mitigation. Available at: <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=83843>, p. 8.

[26] *See* <http://www.davisenterprise.com/forum/opinion-columns/burrowing-owl-mitigation-has-failed/>. *See also* Breon CK. 2009. Losing what we thought we gained: An investigation into mitigation monitoring. Report prepared for the Santa Clara Valley Audubon Society. *See also* Santa Clara Valley Audubon Society. 2010. Santa Clara Valley Audubon Society Report: Haera Wildlife Conservation Bank.

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for the Project has not provided the mitigation necessary to ensure those impacts are reduced to a less-than-significant level.

Sincerely,

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Scott Cashen, M.S.
Senior Biologist

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Scott Cashen, M.S.
Senior Biologist / Forest Ecologist

Scott Cashen has 23 years of professional experience in natural resources management. During that time he has worked as a field biologist, forester, environmental consultant, and instructor of Wildlife Management. Mr. Cashen focuses on CEQA/NEPA compliance issues, endangered species, scientific field studies, and other topics that require a high level of scientific expertise.

Mr. Cashen has knowledge and experience with numerous taxa, ecoregions, biological resource issues, and environmental regulations. As a biological resources expert, Mr. Cashen is knowledgeable of the various agency-promulgated guidelines for field surveys, impact assessments, and mitigation. Mr. Cashen has led field investigations on several special-status species, including ones focusing on the yellow-legged frog, red-legged frog, desert tortoise, steelhead, burrowing owl, California spotted owl, northern goshawk, willow flycatcher, Peninsular bighorn sheep, red panda, and various forest carnivores.

Mr. Cashen is a recognized expert on the environmental impacts of renewable energy development. He has been involved in the environmental review process for over 80 solar, wind, biomass, and geothermal energy projects. Mr. Cashen's role in this capacity has encompassed all stages of the environmental review process, from initial document review through litigation support. Mr. Cashen has provided expert witness testimony on several of the Department of the Interior's "fast-tracked" renewable energy projects. His testimony on those projects helped lead agencies develop project alternatives and mitigation measures to reduce the environmental impacts associated with the projects.

Mr. Cashen was a member of the independent scientific review panel for the Quincy Library Group project, the largest community forestry project in the United States. As a member of the panel, Mr. Cashen was responsible for advising the U.S. Forest Service on its scientific monitoring program, and for preparing a final report to Congress describing the effectiveness of the Herger-Feinstein Forest Recovery Act of 1998.

AREAS OF EXPERTISE

- CEQA, NEPA, and Endangered Species Act compliance issues
- Comprehensive biological resource assessments
- Endangered species management
- Renewable energy development
- Scientific field studies, grant writing and technical editing

EDUCATION
M.S. Wildlife and Fisheries Science - The Pennsylvania State University (1998)
B.S. Resource Management - The University of California, Berkeley (1992)

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PROFESSIONAL EXPERIENCE

Litigation Support / Expert Witness

As a biological resources expert, Mr. Cashen reviews CEQA/NEPA documents and provides his clients with an assessment of biological resource issues. He then prepares written comments on the scientific and legal adequacy of the project's environmental documents (e.g., Environmental Impact Statement). Mr. Cashen has provided testimony to the California Energy Commission, California Public Utilities Commission, and U.S. district courts.

Mr. Cashen can lead field studies to generate evidence for legal testimony, and he can incorporate testimony from his deep network of species-specific experts. Mr. Cashen's clients have included law firms, non-profit organizations, and citizen groups.

REPRESENTATIVE RENEWABLE ENERGY EXPERIENCE

Solar Energy

- Abengoa Mojave Solar Project
- Avenal Energy Power Plant
- Beacon Solar Energy Project
- Blythe Solar Power Project
- Calico Solar Project
- Calipatria Solar Farm II
- Carrizo Energy Solar Farm
- Catalina Renewable Energy Project
- Fink Road Solar Farm
- Genesis Solar Energy Project
- Heber Solar Energy Facility
- Imperial Valley Solar Project
- Ivanpah Solar Electric Generating
- Maricopa Sun Solar Complex
- McCoy Solar Project
- Mt. Signal and Calexico Solar
- San Joaquin Solar I & II
- Stateline Solar Project
- Solar Gen II Projects
- SR Solis Oro Loma
- Vestal Solar Facilities
- Victorville 2 Power Project

Geothermal Energy

- Casa Diablo IV Geothermal Project
- East Brawley Geothermal
- Mammoth Pacific 1 Replacement
- Orni 21 Geothermal Project
- Western GeoPower Plant

Wind Energy

- Catalina Renewable Energy Project
- Ocotillo Wind Energy Project
- San Diego County Wind Ordinance
- Shu'luuk Wind Project
- Tres Vaqueros Repowering Project
- Tule Wind Project
- Vasco Winds Relicensing Project

Biomass Facilities

- CA Ethanol Project
- Colusa Biomass Project
- Tracy Green Energy Project

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Project Management

Mr. Cashen has managed several large-scale wildlife, forestry, and natural resource management projects. Many of these projects have required hiring and training field crews, coordinating with other professionals, and communicating with project stakeholders. Mr. Cashen's experience in study design, data collection, and scientific writing make him an effective project manager, and his background in several different natural resource disciplines enable him to address the many facets of contemporary land management in a cost-effective manner.

REPRESENTATIVE EXPERIENCE

Wildlife Studies

- Peninsular Bighorn Sheep Resource Use and Behavior Study: (*CA State Parks*)
- "KV" Spotted Owl and Northern Goshawk Inventory: (*USFS, Plumas NF*)
- Amphibian Inventory Project: (*USFS, Plumas NF*)
- San Mateo Creek Steelhead Restoration Project: (*Trout Unlimited and CA Coastal Conservancy, Orange County*)
- Delta Meadows State Park Special-status Species Inventory: (*CA State Parks, Locke*)

Natural Resources Management

- Mather Lake Resource Management Study and Plan – (*Sacramento County*)
- Placer County Vernal Pool Study – (*Placer County*)
- Weidemann Ranch Mitigation Project – (*Toll Brothers, Inc., San Ramon*)
- Ion Communities Biological Resource Assessments – (*Ion Communities, Riverside and San Bernardino Counties*)
- Del Rio Hills Biological Resource Assessment – (*The Wyro Company, Rio Vista*)

Forestry

- Forest Health Improvement Projects – (*CalFire, SD and Riverside Counties*)
- San Diego Bark Beetle Tree Removal Project – (*SDG&E, San Diego Co.*)
- San Diego Bark Beetle Tree Removal Project – (*San Diego County/NRCS*)
- Hillslope Monitoring Project – (*CalFire, throughout California*)

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Biological Resources

Mr. Cashen has a diverse background with biological resources. He has conducted comprehensive biological resource assessments, habitat evaluations, species inventories, and scientific peer review. Mr. Cashen has led investigations on several special-status species, including ones focusing on the foothill yellow-legged frog, mountain yellow-legged frog, desert tortoise, steelhead, burrowing owl, California spotted owl, northern goshawk, willow flycatcher, Peninsular bighorn sheep, red panda, and forest carnivores.

REPRESENTATIVE EXPERIENCE

Avian

- Study design and Lead Investigator - Delta Meadows State Park Special-Status Species Inventory *(CA State Parks: Locke)*
- Study design and lead bird surveyor - Placer County Vernal Pool Study *(Placer County: throughout Placer County)*
- Surveyor - Willow flycatcher habitat mapping *(USFS: Plumas NF)*
- Independent surveyor - Tolay Creek, Cullinan Ranch, and Guadacanal Village restoration projects *(Ducks Unlimited/USGS: San Pablo Bay)*
- Study design and Lead Investigator - Bird use of restored wetlands research *(Pennsylvania Game Commission: throughout Pennsylvania)*
- Study design and surveyor - Baseline inventory of bird species at a 400-acre site in Napa County *(HCV Associates: Napa)*
- Surveyor - Baseline inventory of bird abundance following diesel spill *(LFR Levine-Fricke: Suisun Bay)*
- Study design and lead bird surveyor - Green Valley Creek Riparian Restoration Site *(City of Fairfield: Fairfield, CA)*
- Surveyor - Burrowing owl relocation and monitoring *(US Navy: Dixon, CA)*
- Surveyor - Pre-construction burrowing owl surveys *(various clients: Livermore, San Ramon, Rio Vista, Napa, Victorville, Imperial County, San Diego County)*
- Surveyor - Backcountry bird inventory *(National Park Service: Eagle, Alaska)*
- Lead surveyor - Tidal salt marsh bird surveys (*Point Reyes Bird Observatory: throughout Bay Area*)
- Surveyor – Pre-construction surveys for nesting birds (*various clients and locations)*

Amphibian

- Crew Leader - Red-legged frog, foothill yellow-legged frog, and mountain yellow-legged frog surveys *(USFS: Plumas NF)*

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- Surveyor - Foothill yellow-legged frog surveys *(PG&E: North Fork Feather River)*
- Surveyor - Mountain yellow-legged frog surveys *(El Dorado Irrigation District: Desolation Wilderness)*
- Crew Leader - Bullfrog eradication *(Trout Unlimited: Cleveland NF)*

Fish and Aquatic Resources

- Surveyor - Hardhead minnow and other fish surveys *(USFS: Plumas NF)*
- Surveyor - Weber Creek aquatic habitat mapping (*El Dorado Irrigation District: Placerville, CA*)
- Surveyor - Green Valley Creek aquatic habitat mapping *(City of Fairfield: Fairfield, CA)*
- GPS Specialist - Salmonid spawning habitat mapping *(CDFG: Sacramento River)*
- Surveyor - Fish composition and abundance study (*PG&E: Upper North Fork Feather River and Lake Almanor*)
- Crew Leader - Surveys of steelhead abundance and habitat use *(CA Coastal Conservancy: Gualala River estuary)*
- Crew Leader - Exotic species identification and eradication *(Trout Unlimited: Cleveland NF)*

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Mammals

- Principal Investigator – Peninsular bighorn sheep resource use and behavior study (*California State Parks: Freeman Properties*)
- Scientific Advisor –Study on red panda occupancy and abundance in eastern Nepal *(The Red Panda Network: CA and Nepal)*
- Surveyor - Forest carnivore surveys *(University of CA: Tahoe NF)*
- Surveyor - Relocation and monitoring of salt marsh harvest mice and other small mammals *(US Navy: Skagg's Island, CA)*
- Surveyor – Surveys for Monterey dusky-footed woodrat. Relocation of woodrat houses (*Touré Associates: Prunedale*)

Natural Resource Investigations / Multiple Species Studies

- Scientific Review Team Member – Member of the scientific review team assessing the effectiveness of the US Forest Service's implementation of the Herger-Feinstein Quincy Library Group Act.
- Lead Consultant - Baseline biological resource assessments and habitat mapping for CDF management units *(CDF: San Diego, San Bernardino, and Riverside Counties)*

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- Biological Resources Expert – Peer review of CEQA/NEPA documents (*various law firms, non-profit organizations, and citizen groups)*
- Lead Consultant - Pre- and post-harvest biological resource assessments of tree removal sites *(SDG&E: San Diego County)*
- Crew Leader - T&E species habitat evaluations for Biological Assessment in support of a steelhead restoration plan *(Trout Unlimited: Cleveland NF)*
- Lead Investigator - Resource Management Study and Plan for Mather Lake Regional Park *(County of Sacramento: Sacramento, CA)*
- Lead Investigator - Biological Resources Assessment for 1,070-acre Alfaro Ranch property *(Yuba County, CA)*
- Lead Investigator - Wildlife Strike Hazard Management Plan *(HCV Associates: Napa)*
- Lead Investigator - Del Rio Hills Biological Resource Assessment *(The Wyro Company: Rio Vista, CA)*
- Lead Investigator – Ion Communities project sites (*Ion Communities: Riverside and San Bernardino Counties*)
- Surveyor – Tahoe Pilot Project: Validation of California's Wildlife Habitat Relationships (CWHR) Model *(University of California: Tahoe NF)*

Forestry

Mr. Cashen has five years of experience working as a consulting forester on projects throughout California. Mr. Cashen has consulted with landowners and timber operators on forest management practices; and he has worked on a variety of forestry tasks including selective tree marking, forest inventory, harvest layout, erosion control, and supervision of logging operations. Mr. Cashen's experience with many different natural resources enable him to provide a holistic approach to forest management, rather than just management of timber resources.

REPRESENTATIVE EXPERIENCE

- Lead Consultant - CalFire fuels treatment projects *(SD and Riverside Counties)*
- Lead Consultant and supervisor of harvest activities – San Diego Gas and Electric Bark Beetle Tree Removal Project *(San Diego)*
- Crew Leader - Hillslope Monitoring Program *(CalFire: throughout California)*
- Consulting Forester – Forest inventories and timber harvest projects *(various clients throughout California)*

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Cont'd

Grant Writing and Technical Editing

Mr. Cashen has prepared and submitted over 50 proposals and grant applications. Many of the projects listed herein were acquired through proposals he wrote. Mr. Cashen's clients and colleagues have recognized his strong scientific writing skills and ability to generate technically superior proposal packages. Consequently, he routinely prepares funding applications and conducts technical editing for various clients.

PERMITS

U.S. Fish and Wildlife Service Section 10(a)(1)(A) Recovery Permit for the Peninsular bighorn sheep

CA Department of Fish and Game Scientific Collecting Permit

PROFESSIONAL ORGANIZATIONS / ASSOCIATIONS

The Wildlife Society

Cal Alumni Foresters

Mt. Diablo Audubon Society

OTHER AFFILIATIONS

Scientific Advisor and Grant Writer – *The Red Panda Network*

Scientific Advisor – *Mt. Diablo Audubon Society*

Grant Writer – *American Conservation Experience*

TEACHING EXPERIENCE

Instructor: Wildlife Management - The Pennsylvania State University, 1998

Teaching Assistant: Ornithology - The Pennsylvania State University, 1996-1997

LETTER 45: ELLEN L. WEHR, ADAMS BROADWELL JOSEPH & CARDOZO

Response to Comment 45-1

Thank you for submitting comments on the MRIC Draft EIR. The comment provides an overview of the Draft EIR analysis, as well as the commenter's opinion regarding the Draft EIR's compliance with CEQA. The commenter's specific concerns are addressed in further detail below.

Response to Comment 45-2

The comment provides a statement of the Davis Residents for Responsible Development association's interest in the proposed project. No response is necessary.

Response to Comment 45-3

The commenter submitted two letters on October 12, 2015. One letter included a request for Draft EIR reference documents pursuant to PRC Section 21092(b)(1) and CEQA Guidelines Section 15072(g)(4). CEQA Guidelines Section 15072(g)(4) is related to a negative declaration or mitigated negative declaration rather than an EIR. The correct reference is Section 15087(c)(5) of CEQA Guidelines. The other letter received from the commenter on October 12, 2015 is a general request for public records related to the project pursuant to the California Public Records Act. The City responded to this Public Records Act request on October 22, 2015 and provided records to the requester November 5 and November 17, 2015.

With regard to the Draft EIR reference documents, PRC Section 21092(b)(1) and CEQA Guidelines Section 15087(c)(5) require the City, as a part of the Notice of Availability (NOA), to provide the address where copies of the Draft EIR and documents referenced in the Draft EIR are available. The City complied with this requirement, as evidenced by the copy of the NOA bound as page 2 of the Draft EIR. The reference documents were made available to the commenter as requested in the City offices on October 13, emailed to the commenter on October 13, and downloaded to a CD and mailed to the commenter on October 16. As the City complied with CEQA's requirements by making EIR reference documents available to the public at the same time it made the Draft EIR available to the public there is no basis for commenter's claim that it was not provided the same amount of statutorily required time to review the Draft EIR and its reference documents as all other members of the public.

To the best of the City's knowledge, all of the requested information has been provided to the commenter. The commenter indicates that they may choose to submit supplemental comments later in the process. The City will evaluate any additional comments upon receipt.

Response to Comment 45-4

The general concerns listed in the comment have been addressed individually below.

Response to Comment 45-5

The general concerns addressed in the comment have been addressed individually below.

Response to Comment 45-6

Please see Master Response #4, Guarantees of Developer Performance. Future development consistent with the project description is discussed in Master Response #4. Please also see Response to Comment 45-8.

Response to Comment 45-7

As noted in Municipal Code Section 44.22.060(a),

> An application for a planned development district shall include a preliminary development plan which, if approved by the city council, shall become a part of the zoning map of the city. The preliminary application shall contain the following basic information; where applicable;

The City recognizes that certain submittals for a preliminary planned development district are not applicable in the case of the Mace Triangle site because a site-specific development plan has not been submitted by the property owner(s) of the Mace Triangle. As noted on page 3-51 of Chapter 3, Project Description, the Mace Triangle parcels have been included as a part of the MRIC application at the City's direction to ensure that an agricultural and unincorporated island is not created and to allow the continuation and possible expansion of existing uses. The allowable land uses and sizes are summarized in Table 3-6 on page 3-53 of Section 3. The Mace Triangle component of the project would be developed in a mix of general commercial uses. This EIR evaluates the potential for expansion of the Ikedas farm stand and additional urban development on the Ikedas parcel and adjacent agricultural parcel consistent with these assumptions. Additional urban development in the future would be subject to further City review in connection with discretionary entitlements.

Response to Comment 45-8

The project description for the MRIC is stable. The inclusion of improvement options does not invalidate the adequacy of a project description. CEQA does not require every conceivable aspect of a project to be determined precisely during environmental review. Where two or more options may exist for a particular improvement, such as sewer pipe alignments in the case of the MRIC, the EIR must evaluate the potential impacts associated with constructing each pipe alignment. The MRIC Draft EIR included such analysis of improvement options. The Draft EIR accounts for the flexibility in the project by evaluating the anticipated worst-case development scenario.

Response to Comment 45-9

Please see Master Response #3, Mixed-Use Alternative. The comment that the Mixed-Use Alternative chapter "…provides almost no detail about this alternative other than the number of residential units and the potential location of residential buildings" is not accurate. Please see Chapter 8. The project description section of Chapter 8 includes conceptual details regarding phasing, building use zones, floor area ratio (FAR), and infrastructure. Expected square footages of residential buildings are not necessary for an adequate analysis of the Mixed-Use Alternative.

Response to Comment 45-10

Please see Master Response #5, Project Phasing. See also Response to Comment 45-19 below.

Response to Comment 45-11

The comment provides a brief background discussion regarding default values within CalEEMod. The commenter suggests that a number of values input into CalEEMod for the proposed project were inconsistent with information disclosed in the Draft EIR, which, according to the commenter, resulted in an underestimation of project impacts. The commenter refers to Attachment A of the comment letter, specifically the "Air Quality & Greenhouse Gas" section of Attachment A, from which the commenter pulls language supportive of its request that the air quality and GHG assessment and the Draft EIR be updated. The commenter's concerns regarding the aforementioned request are addressed in further detail in Responses to Comments 45-12 through 45-21 and 45-38 through 45-45 below.

Response to Comment 45-12

The commenter states that the total lot area of the project was not taken into account in the project construction modeling. However, as stated on page 4.3-21, under "Construction Emissions" in the "Method of Analysis" portion of the Air Quality section, of the Draft EIR, a total of 224.42 acres was assumed and applied in CalEEMod for the total acres to be disturbed during grading of the project site, which included 212.20 acres for the MRIC site and the 12.22 acres of developable area on the Mace Triangle site (i.e., the total acreage of the Mace Triangle site except for the Public and Quasi-Public parcel, which is already developed with a City water storage tank and a Park-and-Ride lot and would not be further developed).[17] As such, the entire project area was considered in the project construction modeling.

In addition, as explained on pages 14 and 15 of the CalEEMod User's Guide, for non-residential land uses in the model, "the lot acreage is the same as the building footprint."[18] Furthermore, according to page 23 of the CalEEMod User's Guide,[19] open space or areas not to be graded

[17] See Table 3-1 on page 3-12 of Project Description chapter of the Draft EIR.
[18] ENVIRON International Corporation and the California Air Districts. *California Emissions Estimator Model User's Guide Version 2013.2*. July 2013.
[19] *Ibid.*

should not be applied in the model (included in the total lot acreage or as a separate land use). Consistent with this guidance, the total lot acreage from the land use inputs in the CalEEMod output files would not equate to the actual total lot acreage of the proposed project. Nonetheless, as stated above, the construction modeling performed for the proposed project conservatively accounted for the disturbance of the entire project site acreage. Therefore, construction emissions estimated related to the area of disturbance were not underestimated.

Response to Comment 45-13

The commenter states that the project's "Green Space", "Landscaped Parking", and "Transit Plaza" areas were not applied to the air quality modeling. As stated above, a total of 224.42 acres was assumed and applied in CalEEMod for the total acres to be disturbed during grading of the project site, which included 212.20 acres for the MRIC site and the 12.22 acres of developable area on the Mace Triangle site (i.e., the total acreage of the Mace Triangle site except for the Public and Quasi-Public parcel, which is already developed with a City water storage tank and a Park-and-Ride lot and would not be further developed).

The total area required for the grading of the green space was taken into account in the model by applying a total of 224.42 acres for the total disturbance area during grading in CalEEMod, which, as stated above, includes the entire MRIC site acreage (including green space areas) plus the developable area on the Mace Triangle site. Also as stated above, according to page 23 of the CalEEMod User's Guide, open space or areas not to be graded should not be applied in the model (included in the total lot acreage or as a separate land use), as such uses would not involve paving, building construction, architectural coating, or operational emissions. Accordingly, the green space that would not be graded as part of the proposed project should not be included in the model. By applying the total project acreage in the model as the area that would be disturbed during grading, the resultant estimate of project emissions associated with site preparation and grading could be considered conservative, as 43 acres of the 64.6 acres listed for "Green Space" in the Project Description chapter of the Draft EIR would be preserved as green space and agricultural buffer area that would not be expected to require substantial grading, if any.[20]

However, the project parking lot and "Transit Plaza" areas were inadvertently excluded from the project modeling. Therefore, the modeling has been revised to include the parking lot areas and the "Transit Plaza" as separate land use line items within CalEEMod.

The 12.6 acres for "Landscaped Parking" listed in the Project Description chapter of the Draft EIR represents the area within the overall parking lot area that would be landscaped, not paved. While the total project site acreage was assumed to be disturbed during grading, the 12.6 acres for "Landscaped Parking" was subtracted from the total parking lot land use acreage, as such areas would not involve paving, building construction, architectural coating, or operational emissions. Again, grading of the 12.6 acres for "Landscaped Parking" was still included in the modeling through the application of the total site acres assumed to be graded. The total parking lot area applied in CalEEMod should reflect the parking lot area on both the MRIC site and the

[20] See page 3-31 and 3-32 of the Project Description chapter of the Draft EIR.

Mace Triangle site. The parking lot area on the MRIC site, as noted by the commenter, was estimated to be 80.3 acres and would include 8,356 parking spaces. It is important to note that the number of parking spaces and the total parking lot area is conceptual at this time. The applicant intends to implement a number of sustainability features, which are likely to include parking management strategies that would contribute towards a reduction of air pollutant emissions. Nonetheless, the assumption of a total parking lot area of 80.3 acres and 8,356 parking spaces is assumed for analysis purposes. Subtracting the 12.6 acres of "Landscaped Parking" area from the overall 80.3 acres would result in a total parking lot area for the MRIC site of 67.7 acres. Applying the same assumptions used by the applicant to calculate the parking lot acreage for the MRIC site (i.e., four cars per 1,000 square feet of research, R&D, office, manufacturing, and retail uses, and approximately 418.67 square feet for each parking space), the Mace Triangle site would require approximately 285 parking spaces over 2.74 acres. Accordingly, the modeling was adjusted to reflect a parking lot land use with a total of 8,641 parking spaces and lot acreage of 70.44 acres (or 3,068,366.40 square feet).

The 0.6-acre "Transit Plaza" was applied as a separate land use (an "Other Asphalt Surfaces" land use) in CalEEMod.

Based on the comment, the Draft EIR has been revised as shown in Response to Comment 45-20 below. Appendix F to this Final EIR presents the revised modeling results. Based on the revised modeling, the unmitigated construction-related emissions would increase from what was presented in the Draft EIR (see Table 4.3-6). However, the revised, unmitigated construction-related emissions of ROG, NO_X, and PM_{10} of 3.47 tons/yr, 9.70 tons/yr, and 43.42 lbs/day, respectively, would still be below the applicable thresholds of significance of 10 tons/yr and 80 lbs/day, respectively. As such, the conclusion within the Draft EIR for Impact 4.3-1 on page 4.3-23 through 4.3-25 would not be altered as a result of the revised modeling.

In addition, due to the off-gassing associated with paving applications, the proposed project's unmitigated operational emissions of ROG would increase from what was presented in the Draft EIR (19.51 tons/yr) to 30.78 tons/yr, as shown in Response to Comment 45-20, related to the paving required for the parking lot and transit plaza areas. However, the NO_X and PM_{10} emissions would generally remain the same (18.83 tons/yr and 138.63 lbs/day, respectively). Mitigation Measure 4.3-2 on page 4.3-28 of Draft EIR, and as revised in this Final EIR (see Response to Comment 31-6), would reduce the overall ROG, NOx, and PM_{10} emissions. Revised Mitigation Measure 4.3-2 requires the project applicant to work with the City of Davis, YSAQMD, and/or other air districts to develop a mitigation strategy aimed at further reducing the project's operational criteria pollutant emissions below the District's thresholds of significance to the greatest extent feasible through on- and off-site measures.

Overall, the revised modeling would not result in any new significant environmental impacts or a substantial increase in the severity of any environmental impacts.

Response to Comment 45-14

See Response to Comment 45-13 above.

Response to Comment 45-15

Per page 26 of the CalEEMod User's Guide, "the user needs to enter the amount of material imported and exported to the site in order for CalEEMod to estimate hauling trips correctly from material transport." The project applicant intends to balance the project site using on-site soils. As such, soil import and/or export would not be required for the site, and soil hauling trips would not occur. Thus, soil hauling trips were not applied in CalEEMod. As listed on page 4.3-21 of Draft EIR, demolition would not be required for the proposed project. As such, associated construction waste would not occur that would need to be hauled off site. CalEEMod inherently applies the necessary vendor trips anticipated during construction of a project, such as cement and water trucks and delivery of construction materials, based on the land uses and the construction phasing.

However, please see Response to Comment 45-20 below for hauling trips anticipated should the off-site low-level storage pond mitigation be the selected mitigation option, as discussed in the Hydrology and Water Quality section of the Draft EIR.

The commenter states that the commercial and construction worker trip lengths to and from the project site were reduced from the default values based on "vehicle miles of travel data from the traffic consultant," referring to page 8-9 of Appendix C to the Draft EIR. Contrary to the statement, no changes to the default construction worker trip lengths were made in CalEEMod, and the citation referenced does not show that any such changes were made or the statement quoted in the comment.

The VMT data for the proposed project is addressed in the below Response to Comment 45-16.

Please see Responses to Comments 45-16 and 45-44 below regarding operational vehicle trip lengths.

Response to Comment 45-16

Page 4.3-22 of the Draft EIR includes the following statement:

> The project-specific VMT data provided by Fehr & Peers, Inc. for full buildout of the proposed project was also applied to the project modeling.[19] According to Section 4.14, Transportation and Circulation, of this EIR, forecasts of VMT were estimated using the four-step SACMET travel model that encompasses the six-county SACOG region. The SACMET model was used, as the model more fully accounts for the length of trips originating in Davis given the larger geographic coverage. The VMT forecasts were developed by incorporating into the SACMET model the land use forecasts and employment reallocation assumptions as discussed in further detail in Section 4.14 of this EIR.

In addition, page 4.14-18 of the Transportation and Circulation section of the Draft EIR states the following:

> Forecasts of project vehicle miles of travel (VMT) was estimated by utilizing a combination of vehicle trip generation estimates as well as trip length data based on household locations in the *Economic Evaluation of Innovation Park Proposals* (BAE, March 2015), California Household Travel Survey (CHTS) data, and census data. This provides a full accounting of vehicle miles travelled (VMT) generated by the proposed project.

Further discussion of the methodology used to estimate the project-specific VMT is provided on page 4.14-32 of the Draft EIR. As such, the methodology used to calculate the estimated VMT associated with project operations was included in the Draft EIR. However, for clarification purposes, the following additional methodology has been provided by the project traffic consultant:

Forecasts of project vehicle miles of travel (VMT) was estimated by utilizing a combination of vehicle trip generation estimates as well as trip length data based on household locations in the *Economic Evaluation of Innovation Park Proposals* (BAE, March 2015), California Household Travel Survey (CHTS) data, and census data. This provides a full accounting of vehicle miles travelled (VMT) generated by the project.

Vehicle trip generation was estimated based on a methodology described on pages 4.14-20 through 4.14-23. The vehicle trip generation was developed using a three-step process. Step 1 involved estimating the gross trip generation of the proposed project land uses using trip rates from Trip Generation (Institute of Transportation Engineers, 2008), as well as the City of Davis Traffic Model (source: City of Davis Travel Demand Model Development Report, Fehr & Peers, 2003). Step 2 involved estimating the expected internalization of trips between complementary land uses (i.e., office and retail) based on the Mixed-Use (MXD) Trip Generation Model, which was developed by Fehr & Peers and several academic researchers.[21] Although an internal trip calculation methodology is contained in Trip Generation Handbook (ITE, 2004), it was not used in this instance because the MXD model is based on more extensive data. Step 3 involved calculating the number of external project trips made by walking, bicycling, or transit, with the remainder being external vehicle trips. The external mode share by bike, walk, and transit was based on census data for the City of Davis. This data shows that approximately 25 percent of employees who also live in Davis either bike, walk, or take transit to work. Approximately 90 percent of those trips occur by bike. Employees who work in Davis, but live in communities outside Davis, travel to work almost exclusively by car. The above methodology yielded the total number of external vehicle trips that is used in the VMT calculation.

The MXD trip generation models provide an estimate of three outcomes: choice of internal destination, choice of walking on external trips, and choice of transit on external trips. Models are estimated separately by trip purpose: home-based-work, home-based-other, and non-home-based. This allows for MXD model to isolate how different factors influence different trip

[21] "Ewing, Reid, Michael Greenwald, Ming Zhang, Jerry Walters, Robert Cervero, Lawrence Frank, and John Thomas. 2011. "Traffic Generated by Mixed-Use Developments — Six-Region Study Using Consistent Built Environmental Measures." *ASCE Journal of Urban Planning and Development* 137(3): 248–61.

purposes and gives the ability to distinguish peak hour travel (disproportionately home-based-work) from off-peak travel (disproportionately home-based-other and non-home-based).

The MXD model starts with ITE trip generation as a baseline. ITE trip generation does not distinguish trip generation by trip purposes. MXD uses national data from NCHRP Report 716, *Travel Demand Forecasting: Parameters and Techniques* (2012) to distribute total trips (as estimated by ITE) into the three trip purposes described above. These trip purpose distributions vary by land use type (e.g. retail land uses have a higher percentage of home-based-other trips than industrial land uses). As NCHRP Report 716 is based on national data, the user may insert more accurate local data where appropriate. For this project, trip purpose distribution values from the City of Davis citywide travel model[22] were used for all land uses.

The MXD model calculates reductions to the ITE trip generation once the trips are distributed to the various trip purposes. These net trips (by purpose) are then used for estimation of VMT. The Draft EIR incorporates adjustments for on-site internalization, walk, bike, and transit mode shares for home-based work, home-based other, and not home-based trips, then multiplies the resulting vehicle trips by average trip lengths to calculate VMT. Mode shares and average trip lengths were generally derived from the 2012 California Household Travel Survey (CHTS). Additional data adjustments were applied to account for the unique characteristics of the Proposed Project relative to existing Davis developments based on expected home locations of employees (BAE, 2014) and work locations of residents. For employees who do not live in Davis and residents who do not work in Davis, home-based work mode shares were assumed to reflect SACOG 2013 model averages. Average trip lengths were similarly derived from BAE (2014) for employees who do not live in Davis, and from SACOG 2013 model averages for residents who do not work in Davis.

Based on the project-specific daily VMT estimation of 196,000 provided by Fehr & Peers, Inc., the project-specific annual VMT was calculated to be 49,980,000 assuming the proposed project would only be in operation 255 days out of the year (based on 52 weeks out of the year, five days per week, and accounting for five federal holidays). The commenter states that "the CalEEMod output files use a VMT that is underestimated by 37% from the VMT estimate provided in the DEIR," and refers specifically to page 560 of Appendix C to the Draft EIR. Page 560 of Appendix C is a page of the CalEEMod output for the mitigated scenario (which begins on page 474 of Appendix C) showing the annual VMT for that scenario. The mitigated scenario accounts for the required reduction of vehicle trips by 10 percent associated with implementation of Mitigation Measure 4.14-6(a), as stated on page 4.3-26 of the Draft EIR. Implementation of Mitigation Measure 4.14-6(a) would result in a 10 percent reduction from the project-specific annual VMT, which would reduce the annual VMT to 44,982,000. As explained in further detail in Response to Comment 45-44 below, the trip lengths within CalEEMod were adjusted in order to reflect the mitigated estimated annual VMT of 44,982,000. Although the trip lengths in CalEEMod could not be adjusted such that the exact estimated mitigated VMT of 44,982,000 could be reflected (see Response to Comment 45-44 below for further details), the resultant annual VMT of 44,987,351 that is shown on page 560 of Appendix C to the Draft EIR is as close

[22] Fehr & Peers, Inc. *City of Davis Travel Demand Model Development Report*. March 2003.

as possible using CalEEMod while still remaining conservative. Because the modeling performed for the proposed project assumed a slightly higher mitigated annual VMT than estimated for the proposed project, the VMT for the project was slightly overestimated, as opposed to the commenter's claim that the VMT was underestimated.

With regard to the commenter's concerns related to emissions in excess of the construction-related NO_X threshold of significance and operational thresholds of significance, please see the revisions to the Draft EIR text shown in Response to Comment 45-20 below and the revised modeling results included as Appendix F to this Final EIR. With regard to the commenter's concerns related to the proposed project's GHG emissions, please see Response to Comment 45-43 below and Appendix F to this Final EIR.

Response to Comment 45-17

Contrary to the statement made by the commenter, the OEHHA does not "recommend that any project with a construction period of more than two months in duration should be evaluated for cancer risks to nearby sensitive receptors." It appears the commenter may have used language from the OEHHA's Air Toxics Hot Spots Program Guidance Manual (OEHHA Manual) out of context. The language taken from the OEHHA Manual is related to the methodology for calculating health risks associated with short-term projects. Specifically, the OEHHA Manual states the following:[23]

> Due to the uncertainty in assessing cancer risk from very short-term exposures, we do not recommend assessing cancer risk for projects lasting less than two months at the MEIR. We recommend that exposure from projects longer than 2 months but less than 6 months be assumed to last 6 months (e.g., a 2-month project would be evaluated as if it lasted 6 months). Exposure from projects lasting more than 6 months should be evaluated for the duration of the project.

The OEHHA Manual does not require cancer risks to be evaluated, but states, "The local air pollution control districts sometimes use the risk assessment guidelines for the Hot Spots program in permitting decisions for short-term projects such as construction or waste site remediation. Frequently, the issue of how to address cancer risks from short-term projects arises. Cancer potency factors are based on animal lifetime studies or worker studies where there is long-term exposure to the carcinogenic agent. There is considerable uncertainty in trying to evaluate the cancer risk from projects that will only last a small fraction of a lifetime."[24]

The YSAQMD does not specifically require construction DPM to be evaluated and does not have any recommended guidance on the evaluation of such. Please see Response to Comment 45-18 below for further details. In addition, see Response to Comment 45-47 regarding cancer risks.

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[23] Office of Environmental Health Hazard Assessment. *Air Toxics Hot Spots Program Risk Assessment Guidelines, Guidance Manual for Preparation of Health Risk Assessments* [pg. 8-18]. February 2015.

[24] Office of Environmental Health Hazard Assessment. *Air Toxics Hot Spots Program Risk Assessment Guidelines, Guidance Manual for Preparation of Health Risk Assessments* [pg. 8-17]. February 2015.

Response to Comment 45-18

The YSAQMD does not specifically require construction DPM to be evaluated and does not have any recommended guidance on the evaluation of such. In addition, the YSAQMD does not have any recommended thresholds of significance specific for DPM emissions. For TAC emissions, the YSAQMD uses a threshold for new *stationary sources* of a probability of contracting cancer for the Maximally Exposed Individual (MEI) equal to 10 in one million persons or more, or a ground-level concentration of non-carcinogenic TACs that would result in a Hazard Index (HI) equal to or greater than 1 for the MEI. The YSAQMD's Handbook states the following:[25]

> While the District's Risk Management Policy provides a basis for a threshold for TACs from stationary sources, this policy does not cover TACs from mobile sources. The District has no permitting or other regulatory authority over mobile sources. While the district continues to evaluate a threshold of significance for mobile source TAC, no specific mobile source TAC threshold is proposed at this time.

Again, the YSAQMD thresholds apply to new *stationary sources* affecting existing or proposed off-site sensitive receptors. Construction DPM emissions are not associated with a stationary source. In the absence of a threshold for mobile-related TAC emissions, specifically DPM emissions, the SMAQMD's methodology for dispersion modeling and concentration-based threshold for PM_{10} was used in the Draft EIR analysis. It should be noted that the SMAQMD has adopted mass emissions thresholds for PM_{10} and $PM_{2.5}$, but recommends dispersion modeling of construction-related PM emissions when emissions exceed the mass emissions thresholds and are located near sensitive receptors.[26] If the dispersion modeling results show that concentrations of PM at off-site sensitive receptors would exceed ambient air quality standards, SMAQMD considers impacts to be significant and requires all feasible mitigation to be implemented. It should further be noted that the proposed project's construction-related emissions would not exceed the SMAQMD's adopted mass emission thresholds of significance for PM_{10} or $PM_{2.5}$ and, based on SMAQMD methodology, dispersion modeling would not be required. Nonetheless, although not necessarily required, in order to provide a conservative analysis within the Draft EIR, dispersion modeling was conducted for PM_{10} emissions and the concentration was compared to the applicable ambient air quality standards, as presented in Impact 4.3-3 of the Draft EIR.

The commenter is correct that the *Nishi Gateway Project Draft EIR* does reference the YSAQMD's stationary source TAC thresholds of significance and relies on such as the thresholds of significance for short-term construction emissions of TACs. However, as presented on page 4.3-26 through 4.3-28 of the *Nishi Gateway Project Draft EIR*, for similar reasons discussed in the MRIC Draft EIR, DPM emissions were not expected to cause any impacts, and dispersion modeling or a Health Risk Assessment (HRA) was not conducted as part of the *Nishi*

[25] Yolo-Solano Air Quality Management District. *Handbook for Assessing and Mitigating Air Quality Impacts* [pg. 7]. July 11, 2007.

[26] Sacramento Metropolitan Air Quality Management District. *Guide to Air Quality Assessment in Sacramento County* [pg. 3-7]. June 2015.

Gateway Project Draft EIR. Similar arguments were made within the MRIC Draft EIR on pages 4.3-32 through 4.3-36; however, in order to provide a conservative analysis, dispersion modeling was conducted as part of the MRIC Draft EIR, and the results compared to the applicable ambient air quality standards, in accordance with SMAQMD guidance as described above, as presented on page 4.3-34 of the Draft EIR.

Please see Response to Comment 45-44 below for further details regarding the commenter's concerns related to the cancer risks associated with construction-related emissions.

Response to Comment 45-19

As stated on page 4.3-21 of the Draft EIR, "Although the proposed project is expected to be built out over four separate phases (see Figure 3-19 of the Project Description chapter of this EIR), specific uses to be built out per phase is speculative at this time and would ultimately be based on demand. Accordingly, project-specific details regarding the buildout schedule for the proposed project are currently unavailable." In lieu of project-specific construction details, air districts, including the YSAQMD, recommend the use of CalEEMod defaults. As listed on page 4.3-21 of the Draft EIR, construction is anticipated to commence in July 2017 and the proposed project is anticipated to be fully operational by 2035, based upon project-specific market absorption projections conducted by BAE (see Section 4.10, Land Use and Urban Decay, of the Draft EIR and Appendix G to the Draft EIR). As the only project-specific information regarding construction that is available at this time is the overall buildout duration for the project, such project-specific information was used in addition to the default CalEEMod data.

Contrary to the commenter's statement of the CalEEMod default assumptions for a project of this size and type presented on page 18 of the comment letter (e.g., 40 days for site preparation, 110 days for grading, 75 days for paving, 1,110 days for building, and 75 days for architectural coatings), the default CalEEMod construction phase timing for the proposed project, which includes a default model assumption for a demolition phase, is as follows:

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days
1	Demolition	Demolition	1/1/2016	10/6/2016	5	200
2	Site Preparation	Site Preparation	10/7/2016	3/23/2017	5	120
3	Grading	Grading	3/24/2017	5/31/2018	5	310
4	Building Construction	Building Construction	6/1/2018	4/18/2030	5	3100
5	Paving	Paving	4/19/2030	2/20/2031	5	220
6	Architectural Coating	Architectural Coating	2/21/2031	12/25/2031	5	220

As the above CalEEMod table shows, the default construction period for the proposed project, according to CalEEMod, would occur over an estimated 15 years, which is only three years less than the project's anticipated 18-year buildout that was applied to the model. Also, as shown above, the default phases in the model do not overlap. The default phase durations for site

preparation, grading, building construction, paving, and architectural coating in the model were scaled up using a weighted scale to the anticipated 18-year buildout period.

As noted throughout the Draft EIR, the project buildout phases listed on page 4.3-33 and presented in further detail in the Project Description chapter of the Draft EIR, beginning on page 3-43, are conceptual. The applicant has not proposed details regarding how much, if any, of one phase must be completed prior to moving to the next phase. They have indicated they would like phasing to be driven by demand. As such, the applicant has not committed to adhering to the conceptual phasing plan.

Nonetheless, in response to this comment, CalEEMod was used to estimate the construction-related emissions that would be associated with buildout of the conceptual Phase 4 of the proposed project, which is the largest phase anticipated for the proposed project (largest area of disturbance and largest building footprint of all conceptual phases). The following assumptions were made for the Phase 4 construction modeling:

- 714,000 square feet of R&D uses;
- 2,856 parking spaces on 27.46 acres;
- Included 32.52 acres for off-site improvements (i.e., 11 acres for sewer improvements and 21.52 acres for drainage basin);[27]
- A total of 118.72 acres would be disturbed during the grading phase (86.2 acres for Phase 4 area per conceptual phasing plan + 32.52 acres for off-site improvements);
- The portion of the off-site detention basin improvements required for Phase 4 was assumed to require 34,970 cubic yards of soil to be exported to a location two miles away from the off-site detention basin location;[28] and
- A total of 2,914 haul truck trips would occur related to the off-site detention basin soil hauling.[29]

It should be noted that the CalEEMod default construction phasing for buildout of Phase 4 based on the above assumptions would result in an approximately seven year construction period. As stated in the first paragraph on page 4.7-29 of the Draft EIR, "based upon market absorption projections, the proposed project can reasonably be assumed to build out by 2035, which equates to an annual buildout of 140,000 to 150,000 square feet of innovation center uses."[30] Assuming 150,000 maximum square feet would be built out per year, Phase 4 would be built out over approximately five years. The default construction phase durations were consolidated using a weighted scale to the estimated five-year buildout period.

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[27] The 11 acres assumes that the sewer connection would occur during this phase; however, it is likely that the sewer connection would occur during the first buildout phase. The 21.52 acres for the drainage basin is based on the assumption that only portions of the drainage basin would be improved sufficient to accommodate each phase of development.

[28] Based on an estimated total 130,000 cubic yards of soil export required for entire detention basin improvements, according to project engineer.

[29] Based on the project engineer, 12-cubic-yard haul trucks would be used for the soil hauling, as allowable on County Road 32A/B.

[30] BAE Urban Economics. *City of Davis Economic Evaluation of Innovation Park Proposals* [pg. 28]. July 9, 2015.

According to the CalEEMod results for Phase 4, the unmitigated construction-related emissions would be as shown in the table below.

Pollutant	Conceptual Phase 4 Construction Emissions	YSAQMD Threshold of Significance
ROG	5.43 tons/yr	10 tons/yr
NO_X	8.44 tons/yr	10 tons/yr
PM_{10}	25.60 lbs/day	80 lbs/day
Source: CalEEMod, December 2015 (see Appendix F to this Final EIR).		

As shown in the table, even when evaluating the largest conceptual buildout phase for the project in CalEEMod, as well as the off-site improvements, the construction-related emissions would still be below the applicable thresholds of significance. As all of the other conceptual phases would involve disturbance of fewer acres and a smaller building footprint than that of Phase 4, all other phases would result in fewer construction-related emissions than those estimated for Phase 4 and presented in the table above. As such, even if the construction modeling for the proposed project was performed in accordance with the conceptual phasing plan, the conclusion within the Draft EIR for Impact 4.3-1 would not be altered, and new significant environmental impacts or a substantial increase in the severity of any environmental impacts would not occur.

To be conservative, CalEEMod was used to estimate the construction-related emissions that would be associated with one year of buildout in accordance with the BAE Urban Economics report projections. The BAE report, based upon relevant case studies, assumed approximately 140,000 square feet per year of office/tech space absorption for the MRIC alone, and approximately 150,000 square feet per year of office/tech space absorption for the cumulative scenario (including Nishi Gateway and Davis IC). Using the larger absorption estimate of 150,000 square feet, which would be more intensive from a construction emissions standpoint, the following assumptions were made for a conservative, first year of construction modeling:

- 150,000 square feet of R&D uses;
- 600 parking spaces on 5.77 acres;
- Included 15.52 acres for off-site improvements (i.e., 11 acres for sewer improvements and 4.52 acres for drainage basin);[31]
- A total of 24.73 acres would be disturbed during the grading phase (3.44 acres for project site + 15.52 acres for off-site improvements);
- The portion of the off-site detention basin improvements required for the first year of development was assumed to require 7,345 cubic yards of soil to be exported to a location two miles away from the off-site detention basin location;[32] and
- A total of 612 haul truck trips would occur related to the off-site detention basin soil hauling.[33]

[31] The 11 acres assumes that the sewer connection would occur during the first year. The 4.52 acres for the drainage basin is based on the assumption that only portions of the drainage basin would be improved sufficient to accommodate each portion of development.

[32] Based on an estimated total 130,000 cubic yards of soil export required for entire detention basin improvements, according to project engineer.

It should be noted that the CalEEMod default construction phasing for buildout of 150,000 square feet would result in an approximately one year and nine month period. The default construction phase durations were consolidated using a weighted scale to the estimated one-year buildout period per the BAE Urban Economics report.

According to the CalEEMod results for one year of construction under this scenario, the unmitigated construction-related emissions would be as shown in the table below.

Pollutant	Conceptual Maximum One Year of Construction Emissions	YSAQMD Threshold of Significance
ROG	6.12 tons/yr	10 tons/yr
NO_X	5.22 tons/yr	10 tons/yr
PM_{10}	21.05 lbs/day	80 lbs/day
Source: CalEEMod, December 2015 (see Appendix F to this Final EIR).		

As shown in the table, assuming development of 150,000 square feet of on-site uses, and construction of the off-site improvements, the construction-related emissions would still be below the applicable thresholds of significance. As such, even if the construction modeling for the proposed project was performed in accordance with the anticipated buildout that the market could support in one year, based upon BAE projections, the conclusion within the Draft EIR for Impact 4.3-1 would not be altered, and a new significant environmental impact or a substantial increase in the severity of an environmental impact would not occur. Therefore, contrary to the commenter's claims, the first year of construction would not result in "significantly higher emissions estimates that would trigger the requirement for health-protective mitigation."

Based on the project construction modeling in comparison to the alternative methods for construction modeling suggested by the commenter as discussed above, the statement made on page 4.3-21 of the Draft EIR that "construction was assumed to occur over one phase in order to provide a conservative estimate" remains valid, as doing so does show the highest estimated (i.e., most conservative estimation of) construction-related emissions.

Therefore, contrary to the statements made by the commenter, the emissions disclosed are not substantially underestimated.

Response to Comment 45-20

As the off-site improvements would occur simultaneously with the proposed project, the construction phasing, equipment, and equipment use durations applied in CalEEMod already take into account the necessary construction phasing and durations for the off-site improvements. Similarly, as the off-site improvement locations are in the project vicinity, the assumption was made, based on discussions with the project engineer, that the off-site improvements would use the same pieces of equipment that would be at the project site being used for on-site construction

[33] Based on the project engineer, 12-cubic-yard haul trucks would be used for the soil hauling.

activities.[34] For example, during the duration of the off-site improvements, those pieces of equipment needed to construct the off-site improvements would be moved from the project site to the off-site location for the necessary duration, and then brought back to the project site for further on-site use. Thus, the construction duration and equipment assumptions used would not change. In order to assure these assumptions, staff will add a condition of approval to require that project construction proceeds in this fashion.

However, the off-site sewer improvements and detention basin areas of disturbance were inadvertently excluded from the total acreage disturbed during grading. In addition, as discussed in Response to Comment 45-15 above, as stated on page 4.9-29 of the Draft EIR, the off-site detention basin would require topsoil at the chosen location to be removed and stockpiled, the selected area excavated to the design depth, and the topsoil then spread back over the lowered field. According to the project engineer, 130,000 cubic yards of soil would be excavated and exported, using 12-cubic-yard double bottom haul trucks, to partially fill the existing on-site detention basin located near the eastern boundary of the MRIC site, approximately two miles from the off-site detention basin.[35] Furthermore, as discussed in Response to Comment 45-13, the project parking lot and "Transit Plaza" areas were inadvertently excluded from the modeling. Therefore, the project's modeling has been revised to include the parking lot areas and the "Transit Plaza" as separate land use line items within CalEEMod (as discussed in detail in Response to Comment 45-13), as well as to include the off-site improvements, including soil hauling trips.

Based on the revised modeling, the assumptions for the construction emissions analysis listed on page 4.3-21 of the Draft EIR are hereby revised as follows:

> Thus, the following assumptions were made for the project construction modeling:
>
> - Demolition would not be required;
> - Construction was assumed to commence in July 2017;
> - Construction was assumed to occur over one phase in order to provide a conservative estimate;
> - In order to be consistent with the buildout assumptions utilized by the traffic consultant, the project was assumed to be fully operational by 2035 (i.e., construction was assumed to occur over an 18-year period);
> - Construction phase durations (i.e., site preparation, grading, building construction, and architectural coating phases) were modified to reflect an 18-year construction period; ~~and~~
> - A total of ~~224.42~~ 315.42 acres would be disturbed during the grading phase~~.~~; and
> - 130,000 cubic yards of soil was assumed to be required to be exported in association with the off-site detention basin to a site located two miles from the off-site detention basin location; and

[34] Personal communication between Nick Pappani, Vice President, Raney Planning & Management, Inc., and Gary Albertson, President, Project Management Applications, November 30, 2015.

[35] Personal email communication between Nick Pappani, Vice President, Raney Planning & Management, Inc., and Gary Albertson, President, Project Management Applications, January 6, 2016.

- Approximately 10,833 soil haul truck trips would be required for the soil exportation.

In addition, Table 4.3-6 on page 4.3-24 of the Draft EIR is hereby revised as follows:

Table 4.3-6
Maximum Unmitigated Project Construction-Related Emissions

Pollutant	Project Emissions	YSAQMD Threshold of Significance
ROG	~~2.41~~ 3.47 tons/yr	10 tons/yr
NO_X	~~7.64~~ 9.70 tons/yr	10 tons/yr
PM_{10}	~~21.05~~ 43.42 lbs/day	80 lbs/day
Source: CalEEMod, ~~July~~ December 2015 ~~(see Appendix C)~~.		

As shown in the revised table, the unmitigated construction-related emissions would increase from what was presented in the Draft EIR. However, the emissions would still be below the applicable thresholds of significance. As such, the conclusion within the Draft EIR for Impact 4.3-1 on pages 4.3-23 through 4.3-25 would not be altered as a result of the revised modeling.

As mentioned in Response to Comment 45-13, due to the off-gassing associated with paving applications, the proposed project's operational emissions of ROG would increase from what was presented in the Draft EIR related to the paving required for the parking lot and transit plaza areas. Accordingly, Table 4.3-7 and Table 4.3-8 on pages 4.3-26 and 4.3-27, respectively, are hereby revised as follows:

Table 4.3-7
Unmitigated Project Operational Emissions

Pollutant	Project Emissions	YSAQMD Thresholds of Significance
ROG	~~19.51~~ 30.78 tons/yr	10 tons/yr
NO_X	18.83 tons/yr	10 tons/yr
PM_{10}	138.~~95~~63 lbs/day	80 lbs/day
Source: CalEEMod, ~~July~~ December 2015 ~~(see Appendix C)~~.		

Table 4.3-8
Mitigated Project Operational Emissions

Pollutant	Project Emissions	YSAQMD Thresholds of Significance
ROG	~~17.32~~ 28.51 tons/yr	10 tons/yr
NO_X	17.56 tons/yr	10 tons/yr
PM_{10}	124.98 lbs/day	80 lbs/day
Source: CalEEMod, ~~July~~ December 2015 ~~(see Appendix C)~~.		

As shown in the revised tables above, although the operational ROG emissions would increase from what was presented in the Draft EIR, the operational NO_X and PM_{10} emissions would generally remain the same. Mitigation Measure 4.3-2 on page 4.3-28 of Draft EIR, and as revised in this Final EIR (see Response to Comment 31-6), would reduce the overall ROG, NOx, and PM_{10} emissions. Revised Mitigation Measure 4.3-2 requires the project applicant to work with the City of Davis, YSAQMD, and/or other air districts to develop a mitigation strategy aimed at

further reducing the project's operational criteria pollutant emissions below the District's thresholds of significance through on- and off-site measures.

The revised modeling would not alter the conclusion for Impact 4.3-2 within the Draft EIR, or cause any new significant environmental impacts or a substantial increase in the severity of any environmental impacts.

All of the CalEEMod outputs for the revised modeling are included as Appendix F to this Final EIR. Overall, the revised modeling would not result in any changes to the conclusions within the Draft EIR, any new significant environmental impacts, or a substantial increase in the severity of any environmental impacts.

Response to Comment 45-21

Please see Response to Comment 45-20 above. The off-site sewer improvements areas of disturbance were inadvertently excluded from the total acreage disturbed during grading. The construction modeling for the proposed project has been updated accordingly, and as shown in the tables included in Response to Comment 45-20, the updated construction emission projections would remain below the YSAQMD's applicable construction thresholds of significance. As can be seen in Figure 3-16, MRIC – Conceptual Domestic Water System, of the Draft EIR, the proposed project does not include off-site water line improvements.

With respect to construction of off-site traffic features, installation of the traffic signal at Covell Boulevard and Monarch Lane, per Mitigation Measure 4.14-1, would occur within existing disturbed areas and right-of-way; and no adverse environmental effects would be anticipated.

Regarding mitigation improvements identified in Impact 4.14-2 related to intersections within the Mace Boulevard interchange area, these improvements require review and approval by the City of Davis as well as Caltrans. As a result, while the roadway improvements identified in Mitigation Measures 4.14-2(a) through (e) are physically feasible, the Draft EIR determined that the project's impact to Mace Boulevard Interchange area intersections would remain significant and unavoidable given that Caltrans' approval of the proposed improvements cannot be assured. In addition, while the improvements set forth in Mitigation Measures 4.14-2(a) through (e) would ensure that the study intersections within the Mace Boulevard Interchange area would operate acceptably (LOS E or better), these improvements are not necessary for the proposed project to proceed independently. This, therefore, satisfies the independent utility test, which allows lead agencies to conduct separate environmental reviews. The improvements set forth in Mitigation Measures 4.14-2(a) through (e) would be subject to separate environmental review with oversight by the City of Davis and Caltrans.

Response to Comment 45-22

Please see Master Response #7, Western Burrowing Owl, and Responses to Comments 33-17, 35-2, and 35-3 regarding the number and adequacy of site surveys, a discussion of known burrowing owl records and locations, as well as mitigation for potential impacts to burrowing owl.

Response to Comment 45-23

Comment 45-23 references and summarizes comment 45-52. Please see Master Response #8, Swainson's Hawk, and Responses to Comments 45-52 and 40-12. Based upon the consideration of several factors outlined in Response to Comment 40-12, the City has determined that impacts to Swainson's hawk foraging habitat would be reduced to a less-than-significant level through Mitigation Measures 4.4-5(b) and (c) due to their consistency with State and local programs and policies for mitigating Swainson's hawk foraging habitat impacts.

Response to Comment 45-24

Please see Response to Comment 45-25 regarding concerns about the project's reflective glass and nighttime lighting.

The interaction of the proposed project's stormwater drainage and the Yolo Bypass is discussed in Section 4.9, Hydrology and Water Quality, and Section 4.4, Biological Resources, of the Draft EIR. As discussed on pages 4.4-35 and 4.9-6 the Draft EIR, the project's drainage currently flows into the Mace Drainage Channel (MDC), which joins with a relatively large channel along the north side of the railroad (railroad channel) that extends to the Yolo Bypass levee. The Railroad Channel drains through a 170-foot wide levee into the Yolo Bypass through a box culvert with a one-way metal flap gate.

Page 4.9-24 states that the project's conceptual stormwater design ensures that the combination of attenuated on-site flows and the (proposed) reconfigured MDC channel and off-line detention will reduce 100-year flows leaving the developed MRIC to the original design capacity of 260 cfs. This means that there will be no increase in the rate of flow leaving MRIC, and consequently, no downstream impacts related to the existing capacity of the MDC. Section 4.9 includes a detailed discussion of the conceptual on-site stormwater treatment measures that would be implemented by the proposed project to ensure that project runoff into the Yolo Bypass would not adversely affect water quality. Page 4.9-37 states,

> As discussed above, the MRIC includes on-site detention features, which would detain stormwater during major storm events, as well as remove pollutants from stormwater runoff. For example, along the MRIC site's northern and eastern edges, a 150-foot agricultural buffer is included. The first 100 feet of the buffer will include stormwater detention basin areas with water quality functions, as well as habitat value. The detention features within the agricultural buffer will be designed to receive flows from within the MRIC and, in storm events, detain and treat stormwater flows.
>
> The detention facilities would treat stormwater through sedimentation and biological uptake of pollutants by surrounding vegetation, algae, and bacteria. While pollutants settle out within the basins, only the clean surface water within the basins would be allowed to exit into the MDC via outlet control structures. The facilities would be designed in accordance with all City guidelines. Furthermore, the MRIC would include Low Impact Development (LID) features throughout the site. For example, bioswales and rain gardens between the parking spaces would capture and filter runoff. Bioretention systems in conjunction with vegetated swales would be incorporated in planting strips or

> in open spaces and perimeter areas. Interconnected vegetated swales would be incorporated in the large parkways and medians as part of the roadway system to the extent possible. Bioswales and permeable paving in all parking areas would be encouraged to help reduce stormwater runoff.
>
> In addition, drainage channels and swales would be designed to reduce the velocity of the stormwater flow and help to remove pollutants through the use of vegetated swales, water detention, landscape open space, gravel filters. Runoff control would be designed to mimic natural conditions as much as possible and protect water quality while utilizing existing drainage structures.
>
> Each phase of MRIC development will be required to comply with the BMPs and criteria established in Chapter 30 of the Municipal Code. Through the preparation of improvement and grading plans, these measures will be refined so that they will functionally minimize stormwater quality impacts. Consistency with the City of Davis Manual of Stormwater Quality Control Standards for New Development and Redevelopment, Municipal Code, and implementation of the BMPs included in the MRIC Planned Development Guidelines will ensure that the MRIC would have a less-than-significant impact on long-term stormwater quality.

Therefore, adverse effects to species within the Yolo Bypass are not anticipated to result from the project's drainage.

The evaluation of potential impacts to special status-species (including birds and fish) includes a review and discussion of known species records within the nine quadrangle search area (an area of approximately 495 square miles). The Yolo Bypass Wildlife Area is within the nine quadrangle search area.

Response to Comment 45-25

Section 4.1, Aesthetics and Visual Resources, of the Draft EIR analyzes the projects visual and aesthetic impacts. Mitigation Measure 4.1-3 requires submittal and approval of a lighting plan by the City Community Development and Sustainability Department prior to each development phase. In addition, Mitigation Measures 4.1-3 states that the lighting plan 'shall comply with Chapter 6 of the Davis Municipal Code - Article 8: Outdoor Lighting Control.'

Section 1, Article VIII, of Chapter 6 of the Davis Municipal Code is titled 'Outdoor Lighting Control' and is also known as the "Dark Sky Ordinance." Section 6-60(a) requires that:

- Outdoor light fixtures shall be fully shielded.
- Light trespass and glare shall be limited to a reasonable level.
- Methods to limit light trespass and glare include directional lighting methods, including, but not limited to, fixture location and height.

The City of Davis Outdoor Lighting Control ordinance provides protections consistent with those contained in U.S. Fish and Wildlife Service (USFWS) and the Audubon Society guidance which aim to minimize potential impacts of artificial light on wildlife. For example, the USFWS

Recommendations to Avoid Adverse Impacts to Migratory Birds, Federally Listed Species, and Other Wildlife From Communication Towers and Antennae recommends that projects down-shield securing lighting for on-ground facilities and equipment to keep light within the boundaries of the site. Similarly, the New York Audubon Society, Bird-Safe Building Guidelines (May 2007) recommends directional lighting methods and other measures to reduce light trespass in order to minimize impacts to birds.

The City of Davis Public Works Department previously considered the effects of installing lighting along the Putah Creek Bicycle Path, and found that artificial lighting would not necessarily result in negative impacts to migratory birds and raptor species. In 2006, John McNerney, Wildlife Resource Specialist, prepared a memorandum titled *Findings of Literature Review and Professional Consultation Regarding Bike Path Lighting and Potential Impacts to Sensitive Wildlife Species*. The review states the following:

> "A review of current scientific literature regarding avian nesting and foraging success and artificial lighting was conducted. Avian scientists from the University of California at Davis, California Department of Fish and Game (DFG) were consulted.
>
> The effects of artificial lighting on raptor nesting behavior are poorly documented. However, several studies suggest that nesting success in raptors and passerines in an urban landscape (wooded street and metropolitan areas) showed no statistical difference from those in rural habitats (Minor et al. 1993, Fernandez-Juricic 2000, Rottenborn 2000). Successful nesting near street lamps, of both great-horned owl (Bubo virginianus) and Swainson's hawk, has been observed in the City of Davis, as well as other cities in the Sacramento Valley (Morzenti pers. comm.). Tina Bartlet (pers. comm.) of the DFG stated that, although she had not heard of or observed negative impacts on nesting due to artificial lighting, the DFG recommends the use of "full cut off" lights in areas that may support sensitive nesting raptors.
>
> Artificial lighting and its potential impact on foraging raptor species was also investigated. Several studies suggest that there is direct and indirect benefit to both nocturnal and diurnal predatory species (Blake and Hutson 1994, Negro and Bustamante 2000, Thurber and Komar 2002). These studies suggest that predatory species take advantage of the concentration of insects and small bats attracted to the lights. Observations supporting this behavior have also been made by city staff within the Mace Ranch Community Park. During these observations, burrowing owls (*Athene cunicularia*) would perch on the lamp posts at night and sally for insects (McNerney, pers. obvs.)
>
> Based on the literature review and professional consultation, impacts to sensitive raptor species, currently using the habitat adjacent to the bike path, are not expected to occur as a result of the path light operation."

The proposed project is required to submit a lighting plan for approval prior to each project phase. The lighting plan is required to be consistent with the City of Davis Outdoor Lighting Control ordinance, which addresses the wildlife lighting considerations consistent with the USFWS and Audubon Society recommendations. The measures, coupled with the City's prior analysis, support the conclusion that the impact of artificial light will not be significant.

Response to Comment 45-26

As stated on page 4.8-1 of the DEIR, the Phase I and Phase II were prepared for the proposed project by WKA. Page 4.8-10 of the DEIR includes a summary of the methodology used by WKA to perform the surface soil investigation. As stated on page 4.8-10 of the DEIR, WKA developed a soil sample collection plan using the Department of Toxic Substances Control Interim Guidance for Sampling Agricultural Properties (Third Revision), dated August 7, 2008 (DTSC Guidance). The DTSC guidance calls for 200 soil sample locations being distributed over a 212-acre site. However, it is important to understand that the DTSC Guidance offers guidance to site characterization and is not an authority on alternatives to appropriate site characterization. As stated in the DTSC Guidance, in characterizing a site's impact from past historic land use, particularly pesticide application, DTSC accepts the logic that a site is likely to be applied uniformly with deterrent (i.e. pesticide). Given the logic of uniform pesticide application, it is common practice on larger Phase II agricultural investigations to conduct a preliminary sampling utilizing fewer sample locations to determine if there are specific areas of concern that warrant additional testing. Buzz Oates requested that the Phase II investigation utilize the practice of a preliminary sampling investigation in order to determine if the quantity of soil sampling identified in the DTSC Guidance was warranted at any location on the Site. Therefore, and as stated on page 4.8-11 of the DEIR, WKA selected 34 soil sample locations distributed evenly across the site and collected from locations within the agricultural use, detention basin, and canal areas of the site, strictly adhering to DTSC sampling protocols.

As discussed on page 4.8-16 of the Draft EIR, based on the analysis performed by WKA, organochlorine pesticides (OCP) were not present in any soil sample at concentrations exceeding the laboratory reporting limit. Accordingly, as concluded in the Draft EIR, OCP concentrations in soil would not pose a risk to human health based on a commercial exposure scenario.

In addition, as stated on page 4.8-16 of the Draft EIR, the maximum concentration of arsenic detected in the on-site soils was below the applicable DTSC threshold of 12 milligrams per kilogram (mg/kg) for a sensitive land use. Based on the analysis conducted by WKA, the increase in cancer risk associated with the maximum concentration of arsenic at the site was calculated to be within the California Environmental Protection Agency (Cal-EPA) typical range of acceptable exposure levels, which would not pose a significant risk to human health.

Page 4.8-17 of the Draft EIR includes the results of the laboratory analyses of the soil samples, which revealed that the total lead concentrations are below the thresholds for human exposure under a commercial exposure scenario (320 mg/kg). The concentrations of total lead detected at the project site do not pose a risk to human health based on a commercial land use. From the information gathered during preparation of the Phase II, WKA concluded that the soil at the site, overall, does not pose a significant risk to human health.

Results from WKA's soil sampling indicate that OCPs are not present in site soil at concentrations exceeding the laboratory reporting limits. Lead was not present at concentrations exceeding 7.4 mg/kg, which is less than the 80 mg/kg threshold for residential exposure and less than the 320 mg/kg threshold for commercial exposure. Arsenic concentrations in soil did not exceed 7.3 mg/kg. WKA has shown that arsenic concentrations pose a cancer risk that falls

within the range of the EPA's typical range of acceptable exposure levels (1 in 10,000 and 1 in 1,000,000).

Based on the logic of uniform pesticide application across the entire site, and although the Phase II was originally designed as a preliminary investigation to determine if further sampling might be necessary, WKA has a high degree of confidence that results from the reduced sampling is equivalent to forecasting concentrations of OCPs, lead, and arsenic in the remainder of the site soil. Had any of the 34 sample locations indicated the presence of elevated concentrations of pesticides, additional soil testing would have been implemented. Instead, based on results of the soil sampling performed, WKA has independently concluded that the results of the Phase II support a decision for no further study of the site.[36] Based upon the protocols implemented in the Phase II, it is WKA's professional opinion that DTSC would concur with a decision for nor further study of the site.

Response to Comment 45-27

Mitigation Measures 4.8-2(c) of Section 4.8, Hazards and Hazardous Materials, requires preparation of a Phase I ESA in conjunction with submittal of a final planned development and/or tentative map for any parcel in the Mace Triangle. In addition, as part of the required mitigation, a soil sampling program shall be implemented to assess potential agrichemical impacts to surface soil within the easternmost parcel of the Mace Triangle.

Off-site soils excavated at the low-level storage pond site, if this mitigation option is selected, will not require pesticide sampling given their intended end use, which, as discussed in Response to Comment 45-19, is fill for the on-site detention basin. The commenter does not provide a reason as to why they believe these soils need to be sampled for pesticides.

Response to Comment 45-28

Dry gas well API 11320714 (abandoned 2009) and dry gas well API 11320239 (abandoned 1986) are located within Mace Triangle site. As noted on page 4.8-13 of Section 4.8, Hazards and Hazardous Materials, of the Draft EIR, future development of the Mace Triangle site would require submittal of a Phase I ESA in order to identify any on-site hazard, including on-site wells, and include recommendations, as necessary, for mitigation (see Mitigation Measure 4.8-2(c)). Mitigation Measure 4.8-2(c) includes sufficient performance standards to ensure that any potentially hazardous materials and/or substances encountered during the Phase I ESA for the Mace Triangle would not result in adverse environmental impacts (see CEQA Guidelines Section 15126.4).

As noted on page 4.8-4 of Section 4.8, Hazards and Hazardous Materials, of the Draft EIR, abandoned natural gas well API 11320162 is located in the southeastern portion of the MRIC site. According to the California Department of Conservation, Division of Oil, Gas, and

[36] Wallace Kuhl & Associates. *Response to Letter 45 and SWAPE Comments, Mace Ranch Innovation Center*. January 4, 2016.

Geothermal Resources (DOGGR) website, well API 11320162 was constructed on September 14, 1972 and abandoned on May 2, 1974. Well API 11320162 was abandoned in 1974 pursuant to DOGGR standards.

Response to Comment 45-29

Please see Master Response #3, Mixed-Use Alternative.

In regard to aesthetic impacts, the difference in building heights of the proposed project and the Mixed-Use Alternative is noted on page 8-32 of Chapter 8, Mixed-Use Alternative. Although compliance with the City's General Plan policies and the MRIC Design Guidelines would help minimize impacts, feasible mitigation measures are not available to reduce impacts associated with the degradation of the existing visual character or quality of the MRIC site from project development to a less-than-significant level. In addition, the additional sources of light and/or glare under the Mixed-Use Alternative are noted on pages 8-32 and 8-33. Mitigation Measure 8-3 is included in order to reduce the impacts related to light or glare.

Visual simulations for the Mixed-Use Alternative have been added to Chapter 8, Mixed-Use Alternative, of the Draft EIR. Please see Chapter 2 for the Mixed-Use Alternative visual simulations.

Response to Comment 45-30

In regard to air quality analysis, as stated on page 8-40 of the Draft EIR, the Mixed-Use Alternative's construction-related emissions were estimated using CalEEMod. These CalEEMod outputs for the Mixed-Use Alternative were provided to the commenter on November 17, 2015. As shown in the outputs, the modeling for the Mixed-Use Alternative included the same area of disturbance as the proposed project (i.e., approximately 224 acres). That the disturbance areas would be similar can been seen by comparing Figure 3-12 on page 3-30 of Chapter 3 to Figure 8-4 on page 8-10 of Chapter 8. In addition, the Mixed-Use Alternative outputs show that both the residential and non-residential land uses for the Alternative were included in the modeling (i.e., 850 units and 2,654,000 sf office and R&D); thus, the anticipated trips associated with the construction workers, equipment, etc. needed to build the Alternative were appropriately accounted for when evaluating the Mixed-Use Alternative. With regards to the approach to modeling construction emissions, particularly related to the construction phasing and timing assumptions, see Response to Comment 45-19 above. Notwithstanding the above, as discussed in Response to Comment 45-20, construction of the on-site parking and off-site storage pond and sewer improvements were inadvertently omitted from the construction modeling of proposed project. To provide similar revisions for the Mixed-Use Alternative analysis, the modeling was updated to include the parking lot areas and the "Transit Plaza" as separate land use line items within CalEEMod, as well as to include the off-site improvements, including soil hauling trips. The following assumptions were made for the revised Mixed-Use Alternative modeling:

- A total of 34.84 acres were assumed for surface parking lot area;[37]
- A total of 5.1 acres were assumed for parking structure area (the "Enclosed Parking with Elevator" land use within CalEEMod was applied);
- A total of 315.42 acres would be disturbed during the grading phase (see Response to Comment 45-13 for further details regarding the acreage calculation);
- 130,000 cubic yards of soil was assumed to be required to be exported in association with the off-site detention basin to a site located two miles from the off-site detention basin location; and
- Approximately 10,833 soil haul truck trips would be required for the soil exportation.

Based on the revised modeling, Table 8-4 on page 8-49 of the Draft EIR is hereby revised as follows:

Table 8-1
Maximum Unmitigated Mixed-Use Alternative Construction-Related Emissions

Pollutant	Alternative Emissions	YSAQMD Threshold of Significance	Proposed Project Emissions	Difference
ROG	3.81 ~~3.10~~ tons/yr	10 tons/yr	3.47 ~~2.41~~ tons/yr	+0.34 ~~0.69~~ tons/yr
NO_X	8.98 ~~7.64~~ tons/yr	10 tons/yr	9.70 ~~7.64~~ tons/yr	-0.72 ~~0.00~~ tons/yr
PM_{10}	43.38 ~~29.93~~ lbs/day	80 lbs/day	43.42 ~~21.05~~ lbs/day	-0.04 ~~+8.92~~ lbs/day

Source: CalEEMod, ~~July~~ January 2016~~5~~ ~~(see Appendix C)~~.

As shown in the revised table, the unmitigated construction-related emissions would increase from what was presented in the Draft EIR. However, the emissions would still be below the applicable thresholds of significance. As such, the conclusion within the Draft EIR for Impact 8-10 on page 8-40 would not be altered as a result of the revised modeling.

As discussed in Responses to Comments 45-13 and 45-20 above, operational emissions of ROG would increase from what was presented in the Draft EIR related to the off-gassing associated with the paving required for the parking and transit plaza areas. Accordingly, Table 8-5 and Table 8-6 on pages 8-41 and 8-42 of the Draft EIR, respectively, are hereby revised as follows:

[37] According to the project architect (personal email communication between Nick Pappani and Prakash Pinto of Pinto & Partners, dated January 6, 2016), the total parking area for the Mixed-Use Alternative is estimated to be 46.1 acres. Of the 46.1 acres, 5.1 acres would be dedicated to parking structures and 6.15 acres would be devoted to landscaping and/or permeable surfaces.

Table 8-2 Maximum Unmitigated Mixed-Use Alternative Operational Emissions				
Pollutant	**Alternative Emissions**	**YSAQMD Threshold of Significance**	**Proposed Project Emissions**	**Difference**
ROG	30.80~~24.21~~ tons/yr	10 tons/yr	~~19.51~~ 30.78 tons/yr	+0.02~~4.23~~ tons/yr
NO_X	17.51 tons/yr	10 tons/yr	18.83 tons/yr	-1.75 tons/yr
PM_{10}	104.14 lbs/day	80 lbs/day	138.9~~5~~63 lbs/day	-34.4~~6~~9 lbs/day
Source: CalEEMod, ~~July~~ January 201~~6~~5 ~~(see Appendix C)~~.				

Table 8-3 Mitigated Mixed-Use Alternative Operational Emissions		
Pollutant	**Alternative Emissions**	**YSAQMD Thresholds of Significance**
ROG	27.93~~21.54~~ tons/yr	10 tons/yr
NO_X	16.53 tons/yr	10 tons/yr
PM_{10}	93.95 lbs/day	80 lbs/day
Source: CalEEMod, ~~July~~ January 201~~6~~5 ~~(see Appendix C)~~.		

As shown in the revised tables above, although the operational ROG emissions would increase from what was presented in the Draft EIR, the operational NO_X and PM_{10} emissions would generally remain the same. As discussed on page 8-42 of the Draft EIR, as well as in Response to Comment 45-13, Mitigation Measure 8-11 on page 8-42 of the Draft EIR (which is similar to Mitigation Measure 4.3-2 on page 4.3-28 of Draft EIR for the proposed project) would reduce the overall ROG emissions. In addition, this Final EIR has revised Mitigation Measure 4.3-2 to require the project applicant to work with the City of Davis and YSAQMD to develop a mitigation strategy aimed at further reducing the project's operational criteria pollutant emissions below the District's thresholds of significance to the greatest extent feasible through on- and off-site measures. Please see Response to Comment 31-6. Similarly, page 8-42, Mitigation Measure 8-11, of the Draft EIR is hereby revised as follows:

~~*8-11 Prior to issuance of any building permits, the project applicant shall show on project plans via notation that only zero VOC paints, finishes, adhesives, and cleaning supplies shall be used for all buildings on the project site. Project plans shall be subject to review and approval by the Department of Community Development and Sustainability.*~~

8-11 Prior to issuance of any entitlement or permit, the project applicant shall work with the City of Davis, the YSAQMD, and/or other air districts within the region (as appropriate) to develop and implement a strategy to mitigate ROG and NOx, and PM_{10}. The strategy must reduce emissions from project operation to levels at or below the applicable YSAQMD thresholds of significance to the maximum extent feasible. Feasible on-site actions to reduce emissions shall receive highest priority for implementation. Emissions that cannot be reduced through on-site actions shall be mitigated through off-site action. The strategy and all actions shall be subject to review and approval by the City in

consultation with the YSAQMD, and, if applicable, the air quality management district or air pollution control district within which the mitigation project is located. On-site actions may include, but shall not be limited to the following:

- *Reducing on-site parking lot area;*
- *Using concrete or other non-emitting materials for parking lots instead of asphalt;*
- *Limiting on-site parking supply;*
- *Using passive heating and cooling systems for buildings;*
- *Using natural lighting in buildings to the extent practical;*
- *Installing mechanical air conditioners and refrigeration units that use non-ozone depleting chemicals;*
- *Providing electric outlets outside of buildings, sufficient to allow for use of electric landscaping equipment;*
- *Hiring landscaping companies that use primarily electric landscaping equipment;*
- *Use of zero-VOC paints, finishes, adhesives, and cleaning supplies on all buildings on the project site.*
- *Hiring janitorial companies that use only low-VOC cleaning supplies;*
- *Employing vehicle fleets that use only cleaner-burning fuels;*
- *Providing electrical vehicle charging stations in each phase of the project.*

Off-site actions may include, but shall not be limited to, the following:

- *Retrofitting stationary sources such as back-up generators or boilers with new technologies that reduce emissions;*
- *Replacing diesel agriculture water pumps with alternative fuels;*
- *Funding projects within an adopted bicycle/pedestrian plan;*
- *Replacing non-USEPA wood-burning devices with natural gas or USEPA-approved fireplaces;*
- *Providing energy efficiency upgrades at government buildings;*
- *Installing alternative energy supply on buildings;*
- *Replacing older landscape maintenance equipment with newer, lower-emission equipment;*
- *Payment of mitigation fees into an established air district emissions offset program.*

The Reduction Strategy shall include requirements to ensure it is enforceable and measurable. A mechanism for oversight, monitoring and reporting through the project Master Owners Association (MOA) to the City shall be included as a part of the strategy. Because ROG, NOx, and PM10 are pollutants of regional concern, the emissions reductions for these pollutants may occur anywhere within the lower Sacramento Valley Air Basin (e.g., within YSAQMD, the Sacramento Metropolitan

> *Air Quality Management District, or the Placer County Air Pollution Control District). Emissions reductions should occur within the YSAQMD, if reasonably available.*

All of the CalEEMod outputs for the revised modeling are included as Appendix F to this Final EIR. Overall, the revised modeling would not result in any changes to the conclusions within the Draft EIR, any new significant environmental impacts, or a substantial increase in the severity of any environmental impacts.

Response to Comment 45-31

The commenter states that the Draft EIR does not acknowledge or analyze health risks due to construction DPM, construction noise impacts, or other construction-related impacts of residents living on-site under the Mixed-Use Alternative, while subsequent construction phases occur. Contrary to the commenter's statement, the Draft EIR includes a general analysis of the effects of DPM on the on-site residents due to construction (please see Impact 8-12, beginning on page 8-43 of the Draft EIR). Specifically, on page 8-43 of the Draft EIR, the following discussion is presented:

> If the on-site residences, which would be considered sensitive receptors, are occupied while the remainder of the site is being constructed, the future on-site sensitive receptors would be exposed to DPM associated with construction activities. According to AERMOD, a sensitive receptor standing on-site in the approximate location of the future residential areas as shown in **Error! Reference source not found.** during project construction would be exposed to maximum DPM concentrations as shown in **Error! Reference source not found.**. According to the table, the Mixed-Use Alternative would not cause exposure of sensitive receptors to substantial concentrations of construction-related DPM.

As discussed in further detail in Responses to Comments 45-18 and 45-47, the analysis of construction DPM emissions that was included in the Draft EIR for the proposed project, as well as for the Mixed-Use Alternative, was intended to provide a worst-case, conservative analysis. The analysis conducted for the Mixed-Use Alternative was even more conservative by assuming the hypothetical scenario that a sensitive receptor would be standing on-site during construction of the entire project, including construction of the residential uses.

Residential units within the Mixed-Use Alternative would be introduced starting in Phase 2 (see page 8-24 and Figure 8-10 of the Draft EIR). No residential units are proposed for Phase 1. Phase 2 is anticipated to comprise approximately 29 acres located south of the Mace Drainage Channel (MDC). Phase 2 includes the initial offering of up to 300 workforce housing units, designed to allow those individuals working at the center to live in close proximity to their jobs. The total office/commercial square footage for the second phase is projected to be 700,000 sf, including the proposed hotel/conference center, various research/office/R&D centered on the Oval park, and additional ancillary retail space. Phase 3 (70 acres) would include an additional 300 housing units, and 700,000 sf of building space, comprised of research/office/R&D and manufacturing/research uses. The roughly 70 acres developed in Phase 3 completes build-out south of the MDC and the center's core. Phase 4 (72 acres) is projected to include up to 250

residential units and approximately 714,000 sf of manufacturing/research and research/office/R&D uses.

Because the Mixed-Use Alternative, similar to the proposed project, is anticipated to be built out in phases and sensitive receptors would not be introduced to the site until Phase 2 is completed, the DPM concentrations resulting from buildout of the subsequent phases, which could potentially affect future on-site sensitive receptors, would be expected to be less than or equal to that presented in the Draft EIR. In addition, as stated on page 4.3-24 of the Draft EIR, the proposed project is required to comply with all YSAQMD rules and regulations for construction, including Rule 2.1 (Control of Emissions), Rule 2.28 (Cutback and Emulsified Asphalts), Rule 2.5 (Nuisance), Rule 2.14 (Architectural Coatings), and Rule 2.11 (Particulate Matter Concentration). In addition, all projects are required to implement best management practices to reduce dust emissions and avoid localized health impacts. Compliance with the aforementioned rules and regulations related to construction, as well as the best management practices for dust, would help to minimize emissions generated during construction activities.

In any event, evaluating the effects of project construction of future project residents may not be necessary in light of the recent California Supreme Court ruling on the *California Building Industry Association v. Bay Area Air Quality Management District*. In *California Building Industry Association v. Bay Area Air Quality Management District*, —P.3d —- (2015) 2015 WL 9166120, the Supreme Court granted limited review to the question: Under what circumstances, if any, does CEQA require an analysis of how existing environmental conditions will impact future residents or users (receptors) of a proposed project? In its opinion published on December 17, 2015, the Supreme Court found that CEQA does not provide "enough of a basis to suggest that the term 'environmental effects' . . . is meant, as a general matter, to encompass these broader considerations associated with the health and safety of a project's future residents or users." To relate this to the MRIC Mixed-Use Alternative, residents inhabiting the project site, whether during Phase 2, 3, or 4, could be considered "future residents or users", akin to the context of the Court's discussion on this matter.

The Supreme Court concluded that, with regard to impacts related to existing conditions, CEQA only requires an analysis of how existing conditions will impact future residents where the proposed project could exacerbate an environmental hazard that is already present. Here, there is no evidence, nor has the commenter pointed to any, that the DPM, noise impacts, and other construction-related impacts associated with the building out of Phases 3 and 4 would exacerbate any environmental hazards already present.

In addition, with regards to construction noise, construction noise related to the Mixed-Use Alternative was addressed on page 8-111 under Impact 8-56 of the Draft EIR. As discussed on page 8-114 of the Draft EIR, the proposed project's construction activities would be required to comply with the City's Noise Ordinance, which establishes allowable hours of operation and noise limits for construction activities. Specifically, Section 24, Article 24.02.040(b), of the City of Davis Municipal Code exempts construction operations during the hours of 7 AM to 7 PM Mondays through Fridays and between the hours of 8 AM to 8 PM Saturdays and Sundays assuming that the operations are authorized by valid city permit or business license. Compliance

with such would further ensure that construction noise impacts to future on-site residents associated with the Mixed-Use Alternative would be less than significant.

Response to Comment 45-32

In regard to schools, impacts related to schools were analyzed on page 8-132 of Chapter 8. As noted in the discussion, the Mixed-Use Alternative is expected to generate 339 to 384 additional students for the Davis Joint Unified School District (DJUSD). Under the provisions of SB 50, a project's impact on school facilities are fully mitigated via the payment of the requisite new school construction fees established pursuant to Government Code Section 65995. In addition, the DJUSD recognizes that parents/guardians of students who reside in one district may, for a variety of reasons, choose to enroll their child in a school in another district. DJUSD approves interdistrict transfer requests based upon space availability in the requested grade level at the requested school. If a parent/guardian of a student is employed in Davis a minimum of 10 hours per week, they are eligible for the transfer based upon parent/guardian employment. Should a new school be required in the future, it would be expected to be constructed within the urban area of the City of Davis and subject to its own CEQA review.

In regard to fire protection, the Fire Chief's statement was not referenced in the discussion regarding fire protection impacts resulting from the Mixed-Use Alternative. The discussion on page 8-131 of the Draft EIR is as follows:

> Impacts related to fire protection were determined to be less-than-significant for the proposed project. The Mixed-Use Alternative would result in an increased population of approximately 2,324 to 2,635 persons (using 3.1 persons per household). The Mixed-Use Alternative, similar to the proposed project, would be required to pay development impact fees for public safety services. In addition, similar to the proposed project, the Mixed-Use Alternative would need to be formally detached from the East Davis County Fire Protection District.
>
> Although the demand for fire protection services would increase due to the addition of residences in the area, the Mixed-Use Alternative would be anticipated to result in a ***less-than-significant*** impact given the close proximity of the nearest fire station and project's payment of impact fees.

Adequate fire protection resources are in place for the Davis Fire Department to serve the potential demand associated with the Mixed-Use Alternative; no physical impacts would occur as no new facilities are needed for the DFD to serve the Mixed-Use Alternative.

Response to Comment 45-33

Performance standards for mitigation measures are discussed in CEQA Guidelines Section 15126.4(B):

> Where several measures are available to mitigate an impact, each should be discussed and the basis for selecting a particular measure should be identified. Formulation of mitigation measures should not be deferred until some future time. However, measures

may specify performance standards which would mitigate the significant effect of the project and which may be accomplished in more than one specified way.

The applicable performance standards for each of the measures identified by the commenter are clarified below:

- Mitigation Measure 4.1-3: The measure includes performance standards and methods to achieve a "reasonable level" of light trespass and glare. Suggested methods include through the use of shielding, and directional lighting methods, including, but not limited to, fixture location and height. In addition, the lighting plan is required to comply with Chapter 6 of the Davis Municipal Code - Article 8: Outdoor Lighting Control. The Municipal Code contains, among other specific guidelines, definitions, detailed requirements, and approved materials and methods of installation.
- Mitigation Measure 4.4-4(b): this measure has been revised in this Final EIR, and is shown in Chapter 2. The word "may" has been changed to "shall."
- Mitigation Measures 4.5-1 and 4.5-2: Mitigation Measures 4.5-1 does not state that "future cultural studies may or may not produce 'sufficient data,'" as stated in the comment. Mitigation Measures 4.5-1 states that "If the evaluation determines that *the features do not have sufficient data* (emphasis added) potential to be eligible for the California Register (of Historical Resources), no additional work should be required." In addition, Mitigation Measures 4.5-1 includes suggested measures in order to avoid disturbance to resources associated with the William Seward Wright house and farm. It should be noted that if the eastern sewer alignment is ultimately selected for the MRIC, mitigation would not be required.
- Mitigation Measures 4.8-2(b) and 4.8-2(c): Mitigation Measure 4.8-2(b) requires soil sampling if debris is encountered within the former canal on the MRIC site during construction activities and the debris is associated with signs of soil staining or odors indicative of hazardous materials. Mitigation Measure 4.8-2(c) requires a soil sampling analysis and workplan for the Mace Triangle site.
- Mitigation Measure 4.9-1: the conceptual on-site drainage features are described on page 4.9-23 of the Draft EIR and shown conceptually in Figure 3-19 of the Project Description Chapter. Potential off-site drainage facilities are evaluated on page 4.9-29 and preliminarily sized in Section 4.9. Mitigation Measure 4.9-1 requires a design-level drainage report in recognition of the fact that the conceptual drainage system described in the Draft EIR will need to be refined once design plans are submitted for each phase of the project.
- Mitigation Measure 4.11-4: in response to the comment, Mitigation Measure 4.11-4 on page 4.11-29 has been revised as follows:

Mace Triangle

4.11-4 *In conjunction with the submittal of a final planned development and/or tentative map for the Mace Triangle, the applicant shall submit an acoustical analysis to the Department of Community Development and Sustainability. The acoustical analysis shall measure existing noise levels in the vicinity of the Mace Triangle site, as well as model the*

> *predicted noise levels for the scenarios determined to be appropriate by the certified noise consultant and the City of Davis Department of Community Development and Sustainability. The existing and predicted future exterior and interior noise levels shall account for any noise sources in the area, potentially including roadway, railway, and nearby outdoor uses. The acoustical analysis shall identify and classify the proposed uses in order to determine the appropriate noise level standards. If any uses identified in Table 19 of the General Plan Noise Chapter are proposed on-site, the acoustical analysis shall evaluate whether predicted transportation noise levels (traffic and train) would exceed the City of Davis' exterior and interior noise level criteria at such use areas. If the City's noise level criteria would be exceeded, the acoustical analysis shall include a detailed list of any noise attenuation measures needed for the proposed uses to comply with the City's exterior and interior noise level standards, for review and approval by the Department of Community Development and Sustainability. Noise attenuation measures could include but not be limited to: increased building setbacks, sound walls and/or berms, acoustically-rated windows, etc.*

Mitigation Measures 4.14-1 and 4.14-2: Mitigation Measure 4.14-1 indicates that the traffic signal for the Covell Boulevard/Monarch Lane intersection is not triggered by Phase 1. Mitigation Measure 4.14-2(a) will ensure that the timing for the signal installation will be identified prior to issuance of any building permits for subsequent development phases, and the signal is constructed prior to subsequent development being allowed to proceed. Mitigation measures 4.14-2(b) through (e) identify various improvement options for project impacts to intersections within the Mace Boulevard Interchange area. CEQA does not require the Draft EIR to select the preferred mitigation options.

- Mitigation Measure 4.14-5: the mitigation specifies possible measures that have proven successful in other neighborhoods, including, "narrow points, neighborhood traffic circles, speed humps, stop signs (where warranted), narrow lane striping, and others."
- Mitigation Measure 4.14-6(a): providing a list of options for a TDM program is a common approach and is not considered deferral. It is important to note that this TDM mitigation sets forth certain requirements such as,

    1. *Reduce trips to achieve one and five-tenths (1.5) Average Vehicle Ridership (AVR) in accordance with Davis Municipal Code Section 22.15.060; and*
    2. *Reduce daily and peak hour vehicle trips, as forecast for the project in this transportation impact assessment, by 10 percent for every project phase.*

- Mitigation Measure 4.14-9(b): this mitigation measure has been revised in this Final EIR to include the following third bullet:

    - *At or prior to commencement of construction of any building in Phase 2, the project applicant shall: 1) submit design-level drawings of the grade-separated crossing to the City for review and approval; and 2) provide the project's fair share funding to the City for this*

improvement (or alternatively construct the improvement) subject to agreement with the City. The grade-separated crossing shall be operational prior to construction of any building in Phase 2.

- Mitigation Measure 4.15-3: the potential physical environmental effects associated with the potential upsizing (e.g., installation of larger pipe) of the sewer pipes referenced in Mitigation Measure 4.15-3 have been evaluated throughout the appropriate sections of the Draft EIR. The monitoring of the sewer pipe capacity does not constitute deferral.
- Mitigation Measure 5-19: this cumulative impact to fire protection services is identified as cumulatively considerable and significant and unavoidable. Notwithstanding this, the City has required Mitigation Measure 5-19 so the applicant contributes the project's fair share toward mitigating this cumulative impact.
- Mitigation Measure 5-22: As noted on page 5-73 of Chapter 5, Cumulative Impacts, the CEQA Cumulative plus Project scenario assumes a significant level of new development in Davis, and the cumulative impacts to the five road segments are based on forecast volumes that would exceed capacities by approximately 10 to 20 percent (for most of the segments). The travel route management strategies included in Mitigation Measure 5-22 include a combination of monitoring and traffic management strategies as an alternative to widening roadways.
- Mitigation Measure 5-26(a): the performance standard for this mitigation measure is BOD loading capacity, which shall be verified prior to approval of improvement plans for each phase of development. The City has confirmed that any BOD loading capacity improvements to the WWTP could be accommodated within the existing disturbed footprint of the WWTP site.

Enforceability of the mitigation measures ultimately adopted by the City will occur in several ways, as anticipated in CEQA, including the following:

- Each of the mitigation measures will be adopted as conditions of approval for the project, if approved; and
- A Mitigation Monitoring and Reporting Program (MMRP) will be adopted for the project, if approved, which will contain additional specifications regarding compliance with each adopted mitigation measure.

Please see Master Response #4, Guarantees of Developer Performance.

Response to Comment 45-34

The Draft EIR assumes compliance with existing law. To reinforce Executive Order B-29-15; however, the City will include compliance with the landscape irrigation requirements of Executive Order B-29-15 as a condition of approval for the proposed project, if approved.

Response to Comment 45-35

The comment includes a summary of the specific issues identified throughout the letter and criteria for recirculation of an EIR. The specific issues identified throughout the letter are addressed in the responses to comments above.

Response to Comment 45-36

The comment includes a summary of the proposed project and a summarized statement of the conclusions made throughout the remainder of the letter. The specific issues identified throughout the letter are addressed in the responses to comments below.

Response to Comment 45-37

See Response to Comment 45-26 above.

Response to Comment 45-38

See Response to Comment 45-27 above.

Response to Comment 45-39

See Response to Comment 45-27 above.

Response to Comment 45-40

See Response to Comment 45-28 above.

Response to Comment 45-41

The comment provides a brief background discussion regarding default values within CalEEMod. The commenter suggests that a number of values input into CalEEMod for the proposed project were inconsistent with information disclosed in the Draft EIR. The commenter suggests that "an updated air quality and GHG assessment and an updated Draft EIR be prepared to adequately assess the impacts that construction and operation of the project will have on regional air quality and global climate change." The commenter's specific concerns are addressed in further detail in Responses to Comments 45-39 through 45-44 below.

Response to Comment 45-42

See Responses to Comments 45-12, 45-13, and 45-20 above.

Response to Comment 45-43

See Responses to Comments 45-15 and 45-20 above.

Response to Comment 45-44

The total VMT is a product of the number of vehicle trips and associated trip lengths. In order to apply the project-specific VMT data provided by Fehr & Peers, Inc., the trip lengths within the model were adjusted such that the total annual VMT would equate to the project-specific VMT (or as close to the project-specific annual VMT as possible using the model). As such, the trip lengths within the model (i.e., commercial-customer [C-C] trip length, commercial-work [C-W] trip length, and commercial-non-work [C-NW] trip length) were adjusted, as noted by the commenter, to reflect the project-specific annual VMT from Fehr & Peers, Inc. using the methodology discussed in Response to Comment 45-16 above.

Based on the project-specific daily VMT estimation of 196,000 provided by Fehr & Peers, Inc., the project-specific annual VMT was calculated to be 49,980,000 assuming the proposed project would only be in operation 255 days out of the year (based on 52 weeks out of the year, five days per week, and accounting for five federal holidays). As stated above, the vehicle trip lengths were then adjusted to reflect the project-specific annual VMT of 49,980,000. According to Fehr & Peers, Inc., both the number of vehicle trips and trip lengths vary based on the context and background assumptions. For example, the trip length varies depending on where the MRIC employee housing would be located. For the proposed project, Fehr & Peers, Inc. was directed to assume that the project would not displace any existing residents from local City housing; thus, the VMT assumed all MRIC employees would live outside of Davis.[38] As such, the longest trip length occurs related to the home to work trips (i.e., the C-W trip length in the model). Due to the concentrated employment center nature of the proposed project, the C-C and C-NW trip lengths were assumed to occur within a closer distance (primarily from within the City or nearby areas).

The trip length inputs and VMT applied for the proposed project that the commenter specifically calls out are associated with the mitigated annual VMT, which accounts for the required reduction of vehicle trips by 10 percent associated with implementation of Mitigation Measure 4.14-6(a), as stated on page 4.3-26 of the Draft EIR. Implementation of Mitigation Measure 4.14-6(a) would result in a 10 percent reduction from the project-specific annual VMT, which would result in an annual VMT of 44,982,000. Applying trip length adjustments in CalEEMod sufficient to result in the exact desired annual VMT is difficult. With the adjusted C-C, C-W, and C-NW trip lengths applied in CalEEMod in accordance with the methodology described above, the resultant project-specific annual mitigated VMT, as shown in the CalEEMod outputs for the mitigated scenario and stated in the comment, is 44,987,351. Although the trip lengths in CalEEMod could not be adjusted such that the exact estimated mitigated VMT of 44,982,000 could be reflected, the resultant annual VMT of 44,987,351 is as close as possible using CalEEMod while still remaining conservative. By assuming a slightly higher annual VMT than estimated for the proposed project, one could argue that the proposed project's mobile emissions were slightly overestimated, as opposed to the commenter's claim (per Comment 45-42) that "emissions from mobile sources were greatly underestimated."

[38] Fehr & Peers. Personal communication with Bob Grandy, Principal. February 6, 2015.

Response to Comment 45-45

Please see Responses to Comments 45-16 and 45-42 above.

Response to Comment 45-46

Please see Response to Comment 45-20 above. It is noted that the commenter's CalEEMod output attachments are included as Appendix G to this Final EIR. The commenter presents the parameters used in their "updated" modeling chosen in an effort to "more accurately reflect" the project criteria. As discussed throughout the responses to comments received in Letter 45, the Draft EIR analysis accounted for the most accurate and available project-specific data.

Contrary to the land use inputs identified by the commenter, CalEEMod does not have an "Open Space" land use option and, as discussed in Response to Comment 45-13, open space or areas not to be graded should not be applied in the model, as such uses would not involve paving, building construction, architectural coating emissions, or operational emissions. According to the CalEEMod output attachments provided by the commenter, the "Open Space" land use was applied as a "User Defined Recreational" land use. According to page 15 of the CalEEMod User's Guide, "there is no default data (including size metric) associated with the "User Defined" land uses and all information that is based on these land uses will need to be entered by the user otherwise no emissions will be calculated." The CalEEMod output attachments provided by the commenter do not indicate that any default values were adjusted for the "User Defined Recreational" land use. As such, by applying a "User Defined Recreational" land use in the model and not entering any data for that land use, no emissions were calculated associated with the "User Defined Recreational" land use, which is essentially the same as not applying the open space land use in CalEEMod at all and is a superfluous change to the modeling.

Although the number of parking spaces and the total parking lot area is conceptual at this time, as stated in Response to Comment 45-13, the parking lot acreage to be disturbed would not equate to 80.3 acres, as 12.6 acres would be dedicated to landscaping. As such, with regard to the parking lot acreage input parameter noted by the commenter, the lot acreage that should be applied to the parking lot land use in CalEEMod is 67.7 acres, rather than 80.3 acres.

In addition, as discussed in Responses to Comments 45-16 and 45-44 regarding operational vehicle trip lengths, the trip lengths used in the Draft EIR analysis are project-specific and based on data provided by the traffic consultant for the project. As such, the "updated" modeling provided by the commenter that relies on the CalEEMod default trip lengths would not be most representative of the proposed project or the most accurate data available.

As presented in Response to Comment 45-20, the project's modeling has been revised to include the parking lot areas and the "Transit Plaza" as separate land use line items within CalEEMod (as discussed in detail in Response to Comment 45-13), as well as to include the off-site improvements, including soil hauling trips. As such, the revisions to the project's modeling and resultant revisions to the Draft EIR text included in this Final EIR represent the most accurate and project-specific data; and it has been determined that no changes to the Draft EIR conclusions would result with respect to air quality emissions. Response to Comment 45-20 also

notes that this Final EIR has revised Mitigation Measure 4.3-2 to require the project applicant to work with the City of Davis and YSAQMD to develop an off-site mitigation strategy aimed at further reducing the project's operational criteria pollutant emissions below the District's thresholds of significance to the greatest extent feasible. Please see Response to Comment 31-6.

The project's GHG modeling has also been revised to include the parking lot areas and the "Transit Plaza" as separate land use line items within CalEEMod (as discussed in detail in Response to Comment 45-13), as well as to include the off-site improvements, including soil hauling trips. The GHG modeling was revised using the same assumptions and methodology as discussed in Response to Comment 45-20. In addition, since release of the Draft EIR the CO_2, CH_4, and N_2O intensity factors within CalEEMod were slightly adjusted, based on updated information available from PG&E, to more accurately reflect PG&E's progress towards the State Renewable Portfolio Standard (RPS) goal by 2035. As a result of the revised modeling, the list of construction GHG emissions analysis assumptions on page 4.7-23 of the Draft EIR is hereby revised as follows:

> Thus, the following assumptions were made for the project construction modeling:
>
> - Demolition would not be required;
> - Construction was assumed to commence in July 2017;
> - Construction was assumed to occur continuously over the construction period in order to provide a conservative estimate;
> - In order to be consistent with the buildout assumptions utilized by the traffic consultant, the project was assumed to be fully operational by 2035 (i.e., construction was assumed to occur over an 18-year period);
> - Construction phase durations (i.e., site preparation, grading, building construction, and architectural coating phases) were modified to reflect an 18-year construction period; ~~and~~
> - A total of ~~224.42~~ 315.42 acres would be disturbed during the grading phase~~.~~;[32] and
> - 130,000 cubic yards of soil was assumed to be required to be exported in association with the off-site detention basin to a site located two miles from the, off-site detention basin location; and
> - Approximately 10,833 soil haul truck trips would be required for the soil exportation.

The last sentence of the second paragraph under Impact 4.7-1 on page 4.7-25 of the Draft EIR is hereby revised as follows:

> According to CalEEMod, the proposed project would result in maximum annual construction-related GHG emissions of ~~2,860.82~~ 5,934.85 $MTCO_2e$/yr.

As shown in the revised text above, the unmitigated construction-related GHG emissions would increase from what was presented in the Draft EIR. However, as described on page 4.7-25 of the Draft EIR:

> Construction GHG emissions are a one-time release and are typically considered separate from operational emissions, as global climate change is inherently a cumulative effect that occurs over a long period of time and is quantified on a yearly basis. However, the proposed project's construction GHG emissions have been amortized over the total estimated duration of construction, which is anticipated to occur over an 18-year span, and included in the total annual operational GHG emissions for disclosure purposes. Assuming that construction-related GHG emissions would continue to occur each year after construction is complete would represent a conservative estimation of annual GHG emissions.

In addition, as shown in the revisions below, when amortized over the 18-year construction period and added to the operational emissions estimated for the project, the increase in construction-related GHG emissions would not represent a substantial increase in the total annual GHG emissions (i.e., the total annual GHG emissions would only increase 29.73 $MTCO_2e$/yr from what was presented in the Draft EIR as a result of the revisions per this Final EIR). Accordingly, the increase in construction-related GHG emissions would not be considered a substantial increase in the severity of an impact identified in the Draft EIR.

The last paragraph on page 4.7-25, as well as Table 4.7-3 on page 4.7-26, of the Draft EIR is hereby revised as follows:

> Based on the current GHG emissions associated with the site and the estimated future emissions at buildout of the site per the proposed project, the total net new emissions that would be generated by the proposed project would be 25,805.35 ~~775.62~~ $MTCO_2e$/yr (26,073.04 ~~43.31~~ – 267.69 = 25,805.35 ~~775.62~~). Therefore, the proposed project would result in a substantial net increase in GHG emissions currently emanating from the project site. This is considered a ***significant*** impact on the environment.

Table 4.7-3
Unmitigated Proposed Project GHG Emissions at Buildout (2035)

Emission Source	Annual GHG Emissions ($MTCO_2e$/yr)
Construction Emissions[1]	**~~158.93~~ 329.71**
Operational Emissions	**25,743.33 ~~884.38~~**
Area	~~0.05~~ 0.21
Energy	4,382.26 ~~440.53~~
Mobile	19,269.71~~84~~
Solid Waste	649.59
Water	1,441.56 ~~524.36~~
TOTAL ANNUAL GHG EMISSIONS	**26,073.04 ~~43.31~~**

[1] Amortized maximum annual construction emissions (~~2,860.82~~ 5,934.85 $MTCO_2e$) over an estimated 18-year construction period for the project (~~2,860.82~~ 5,934.85 $MTCO_2e$ / 18 years = ~~158.93~~ 329.71 $MTCO_2e$/yr).

Source: CalEEMod, ~~July~~ December 2015 ~~(see Appendix E)~~.

Table 4.7-4 on page 4.7-26 of the Draft EIR is also hereby revised as follows:

Table 4.7-4
Proposed Project Mitigated GHG Emissions at Buildout (2035)[1]

Emission Source	Annual GHG Emissions ($MTCO_2e$/yr)
Construction Emissions[2]	**~~158.93~~ 329.71**
Operational Emissions	**23,899.03 ~~24,039.93~~**
Area	0.21 ~~0.05~~
Energy	4,382.26 ~~440.53~~
Mobile	17,425.40
Solid Waste	649.59
Water	1,441.56 ~~524.36~~
TOTAL ANNUAL GHG EMISSIONS	**24,228.74 ~~198.86~~**

[1] Includes implementation of Mitigation Measures 4.3-2 and 4.14-6 of this EIR.
[2] Amortized maximum annual construction emissions (~~2,860.82~~ 5,934.85 $MTCO_2e$) over an estimated 18-year construction period for the project (~~2,860.82~~ 5,934.85 $MTCO_2e$ / 18 years = ~~158.93~~ 329.71 $MTCO_2e$/yr).

Source: CalEEMod, ~~July~~ December 2015 ~~(see Appendix E)~~.

As shown in the revised tables above, the total annual GHG emissions would increase from what was presented in the Draft EIR. As described on page 4.7-26 of the Draft EIR, Mitigation Measures 4.3-2 and 4.14-6 would help to further reduce the proposed project's operational GHG emissions; however, the reduction would not be sufficient to reach existing GHG emission levels emanating from on-site agricultural operations, and the impact would remain significant and unavoidable. The revised modeling would not alter the conclusion for Impact 4.7-1 within the Draft EIR, or cause any new significant environmental impacts or a substantial increase in the severity of any environmental impacts. In addition, in a further effort to help reduce mobile emissions, which would also help to reduce mobile GHG emissions, Mitigation Measure 4.3-2 has been revised in this Final EIR to require electrical vehicle charging stations throughout each phase of development (see Response to Comment 25-8) and to require the project applicant to work with the City of Davis and YSAQMD to develop and off-site mitigation strategy aimed at further reducing the project's operational criteria pollutant emissions below the District's thresholds of significance (see Response to Comment 31-6).

The third paragraph under Impact 4.7-2 on page 4.7-27 of the Draft EIR is hereby revised as follows:

> As discussed above, the proposed project would result in maximum annual construction-related GHG emissions of ~~2,860.82~~ 5,934.85 $MTCO_2e$/yr, which would exceed the recommended 1,100 $MTCO_2e$/yr threshold of significance. In addition, as shown in Table 4.7-3 above, the proposed project's operational GHG emissions would exceed the recommended 1,100 MTCO2e/yr threshold of significance. Seventy-four percent of unmitigated operational emissions are estimated to be from mobile sources generated by the proposed project. Because both the proposed project's construction-related GHG emissions and operational GHG emissions were estimated to exceed YSAQMD's recommended GHG threshold of 1,100 $MTCO_2e$/yr, further analysis in comparison with State and/or local GHG emission reduction targets is conducted in the following section.

Table 4.7-5 on page 4.7-28 and the paragraphs following the table are hereby revised as follows:

Table 4.7-5
Proposed Project GHG Emissions at 1990 Levels

Emission Source	Annual GHG Emissions ($MTCO_2e$/yr)
Construction Emissions[1]	**~~158.93~~ 329.71**
Operational Emissions	**43,426.20 ~~41,961.33~~**
Area	0.28 ~~0.07~~
Energy	11,989.28 ~~10,524.42~~
Mobile	28,010.34 ~~54~~
Solid Waste	649.59
Water	2,776.70
TOTAL ANNUAL GHG EMISSIONS	**43,755.91 ~~42,120.26~~**

[1] Amortized maximum annual construction emissions (~~2,860.82~~ 5,934.85 $MTCO_2e$) over an estimated 18-year construction period for the project (~~2,860.82~~ 5,934.85 $MTCO_2e$ / 18 years = ~~158.93~~ 329.71 $MTCO_2e$/yr).

Source: CalEEMod, ~~July~~ December 2015 ~~(see Appendix E)~~.

The proposed project would result in approximately a ~~38.17~~ 40.41 percent reduction in annual GHG emissions from 1990 levels by buildout (2035) ([43,755.91 ~~42,120.26~~ $MTCO_2e$/yr – 26,073.04 ~~43.31~~ $MTCO_2e$/yr] / 43,755.91 ~~42,120.26~~ $MTCO_2e$/yr x 100% = 40.41 ~~38.17~~%). The reduction in GHG emissions is primarily attributable to the continued advancement of vehicle and equipment efficiency, as well as more stringent standards and regulations as time progresses.

Using the downward trajectory of GHG emissions from the project from 1990 levels to 2035 levels, approximately ~~357.27~~ 392.95 $MTCO_2e$ of GHG emissions would be reduced per year ([43,755.91 ~~42,120.26~~ $MTCO_2e$/yr – 26,073.04 ~~43.31~~ $MTCO_2e$/yr] / [2035 – 1990]), or approximately ~~0.85~~ 0.90 percent per year (~~38.17~~ 40.41% / [2035 – 1990]). Based on the estimated ~~0.85~~ 0.90 percent reduction per year from 1990 to 2035, the proposed project would have an associated 2020 GHG emission level of ~~25.42~~ 27 percent below 1990 levels, which would meet the State AB 32 goal and Davis CAAP minimum goal of 1990 levels by 2020, but would not meet the Davis CAAP 2020 desired target of 28 percent below 1990 levels. At 2030 GHG emission levels, a GHG emissions reduction of approximately ~~33.92~~ 36 percent below 1990 levels would occur, which does not meet the State's goal of 40 percent below 1990 levels by 2030.

The discussion under Mitigation Measure(s) for Impact 4.7-2, beginning on page 4.7-29, is hereby revised as follows:

Mitigation Measure(s)

As shown above, implementation of Mitigation Measures 4.3-2 and 4.14-6 of this EIR, which requires the use of only zero-VOC paints and solvents and a 10 percent reduction in VMT, would reduce the proposed project's total annual GHG emissions to 24,228.74 ~~198.86~~ $MTCO_2e$/yr as shown in Table 4.7-4. Using the mitigated GHG emissions in comparison with the proposed project's 1990 level GHG emissions, an estimated ~~42.55~~ 44.63 percent reduction from 1990 levels by 2035 would occur, which results in a downward trajectory in GHG emissions of approximately ~~0.95~~ 0.99 percent per year.

Based on the estimated ~~0.95~~ 0.99 percent reduction per year from 1990 to 2035, an associated 2020 GHG emission reduction of ~~28.30~~ 29.7 percent below 1990 levels would be expected, which would meet the Davis CAAP desired target of 28 percent below 1990 levels by 2020. However, at 2030 GHG emission levels, a GHG emissions reduction of approximately ~~37.80~~ 39.6 percent below 1990 levels would occur, which does not meet the State's goal of 40 percent below 1990 levels by 2030. An accurate prediction of 2050 emissions is not possible for reasons discussed above.

Mitigation Measures 4.7-2(a) and (b) below have been prepared to be consistent with the intent of the statewide and City's CAAP goals, which require GHG emission reductions by a greater, increasing percentage over time. With implementation of Mitigation Measure 4.7-2(a) below, the proposed project would result in an additional ~~2.2~~ 0.4 percent reduction from 1990 levels by the year 2030 (i.e., from ~~37.80~~ 39.6 to 40 percent reduction below 1990 levels), which would meet the State's goal of 40 percent below 1990 levels by 2030.[34] As such, the mitigation measures set forth in this EIR would ensure that the proposed project would meet the State's 2020 and 2030 GHG emission reduction goals, and would demonstrate meaningful progress towards the City's 2020, 2040, and 2050 desired targets (see Table 4.7-6). In addition, it is assumed that the State and the City will continue to develop programs for the reduction of local, regional, and statewide GHG emissions in order to meet GHG emission reduction goals per State and City standards and regulations. Thus, net future reductions in city-wide GHG emissions (including the proposed project) would be expected to potentially meet the 2050 State and local goals.

Although future regulations that may be in place in the year 2050 could substantially reduce project emissions at that time, such regulations are currently unknown and cannot be reasonably predicted or quantified. Due to such regulatory uncertainties, as well as uncertainties related to the actual buildout of the proposed project and potential GHG emissions reductions due to sustainability features of the project, the full GHG reductions associated with such are speculative at this time. For this reason, and because the proposed project's GHG emissions cannot be conclusively shown to be reduced to net zero by 2050, the impact would remain *significant and unavoidable*.

Table 4.7-6
Consistency of Proposed Project (Mitigated) GHG Emissions with State and Local Targets (2020 and 2030)

Year	State Reduction Target (City Minimum)	City Reduction Target (Desired)	Project Emissions w/ MMs 4.3-2 and 4.14-6	Project Emissions w/ MM 4.7-2(a)	Consistent with State Target? (City minimum)		Consistent with City Target? (Desired)	
					w/ MMs 4.3-2 and 4.14-6	w/ MM 4.7-2(a)	w/ MMs 4.3-2 and 4.14-6	w/ MM 4.7-2(a)
2020	1990 levels	28% below 1990	~~28.3~~ 29.7% below 1990	~~28.3~~ 29.7% below 1990	Yes	Yes	Yes	Yes
2030	40% below 1990 levels	N/A	~~37.8~~ 39.6% below 1990	40.0 % below 1990	No	Yes	N/A	N/A
2040	N/A	80% below 1990	While project-specific calculations have not been provided for 2040 due to difficulties discussed in this section, this EIR demonstrates that meaningful progress towards the City's 2040 desired target would be achieved by the increasingly higher reduction percentages required in MM 4.7-2(a).[1]					
2050	80% below 1990	carbon neutral	While project-specific calculations have not been provided for 2050 due to difficulties discussed in this section, this EIR demonstrates that meaningful progress towards the State's and City's 2050 targets would be achieved by the increasingly higher reduction percentages required in MM 4.7-2(a).					

[1] It is speculative to predict the impact of legislation and policy that has yet to come; therefore, an accurate prediction of 2040 and 2050 emissions is also speculative at this time. The regulatory environment associated with climate change is becoming more stringent and technological advancements for the reduction of GHG emissions are ever-evolving. Accordingly, the future regulations that may be in place in the years 2040 and 2050 could substantially reduce project emissions at that time, but are currently unknown and cannot be reasonably predicted or quantified. Furthermore, based upon market absorption projections, the proposed project can reasonably be assumed to build out by 2035, which equates to an annual buildout of 140,000 to 150,000 square feet of innovation center uses.

As shown in the revisions above, the total annual GHG emissions would increase from what was presented in the Draft EIR. As described on page 4.7-29 of the Draft EIR, Mitigation Measures 4.3-2 and 4.14-6 would help to further reduce the proposed project's total GHG emissions, and Mitigation Measures 4.7-2(a) and (b) require additional GHG reductions in an effort to be consistent with the intent of the statewide and City's CAAP goals. In addition, in a further effort to help reduce mobile emissions, which would also help to reduce mobile GHG emissions, Mitigation Measure 4.3-2 has been revised in this Final EIR to require electrical vehicle charging stations throughout each phase of development (see Response to Comment 25-8) and to require the project applicant to work with the City of Davis and YSAQMD to develop and off-site mitigation strategy aimed at further reducing the project's operational criteria pollutant emissions below the District's thresholds of significance (see Response to Comment 31-6). Nonetheless, as further described on page 4.7-30 of the Draft EIR, due to regulatory uncertainties, as well as uncertainties related to the actual buildout of the proposed project and potential GHG emissions reductions due to sustainability features of the project, the full GHG reductions associated with such are speculative at this time. For this reason, and because the proposed project's GHG emissions cannot be conclusively shown to be reduced to net zero by 2050, the impact would remain significant and unavoidable. The revised modeling would not alter the conclusion for Impact 4.7-2 within the Draft EIR, or cause any new significant environmental impacts or a substantial increase in the severity of any environmental impacts.

All of the CalEEMod outputs for the revised modeling are included as Appendix F to this Final EIR. As shown in the revised Draft EIR text and described above, the revised modeling would not alter any of the conclusions identified in Section 4.7 of the Draft EIR, would not create any new significant environmental impacts, or substantially increase the severity of any environmental impacts.

Response to Comment 45-47

Please see Responses to Comments 45-17 and 45-18. In response to the comment, a further detailed analysis has been conducted to identify the cancer risks at the nearest sensitive receptors due to project construction-related DPM emissions. The YSAQMD's thresholds of significance of contracting cancer for the Maximally Exposed Individual (MEI) equal to 10 in one million persons or more, or a ground-level concentration of non-carcinogenic TACs that would result in a Hazard Index (HI) equal to or greater than 1 for the MEI, is for a new stationary source, not mobile TAC emissions. In absence of a threshold for mobile-related TAC emissions, specifically DPM emissions, for the additional analysis, a substantial increase in lifetime cancer risk associated with mobile source TAC emissions is considered to be similar to that as for stationary source emissions of TACs.

As discussed in Response to Comment 45-18 above, and as stated on page 4.3-21 of the Draft EIR, out of lack of guidance from the YSAQMD, and in the absence of a threshold for mobile-related TAC emissions, the SMAQMD's methodology for dispersion modeling and concentration-based threshold for PM_{10} (which accounts for exhaust and fugitive dust PM_{10} emissions) was used for the Draft EIR analysis. Utilizing SMAQMD's methodology, the project's total construction-related PM_{10} emissions were assumed to be entirely inclusive of DPM emissions. However, diesel engine exhaust emissions, or DPM emissions, are made up of

various sizes of particulate matter all contributing towards respirable particulate matter (PM_{10}), primarily consisting of fine particulate matter ($PM_{2.5}$), including ultrafine particulate matter and nanoparticles. DPM emissions make up only a small portion of total PM_{10} emissions. The exhaust PM_{10} emissions calculated by CalEEMod are based on a number of construction-related sources that would not result in particulate matter emissions made up of solely exhaust DPM emissions. For example, emissions related to on-road mobile equipment and vehicles associated with workers, vendors, and hauling would not consist of only diesel-fueled equipment or vehicles, as the worker vehicles trips cannot be reasonably assumed to consist of only diesel-fueled vehicles. In addition, the fugitive dust PM_{10} emissions calculated by CalEEMod include fugitive dust associated with site preparation, grading, unpaved roadways, etc., which would not involve any DPM emissions. Although a portion of the proposed project's total construction PM_{10} emissions would be attributable to diesel engine exhaust, assuming the total construction PM_{10} emissions (exhaust + fugitive dust) from CalEEMod are entirely inclusive of DPM results in a highly conservative and worst-case estimate for DPM. The analysis within the Draft EIR was prepared in accordance with SMAQMD's methodology for dispersion modeling and concentration-based threshold for PM_{10}; and the analysis was not intended to be used for HRA purposes.

In order to further support the conclusion within the Draft EIR and to respond to this comment, HRA calculations for the proposed project were conducted using the threshold of significance of an increase in cancer risk of 10 in one million persons to more accurately represent the proposed project's construction-related DPM concentrations at the nearest sensitive receptor. For the reasons described above, the proposed project's exhaust $PM_{2.5}$ emissions would most accurately represent the construction DPM emissions, while maintaining a conservative estimate, as DPM emissions are still only a portion of the total exhaust $PM_{2.5}$ emissions. In addition, the paragraph under "Sensitive Receptors" beginning on page 4.3-12 of the Draft EIR, and any subsequent reference to the nearest sensitive receptor, is hereby revised as follows:

> Some land uses are considered more sensitive to air pollution than others, due to the types of population groups or activities involved. Heightened sensitivity may be caused by health problems, proximity to the emissions source, and/or duration of exposure to air pollutants. Children, pregnant women, the elderly, and those with existing health problems are especially vulnerable to the effects of air pollution. Accordingly, land uses that are typically considered to be sensitive receptors include residences, schools, childcare centers, playgrounds, retirement homes, convalescent homes, hospitals, and medical clinics. The existing nearby multi-family residences, located approximately 660 feet to the west of the site, would be considered the nearest residential sensitive receptors to the site. The nearest existing schools, which would be considered ~~a~~ sensitive receptors, to the project site ~~is~~ are the University Covenant Nursery School, which is located approximately 0.06-mile west of the project site, and the Frances Harper Junior High School, which is located over 1,550 feet from the western ~~of the~~ border of the project site.

In addition, the paragraph below "Construction-Related DPM Emissions" on the bottom of page 4.3-21 of the Draft EIR is hereby revised as follows:

> The proposed project's construction-related DPM ~~PM_{10}~~ concentrations at the nearest sensitive receptors were estimated using the American Meteorological

> Society/Environmental Protection Agency (EPA) Regulatory Model (AERMOD) dispersion model. As the YSAQMD does not have specific guidelines for dispersion modeling for construction-related DPM ~~PM_{10}~~ emissions, the modeling for the proposed project was performed in accordance with the 2015 Office of Environmental Health Hazard Assessment (OEHHA) Guidance Manual for Preparation of Health Risk Assessments and the SMAQMD's *Dispersion Modeling of Construction-Generated PM_{10} Emissions*.[18] Per the SMAQMD's *Dispersion Modeling of Construction-Generated PM_{10} Emissions*, ~~two~~ a set~~s~~ of multiple volume sources ~~(one set representing ground level sources to characterize fugitive PM_{10} dust emissions and one set of elevated sources~~ to represent PM_{10}~~2.5~~ exhaust emissions generated by construction equipment~~)~~ were modeled with ~~the~~ input parameters consistent with the recommendations per the OEHHA and SMAQMD. The resultant maximum concentration that would occur at the nearest sensitive receptor~~s~~ was applied to the CARB's HARP 2 Risk Assessment Standalone Tool, which calculates the cancer and non-cancer health impacts using the risk assessment guidelines in the 2015 OEHHA Guidance Manual. The resultant cancer and non-cancer health risks were compared to the YSAQMD's threshold of significance for a new stationary source of contracting cancer for the Maximally Exposed Individual (MEI) equal to 10 in one million persons or more, or a ground-level concentration of non-carcinogenic TACs that would result in a Hazard Index (HI) equal to or greater than 1 for the MEI. ~~CAAQS for PM_{10}, which, as stated previously, is the maximum amount of a pollutant that can be present in outdoor air without harm to public health. In addition, the SMAQMD considers the CAAQS the concentration based threshold of significance for construction related PM_{10} emissions. The AERMOD modeling results are included in Appendix C to this EIR.~~

According to the OEHHA Guidance Manual, for residential inhalation exposure, cancer risk must be separately calculated for specified age groups, because of age differences in sensitivity to carcinogens and age differences in intake rates. The cancer risks for individual age groups are summed to estimate cancer risks for the 9-, 30-, or 70-year exposure period. [39] As presented in Response to Comment 45-17 above, the OEHHA recommends that the exposure period for short-term projects (i.e., construction activities) lasting more than six months be evaluated for the duration of the project, which is assumed to be 18 years for the proposed project. The OEHHA also recommends that the fraction of time spent at home be used for a residential receptor based on the assumption that exposure at nearby residences is not occurring away from home. However, if a school is located in the vicinity, the fraction of time at residence should be applied as 100 percent for ages less than 16 years (for worst-case analysis), based on the assumption that children living near the project site are still exposed to associated pollutant concentrations if they attend nearby schools. The eight-hour breathing rates option within the CARB's HARP 2 Risk Assessment Standalone Tool was applied to reflect that exposures would only occur during construction activities,[40] which are limited to a maximum of 12 hours per day, pursuant to the City of Davis Noise Ordinance (see the second bullet on page 4.11-13 of the

[39] Office of Environmental Health Hazard Assessment. *Air Toxics Hot Spots Program Risk Assessment Guidelines, Guidance Manual for Preparation of Health Risk Assessments* [pg. 8-8]. February 2015.

[40] California Air Resources Board. *User Manual for the Hotspots Analysis and Reporting Program Health Risk Assessment Standalone Tool, Version 2* [pg. 42]. March 17, 2015.

Draft EIR). The AERMOD inputs were adjusted to reflect the same (i.e., the fact that emissions would only occur during the hours limited by the City's Noise Ordinance).

Based on the revised AERMOD analysis and using the CARB's HARP 2 Risk Assessment Standalone Tool, the proposed project's associated cancer risk to the nearest sensitive receptor was calculated, and the second to last paragraph on page 4.3-33 of the Draft EIR through the first paragraph on page 4.3-34 of the Draft EIR is hereby revised as follows:

> Considering the intermittent nature of construction equipment operating within an influential distance to the nearest sensitive receptors, the duration of construction activities in comparison to the operational lifetime of the project, and the typical long-term exposure periods associated with conducting health risk assessment, the likelihood that any one sensitive receptor would be exposed to high concentrations of DPM for any extended period of time would be low. Nonetheless, to ensure concentrations of DPM would not cause an increase in cancer risks that would exceed the applicable threshold of significance of 10 in one million persons or more, or result in a ground-level concentration that would result in a HI equal to or greater than 1, ~~established CAAQS for PM_{10} emissions, which, as stated previously, is the maximum amount of a pollutant that can be present in outdoor air without harm to public health,~~ dispersion modeling was performed using AERMOD for the proposed project's construction-related PM_{10}~~2.5~~ emissions. The AERMOD results were applied to the CARB's HARP 2 Risk Assessment Standalone Tool in order to obtain an estimate for the cancer and non-cancer health risks.
>
> According to ~~T~~the AERMOD results, ~~are presented in Table 4.3-1. As shown in the table,~~ the average ~~highest 24-hour average~~ concentration of PM_{10}~~2.5~~ associated with construction of the proposed project at a nearby sensitive receptor was estimated to be ~~6.93~~ 0.0076µg/m^3, ~~which is below the 24-hour CAAQS of 50 µg/m^3 for PM_{10} emissions. It should be noted that~~ and the highest ~~annual~~ one-hour ~~average~~ concentration of PM_{10}~~2.5~~ associated with project construction at a nearby sensitive receptor was estimated ~~using AERMOD~~ to be ~~1.17~~ 1.05 µg/m^3, ~~which is below the annual average CAAQS of 20 µg/m^3 for PM_{10} emissions. Because the project's construction-related concentrations of PM_{10} would be below the CAAQS, and health risks associated with exposure to DPM or any TAC are correlated with high concentrations over a long period of exposure (e.g., over a 70-year lifetime),~~ Applying the concentration results from AERMOD to the CARB's HARP 2 Risk Assessment Standalone Tool, assuming an 18-year exposure period to the MEI (i.e., beginning during the 3rd trimester of pregnancy), OEHHA recommended inputs for the fraction of time at home, eight-hour breathing rates, and the cancer potency factor for DPM, the proposed project would result in a total cancer risk of 5.35 in one million associated with the construction activities, which is less than the applicable threshold of significance of 10 in one million persons or more. In addition, an HI of 0.0015 would result, which is less than 1.0 threshold of significance. Therefore, the temporary, intermittent construction-related DPM emissions would not ~~be expected to~~ cause ~~any~~ health risks to any nearby sensitive receptors in excess of the applicable thresholds of significance. As such, project construction would not be ~~expected~~ considered to expose sensitive receptors to substantial concentrations of DPM.

~~Table 4.3-1~~ ~~Maximum Construction-Related DPM Concentration at Nearest Sensitive Receptor~~		
	~~DPM Concentration ($\mu g/m^3$)~~	~~Threshold of Significance ($\mu g/m^3$)~~
~~24-Hour Average~~	~~6.93~~	~~50~~
~~Annual Average~~	~~1.17~~	~~20~~
~~*Source: AERMOD, July 2015.*~~		

It should be noted that, as described in detail in Response to Comment 45-19 above, the construction period is speculative at this time and the emission estimates presented in Response to Comment 45-20 above represent conservative estimates of construction-related emissions. As such, the construction-related cancer risk estimates presented above would be considered conservative as well.

The revised AERMOD outputs and HARP 2 Risk Assessment Standalone Tool outputs are included as Appendix H to this Final EIR. Based on the above, the conclusion within the Draft EIR for Impact 4.3-3 beginning on page 4.3-28 of the Draft EIR would not be altered, and new significant environmental impacts or a substantial increase in the severity of environmental impacts would not occur.

Response to Comment 45-48

The comment provides the authors' signatures and qualifications. No response is necessary.

Response to Comment 45-49

The comment provides the authors' experience and qualifications. No response is necessary. It is noted that the commenter's attachments are included as Appendix G to this Final EIR.

Response to Comment 45-50

Please see Responses to Comments 33-17, 35-2, and 35-3 regarding the number and adequacy of site surveys, a discussion of known burrowing owl records and locations, as well as mitigation for potential impacts to burrowing owl.

Chapter 3, Project Description, of the Draft EIR explains that MRIC is anticipated to build out in four phases. Mitigation Measures 4.4-4(a) and 4.4-4(c) require each phase to conduct an updated survey to determine if burrowing owls have occupied the site. Mitigation Measures 4.4-4(b) and 4.4-4(d) require compensatory mitigation for each phase which would result in any impact to new burrowing owl colonizing the project site after adoption of the CEQA document. The surveys and the compensatory mitigation are consistent with the CDFW *Staff Report on Burrowing Owl Mitigation Guidelines* (2012).

Response to Comment 45-51

Please see Responses to Comments 33-17, 35-2, 35-3 and 35-4 regarding the number and adequacy of site surveys, and a discussion of known burrowing owl records and locations, as well as mitigation for potential impacts to burrowing owl.

Mitigation Measures 4.4-4(a) and 4.4-4(b) includes provisions that state "*For burrowing owls present on-site, outside of the nesting season, passive exclusion of owls from the burrows could be utilized with the approval of CDFW. Advance planning with CDFW would be necessary prior to the initiation of the take avoidance survey to plan for contingencies in the event that owls are present on-site*" [emphasis added]. Mitigation Measures 4.4-4(a) and 4.4-4(b) adequately discuss the possibility of passive relocation and require CDFW coordination and approval prior to implementation. Appendix E of the CDFW *Staff Report on Burrowing Owl Mitigation Guidelines* (2012) lists the requirements of exclusion plans. The applicant would prepare an exclusion plan consistent with Appendix E for CDFW approval prior to implementation.

Response to Comment 45-52

The commenter questions the City's determination that impacts to Swainson's hawk are significant and unavoidable, and suggests that higher mitigation ratios might permit the City to reduce the impact to a less-than-significant level. For reasons explained in more detail in the Master Response #8 on Swainson's hawk, the City believes that the current mitigation ratios of "one to one" (see Mitigation Measure 4.4-5(b)) are sufficient, as they are consistent with the "Swainson's Hawk Interim Mitigation Program". The Yolo County HCP/NCCP Joint Powers Agency (JPA), in which the City of Davis participates, and the California Department of Fish and Wildlife established these ratios in the 2002 Memorandum of Understanding. The JPA requires urban development permittees to pay an acreage-based mitigation fee sufficient to fund the acquisition, enhancement, and long-term management of one acre of Swainson's hawk foraging habitat for every one acre that is lost to urban development. Moreover, the use of higher ratios would not change the City's significance determination with respect to impacts on Swainson's hawk. Based on previous CEQA analysis for projects including The Cannery and Nishi Gateway and previous legal decisions the City has changed the impact determination from 'significant and unavoidable' to less than significant with mitigation, as shown in Response to Comment 40-12.

Notably, the courts have confronted similar situations with respect to impacts to both Swainson's hawk foraging habitat and prime agricultural land. New development can cause the permanent loss of either type of resource, and off-site conservation easements, though incapable of replacing the lost land, are a standard mitigation strategy with respect to both such resources. In circumstances in which EIRs identify the loss of either hawk foraging habitat or prime agricultural land as a significant impact and recommend off-site conservation easements as mitigation, project opponents and other commenters frequently argue for higher ratios. Under such circumstances, lead agencies are not required by CEQA to impose higher ratios, provided that the ratios they are imposing reflect a reasonable approach, such as one that is commonly accepted by similarly situated public agencies.

In *Citizens for Open Government v. City of Lodi* (2012) 205 Cal.App.4th 296, 322-324 (*Citizens for Open Government*), which involved an EIR for a proposed shopping center, the city lead agency concluded that the project at issue would cause a significant unavoidable loss of prime agricultural land, and imposed as mitigation a requirement that the project proponent obtain off-site conservation easements at a ratio of one to one (meaning that one acre must be made subject to such an easement for every acre of lost prime agricultural land due to the project). In light of the City of Lodi's conclusion that the impact was significant and unavoidable, a commenter advocated a higher ratio of two to one, and insisted that they were required by CEQA. The Court of Appeal for the Third Appellate District disagreed, and was persuaded by reasoning set forth in the city's Final EIR. According to that document,

> "The EIR acknowledges that agricultural easements … do not lessen the impact to the loss of the farmland.... As such, no ratio, no matter how high[,] will achieve a mitigation effect, and no particular ratio can be ultimately justified as the scientifically correct one. For that reason, a statement of overriding considerations is necessary for the loss of farmland. The ratio is therefore a matter of local concern for the [city] council to establish. The standard for California communities is the 1 for 1 ratio and is appropriate in this case. In addition to the City of Lodi, the following agencies in the surrounding area apply the 1:1 mitigation ratio: cities of Stockton and Elk Grove, counties of San Joaquin and Stanislaus, Tri–Valley Conservancy (Livermore/Alameda County)."

In another leading case, the same Court of Appeal upheld a 0.5 to one ratio for lost habitat for both Swainson's hawk and giant garter snake as part of an incidental take permit issued by the California Department of Fish and Game (now Wildlife) pursuant to the California Endangered Species Act (see Fish & G. Code, § 2081). The incidental take permit was combined with a federal Habitat Conservation Plan (HCP) adopted by the United States Fish and Wildlife Service pursuant to the federal Endangered Species Act. The City of Sacramento was the lead agency for the EIR for DFW's incidental take permit, and was sued under CEQA on the theory, among others, that the 0.5 to one ratio was insufficient. In *Environmental Council of Sacramento v. City of Sacramento* (2006) 142 Cal.App.4th 1018, 1038-1041 (*Environmental Council*), the Court of Appeal found that substantial evidence supported the rejection of a higher ratio, namely a one to one ratio:

> 'there is sufficient evidence that the higher mitigation ratio would impede regional development, transgress legal parameters, and present financial impediments to implementation of the Conservation Plan. In light of this evidence, we are not at liberty to second-guess the agencies' conclusions that the 1:1 ratio alternative was not feasible and that full mitigation can be accomplished by a habitat conservation plan that is founded upon both qualitative and quantitative principles, rather than merely upon an acre-for-acre ratio.'

One reason why the court found the 0.5 to one ratio to be sufficient (and "roughly proportional" to the impacts at issue) was that the preservation of land was only one element of the larger mitigation package embodied in the HCP/Incidental Take Permit. The preserved lands would also be *enhanced* and *managed* for the benefit of the species at issue (including Swainson's hawk):

> 'The Conservation Plan in fact mitigates for the impacts on covered species in a variety of ways beyond the purchase of a half acre for every acre developed. The reserves purchased with the mitigation fees will be maintained as habitat in perpetuity. Moreover, the Conservancy is mandated by the Conservation Plan to manage rice farms, which might otherwise disappear from the Natomas Basin. The preconstruction surveys, preservation of land adjacent to Fisherman's Lake, avoidance of development in the one-mile hawk zone, and preservation and planting of nest trees are all part of the integrated mitigation plan designed to compensate for the incidental take of any covered plants and animals.' (142 Cal.App.4th at p. 1039.)

Here, the City of Davis is using a one to one ratio, which is more than the City of Sacramento, the Department of Fish and [Wildlife], and the Court of Appeal found to be sufficient in the *Environmental Council* case, and which was as much as was required in *Citizens for Open Government*. By participating in the "Swainson's Hawk Interim Mitigation Program" created by the Yolo County HCP/NCCP JPA, as permitted by Mitigation Measure 4.4-5(b), the applicants would be providing funding for enhancing and managing the mitigation lands in question. As explained in detail in Master Response #8 on impacts to Swainson's hawk, this Mitigation Program involves more than just purchasing lands for preservation purposes and then leaving them alone. As with the Conservation Plan at issue in the *Environmental Council* case, the Program also includes enhancement and management strategies by which participants can maximize the habitat values of the preserved lands, making them even more suitable for foraging purposes than they were prior to the purchase for preservation purposes. To the extent that the commenter, in comment 45-52, has focused solely on the mitigation ratios required under the Program, the commenter has failed to note the biological benefits or the other complementary components of the Program.

Response to Comment 45-53

Please see Master Response #7, Western Burrowing Owl, and Responses to Comments 33-17 and 35-2 regarding the number and adequacy of site surveys, a discussion of known burrowing owl records and locations, as well as mitigation for potential impacts to burrowing owl.

The Draft EIR does not allow the applicant to destroy burrowing owl nesting habitat and forego mitigation as long as the construction activities are timed to occur outside of the nesting season as the commenter asserts. The Draft EIR requires the applicant to mitigate for burrowing owl habitat, which are active burrows, any time of the year the active burrows are found. Mitigation Measures 4.4-4(a) and 4.4-4(c) require the applicant to retain a qualified biologist to perform the surveys. As the surveys are to be performed in accordance with the application section of the 2012 Staff Report, the biologist would need to meet the "Biologist Qualifications" as listed on page 5 of the 2012 Staff Report.

The Draft EIR does not require mitigation for burrowing owl foraging impacts unless project development would result in the loss of active burrows on the site. Nevertheless, the Draft EIR requires a considerable amount of agricultural land and green space as mitigation for loss of agricultural land and Swainson's hawk foraging habitat.

The project includes approximately 48 acres of green space/agricultural buffer around the perimeter of the site. In addition, the Draft EIR requires the provision of mitigation lands for impacts to agricultural land (approximately 384 mitigation acres) and biological resources (approximately 229 mitigation acres). The acreage of required mitigation lands is sufficient to address any potential identified impacts to western burrowing owl foraging habitat overlapping the project site.

The lands are suitable for various species, including Swainson's hawk and western burrowing owl, as described in the draft Yolo County HCP/NCCP.

- "Objective NC-CL1.1: Protect at least 11,810 acres of unprotected non-rice cultivated lands that provide habitat value for covered and other native species in the Conservation Reserve Area…
    - Rationale: …Achieving this objective will ensure sufficient cultivated lands in the reserve system to provide for the conservation of the species in the Plan Area. Irrigated pastures, alfalfa, grazing land, and annually cultivated, irrigated cropland provide foraging habitat for covered species including Swainson's hawk, white-tailed kite, *western burrowing owl*, and tricolored blackbird…" [emphasis added]
- "Objective NC-CL1.4: Maintain or enhance the foraging value of the cultivated lands natural community in the reserve system for raptors.
    - Rationale: A number of practices on the cultivated lands natural community in the reserve system will enhance the value of these lands for foraging raptors, including covered raptors (Swainson's hawk, white-tailed kite, and *western burrowing owl*)…" [emphasis added]
- "Objective NC-G1.1: Protect and manage 4,500 acres of unprotected grassland in the Conservation Reserve Area, including at least 3,000 acres in the Dunnigan Hills planning unit (PU 5)…
    - Rationale:…Protected grassland will provide habitat for covered species that are dependent on grassland for part or all of their lifecycle, including California tiger salamander, *western burrowing owl*, tri-colored blackbird, and Swainson's hawk." [emphasis added]

Response to Comment 45-54

The comment summarizes and restates the commenter's prior comments. Please see Responses to Comments 33-17, 35-2, 35-3, 45-49, and 45-51 regarding the number and adequacy of site surveys, and a discussion of known burrowing owl records and locations, as well as mitigation for potential impacts to burrowing owl.

Response to Comment 45-55

The comment provides the author's signatures and qualifications. No response is necessary.