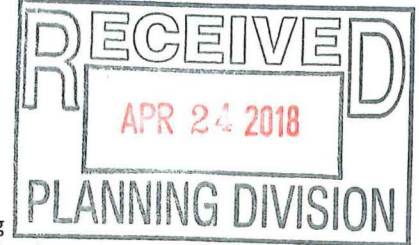




Planning and Inspection Department

Planning Division
1500 Warburton Avenue
Santa Clara, CA 95050
Ph: (408) 615-2450

Appeal Form



Instructions

Use this form to appeal a decision of the Architectural Review Committee or Planning Commission. **All appeals must be filed in the Planning Division within seven calendar days of the action being appealed.**

Appeals from the Architectural Review Committee are made to the Planning Commission and will be set for hearing on the next available Planning Commission agenda. Appeals from the Planning Commission are made to the City Council and will be placed on the subsequent City Council Agenda to set a hearing date. Please contact the Planning Division at the number listed above with any inquiries about the process.

Please print, complete, and sign this form before mailing or delivering to the City, along with the fee payment, and supporting documentation, letters, etc. (if any).

Appeal Fees

Appeal Fees are set by the Municipal Code of the City of Santa Clara and are subject to annual review. Please call the Planning Division for the current Appeal Fee. **Fee payment must be received by the City of Santa Clara before this form submittal can be certified as complete.**

Appeal fees may be paid by cash, check, or with VISA, MasterCard, or American Express, at the Permit Center at City Hall. Alternatively, checks or money orders made payable to City of Santa Clara can be mailed or delivered to Planning Division, City Hall, 1500 Warburton Avenue, Santa Clara, California 95050.

Appellant Declaration

Name: Laborers International Union of North America, Local Union 270
Street Address: [REDACTED]
City, State, Zip Code: [REDACTED]
Phone number: [REDACTED]
E-mail address: [REDACTED]

In accordance with the provisions of the Municipal Code of the City of Santa Clara, I hereby appeal the following action of the:

☒ Architectural Review Committee ☐ Planning Commission

at it's meeting of April 18, 2018
(date)

Agenda Item No.: 8.F

File No.(s): PLN2017-12535 and CEQ2017-01034

Address:/APN(s): 2305 Mission College Boulevard, APN: 104-13-096

Appellant Statement

(If more space is required, attach a separate sheet of paper.)

Action being appealed:

Adoption of a Mitigated Negative Declaration; Architectural Approval for the demolition
of an existing two-story 358,000 square foot office/R&D and construction of a two-story
495,610 square foot data center building with equipment yards and onsite improvements.

Reason for Appeal:

1. MND's air quality analysis is not based on substantial evidence because of flaws in air pollution modeling; 2. An EIR must
be prepared because there is substantial evidence of a fair argument that the Project will have significant air quality impacts
from NOx emissions; 3. An EIR must be prepared because there is substantial evidence of a fair argument that the Project will result in significant
increased cancer risks to nearby residents; 4. The MND's health risk conclusion is not supported by substantial evidence because it omits
relevant operational emissions from the risk assessment and relies on faulty modeling; 5. Significant changes made to the MND require recirculation.
This appeal also incorporates each of the issues raised in the attached comments as well as comments submitted by Adams Broadwell
dated April 12, 2018.

Certification of Authenticity

Beware, you are subject to prosecution if you unlawfully submit this form. Under penalty of law, transmission of this form to the City of Santa Clara is your certification that you are authorized to submit it and that the information presented is authentic.

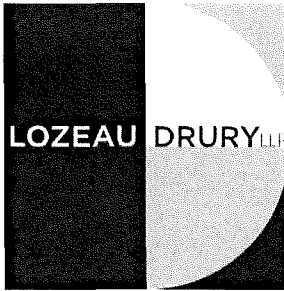
Signature of Appellant

Attorney for LIUNA, Local 270

April 24, 2018

Date

ATTACHMENT



T 510.836.4200
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410 12th Street, Suite 250
Oakland, Ca 94607

www.lozeaudrury.com
richard@lozeaudrury.com

Via Email and Overnight Mail

March 30, 2018

City of Santa Clara
Community Development Department
Contact: Steve Le, Assistant Planner
1500 Warburton Avenue
Santa Clara, CA 95050
(408) 615-2450
sle@santaclaraca.gov

**Re: Comments on Initial Study/Mitigated Negative Declaration for the
2305 Mission College Boulevard Data Center Project, CEQ2017-
01034; File No(s): PLN2017-12535 (SCH2018032008).
Request for Environmental Impact Report.**

Dear Mr. Le:

I am writing on behalf of the Laborers International Union of North America, Local Union 270 and its members living in Santa Clara County and the City of Santa Clara ("LIUNA"), regarding the 2305 Mission College Boulevard Data Center, PLN-2017-12535, CEQ2017-01034 and SCH2018032008, including all actions related or referring to the demolition of the current two-story 358,000 sf office/R&D building and development and construction of a two-story 495,610 sf data center building located at 2305 Mission College Boulevard on APN: 104-13-096 in the City of Santa Clara. ("Project").

We have prepared these comments with assistance from the expert consulting firm, Soil Water Air Protection Enterprise (SWAPE). Their expert comments are attached hereto and incorporated in their entirety. The expert comments establish a fair argument that the Project may have significant unmitigated impacts, including:

1. Significant unmitigated air quality impacts;

2. Significant unmitigated cancer risks:
3. Significant and unmitigated greenhouse gas impacts;

LIUNA requests that the City of Santa Clara ("City") withdraw the Initial Study/Mitigated Negative Declaration ("IS/MND") and instead prepare an environmental impact report ("EIR") for the Project, as there is substantial evidence that the Project will have significant unmitigated impacts on the environment as discussed below. An EIR is required to analyze these and other impacts and to adopt feasible mitigation measures to reduce the impacts to the extent feasible.

PROJECT DESCRIPTION

The Project seeks to demolish an existing 358,000 square foot office building and paved parking lot in order to develop a 495,610 square foot data center building. The data center building would house computer servers for private clients in a secure and environmentally controlled structure, and would be designed to provide 60 megawatts (MW) of information technology (IT) power. Standby backup emergency electrical generators would be installed to provide for an uninterrupted power supply. A total of 120 625-kW diesel-fueled engine generators would be located within a generator yard west of the data center building. The generators would provide 75 MW of backup power generation capacity. Additionally, the site will also construct a 90-megavolt amp electrical substation on-site and 75 parking stalls.

STANDING

Members of LIUNA live, work, and recreate in the vicinity of the Project site. These members will suffer the impacts of a poorly executed or inadequately mitigated Project, just as would the members of any nearby homeowners association, community group or environmental group. Hundreds of LIUNA members live and work in areas that will be affected by air pollution and traffic generated by the project. Therefore, LIUNA and its members have a direct interest in ensuring that the Project is adequately analyzed and that its environmental and public health impacts are mitigated to the fullest extent feasible.

LEGAL STANDARD

As the California Supreme Court recently held, "[i]f no EIR has been prepared for a nonexempt project, but substantial evidence in the record supports a fair argument that the project may result in significant adverse impacts, the proper remedy is to order preparation of an EIR." (*Communities for a Better Environment v. South Coast Air Quality Management Dist.* (2010) 48 Cal.4th 310, 319-320 ["CBE v. SCAQMD"], citing, *No Oil, Inc. v. City of Los Angeles* (1974) 13 Cal.3d 68, 75, 88; *Brentwood Assn. for No Drilling, Inc. v. City of Los Angeles* (1982) 134 Cal.App.3d

491, 504–505.) “The ‘foremost principle’ in interpreting CEQA is that the Legislature intended the act to be read so as to afford the fullest possible protection to the environment within the reasonable scope of the statutory language.” (*Communities for a Better Environment v. Calif. Resources Agency* (2002) 103 Cal.App.4th 98, 109 [“CBE v. CRA”].)

The EIR is the very heart of CEQA. (*Bakersfield Citizens for Local Control v. City of Bakersfield* (2004) 124 Cal.App.4th 1184, 1214; *Pocket Protectors v. City of Sacramento* (2004) 124 Cal.App.4th 903, 927.) The EIR is an “environmental ‘alarm bell’ whose purpose is to alert the public and its responsible officials to environmental changes before they have reached the ecological points of no return.” (*Bakersfield Citizens*, 124 Cal.App.4th at 1220.) The EIR also functions as a “document of accountability,” intended to “demonstrate to an apprehensive citizenry that the agency has, in fact, analyzed and considered the ecological implications of its action.” (*Laurel Heights Improvements Assn. v. Regents of University of California* (1988) 47 Cal.3d 376, 392.) The EIR process “protects not only the environment but also informed self-government.” (*Pocket Protectors*, 124 Cal.App.4th at 927.)

An EIR is required if “there is substantial evidence, in light of the whole record before the lead agency, that the project may have a significant effect on the environment.” (Pub. Resources Code, § 21080(d); see also *Pocket Protectors*, 124 Cal.App.4th at 927.) In limited circumstances, an agency may avoid preparing an EIR by issuing a negative declaration, a written statement briefly indicating that a project will have no significant impact thus requiring no EIR (14 Cal. Code Regs., § 15371 [“CEQA Guidelines”]), only if there is not even a “fair argument” that the project will have a significant environmental effect. (Pub. Resources Code, §§ 21100, 21064.) Since “[t]he adoption of a negative declaration . . . has a terminal effect on the environmental review process,” by allowing the agency “to dispense with the duty [to prepare an EIR],” negative declarations are allowed only in cases where “the proposed project will not affect the environment at all.” (*Citizens of Lake Murray v. San Diego* (1989) 129 Cal.App.3d 436, 440.)

Where an initial study shows that the project may have a significant effect on the environment, a mitigated negative declaration may be appropriate. However, a mitigated negative declaration is proper *only* if the project revisions would avoid or mitigate the potentially significant effects identified in the initial study “to a point where clearly no significant effect on the environment would occur, and...there is no substantial evidence in light of the whole record before the public agency that the project, as revised, may have a significant effect on the environment.” (Public Resources Code §§ 21064.5 and 21080(c)(2); *Mejia v. City of Los Angeles* (2005) 130 Cal.App.4th 322, 331.) In that context, “may” means a *reasonable possibility* of a significant effect on the environment. (Pub. Resources Code, §§ 21082.2(a),

21100, 21151(a); *Pocket Protectors*, 124 Cal.App.4th at 927; *League for Protection of Oakland's etc. Historic Resources v. City of Oakland* (1997) 52 Cal.App.4th 896, 904–905.)

Under the “fair argument” standard, an EIR is required if any substantial evidence in the record indicates that a project may have an adverse environmental effect—even if contrary evidence exists to support the agency’s decision. (CEQA Guidelines, § 15064(f)(1); *Pocket Protectors*, 124 Cal.App.4th at 931; *Stanislaus Audubon Society v. County of Stanislaus* (1995) 33 Cal.App.4th 144, 150-15; *Quail Botanical Gardens Found., Inc. v. City of Encinitas* (1994) 29 Cal.App.4th 1597, 1602.) The “fair argument” standard creates a “low threshold” favoring environmental review through an EIR rather than through issuance of negative declarations or notices of exemption from CEQA. (*Pocket Protectors*, *supra*, 124 Cal.App.4th at 928.)

The “fair argument” standard is virtually the opposite of the typical deferential standard accorded to agencies. As a leading CEQA treatise explains:

This ‘fair argument’ standard is very different from the standard normally followed by public agencies in making administrative determinations. Ordinarily, public agencies weigh the evidence in the record before them and reach a decision based on a preponderance of the evidence. [Citations]. The fair argument standard, by contrast, prevents the lead agency from weighing competing evidence to determine who has a better argument concerning the likelihood or extent of a potential environmental impact. The lead agency’s decision is thus largely legal rather than factual; it does not resolve conflicts in the evidence but determines only whether substantial evidence exists in the record to support the prescribed fair argument.

(Kostka & Zishcke, *Practice Under CEQA*, §6.29, pp. 273-274.) The Courts have explained that “it is a question of law, not fact, whether a fair argument exists, and the courts owe no deference to the lead agency’s determination. Review is de novo, with a **preference for resolving doubts in favor of environmental review.**” (*Pocket Protectors*, 124 Cal.App.4th at 928 [emphasis in original].)

As a matter of law, “substantial evidence includes . . . expert opinion.” (Pub. Resources Code, § 21080(e)(1); CEQA Guidelines, § 15064(f)(5).) CEQA Guidelines demand that where experts have presented conflicting evidence on the extent of the environmental effects of a project, the agency must consider the environmental effects to be significant and prepare an EIR. (CEQA Guidelines § 15064(f)(5); Pub. Res. Code § 21080(e)(1); *Pocket Protectors*, 124 Cal.App.4th at 935.) “Significant environmental effect” is defined very broadly as “a substantial or potentially substantial adverse change in the environment.” (Pub. Resources Code,

§ 21068; see also CEQA Guidelines, § 15382.) An effect on the environment need not be “momentous” to meet the CEQA test for significance; it is enough that the impacts are “not trivial.” (*No Oil, Inc.*, 13 Cal.3d at 83.) In *Pocket Protectors*, the court explained how expert opinion is considered. The Court limited agencies and courts to weighing the admissibility of the evidence. (*Pocket Protectors*, 124 Cal.App.4th at 935.) In the context of reviewing a negative declaration, “neither the lead agency nor a court may ‘weigh’ conflicting substantial evidence to determine whether an EIR must be prepared in the first instance.” (*Id.*) Where a disagreement arises regarding the validity of a negative declaration, the courts require an EIR. As the Court explained, “[i]t is the function of an EIR, not a negative declaration, to resolve conflicting claims, based on substantial evidence, as to the environmental effects of a project.” (*Id.*)

DISCUSSION

A. The Project will have Significant Air Pollutant Emissions.

The environmental consulting firm, Soil, Water, Air Protection Enterprise (SWAPE), concludes that the Project will have very significant air quality impacts, far above applicable CEQA significance thresholds set by the Bay Area Air Quality Management District (BAAQMD). In particular the ***Project will create cancer risks more than twenty times above the Bay Area Air Quality Management District’s (BAAQMD’s) CEQA significance thresholds***, due largely to the close proximity of the Project to a residential neighborhood. The Project will also generate nitrogen oxides (NOx) and greenhouse gas (GHGs) far above significance thresholds. As such, an EIR is required to analyze these impacts, and to propose feasible mitigation measures and alternatives to reduce or eliminate the impacts.

Air districts’ air quality thresholds are treated as dispositive in evaluating the significance of a project’s air quality impacts. (See, e.g. *Schenck v. County of Sonoma* (2011) 198 Cal.App.4th 949, 960 (County applies BAAQMD’s “published CEQA quantitative criteria” and “threshold level of cumulative significance”). See also *Communities for a Better Environment v. California Resources Agency* (2002) 103 Cal.App.4th 98, 110-111 (“A ‘threshold of significance’ for a given environmental effect is simply that level at which the lead agency finds the effects of the project to be significant”).) The California Supreme Court recently made clear the substantial importance that an air quality district significance threshold plays in providing substantial evidence of a significant adverse impact. (*CBE v. SCAQMD*, 48 Cal.4th at 327 (“As the [South Coast Air Quality Management] District’s established significance threshold for NOx is 55 pounds per day, these estimates [of NOx emissions of 201 to 456 pounds per day] constitute substantial evidence supporting a fair argument for a significant adverse impact”).)

Since there is a fair argument that the Project's air quality emissions exceed CEQA significance thresholds, an EIR is required to analyze and mitigate Project impacts.

1. The Project Will Create Significant Cancer Risks in the Nearby Residential Community Due to Diesel Engine Exhaust.

SWAPE concludes that the Project will create cancer risks in the nearby residential community more than **twenty times above the BAAQMD'S CEQA significance threshold**. The IS\MND erroneously concludes that the Project's cancer risks will be less than significant, but this is because the IS\MND fails to apply the proper cancer risk calculation methodology established by the California Office of Environmental Health Hazard Assessment ("OEHHA"), the California Air Resources Board (CARB) and by BAAQMD.

SWAPE conducts detailed calculations using OEHHA methodology and concludes, "the excess cancer risk over the course of a residential lifetime (30 years) at the MEIR is approximately **220 in one million**." (SWAPE, p. 9 (emphasis added)). The BAAQMD significance threshold for cancer risk is 10 in one million. Therefore, the Project will create a cancer risk in the adjacent residential neighborhood more than 20 times above the CEQA significance threshold. An EIR is required to analyze this risk and propose feasible mitigation measures.

SWAPE suggests numerous mitigation measures that could reduce the Project's cancer risks, including requiring the use of low-emission construction equipment, advanced particulate filters for diesel generators, idling restrictions and many other measures. (SWAPE, pp. 9-14). However, since the IS\MND erroneously concludes there is no significant risk, it fails to impose these feasible measures.

2. The Project will Have Significant Nitrogen Oxide (NOx) Impacts.

SWAPE concludes that the Project will generate significant nitrogen oxides (NOx) emissions, above the BAAQMD'S CEQA significance thresholds. NOx reacts in the atmosphere to create ground-level ozone. US EPA states that ozone has serious adverse health impacts:

Ozone in the air we breathe can harm our health. People most at risk from breathing air containing ozone include people with asthma, children, older adults, and people who are active outdoors, especially outdoor workers. In addition, people with certain genetic characteristics, and people with reduced

intake of certain nutrients, such as vitamins C and E, are at greater risk from ozone exposure.

Breathing ozone can trigger a variety of health problems including chest pain, coughing, throat irritation, and airway inflammation. It also can reduce lung function and harm lung tissue. Ozone can worsen bronchitis, emphysema, and asthma, leading to increased medical care.

<https://www.epa.gov/ozone-pollution/ozone-basics#effects>.

SWAPE concludes that the Project will generate **268 pounds per day (ppd) of NOx – almost five times above the BAAQMD CEQA significance threshold of 54 ppd.**

Mitigated Maximum Daily Construction Emissions (lbs/day)	
Model	NOx
IS/MND	51
SWAPE	268
Percent Increase	425%
BAAQMD Regional Threshold (lbs/day)	54
Exceed?	Yes

The IS/MND concludes that the Project will generate 51 ppd of NOx – slightly below the significance threshold. However, SWAPE notes that the IS/MND made unauthorized adjustments and manipulated the air quality model without proper justification.

Most obviously, the model inputs supporting the IS/MND assumed that the Project size would be 400,000 square feet, but the actual Project size will be 495,610 square feet. This error alone understates Project emissions by 25%. The IS/MND makes several other errors, such as underestimating truck trip length by half or more, underestimating construction equipment usage by half, as well as several other obvious errors. None of these adjustments to the standard CalEEMod model are justified in the Initial Study.

When SWAPE corrected these errors, and conducted calculations in accordance with the required CalEEMod parameters, Project emissions increased to 268 ppd of NOx – far above the BAAQMD's 54 ppd CEQA significance threshold.

An EIR is required to analyze the Project's NOx impacts and to propose feasible mitigation measures. SWAPE proposes numerous mitigation measures to

reduce NOx impacts. None of these are analyzed since the City prepared an IS/MND rather than an EIR.

3. The Project Will Have Significant Greenhouse Gas Impacts.

SWAPE concludes that the Project will generate greenhouse gases (GHGs) emissions of 2,513 metric tons per year, more than double the BAAQMD CEQA significance threshold of 1,100 metric tons (MT/yr).per year. (SWAPE p. 19).

Estimated Annual Greenhouse Gas Emissions	
Emission Source	Proposed Project (MT CO ₂ E/year)
Construction (Amortized)	62.79
Area	0.01
Energy	1,751
Mobile	80.45
Waste	309.06
Water	310.58
Total	2,513
BAAQMD Significance Threshold	1,100
<i>Exceed?</i>	<i>Yes</i>

The IS/MND concludes that the Project would have less than significant GHG emissions, but conducts no calculations at all. In other words, there is no substantial evidence to support the IS/MND's conclusion of less than significant impacts. The IS/MND merely states that the Project, "would not conflict with the Santa Clara Climate Action Plan or other plans, policies or regulations adopted for the purpose of reducing the emissions of GHG" (IS/MND p. 70). However, without any calculations, there is no way to determine if the Project would exceed the 1,100 MT/yr threshold.

SWAPE conducted calculations using standard methodologies, and concluded that the Project will generate GHGs at levels more than double the BAAQMD CEQA significance threshold. As such, an EIR is required to analyze the Project's GHG impacts and to propose feasible mitigation measures.

SWAPE proposes numerous feasible mitigation measures, none of which are analyzed in the IS/MND. An EIR should be prepared to analyze and implement these and other GHG mitigation measures.

In addition, the IS/MND relies on deferred mitigation for GHG impacts. The IS/MND lists measures that "***could be included*** as part of the TDM Plan to reduce vehicle trips by 10 percent consistent with the City's CAP (Climate Action Plan)" (p.

March 30, 2018

LIUNA Comments on IS/MND for 2305 Mission College Boulevard Data Center Project

Page 9

67). However, the IS/MND fails to include these measures as mitigation or as a Project Design Feature (PDF). Therefore the Project is not consistent with the CAP. Also, it relies for mitigation on measures that are not set forth in the IS/MND and not required as mitigation measures. CEQA prohibits this type of "deferred mitigation."

"A study conducted after approval of a project will inevitably have a diminished influence on decisionmaking. Even if the study is subject to administrative approval, it is analogous to the sort of post hoc rationalization of agency actions that has been repeatedly condemned in decisions construing CEQA." (*Sundstrom v. County of Mendocino* (1988) 202 Cal.App.3d 296, 307.)

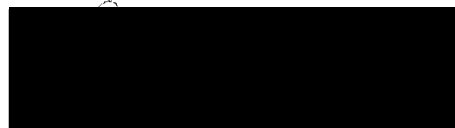
"[R]eliance on tentative plans for future mitigation after completion of the CEQA process significantly undermines CEQA's goals of full disclosure and informed decisionmaking; and[,] consequently, these mitigation plans have been overturned on judicial review as constituting improper deferral of environmental assessment." (*Communities for a Better Environment v. City of Richmond* (2010) 184 Cal.App.4th 70, 92.)

The IS/MND relies on such "tentative plans for future mitigation" that were rejected the cases of *Sundstrom* and *CBE v. Richmond*. As such, the IS/MND fails to comply with CEQA. Also, since the IS/MND does not impose binding Transportation Demand Management (TDM) measures, it is not consistent with the Climate Action Plan. A new document must be prepared setting forth specific mitigation measures that will be implemented.

CONCLUSION

For the foregoing reasons, the IS/MND for the Project should be withdrawn. An EIR should be prepared and the draft EIR should be circulated for public review and comment in accordance with CEQA. An EIR is necessary to analyze the Projects significant adverse impacts on, cancer risk, ozone precursors (NOx), and greenhouse gases. The EIR must propose all feasible mitigation measures and alternatives to reduce the Project's significant impacts. Thank you for considering our comments.

Sincerely,



Richard Drury
Lozeau | Drury LLP
Counsel for LIUNA Local 270

EXHIBIT A



Technical Consultation, Data Analysis and
Litigation Support for the Environment

2656 29th Street, Suite 201
Santa Monica, CA 90405

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

March 23, 2018

Richard Drury
Lozeau | Drury LLP

Subject: Comments on the 2305 Mission College Boulevard Data Center Project

Dear Mr. Drury,

We have reviewed the March 2018 Initial Study and Mitigated Negative Declaration ("IS/MND") and the associated appendices for the 2305 Mission College Boulevard Data Center Project ("Project") located in the City of Santa Clara. The Project seeks to demolish an existing 358,000 square foot office building and paved parking lot in order to develop a 495,610 square foot data center building. The data center building would house computer servers for private clients in a secure and environmentally controlled structure, and would be designed to provide 60 megawatts (MW) of information technology (IT) power. Standby backup emergency electrical generators would be installed to provide for an uninterrupted power supply. A total of 120 625-kW diesel-fueled engine generators would be located within a generator yard west of the data center building. The generators would provide 75 MW of backup power generation capacity. Additionally, the site will also construct a 90-megavolt amp electrical substation on-site and 75 parking stalls.

Our review concludes that the IS/MND fails to adequately evaluate the Project's Air Quality and Greenhouse Gas (GHG) impacts, and as a result, the significance determinations made within the IS/MND for the proposed Project are incorrect and unreliable. A Draft Environmental Impact Report (DEIR) should be prepared to adequately assess the potential impacts that the Project may have on the surrounding environment.

Air Quality

Unsubstantiated Input Parameters

The IS/MND relies on emissions calculated from the California Emissions Estimator Model Version CalEEMod.2016.3.1 ("CalEEMod").¹ CalEEMod provides recommended default values based on site specific information, such as land use type, meteorological data, total lot acreage, project type and

¹ CalEEMod website, available at: <http://www.caleemod.com/>

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 the California Environmental Quality Act ("CEQA") requires that such changes be justified by substantial evidence.² Once all of 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 A of the IS/MND, 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.³

When we reviewed the Project's CalEEMod output files, we found that several of the values inputted into the model were not consistent with information disclosed in the IS/MND. When the Project's emissions are modeled using correct input parameters, we found that the Project will have a significant impact on local and regional air quality. A project-specific DEIR should be prepared to include an updated air quality analysis that adequately evaluates the impacts that the construction and operation of the Project will have.

Failure to Include All Land Uses

As previously stated, the IS/MND relies upon CalEEMod to estimate the Project's construction and operational emissions. Review of the Project's CalEEMod output files demonstrates that not all of the land uses proposed by the IS/MND were included in the Project's CalEEMod model. As a result, the Project's construction and operational emissions are underestimated.

According to the IS/MND, the Project proposes "to construct a two-story 495,610 square foot data center building" (p. 6). Additionally, "the Project would provide approximately 75 parking spaces located along the western and southern sides of the building" (p. 7). Therefore, in order to be consistent with what is proposed in the IS/MND, Project's emissions should have been estimated assuming construction and operation of these proposed land uses. Review of the IS/MND's CalEEMod output files, however, demonstrates that the Project Applicant underestimated the size of the data center building and completely omitted the parking land use from the air model (Appendix A, pp. 23).

Aligned Data Center, Criteria Emissions Santa Clara County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	400.00	1000sqft	15.00	400,000.00	0

As you can see in the excerpt above, the Project Applicant modeled emissions for a 400,000 square foot General Light Industry building. Not only does the air pollution model underestimate the Project size by

² CalEEMod User Guide, pp. 2, 9, available at: <http://www.caleemod.com/>

³ 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.)

95,610 square feet, but the Project Applicant completely omitted the parking land use within the model. As previously stated, the land use type and size features are used throughout CalEEMod to determine default variable and emission factors that go into the model's calculations.⁴ For example, the square footage of a land use is used for certain calculations such as determining the wall space to be painted (i.e., VOC emissions from architectural coatings) and volume that is heated or cooled (i.e., energy impacts). Similarly, the acreage is used to determine the amount of ground to be prepared, graded, paved, etc.⁵ Furthermore, CalEEMod assigns each land use type with its own set of energy usage emission factors.⁶ By omitting the parking lot land use and underestimating the data center's size from the model, the emissions that would be produced during construction and operation of the proposed parking lot and data center are greatly underestimated.

Unsubstantiated Reduction in Hauling Truck Trip Length

The hauling truck trip lengths used to estimate the proposed Project's construction emissions were changed from CalEEMod defaults without a proper justification for doing so. As a result, the Project's construction emissions are incorrect and unsubstantiated.

Review of the IS/MND's CalEEMod output files demonstrates that the hauling truck trip lengths were manually reduced from 20 miles to 7.3 miles (see excerpt below) (Appendix A, pp. 25).

Table Name	Column Name	Default Value	New Value
tblTripsAndVMT	HaulingTripLength	20.00	7.30
tblTripsAndVMT	HaulingTripLength	20.00	7.30

The "User Entered Comments & Non-Default Data" table in the Project's CalEEMod output files fails to provide any justification or explanation as to why these values were changed (Appendix A, pp. 23). According to the CalEEMod User Guide, default values should be used unless proper justification can be provided for Project-specific inputs.⁷ Since the Project Applicant failed to provide any information as to why these hauling truck trip values were significantly reduced, we are unable to verify if these altered values are correct. As such, we find the Projects' air pollution model to be incorrect and should not be used to determine Project significance.

Use of Incorrect Off-Road Construction Equipment Usage Hours

The off-road construction equipment usage hours used to estimate the proposed Project's construction emissions were artificially reduced from CalEEMod defaults without providing proper justification for doing so. As a result, the Project's construction emissions are incorrect and underestimated.

⁴ CalEEMod User's Guide, available at: http://www.aqmd.gov/docs/default-source/caleemod/upgrades/2016.3/01_user-39-s-guide2016-3-1.pdf?sfvrsn=2, p. 17

⁵ CalEEMod User's Tips, available at: <http://www.aqmd.gov/docs/default-source/caleemod/Model/2013.2.2/caleemod-usertips-april2014.pdf?sfvrsn=0>, p. 27, p. 11

⁶ CalEEMod User's Guide, Appendix D, available at: http://www.aqmd.gov/docs/default-source/caleemod/upgrades/2016.3/05_appendix-d2016-3-1.pdf?sfvrsn=2

⁷ CalEEMod User's Guide, p. 1, available at: http://www.aqmd.gov/docs/default-source/caleemod/upgrades/2016.3/01_user-39-s-guide2016-3-1.pdf?sfvrsn=2

According to the Project's CalEEMod output files, the following equipment usage hours were used to estimate the Project's construction emissions (see excerpt below) (Appendix A, pp. 25).

Table Name	Column Name	Default Value	New Value
tblOffRoadEquipment	UsageHours	7.00	4.20
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	8.00	10.00
tblOffRoadEquipment	UsageHours	8.00	4.80
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	7.00	6.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	8.00	5.00

As demonstrated above, the usage hours for several pieces of off-road construction equipment were manually decreased, with some usage hours being decreased by half. According to the "User Entered Comments & Non-Default Data" table in the Project's CalEEMod output files, these values were changed because the "Applicant provided Equipment List" (Appendix A, pp. 23). Review of the IS/MND and its associated appendices, however, demonstrates that a Project-specific equipment list was not provided and therefore, we are unable to verify if these altered values are accurate. As previously mentioned, according to the CalEEMod User's Guide any changes to the model's defaults must be properly justified.⁸ Because the Project Applicant failed to include evidence of this Project-specific equipment list, we are unable to verify these values. Therefore, unless the Project Applicant can provide substantial evidence and reasoning as to why these factors should have been altered, we find the Project's air quality model to be incorrect and should not be relied upon to determine Project significance.

Updated Analysis Indicates Significant Criteria Air Pollutant Emissions

In an effort to accurately determine the Project's construction and operational emissions, we prepared an updated CalEEMod model that includes more site-specific information and corrected input parameters. In the updated model, we inputted the Project's proposed parking lot land use and inputted a building square footage of 495,610 square feet for the proposed data center building in order to more accurately reflect what is proposed in the IS/MND. Additionally, we relied upon CalEEMod default hauling truck trip lengths and construction equipment usage hours.

When correct, site-specific input parameters are used to model emissions, we find that the Project's *mitigated* construction-related NOx emissions exceed the 54 pounds per day (lbs/day) threshold set forth by the Bay Area Air Quality Management District (BAAQMD) (see table below).

⁸ CalEEMod User's Guide, p. 1, available at: http://www.aqmd.gov/docs/default-source/caleemod/upgrades/2016.3/01_user-39-s-guide2016-3-1.pdf?sfvrsn=2

Mitigated Maximum Daily Construction Emissions (lbs/day)	
Model	NOx
IS/MND	51
SWAPE	268
Percent Increase	425%
BAAQMD Regional Threshold (lbs/day)	54
Exceed?	Yes

As demonstrated in the table above, when correct, site-specific input parameters are used to model emissions, the mitigated construction-related NOx emissions still exceed BAAQMD thresholds even with implementation of Mitigation Measure AIR-1 (p. 31). These updated emission estimates demonstrate that when the Project's construction-related emissions are estimated correctly, the Project's proposed mitigation would not effectively reduce emissions to a less than significant level. As a result, a project-specific DEIR should be prepared that includes an updated air pollution model to adequately estimate the Project's emissions, and additional mitigation should be identified and incorporated to reduce these emissions to a less-than-significant level.⁹

Diesel Particulate Matter Inadequately Evaluated

According to the IS/MND, nearby sensitive receptors would be exposed to diesel particulate matter (DPM) during Project construction and operation, which is a known as a human carcinogen and identified as a toxic air contaminant (TAC). In an effort to determine the health risk impacts associated with exposure to the Project's DPM emissions, the IS/MND prepared a construction and an operational health risk assessment (HRA). Review of the IS/MND's HRA, however demonstrates that: (1) the construction HRA relies upon emission estimates from a flawed CalEEMod model; and (2) the operational HRA fails to evaluate the health risk posed by all of the Project's emission sources. As a result, we find both the Project's construction and operational health risk impacts to be inadequately addressed and greatly underestimated.

Use of Incorrect Emission Estimates in Construction Health Risk Assessment

The IS/MND conducts a construction HRA and determines that the health risk would be less than significant with implementation of mitigation (p. 37). The IS/MND states,

"Implementation of MM AIR-1 and the standard dust control measures identified above would reduce diesel particulate matter emissions by over 70 percent and fugitive particulate matter emissions by more than 50 percent. With implementation of these measures, the maximum cancer risk, assuming infant exposure, would be 8.1 in one million, and the maximum PM2.5 concentration would be 0.018 $\mu\text{g}/\text{m}^3$ " (p. 37).

This, however, is incorrect. The IS/MND's construction HRA relies upon emissions estimates from a flawed CalEEMod model to estimate the excess cancer risk posed to nearby residents as a result of

⁹ See section titled "Feasible Mitigation Measures Available to Reduce Construction Emissions" on p. 9 of this letter. These measures would effectively reduce construction NOx, and DPM emissions, as well as GHG emissions.

emissions generated during construction-related activity. Specifically, our review of the Project's CalEEMod model and corresponding emissions estimates, as discussed in the sections above, found that the model relied upon incorrect and unsubstantiated input parameters in order to estimate the Project's emissions. Because the emissions estimates from the Project's CalEEMod model are underestimated, it is reasonable to assume that the Project's construction-related HRA also underestimates the health risk posed to sensitive receptors near the Project site. As a result, we find the IS/MND's HRA and subsequent significance determination to be incorrect and unreliable and should not be relied upon to determine the significance of the Project's construction-related health impact.

Failure to Include Evaluation of All Emission Sources in Operational Health Risk Assessment

The IS/MND conducts an operational HRA and determines that the maximum increased cancer risk posed to nearby receptors would be 2.3 in one million, which is less than the BAAQMD's significance threshold of ten in one million, thereby resulting in a less than significant impact (p. 37). According to the IS/MND,

“Potential health impacts from operations of the project's generators for testing and maintenance purposes were evaluated using air quality dispersion modeling and applying BAAQMD recommended health impact calculation methods. DPM concentrations and potential cancer risks from operation of the generators were evaluated at existing residences in the nearby project vicinity of the proposed data center site” (p. 37).

As demonstrated above, the operational HRA only evaluated the impact posed to residential receptors from generator use on-site. Review of the Project's HRA modeling, found in Appendix A, demonstrates that the IS/MND fails to evaluate the health risk posed by emissions generated during operation of the proposed Project, including the 495,610 square foot warehouse (Appendix A, pp. 74). This greatly underestimates the Project's potential health risk, as the data center will generate DPM emissions from the 55 daily vehicle trips to and from the site throughout operation (Appendix A, p. 10). As such, the operational health risk should have included all of the Project's operational emissions sources in order to conduct the HRA.

For the reasons mentioned above, we find the IS/MND's evaluation of the Project's health risk impacts resulting from construction and operation to be inadequate and unreliable. The IS/MND should have conducted their operational health risk with the emissions generated by the data center and the Project's vehicle trips. As a result, the IS/MND fails to provide a comprehensive analysis of the sensitive receptor impacts that may occur as a result of exposure to the Project's potentially substantial air pollutant emissions.

Updated Health Risk Assessment Indicates Significant Health Impact

In an effort to demonstrate the potential risk posed by construction and operation of the proposed Project to nearby sensitive receptors, we prepared a simple screening-level health risk assessment. The results of our assessment, as described in the sections below, provide substantial evidence demonstrating that potential health risk impacts associated with construction and operation of the proposed Project may result in a potentially significant health risk impact. As such, a DEIR should be

prepared to adequately evaluate the proposed Project's health risk impacts, and additional mitigation measures should be identified and incorporated into the Project design, where necessary.

As of 2011, the Environmental Protection Agency (EPA) recommends AERSCREEN as the leading air dispersion model, due to improvements in simulating local meteorological conditions based on simple input parameters.¹⁰ The model replaced SCREEN3, and AERSCREEN is included in the Office of Environmental Health Hazard Assessment (OEHHHA)¹¹ and the California Air Pollution Control Officers Associated (CAPCOA)¹² guidance as the appropriate air dispersion model for Level 2 health risk screening assessments ("HRSAs"). A Level 2 HRSA utilizes a limited amount of site-specific information to generate maximum reasonable downwind concentrations of air contaminants to which nearby sensitive receptors may be exposed. If an unacceptable air quality hazard is determined to be possible using AERSCREEN, a more refined modeling approach is required prior to approval of the Project.

We prepared a preliminary health risk screening assessment of the Project's health-related impact to sensitive receptors using the annual PM₁₀ exhaust estimates from our SWAPE CalEEMod model. According to the IS/MND, the closest sensitive receptor to the Project site is located approximately 115 feet, or 35 meters, from the Project site (p. 26). Consistent with recommendations set forth by OEHHHA, we used a residential exposure duration of 30 years, starting from the infantile stage of life. We also assumed that construction and operation of the Project would occur in quick succession, with no gaps between each Project phase. The SWAPE CalEEMod model's annual emissions indicate that construction activities will generate approximately 766 pounds of DPM over the 326-day construction period. The AERSCREEN model relies on a continuous average emission rate to simulate maximum downward concentrations from point, area, and volume emission sources. To account for the variability in equipment usage and truck trips over Project construction, we calculated an average DPM emission rate by the following equation.

$$\text{Emission Rate } \left(\frac{\text{grams}}{\text{second}} \right) = \frac{766 \text{ lbs}}{326 \text{ days}} \times \frac{453.6 \text{ grams}}{\text{lb}} \times \frac{1 \text{ day}}{24 \text{ hours}} \times \frac{1 \text{ hour}}{3,600 \text{ seconds}} = 0.01234 \text{ g/s}$$

Using this equation, we estimated a construction emission rate of 0.01234 grams per second (g/s). The SWAPE annual CalEEMod output files and the IS/MND's generator estimates indicate that operational activities will generate approximately 260 pounds of DPM per year over the 29.1-years of operation. Applying the same equation used to estimate the construction DPM emission rate, we estimated the following emission rate for Project operation.

$$\text{Emission Rate } \left(\frac{\text{grams}}{\text{second}} \right) = \frac{260 \text{ lbs}}{365 \text{ days}} \times \frac{453.6 \text{ grams}}{\text{lb}} \times \frac{1 \text{ day}}{24 \text{ hours}} \times \frac{1 \text{ hour}}{3,600 \text{ seconds}} = 0.003737 \text{ g/s}$$

¹⁰ "AERSCREEN Released as the EPA Recommended Screening Model," USEPA, April 11, 2011, *available at*: http://www.epa.gov/ttn/scram/guidance/clarification/20110411_AERSCREEN_Release_Memo.pdf

¹¹ "Risk Assessment Guidelines Guidance Manual for Preparation of Health Risk Assessments." OEHHHA, February 2015, *available at*: http://oehha.ca.gov/air/hot_spots/2015/2015GuidanceManual.pdf

¹² "Health Risk Assessments for Proposed Land Use Projects," CAPCOA, July 2009, *available at*: http://www.capcoa.org/wp-content/uploads/2012/03/CAPCOA_HRA_LU_Guidelines_8-6-09.pdf

Using this equation, we estimated an operational emission rate of 0.003737 g/s. Construction and operational activity was simulated as a 15.7-acre rectangular area source in AERSCREEN, with dimensions of 340 meters by 187 meters. A release height of three meters was selected to represent the height of exhaust stacks on operational equipment and other heavy-duty vehicles, and an initial vertical dimension of one and half meters was used to simulate instantaneous plume dispersion upon release. An urban meteorological setting was selected with model-default inputs for wind speed and direction distribution.

The AERSCREEN model generates maximum reasonable estimates of single-hour DPM concentrations from the Project site. EPA guidance suggests that in screening procedures, the annualized average concentration of an air pollutant be estimated by multiplying the single-hour concentration by 10%.¹³ For example, for the MEIR the single-hour concentration estimated by AERSCREEN for Project construction is approximately 6.815 $\mu\text{g}/\text{m}^3$ DPM at approximately 25 meters. 0.6815 $\mu\text{g}/\text{m}^3$ for Project construction at the MEIR. For Project operation, the single-hour concentration at the MEIR estimated by AERSCREEN is approximately 2.064 $\mu\text{g}/\text{m}^3$ DPM at approximately 25 meters downwind. Multiplying this single-hour concentration by 10%, we get an annualized average concentration of 0.2064 $\mu\text{g}/\text{m}^3$ for Project operation at the MEIR.

We calculated the excess cancer risk to the residential receptors located closest to the Project site using applicable health risk assessment methodologies prescribed by OEHHA and the BAAQMD. Consistent with the construction schedule proposed by the IS/MND, the annualized average concentration for construction was used for the first 0.9 years of the infantile stage of life (0-2 years). The annualized average concentration for operation was used for the remainder of the 30-year exposure period, which makes up the remainder of the infantile stage of life (0-2 years), the child stages of life (2 to 16 years), and adult stages of life (16 to 30 years). Consistent with OEHHA guidance, we used Age Sensitivity Factors (ASFs) to account for the heightened susceptibility of young children to the carcinogenic toxicity of air pollution.¹⁴ According to the updated guidance, quantified cancer risk should be multiplied by a factor of ten during the first two years of life (infant) and should be multiplied by a factor of three during the child stage of life (2 to 16 years). Furthermore, in accordance with guidance set forth by OEHHA, we used 95th percentile breathing rates for infants.¹⁵ We used a cancer potency factor of 1.1 (mg/kg-day)⁻¹ and an averaging time of 25,550 days. The results of our calculations are shown below.

¹³ http://www.epa.gov/ttn/scram/guidance/guide/EPA-454R-92-019_OCR.pdf

¹⁴ "Risk Assessment Guidelines Guidance Manual for Preparation of Health Risk Assessments." OEHHA, February 2015, available at: <https://oehha.ca.gov/media/downloads/cnr/2015guidancemanual.pdf>

¹⁵ "Supplemental Guidelines for Preparing Risk Assessments for the Air Toxics 'Hot Spots' Information and Assessment Act," June 5, 2015, available at: <http://www.aqmd.gov/docs/default-source/planning/risk-assessment/ab2588-risk-assessment-guidelines.pdf?sfvrsn=6>, p. 19

"Risk Assessment Guidelines Guidance Manual for Preparation of Health Risk Assessments." OEHHA, February 2015, available at: <https://oehha.ca.gov/media/downloads/cnr/2015guidancemanual.pdf>

The Maximum Exposed Individual at an Existing Residential Receptor (MEIR)					
Activity	Duration (years)	Concentration ($\mu\text{g}/\text{m}^3$)	Breathing Rate (L/kg-day)	ASF	Cancer Risk
Construction	0.9	0.6815	1090	10	1.0E-04
Operation	1.1	0.2064	1090	10	3.7E-05
Infant Exposure Duration	2			Infant Exposure	1.4E-04
Operation	14	0.2064	572	3	7.5E-05
Child Exposure Duration	14			Child Exposure	7.5E-05
Operation	14	0.2064	261	1	1.1E-05
Adult Exposure Duration	14			Adult Exposure	1.1E-05
Lifetime Exposure Duration	30			Lifetime Exposure	2.2E-04

The excess cancer risk to adults, children, and infants at the MEIR located approximately 25 meters away, over the course of Project construction and operation are 11, 75, and 140 in one million, respectively. Furthermore, the excess cancer risk over the course of a residential lifetime (30 years) at the MEIR is approximately 220 in one million. Consistent with OEHHA guidance, exposure was assumed to begin in the infantile stage of life to provide the most conservative estimates of air quality hazards. The infant, child, adult, and lifetime cancer risks all exceed the BAAQMD's threshold of 10 in one million.

It should be noted that our analysis represents a screening level HRA, which is known to be more conservative, and tends to err on the side of health protection.¹⁶ The purpose of a screening-level HRA, however, is to determine if a more refined HRA needs to be conducted. If the results of a screening-level health risk are above applicable thresholds, then the Project needs to conduct a more refined HRA that is more representative of site specific concentrations. Our screening-level HRA demonstrates that construction and operation of the Project could result in a potentially significant health risk impact, when correct exposure assumptions and up-to-date, applicable guidance are used. As a result, a refined HRA must be prepared to examine air quality impacts generated by Project construction and operation using site-specific meteorology and specific equipment usage schedules. A DEIR must be prepared to adequately evaluate the Project's health risk impact, and should include additional mitigation measures to reduce these impacts to a less-than-significant level.

Mitigation Measures Available to Reduce Construction Emissions

Our updated air quality analysis and HRA demonstrates that, when Project activities are modeled correctly, construction-related NO_x and DPM emissions would result in significant air quality and health risk impacts. Therefore, additional mitigation measures must be identified and incorporated in a DEIR to reduce these emissions to a less than significant level.

Additional mitigation measures can be found in CAPCOA's *Quantifying Greenhouse Gas Mitigation Measures*, which attempt to reduce GHG levels, as well as reduce criteria air pollutants such as particulate matter and NO_x.¹⁷ DPM and NO_x are a byproduct of diesel fuel combustion and are emitted

¹⁶ http://oehha.ca.gov/air/hot_spots/2015/2015GuidanceManual.pdf p. 1-5

¹⁷ <http://www.capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf>

by on-road vehicles and by off-road construction equipment. Mitigation for criteria pollutant emissions should include consideration of the following measures in an effort to reduce construction emissions.

Limit Construction Equipment Idling Beyond Regulation Requirements

Heavy duty vehicles will idle during loading/unloading and during layovers or rest periods with the engine still on, which requires fuel use and results in emissions. The California Air Resources Board (CARB) Heavy-Duty Vehicle Idling Emissions Reduction Program limits idling of diesel-fueled commercial motor vehicles to five minutes. Reduction in idling time beyond the five minutes required under the regulation would further reduce fuel consumption and thus emissions. The Project applicant must develop an enforceable mechanism that monitors the idling time to ensure compliance with this mitigation measure.

Require Implementation of Diesel Control Measures

The Northeast Diesel Collaborative (NEDC) is a regionally coordinated initiative to reduce diesel emissions, improve public health, and promote clean diesel technology. The NEDC recommends that contracts for all construction projects require the following diesel control measures:¹⁸

- All diesel onroad vehicles on site for more than 10 total days must have either (1) engines that meet EPA 2007 onroad emissions standards or (2) emission control technology verified by EPA¹⁹ or the California Air Resources Board (CARB)²⁰ to reduce PM emissions by a minimum of 85 percent.
- All diesel generators on site for more than 10 total days must be equipped with emission control technology verified by EPA or CARB to reduce PM emissions by a minimum of 85 percent.
- All diesel nonroad construction equipment on site for more than 10 total days must have either (1) engines meeting EPA Tier 4 nonroad emission standards or (2) emission control technology verified by EPA or CARB for use with nonroad engines to reduce PM emissions by a minimum of 85 percent for engines 50 horse power (hp) and greater and by a minimum of 20 percent for engines less than 50 hp.
- All diesel vehicles, construction equipment, and generators on site shall be fueled with ultra-low sulfur diesel fuel (ULSD) or a biodiesel blend²¹ approved by the original engine manufacturer with sulfur content of 15 parts per million (ppm) or less.

Repower or Replace Older Construction Equipment Engines

The NEDC recognizes that availability of equipment that meets the EPA's newer standards is limited.²² Due to this limitation, the NEDC proposes actions that can be taken to reduce emissions from existing

¹⁸ Diesel Emission Controls in Construction Projects, *available*

at: <http://www2.epa.gov/sites/production/files/2015-09/documents/nedc-model-contract-sepcification.pdf>

¹⁹ For EPA's list of verified technology: <http://www3.epa.gov/otaq/diesel/verification/verif-list.htm>

²⁰ For CARB's list of verified technology: <http://www.arb.ca.gov/diesel/verdev/vt/cvt.htm>

²¹ Biodiesel blends are only to be used in conjunction with the technologies which have been verified for use with biodiesel blends and are subject to the following requirements:

<http://www.arb.ca.gov/diesel/verdev/reg/biodieselcompliance.pdf>

²² <http://northeastdiesel.org/pdf/BestPractices4CleanDieselConstructionAug2012.pdf>

equipment in the *Best Practices for Clean Diesel Construction* report.²³ These actions include but are not limited to:

- Repowering equipment (i.e. replacing older engines with newer, cleaner engines and leaving the body of the equipment intact).

Engine repower may be a cost-effective emissions reduction strategy when a vehicle or machine has a long useful life and the cost of the engine does not approach the cost of the entire vehicle or machine. Examples of good potential replacement candidates include marine vessels, locomotives, and large construction machines.²⁴ Older diesel vehicles or machines can be repowered with newer diesel engines or in some cases with engines that operate on alternative fuels (see section “Use Alternative Fuels for Construction Equipment” for details). The original engine is taken out of service and a new engine with reduced emission characteristics is installed. Significant emission reductions can be achieved, depending on the newer engine and the vehicle or machine’s ability to accept a more modern engine and emission control system. It should be noted, however, that newer engines or higher tier engines are not necessarily cleaner engines, so it is important that the Project Applicant check the actual emission standard level of the current (existing) and new engines to ensure the repower product is reducing emissions for DPM.²⁵

- Replacement of older equipment with equipment meeting the latest emission standards.

Engine replacement can include substituting a cleaner highway engine for a nonroad engine. Diesel equipment may also be replaced with other technologies or fuels. Examples include hybrid switcher locomotives, electric cranes, LNG, CNG, LPG or propane yard tractors, forklifts or loaders. Replacements using natural gas may require changes to fueling infrastructure.²⁶ Replacements often require some re-engineering work due to differences in size and configuration. Typically, there are benefits in fuel efficiency, reliability, warranty, and maintenance costs.²⁷

Install Retrofit Devices on Existing Construction Equipment

PM emissions from alternatively-fueled construction equipment can be further reduced by installing retrofit devices on existing and/or new equipment. The most common retrofit technologies are retrofit devices for engine exhaust after-treatment. These devices are installed in the exhaust system to reduce

²³<http://northeastdiesel.org/pdf/BestPractices4CleanDieselConstructionAug2012.pdf>

²⁴ Repair, Rebuild, and Repower, EPA, *available at*:<https://www.epa.gov/verified-diesel-tech/learn-about-verified-technologies-clean-diesel#repair>

²⁵ Diesel Emissions Reduction Program (DERA): Technologies, Fleets and Projects Information, *available at*:<http://www2.epa.gov/sites/production/files/2015-09/documents/420p11001.pdf>

²⁶ Alternative Fuel Conversion, EPA, *available at*:
<https://www3.epa.gov/otaq/consumer/fuels/altfuels/altfuels.htm#fact>

²⁷ Cleaner Fuels, EPA, *available at*:<https://www.epa.gov/verified-diesel-tech/learn-about-verified-technologies-clean-diesel#cleaner>

emissions and should not impact engine or vehicle operation.²⁸ It should be noted that actual emissions reductions and costs will depend on specific manufacturers, technologies and applications.

Use Electric and Hybrid Construction Equipment

CAPCOA's *Quantifying Greenhouse Gas Mitigation Measures*²⁹ report also proposes the use of electric and/or hybrid construction equipment as a way to mitigate DPM emissions. When construction equipment is powered by grid electricity rather than fossil fuel, direct emissions from fuel combustion are replaced with indirect emissions associated with the electricity used to power the equipment. Furthermore, when construction equipment is powered by hybrid-electric drives, emissions from fuel combustion are also greatly reduced. Electric construction equipment is available commercially from companies such as Peterson Pacific Corporation,³⁰ which specialize in the mechanical processing equipment like grinders and shredders. Construction equipment powered by hybrid-electric drives is also commercially available from companies such as Caterpillar³¹. For example, Caterpillar reports that during an 8-hour shift, its D7E hybrid dozer burns 19.5 percent fewer gallons of fuel than a conventional dozer while achieving a 10.3 percent increase in productivity. The D7E model burns 6.2 gallons per hour compared to a conventional dozer which burns 7.7 gallons per hour.³² Fuel usage and savings are dependent on the make and model of the construction equipment used. The Project Applicant should calculate project-specific savings and provide manufacturer specifications indicating fuel burned per hour.

Implement a Construction Vehicle Inventory Tracking System

CAPCOA's *Quantifying Greenhouse Gas Mitigation Measures*³³ report recommends that the Project Applicant provide a detailed plan that discusses a construction vehicle inventory tracking system to ensure compliances with construction mitigation measures. The system should include strategies such as requiring engine run time meters on equipment, documenting the serial number, horsepower, manufacture age, fuel, etc. of all onsite equipment and daily logging of the operating hours of the equipment. Specifically, for each onroad construction vehicle, nonroad construction equipment, or generator, the contractor should submit to the developer's representative a report prior to bringing said equipment on site that includes:³⁴

- Equipment type, equipment manufacturer, equipment serial number, engine manufacturer, engine model year, engine certification (Tier rating), horsepower, and engine serial number.
- The type of emission control technology installed, serial number, make, model, manufacturer, and EPA/CARB verification number/level.

²⁸ Retrofit Technologies, EPA, available at: <https://www.epa.gov/verified-diesel-tech/learn-about-verified-technologies-clean-diesel#retrofit>

²⁹ <http://www.capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf>

³⁰ Peterson Electric Grinders Brochure, available at: http://www.petersoncorp.com/wp-content/uploads/peterson_electric_grinders1.pdf

³¹ Electric Power Products, available at: http://www.cat.com/en_US/products/new/power-systems/electric-power-generation.html

³² <http://www.capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf>

³³ <http://www.capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf>

³⁴ Diesel Emission Controls in Construction Projects, available at: <http://www2.epa.gov/sites/production/files/2015-09/documents/nedc-model-contract-sepcification.pdf>

- The Certification Statement³⁵ signed and printed on the contractor's letterhead.

Furthermore, the contractor should submit to the developer's representative a monthly report that, for each onroad construction vehicle, nonroad construction equipment, or generator onsite, includes: ³⁶

- Hour-meter readings on arrival on-site, the first and last day of every month, and on off-site date.
- Any problems with the equipment or emission controls.
- Certified copies of fuel deliveries for the time period that identify:
 - Source of supply
 - Quantity of fuel
 - Quality of fuel, including sulfur content (percent by weight).

In addition to these measures, we also recommend that the Applicant implement the following mitigation measures, called "Enhanced Exhaust Control Practices,"³⁷ that are recommended by the Sacramento Metropolitan Air Quality Management District (SMAQMD):

1. The project representative shall submit to the lead agency a comprehensive inventory of all off-road construction equipment, equal to or greater than 50 horsepower, that will be used an aggregate of 40 or more hours during any portion of the construction project.
 - The inventory shall include the horsepower rating, engine model year, and projected hours of use for each piece of equipment.
 - The project representative shall provide the anticipated construction timeline including start date, and name and phone number of the project manager and on-site foreman.
 - This information shall be submitted at least 4 business days prior to the use of subject heavy-duty off-road equipment.
 - The inventory shall be updated and submitted monthly throughout the duration of the project, except that an inventory shall not be required for any 30-day period in which no construction activity occurs.
2. The project representative shall provide a plan for approval by the lead agency demonstrating that the heavy-duty off-road vehicles (50 horsepower or more) to be used in the construction project, including owned, leased, and subcontractor vehicles, will achieve a project wide fleet-average 20% NOX reduction and 45% particulate reduction compared to the most recent California Air Resources Board (ARB) fleet average.
 - This plan shall be submitted in conjunction with the equipment inventory.

³⁵ Diesel Emission Controls in Construction Projects, *available at*:<http://www2.epa.gov/sites/production/files/2015-09/documents/nedc-model-contract-sepcification.pdf> The NEDC Model Certification Statement can be found in Appendix A.

³⁶ Diesel Emission Controls in Construction Projects, *available at*:<http://www2.epa.gov/sites/production/files/2015-09/documents/nedc-model-contract-sepcification.pdf>

³⁷http://www.airquality.org/ceqa/Ch3EnhancedExhaustControl_10-2013.pdf

- Acceptable options for reducing emissions may include use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, and/or other options as they become available.
 - The District's Construction Mitigation Calculator can be used to identify an equipment fleet that achieves this reduction.
3. The project representative shall ensure that emissions from all off-road diesel-powered equipment used on the project site do not exceed 40% opacity for more than three minutes in any one hour.
- Any equipment found to exceed 40 percent opacity (or Ringelmann 2.0) shall be repaired immediately. Non-compliant equipment will be documented and a summary provided to the lead agency monthly.
 - A visual survey of all in-operation equipment shall be made at least weekly.
 - A monthly summary of the visual survey results shall be submitted throughout the duration of the project, except that the monthly summary shall not be required for any 30-day period in which no construction activity occurs. The monthly summary shall include the quantity and type of vehicles surveyed as well as the dates of each survey.
4. The District and/or other officials may conduct periodic site inspections to determine compliance. Nothing in this mitigation shall supersede other District, state or federal rules or regulations.

When combined, the measures that we recommend in these comments offer a cost-effective, feasible way to incorporate lower-emitting equipment into the Project's construction fleet, which subsequently reduces NOx and DPM emissions released during Project construction. A project-specific DEIR must be prepared to include additional mitigation measures, as well as include an updated air quality assessment to ensure that the necessary mitigation measures are implemented to reduce construction emissions. Furthermore, the Project Applicant needs to demonstrate commitment to the implementation of these measures prior to Project approval to ensure that the Project's construction-related emissions are reduced to the maximum extent possible.

Feasible Mitigation Measures Available to Reduce Operational Emissions

Our analysis also demonstrates that the Project's operational DPM emissions may present a potentially significant impact. In an effort to reduce the Project's emissions, we identified several additional mitigation measures that are applicable to the Project. Additional, feasible mitigation measures can be also found in CAPCOA's *Quantifying Greenhouse Gas Mitigation Measures*.³⁸ Therefore, to reduce the Project's operational DPM emissions, consideration of the following measures should be made.

- Incorporate Bike Lane Street Design (On-Site)
 - Incorporating bicycle lanes, routes, and shared-use paths into street systems, new subdivisions, and large developments can reduce VMTs. These improvements can help reduce peak-hour vehicle trips by making commuting by bike easier and more

³⁸ <http://www.capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf>

convenient for more people. In addition, improved bicycle facilities can increase access to and from transit hubs, thereby expanding the “catchment area” of the transit stop or station and increasing ridership. Bicycle access can also reduce parking pressure on heavily-used and/or heavily-subsidized feeder bus lines and auto-oriented park-and-ride facilities.

- Limit Parking Supply
 - This mitigation measure will change parking requirements and types of supply within the Project site to encourage “smart growth” development and alternative transportation choices by project residents and employees. This can be accomplished in a multi-faceted strategy:
 - Elimination (or reduction) of minimum parking requirements
 - Creation of maximum parking requirements
 - Provision of shared parking
- Implement Commute Trip Reduction Program- Voluntary or Required
 - Implementation of a Commute Trip Reduction (CTR) program with employers will discourage single-occupancy vehicle trips and encourage alternative modes of transportation such as carpooling, taking transit, walking, and biking. The main difference between a voluntary and a required program is:
 - Monitoring and reporting is not required
 - No established performance standards (i.e. no trip reduction requirements)
 - The CTR program should provide employees with assistance in using alternative modes of travel, and provide both “carrots” and “sticks” to encourage employees. The CTR program should include all of the following to apply the effectiveness reported by the literature:
 - Carpooling encouragement
 - Ride-matching assistance
 - Preferential carpool parking
 - Flexible work schedules for carpools
 - Half time transportation coordinator
 - Vanpool assistance
 - Bicycle end-trip facilities (parking, showers and lockers)
- Provide Ride-Sharing Programs
 - Increasing the vehicle occupancy by ride sharing will result in fewer cars driving the same trip, and thus a decrease in VMT. The project should include a ride-sharing program as well as a permanent transportation management association membership and funding requirement. The project can promote ride-sharing programs through a multi-faceted approach such as:
 - Designating a certain percentage of parking spaces for ride sharing vehicles
 - Designating adequate passenger loading and unloading and waiting areas for ride-sharing vehicles
 - Providing a web site or message board for coordinating rides

- Implement Subsidized or Discounted Transit Program
 - This project can provide subsidized/discounted daily or monthly public transit passes to incentivize the use of public transport. The project may also provide free transfers between all shuttles and transit to participants. These passes can be partially or wholly subsidized by the employer, school, or development. Many entities use revenue from parking to offset the cost of such a project.
- Implement Commute Trip Reduction Marketing
 - The project can implement marketing strategies to reduce commute trips. Information sharing and marketing are important components to successful commute trip reduction strategies. Implementing commute trip reduction strategies without a complementary marketing strategy will result in lower VMT reductions. Marketing strategies may include:
 - New employee orientation of trip reduction and alternative mode options
 - Event promotions
 - Publications
- Implement Preferential Parking Permit Program
 - The project can provide preferential parking in convenient locations (such as near public transportation or building front doors) in terms of free or reduced parking fees, priority parking, or reserved parking for commuters who carpool, vanpool, ride-share or use alternatively fueled vehicles. The project should provide wide parking spaces to accommodate vanpool vehicles.
- Implement Car-Sharing Program
 - This project should implement a car-sharing project to allow people to have on-demand access to a shared fleet of vehicles on an as-needed basis. User costs are typically determined through mileage or hourly rates, with deposits and/or annual membership fees. The car-sharing program could be created through a local partnership or through one of many existing car-share companies. Car-sharing programs may be grouped into three general categories: residential- or citywide-based, employer-based, and transit station-based. Transit station-based programs focus on providing the “last-mile” solution and link transit with commuters’ final destinations. Residential-based programs work to substitute entire household based trips. Employer-based programs provide a means for business/day trips for alternative mode commuters and provide a guaranteed ride home option.
- Provide Employer-Sponsored Vanpool/Shuttle
 - This project can implement an employer-sponsored vanpool or shuttle. A vanpool will usually service employees’ commute to work while a shuttle will service nearby transit stations and surrounding commercial centers. Employer-sponsored vanpool programs entail an employer purchasing or leasing vans for employee use, and often subsidizing the cost of at least program administration, if not more. The driver usually receives personal use of the van, often for a mileage fee. Scheduling is within the employer’s purview, and rider charges are normally set on the basis of vehicle and operating cost.

- Price Workplace Parking
 - The project should implement workplace parking pricing at its employment centers. This may include: explicitly charging for parking for its employees, implementing above market rate pricing, validating parking only for invited guests, not providing employee parking and transportation allowances, and educating employees about available alternatives.
 - Though similar to the Employee Parking “Cash-Out” strategy, this strategy focuses on implementing market rate and above market rate pricing to provide a price signal for employees to consider alternative modes for their work commute.
- Implement Employee Parking “Cash-Out”
 - The project can require employers to offer employee parking “cash-out.” The term “cash-out” is used to describe the employer providing employees with a choice of forgoing their current subsidized/free parking for a cash payment equivalent to the cost of the parking space to the employer.

These measures offer a cost-effective, feasible way to incorporate lower-emitting design features into the proposed Project, which subsequently, reduces DPM emissions released during Project operation. A DEIR must be prepared to include additional mitigation measures, as well as include an updated air quality analysis to ensure that the necessary mitigation measures are implemented to reduce operational DPM emissions to below thresholds. The Project Applicant also needs to demonstrate commitment to the implementation of these measures prior to Project approval, to ensure that the Project’s operational DPM emissions are reduced to the maximum extent possible.

Greenhouse Gas

Failure to Adequately Assess the Project’s Greenhouse Gas Impacts

According to the IS/MND, the Project’s GHG emissions will be less than significant. The IS/MND states,

“With implementation of the efficiency measures and BMPs included in the project and in combination with the green power mix utilized by SVP, GHG emissions related to the proposed project would not conflict with the Santa Clara Climate Action Plan or other plans, policies or regulations adopted for the purpose of reducing the emissions of GHG” (p. 70).

This reasoning and subsequent significance determination, however, is incorrect, as the IS/MND’s GHG analysis fails to quantify the proposed Project’s GHG emissions and compare the emissions to applicable thresholds, as required by CEQA Guidelines (Section 15064.4).³⁹ It is incorrect, for several reasons, for the IS/MND to simply claim that the Project “would not conflict with the Santa Clara Climate Action Plan or other plans, policies, or regulations” and conclude that the Project would not result in a significant GHG impact.

³⁹ “CEQA Guidelines.” *The Governor’s Office of Planning & Research*, 2011, available at: https://www.opr.ca.gov/s_ceqaandclimatechange.php
http://resources.ca.gov/ceqa/docs/FINAL_Text_of_Proposed_Amendments.pdf

First, without first quantifying the Project's GHG emissions, there is no way of knowing if the Project's GHG emissions exceed thresholds, and by how much. CEQA Guidelines mandate that only after a Project's GHG emissions are determined to be significant and exceed thresholds does a lead agency need to consider potential mitigation measures to reduce a project's emissions.⁴⁰ Therefore, the Project Applicant should have quantified the proposed Project's GHG emissions and compared the emissions to applicable thresholds prior to proposing the City of Santa Clara's ("City") Climate Action Plan (CAP) as a form of mitigation.

Second, the IS/MND cannot simply state that the Project is consistent with the City's CAP and, as a result, claim that the Project's GHG emissions are less than significant. In December of 2013, the City of Santa Clara adopted the Climate Action Plan (CAP), which was developed to reduce GHG emissions from activities within the region, consistent with reduction targets set forth by Assembly Bill 32 (AB32), Senate Bill 375 (SB375), and in accordance with California Environmental Quality Act (CEQA) Guidelines Section 15183.5.⁴¹ The Citywide CAP meets the BAAQMD's requirements for a *Qualified Greenhouse Gas Reduction Strategy* and enables future projects in Santa Clara to qualify for a streamlined CEQA review process for GHG emissions analyses.⁴² According to the IS/MND, "the CAP, which is part of the City's General Plan, identifies a series of GHG emissions reduction measures to be implemented by development project that would allow the City to achieve its GHG reduction goals" (p. 66). Therefore, in order for a project to be consistent with the reduction targets identified in the CAP, the Project must comply with the required mitigation measures set forth within the CAP. However, the IS/MND and associated appendices fail to demonstrate how the proposed Project will be consistent with all the measures set forth in the CAP.

Specifically, the IS/MND fails to demonstrate how it will be consistent with *Measure 6.1 Transportation Demand Management Program*.⁴³ The CAP states that this measure will "Require new development located in the city's transportation districts to implement a TDM program to reduce drive-alone trips."⁴⁴ As a result, the IS/MND lists measures that "could be included as part of the TDM Plan to reduce vehicle trips by 10 percent consistent with the City's CAP" (p. 67). However, the IS/MND fails to include these measures as mitigation or as a Project Design Feature (PDF). Thus, the IS/MND must demonstrate how it will implement the GHG-reducing measures proposed in the CAP before it can claim that the proposed Project will not have a significant GHG impact or that the Project will not conflict with any applicable plan, policy, or regulation.

⁴⁰ "CEQA Guidelines." *The Governor's Office of Planning & Research*, 2011, available at: https://www.opr.ca.gov/s_ceqaandclimatechange.php

⁴¹ "City of Santa Clara Climate Action Plan." *City of Santa Clara*, December 2013, available at: <http://santaclaraca.gov/home/showdocument?id=10170>, p. 8

⁴² "City of Santa Clara Climate Action Plan." *City of Santa Clara*, December 2013, available at: <http://santaclaraca.gov/home/showdocument?id=10170>, p. viii

⁴³ "City of Santa Clara Climate Action Plan." *City of Santa Clara*, December 2013, available at: <http://santaclaraca.gov/home/showdocument?id=10170>, p. 52

⁴⁴ "City of Santa Clara Climate Action Plan." *City of Santa Clara*, December 2013, available at: <http://santaclaraca.gov/home/showdocument?id=10170>, p. 52

For these reasons, we find the IS/MND's GHG analysis to be inadequate and should not be relied upon to determine Project significance. Until an updated analysis is conducted that correctly and thoroughly assesses the Project's GHG impacts, the conclusions made within the IS/MND should not be relied upon to determine Project significance.

Updated Analysis Demonstrates Significant Greenhouse Gas Impact

In an effort to determine the proposed Project's GHG impact, we conducted a simple analysis using the Project's GHG emission estimates provided by SWAPE and the BAAQMD's Air Quality Guidelines. The Guidelines include information on legal requirements, BAAQMD rules, plans and procedures, methods of analyzing air quality impacts, thresholds of significance, mitigation measures, and background air quality information. In June 2010, the Air District's Board of Directors set forth new CEQA thresholds of significance and updated their CEQA Guidelines. According to the BAAQMD's updated Guidelines, it is recommended that the proposed Project quantify the Project's indirect and direct GHG emissions, and compare these emissions to the BAAQMD's screening threshold of 1,100 metric tons per year of carbon dioxide equivalents (MT CO₂e/year).⁴⁵ If a Project would generate GHG emissions greater than 1,100 MT CO₂e/year, it would make a considerable contribution to greenhouse gas emissions and result in a significant impact to global climate change. Consistent with BAAQMD Guidelines, in order to adequately determine the Project's GHG impact, we quantified the Project's construction and operational GHG emissions and compared the emissions to the BAAQMD recommended thresholds of 1,100 MT CO₂e/year. When the Project's GHG emissions are quantified and compared to these thresholds, we find that the Project could have a potentially significant impact on global climate change (see table below).

Estimated Annual Greenhouse Gas Emissions	
Emission Source	Proposed Project (MT CO₂E/year)
Construction (Amortized)	62.79
Area	0.01
Energy	1,751
Mobile	80.45
Waste	309.06
Water	310.58
Total	2,513
BAAQMD Significance Threshold	1,100
Exceed?	Yes

The Project's total GHG emissions were estimated by adding the Project's amortized construction emissions to the Project's operational emissions. When correct input parameters are used, the Project's total GHG emissions clearly exceed the BAAQMD threshold of 1,100 MT CO₂e/year, thus resulting in a significant impact not previously assessed or identified in the IS/MND. As a result, a DEIR should be

⁴⁵ Air Quality Guidelines, BAAQMD, June 2010, available at: http://www.baaqmd.gov/~media/files/planning-and-research/ceqa/draft_baaqmd_ceqa_guidelines_may_2010_final.pdf?la=en, p. 2-2

prepared that includes an updated CalEEMod model with a more accurate assessment of the Project's total GHG emissions, and additional mitigation should be identified to reduce the Project's air quality and GHG impacts to a less-than-significant level. Without a DEIR, an updated CalEEMod model, and responsive mitigation, substantial evidence exists to support a fair argument that the Project may have significant, unmitigated impacts on GHG emissions.

Additional Mitigation Measures Available to Reduce Greenhouse Gas Emissions

We identified several additional mitigation measures that the IS/MND failed to incorporate, which would further reduce the Project's operational GHG emissions. It should be noted that some of these mitigation measures would also reduce the Project's operational DPM emissions, which we found to be significant, as discussed in the sections above. Therefore, these measures should also be considered when mitigating the Project's operational DPM emissions. Additional mitigation measures that could be implemented to reduce GHG emissions include, but are not limited to, the following: ⁴⁶

- Use passive solar design, such as: ^{47,48}
 - Orient buildings and incorporate landscaping to maximize passive solar; heating during cool seasons, and minimize solar heat gain during hot seasons; and
 - Enhance natural ventilation by taking advantage of prevailing winds.
- Reduce unnecessary outdoor lighting by utilizing design features such as limiting the hours of operation of outdoor lighting.
- Develop and follow a "green streets guide" that requires:
 - Use of minimal amounts of concrete and asphalt;
 - Installation of permeable pavement to allow for storm water infiltration; and
 - Use of groundcovers rather than pavement to reduce heat reflection.⁴⁹
- Implement Project design features such as:
 - Shade HVAC equipment from direct sunlight;
 - Install high-albedo white thermoplastic polyolefin roof membrane;
 - Install high-efficiency HVAC with hot-gas reheat;
 - Install formaldehyde-free insulation; and
 - Use recycled-content gypsum board.
- Provide education on energy efficiency to residents, customers, and/or tenants. Provide information on energy management services for large energy users.
- Meet "reach" goals for building energy efficiency and renewable energy use.
- Install solar, wind, and geothermal power systems and solar hot water heaters.

⁴⁶ http://ag.ca.gov/globalwarming/pdf/GW_mitigation_measures.pdf

⁴⁷ Santa Barbara Air Pollution Control District, Scope and Content of Air Quality Sections in Environmental Documents, September 1997.

⁴⁸ Butte County Air Quality Management District, Indirect Source Review Guidelines, March 1997.

⁴⁹ See Irvine Sustainable Travelways "Green Street" Guidelines; www.ci.irvine.ca.us/civica/filebank/blobdload.asp?BlobID=8934; and Cool Houston Plan; www.harc.edu/Projects/CoolHouston.

- Maximize use of solar energy including solar panels; installing the maximum possible number of solar energy arrays on all building roofs and/or on the Project site to generate solar energy for the facility.
- Include energy storage where appropriate to optimize renewable energy generation systems and avoid peak energy use.
- Plant low-VOC emitting shade trees, e.g., in parking lots to reduce evaporative emissions from parked vehicles.
- Use CARB-certified or electric landscaping equipment in project and tenant operations; and introduce electric lawn, and garden equipment exchange program.
- Install an infiltration ditch to provide an opportunity for 100% of the storm water to infiltrate on-site.

When combined, these measures offer a cost-effective, feasible way to incorporate lower-emitting design features into the proposed Project, which subsequently, reduces GHG emissions released during Project operation. A DEIR must be prepared to include additional mitigation measures, as well as include an updated GHG analysis to ensure that the necessary mitigation measures are implemented to reduce operational emissions. Furthermore, the Project Applicant needs to demonstrate commitment to the implementation of these measures prior to Project approval to ensure that the Project's operational emissions are reduced to the maximum extent possible.

Sincerely,



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



Hadley Nolan