Communication from Public

Name: Marjan Abubo
Date Submitted: 06/17/2024 04:49 PM
Council File No: 24-0133
Comments for Public Posting: Please see the attached letter for review and inclusion into the record.

LOZEAU DRURY LLP
T 510.836.4200
F 510.836.4205
1939 Harrison Street, Ste. 150
Oakland, CA 94612
www.lozeaudrury.com
Marjan@lozeaudrury.com

Via Email

June 17, 2024

Planning and Land Use Management Committee
City of Los Angeles
Councilmember Marqueece Harris-Dawson, Chair
Councilmember John S. Lee, Vice Chair
Councilmember Imelda Padilla
Councilmember Katy Yaroslavsky
Councilmember Heather Hutt
John Ferraro Council Chamber
200 N. Spring Street, Room 340
Los Angeles, CA 90012
c/o Candy Rosales, Legislative Assistant
clerk.plumcommittee@lacity.org

Kristine Jegalian
Project Planner
City of Los Angeles
Department of City Planning
6262 Van Nuys Boulevard, Suite 251
Los Angeles, CA 91401
kristine.jegalian@lacity.org

Re: Appeal of Sustainable Communities Environmental Assessment
1201 Gower Street Project (ENV-2023-1540-SCEA)
PLUM Committee Hearing – June 18, 2024

Dear Chair Harris-Dawson and Honorable PLUM Members,

I am writing on behalf of Supporters Alliance for Environmental Responsibility ("SAFER"), and its members who live, work, and recreate in and around the City of Los Angeles ("City"). SAFER's comment is with regard to the proposed Sustainable Communities Environmental Assessment ("SCEA") prepared for the project known as 1201 Gower Street Project (ENV-2023-1540-SCEA), including all actions referring or related to the construction of a residential building, including 108 residential units equaling approximately 180,155-square-feet ("Project").

SAFER previously submitted comments on November 20, 2023 which were supported by the expert findings of consulting firm Baseline Environmental Consulting ("Baseline") and Certified Industrial Hygienist, Francis "Bud" Offermann, PE, CIH, who both argued that the SCEA failed to adequately analyze the Project's air quality, greenhouse gas impacts as well as the associated and health risks. On December 14, 2023, CAJA Environmental Services LLC ("CAJA") prepared responses for the City ("Response to Comments").

After reviewing the SCEA, SAFER requests that the City of Los Angeles refrain from taking any action on the Project and SCEA because there is substantial evidence that the Project will have potentially significant environmental impacts and the SCEA fails to incorporate all feasible mitigation measures from a prior environmental impact report ("EIR").

LEGAL BACKGROUND

I. Sustainable Communities Environmental Assessment under SB 375.

CEQA allows for the streamlining of environmental review for "transit priority projects" meeting certain criteria. (Pub. Res. Code ("PRC") §§ 21155, 21155.1, 21155.2.) To qualify as a transit priority project, a project must

> (1) contain at least 50 percent residential use, based on total building square footage and, if the project contains between 26 percent and 50 percent nonresidential uses, a floor area ratio of not less than 0.75;
> (2) provide a minimum net density of at least 20 dwelling units per acre; and
> (3) be within one-half mile of a major transit stop or high-quality transit corridor included in a regional transportation plan.
>
> (PRC § 21155(b).)

A transit priority project is eligible for CEQA's streamlining provisions where,

> [The transit priority project] is consistent with the general use designation, density, building intensity, and applicable policies specified for the project area in either a sustainable communities strategy or an alternative planning strategy, for which the State Air Resources Board . . . has accepted a metropolitan planning organization's determination that the sustainable communities strategy or the alternative planning strategy would, if implemented, achieve the greenhouse gas emission reduction targets.
>
> (PRC § 21155(a).)

In 2020, SCAG's Regional Council formally adopted the Connect SoCal 2020–2045 Regional Transportation Plan/Sustainable Communities Strategy ("2020 RTP/SCS"), which was accepted by CARB on October 30, 2020.

If "all feasible mitigation measures, performance standards, or criteria set forth in the prior applicable environmental impact reports and adopted in findings made pursuant to Section 21081" are applied to a transit priority project, the project is eligible to conduct environmental review using a SCEA. (PRC § 21155.2.) A SCEA must contain an initial study which "identif[ies] all significant or potentially significant impacts of the transit priority project . . . based on substantial evidence in light of the whole record." (PRC § 21155.2(b)(1).) The initial study must also "identify any cumulative effects that have been adequately addressed and mitigated pursuant to the requirements of this division in prior applicable certified environmental impact reports." (*Id.*) The SCEA must then "contain measures that either avoid or mitigate to a level of insignificance all potentially significant or significant effects of the project required to be identified in the initial study." (PRC § 21155(b)(2).)

After circulating the SCEA for public review and considering all comments, a lead agency may approve the SCEA with findings that all potentially significant impacts have been identified and mitigated to a less-than-significant level. (PRC §§ 21155(b)(3), (b)(4), (b)(5).) A lead agency's approval of a SCEA must be supported by substantial evidence. (PRC § 21155(b)(7).)

DISCUSSION

I. Substantial Evidence Shows that the Project Will Have Potentially Significant Air Quality and Health Impacts.

The SCEA violates CEQA if it fails to identify and mitigate all potentially significant air quality impacts. Indoor air quality expert Francis "Bud" Offermann, PE, CIH, and environmental experts Patrick Sutton, P.E., and Dr. Yilin Tian, Ph.D. of Baseline reviewed the SCEA and found that the SCEA's conclusions as to the Project's air quality impacts were not supported by substantial evidence. Baseline found that the SCEA failed to identify the Project's health risks because it improperly modeled the Project's emissions and therefore failed to properly apply the SCEA's proposed mitigation measures.

Based on the Response to Comments, Baseline not only maintains that the Project will have potentially significant air quality and GHG impacts, but that the City does not adequately address Baseline's issues raised in SAFER's previous comment letter. Baseline's comments and CVs are attached as exhibits A and B. Mr. Offermann found that the SCEA failed to address and mitigate the human health impacts from indoor emissions of formaldehyde. Mr. Offermann's comment and CV are attached as Exhibit C.

a. There is Substantial Evidence That the Project Will Have Potentially Significant Air Quality Impacts from Diesel Particulate Matter.

Baseline prepared a revised health risk assessment ("HRA") to estimate the increased cancer risk at nearby sensitive receptors exposed to diesel particulate matter. The HRA evaluated potential health risks for the maximally exposed individual resident ("MEIR"), and an existing residential building would be in operation throughout the construction process, meaning that the nearest sensitive receptor is the existing building on the northeast side of the Project site. (Ex. B,

p. 2.)

Table 1. Health Risks at MEIR During Project Construction

Construction Scenario	Diesel Particulate Matter	
	Cancer Risk (per million)	Chronic Hazard Index
Original Health Risk Assessment	103	0.05
Updated Health Risk Assessment	87.5	0.06
Thresholds of Significance	10	1
Thresholds Exceedance?	**Yes**	No

Source: See Attachment A

Baseline's updated HRA revealed that the estimated health risks for the MEIR from Project emissions is 87.5 in a million, an amount that far exceeds the SCAQMD threshold of significance. (Ex. B, p. 2.) Baseline adjusted the Project's emissions according to refined project construction hours presented in the Response to Comments. With these adjustments, Baseline concluded that the Project's cancer risks would still far exceed significance thresholds, and the Project will have potentially significant air quality impacts. (*Id.*)

Baseline refutes the City's HRA analysis prepared by Air Quality Dynamics (AQD). AQD's analysis concluded that the Project would created cancer risk from DPM of 9.1 per million – just slightly below the 10 per million CEQA significance threshold. However, Baseline explains that AQD's analysis is riddled with factual errors and inconsistencies with regulatory guidance, which renders the analysis unsupported by substantial evidence. For example, the City's Response to Comments improperly asserts that Baseline's HRA should only measure weekdays and not weekends. (Response to Comments, p. 1.) This change in what days should be considered for the purposes of evaluating health exposure would be from 350 days to just 260 days. (*Id.*) This implies that Baseline's HRA incorrectly assumed the Project construction hours, arguing that construction would occur from 8AM to 4PM Monday through Friday. However, that schedule is nowhere to be found on the SCEA documents, undercutting the credibility of the City's assertion. As Baseline contends, "the HRA letter is suggesting that the annual average concentration exposure should be ignored. This erroneous assumption would result in a substantial underestimate[ion] of the cancer risk by about 25 percent." (Ex. B, p. 4.) As such, it is improper for the City to rely on its expert's findings as accurate and credible. The City must perform additional analysis and produce models that more accurately capture the extent of the Project's impacts.

Furthermore, the City's HRA assessment excludes the OEHHA early-life adjustment factors for cancer potency, meaning that the HRA underestimates cancer risk for children and adolescents. (Ex. B, p. 6.) The City contends that these early-life adjustments should not be used to evaluate health risks. (Response to Comments, p. 3.) However, as Baseline highlights, the use of OEHHA guidelines and early-life adjustments are a common practice: "there is strong scientific evidence and consensus in California to support the use of OEHHA's early-life exposure adjustments for children exposed to DPM during construction rather than to exclude these critical adjustments factors based on older and justifiably outdated guidance from the U.S. EPA." (Ex. B, p. 6.) In fact, had the City's expert included these factors, as Baseline did in their revised HRA, the conclusions would demonstrate how the Project would exceed SCAQMD's cancer risk threshold. (*Id*.)

Baseline's analysis constitutes substantial evidence that the Project will have potentially significant air quality and health impacts which the City has failed to address. The City has failed to produce credible substantial evidence showing that the Project will not have significant air quality impacts related to DPM. As such, additional mitigation measures must be implemented before the City can approve this Project. Therefore, City cannot rely on a SCEA in its current form and must ensure that all feasible mitigation measures are implemented.

b. The Project Will Have Significant Indoor Air Quality Impacts.

Certified Industrial Hygienist, Francis "Bud" Offermann, PE, CIH conducted a review of the Project and relevant documents regarding the Project's indoor air emissions. Mr. Offermann is a leading expert on indoor air quality and has published extensively on the topic. Mr. Offermann concludes that it is likely that the Project will expose residents of the Project to significant impacts related to indoor air quality, and in particular, emissions of the cancer-causing chemical formaldehyde, a known human carcinogen. Mr. Offermann's expert comments and CV are attached as Exhibit C.

Mr. Offermann explains that many composite wood products used in building materials and furnishings commonly found in offices, warehouses, residences, hotels, and commercial spaces contain formaldehyde-based glues which off-gas formaldehyde over a long period of time. He states, "The primary source of formaldehyde indoors is composite wood products manufactured with urea-formaldehyde resins, such as plywood, medium density fiberboard, and particleboard. These materials are commonly used in building construction for flooring, cabinetry, baseboards, window shades, interior doors, and window and door trims." (Ex. C, p. 3.)

Here, the City failed to perform an adequate analysis concerning the Project's cancer risks associated with long-term exposure to carcinogenic TACs. Mr. Offermann states that future residents of the Project will be exposed to a cancer risk from formaldehyde of approximately 120 per million, even assuming all materials are compliant with the California Air Resources Board's ("CARB") formaldehyde airborne toxics control measure. (Ex. C, p. 3.) This risk level exceeds SCAQMD's CEQA significance threshold for airborne cancer risk of 10 per million. (*Id*.)

Furthermore, the City failed to analyze the additional impacts of motor vehicle traffic and the subsequent increase in exposure to particulate matter ("PM2.5"). In 1998, the State of California identified diesel particulate matter ("DPM") derived from diesel-powered engines as a Toxic Air Contaminant ("TAC") based on its potential to cause cancer. DPM is typically composed of carbon particles and a variety of organic compounds including more than 40 known cancer-causing organic substances.

Mr. Offermann notes that the high cancer risk posed by the Project's indoor air emissions will exacerbate the cancer risk that exists as a result of the Project's location within the South Coast Air Basin, a state and federal non-attainment area for PM2.5, and in an area with moderate to high traffic. (Ex. C, p. 11.) Specifically, he notes that "the SCAQMD's MATES V study cites an existing cancer risk of 541 per million at the Project site due to the site's high concentration of ambient air contaminants resulting from the area's high levels of motor vehicle traffic." (*Id*.) Formaldehyde emissions from composite wood products will exacerbate this pre-existing cancer risk.

Mr. Offermann predicts that projected annual average PM2.5 concentrations will exceed both state and federal standards, thereby necessitating both additional air quality analyses to determine PM2.5 concentrations as well as the installation of technology in order to reduce the impacts to a less-than-significant level. (Ex. C, pp. 11-12.) However, the City again failed to analyze these issues, as well as the cumulative impacts associated with the Project's emissions.

Mr. Offermann identifies mitigation measures that are available to reduce these significant health risks, including the installation of air filters and a requirement that the applicant use only composite wood materials (e.g. hardwood plywood, medium density fiberboard, particleboard) for all interior finish systems that are made with CARB approved no-added formaldehyde (NAF) resins or ultra-low emitting formaldehyde (ULEF) resins in the buildings' interiors. (Ex. C, pp. 12-14.)

These significant air quality impacts preclude the use of a Categorical Exemption for the Project. These impacts should be reviewed in a full CEQA analysis and mitigation measures should be imposed to reduce the risk of formaldehyde exposure.

c. The SCEA Failed to Adequately Analyze its Consistency with the City's Carbon Neutrality Goals.

The SCEA violates CEQA because it failed to adequately analyze the Project's contribution to the state's long-term goal of carbon neutrality by 2045 and implement mitigation measures to reach such carbon neutrality goals.

The SCEA explains that the Project complies with the current Title 24 California Green Building Standards (CALGreen) (SCEA, p. 5-72.). However, Baseline notes that "CALGreen also includes voluntary measures that are organized into two tiers with their own respective prerequisites and elective measures: (1) Tier 1 prerequisites set a higher baseline than CALGreen mandatory measures; and (2) Tier 2 prerequisites include all of Tier 1 prerequisites plus some enhanced or additional measures." (Ex. A, p. 5.) Baseline's analysis, therefore, found that the Project not only conflicts with the 2022 Scoping Plan's building decarbonization goals due to the high annual consumption of natural gas, but the Project is overall inconsistent with the transportation electrification goals of the 2022 Scoping Plan "[b]ecause the proposed project has not committed to implementing the Tier 2 EV infrastructure requirements (or any voluntary requirements).” (*Id.*)

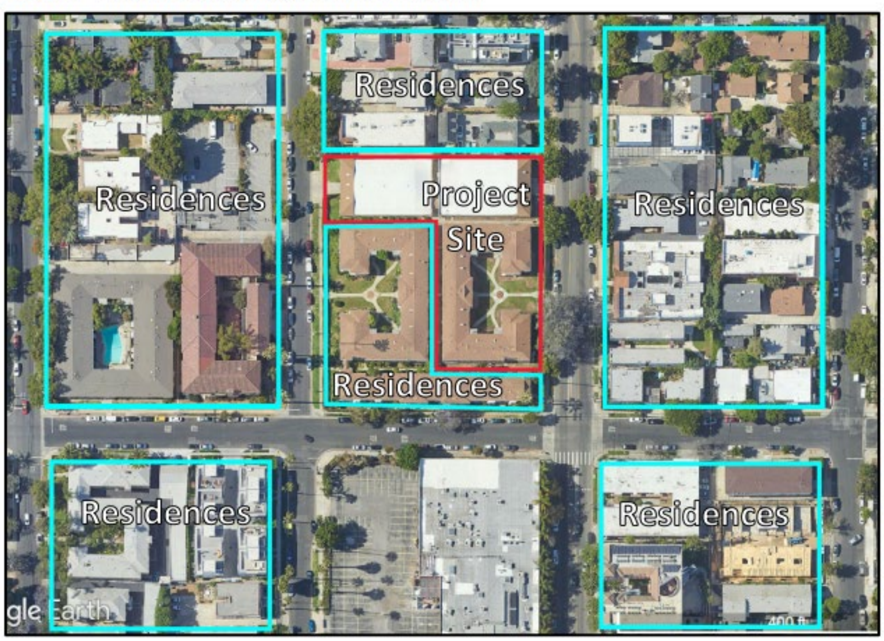
Case law makes clear that a Project’s GHG emissions should be evaluated based on its effect on California’s efforts to meet the State’s long-term climate goals. (*Center for Biological Diversity v. Department of Fish & Wildlife* (2015) 62 Cal.4th 204).) Since two of the three project attributes have not been met, the Project fails to remain consistent with the 2022 Scoping Plan as it related to GHG reduction strategies. (Ex. A, p. 6.) As such, the City fails to adequately analyze the Project’s consistency with its own Carbon Neutrality goals.

d. The City’s Conclusion that the Project Will Have Less Than Significant Health Impacts is Incorrect Because it Failed to Analyze Sensitive Receptors.

Baseline reviewed the Project and found that the City failed to analyze how exposure of diesel particulate matter (“DPM”) will impact sensitive receptors surrounding the Project site.

In 1998, the State of California identified DPM derived from diesel-powered engines as a Toxic Air Contaminant (“TAC”) based on its potential to cause cancer. DPM is typically composed of carbon particles and a variety of organic compounds including more than 40 known cancer-causing organic substances. The South Coast Air Quality Management District (“SCAQMD”), the agency responsible for regulating air quality within the South Coast Air Basin—which includes the City of Los Angeles—has established in their Localized Significance Threshold Methodology a cancer risk significance threshold from human exposure to carcinogenic TACs of 10 per million.

Figure 1. Sensitive Receptors near the Project Site



As shown in the graphic above, the Project site is surrounded by sensitive receptors. However, the SCEA failed to provide any quantitative evaluation of the health risks posed on these sensitive receptors and the potential exposure to DPM and the cancer risks associated with long-term exposure to carcinogenic TACs because of the Project. In their justification, the SCEA explains that

> "[a]ccording to SCAQMD methodology, health risks from carcinogenic air toxics such as diesel PM are usually quantified in terms of individual cancer risk, which is the likelihood that a person exposed to concentrations of TACs over a 30-year period every day will contract cancer based on standard risk-assessment methodology. However, the anticipated duration of construction activities associated with the Project's implementation is only approximately 28 months, and daily diesel PM emissions would vary considerably day by day, and by phase."

(SCEA, p. 5-33.)

While the Office of Environmental Health Hazard Assessment ("OEHHA") explains that cancer risks should not be estimated for shorter-term projects lasting less than two months, the SCEA explains the Project is expected to last twenty-eight (28) months, which is significantly longer than OEHHA's recommendation of a two-month limitation (Ex. A, p. 3.) The City did not provide any analysis involving such health impacts from prolonged exposure, nor does it refer to health assessment from a longer-term exposure because of the Project. As such, the City has failed to meet its burden to produce substantial evidence that the Project will result in less-than-significant air quality impacts.

II. The SCEA Violates CEQA because the Project is Inconsistent with Applicable Policies and Mitigation Measures from the 2020-2045 RTP/SCS.

CEQA provides that a transit priority project is only eligible for streamlining pursuant to a SCEA when the project is "consistent with the general use designation, density, building intensity, and applicable policies specified for the project area in either a sustainable communities strategy or an alternative planning strategy." (PRC § 21155(a).) As applied here, the applicable sustainable communities strategy here is the 2020-2045 Regional Transportation Plan/Sustainable Communities Strategy prepared by SCAG Connect SoCal ("2020 RTP/SCS").

For the foregoing reasons stated above, the Project will have potentially significant air quality impacts. The SCEA's failure to adequately assess and identify the health risks and air quality impacts associated with the Project means that it has failed to implement all feasible mitigation measures as included in the 2020 RTP/SCS. These include:

- **Air Quality:**
    - **PMM AQ-2**: Using Tier 4 construction equipment, consulting SCAG's EJ toolbox, installing and monitoring filtration systems, and other related measures (*Id*, pp. 4-8 to 4-12);

- **Greenhouse Gas:**
    - **PMM GHG-1**: Implementing mitigation measures that reduce GHG impacts, such as using energy conservation and efficient materials (*Id*, pp. 4-32 to 4-35);
    - **PMM GHG-2**: Conflict with applicable plan, policy or regulation adopted for the purposes of reducing the emissions of greenhouse gases (*Id*, pp. 4-35 to 4- 36);

Furthermore, the SCEA's failure to adequately assess public health risks and contributions to carbon neutrality renders it inconsistent with the following strategies from the 2020 RTP/SCS:

- **Leverage Technology Innovations**: Promote low emission technologies such as neighborhood electric vehicles, shared rides hailing, car sharing, bike sharing and scooters by providing supportive and safe infrastructure such as dedicated lanes, charging and parking/drop-off space (SCEA, p. 3-13);
- **Support Implementation of Sustainability Policies**: Continue to support long range planning efforts by local jurisdictions (SCEA, p. 3-14);
- **Promote a Green Region**: Support development of local climate adaptation and hazard mitigation plans, as well as project implementation that improves community resiliency to climate change and natural hazards (SCEA, p. 3-15);
- **Promote a Green Region**: Support local policies for renewable energy production, reduction of urban heat islands and carbon sequestration (*Id*.); and
- **Promote a Green Region**: Promote more resource efficient development focused on conservation, recycling and reclamation (*Id*.).

Without further analysis and inclusion of feasible mitigation measures, the SCEA fails to meet the stringent requirements for streamlining environmental review, and the City should prepare an updated SCEA or an EIR for the Project.

CONCLUSION

For the foregoing reasons, an EIR or mitigated negative declaration should be prepared by the City prior to any further action on the Project. Thank you for considering these comments.

Sincerely,

Marjan R. Abubo
LOZEAU DRURY LLP

Exhibit A

November 17, 2023
23224-00

Marjan Abubo
Lozeau Drury LLP
1939 Harrison St., Suite 150
Oakland, CA 94612

Subject: Review of Air Quality and Greenhouse Gas Impacts Analyzed for the 1201 N. Gower Street Project in the City of Los Angeles

Dear Mr. Abubo:

Baseline Environmental Consulting (Baseline) has reviewed the Sustainable Communities Environmental Assessment (SCEA) prepared for the 1201 N. Gower Street Project (project) in the City of Los Angeles (City), California to determine whether potential environmental impacts related to air quality and greenhouse gas (GHG) emissions were appropriately evaluated. Based on our review, we have identified flaws in the analysis used to support the significance determinations in the SCEA, as described in detail below.

Health Risks from Construction-Related Air Pollutant Emissions

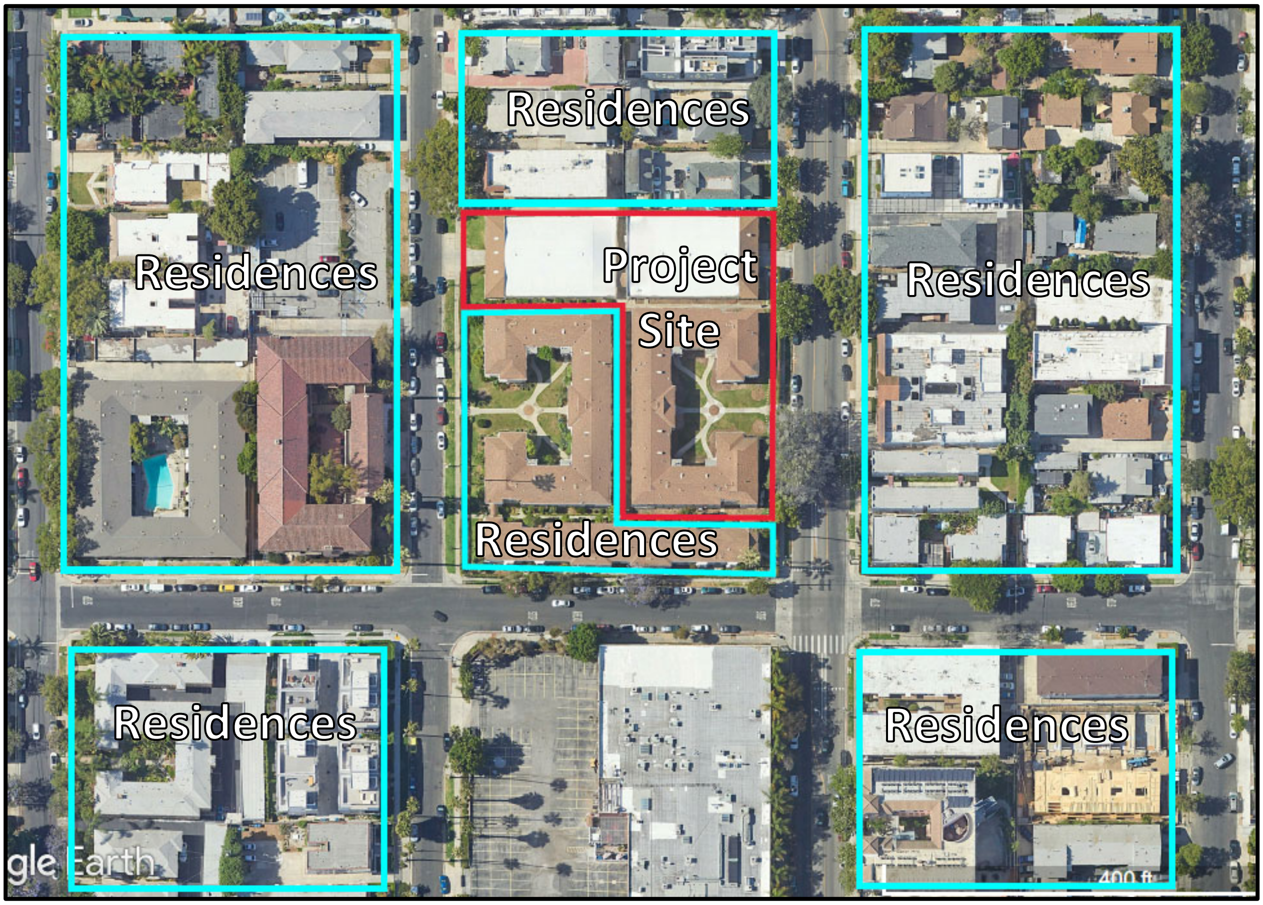
The SCEA for the proposed project did not evaluate potential health risks to nearby sensitive receptors exposed to toxic air contaminants (TACs) during construction. In 1998, the California Air Resources Board (CARB) identified diesel particulate matter (DPM) from diesel-powered engines as a TAC based on its potential to cause cancer and other adverse health effects.[1] Adverse health effects associated with particulate matter can vary based on factors such as particle size, source, and chemical composition. DPM is typically composed of carbon particles and a variety of organic compounds including more than 40 known cancer-causing organic substances. Additionally, over 90 percent of DPM is less than 1 micron in diameter and can deposit in the deepest regions of the lungs where the lungs are most susceptible to injury.

Project construction would generate DPM emissions from the exhaust of off-road diesel construction equipment. The project site is surrounded by sensitive receptors (residences) who could be exposed to DPM emissions generated during project construction (**Figure 1**). However,

[1] California Air Resources Board (CARB), 1998. Initial Statement of Reasons for Rulemaking; Proposed Identification of Diesel Exhaust as a Toxic Air Contaminant, June.

the SCEA did not provide a quantitative evaluation of the health risks to nearby sensitive receptors exposed to DPM emissions generated during project construction.

Figure 1. Sensitive Receptors near the Project Site



On pages 5-33 of the SCEA, it was stated that a health risks assessment for exposure to construction DPM emissions was not conducted for the following reasons:

> *The primary TAC that would be generated by construction activities is diesel PM, which would be released from the exhaust pipes of diesel-powered construction vehicles and equipment. According to SCAQMD methodology, health risks from carcinogenic air toxics such as diesel PM are usually quantified in terms of individual cancer risk, which is the likelihood that a person exposed to concentrations of TACs over a 30-year period every day will contract cancer based on standard risk-assessment methodology. However, the anticipated duration of construction activities associated with the Project's implementation is only approximately 28 months, and daily diesel PM emissions would vary considerably day by day, and by phase.*

It appears that the SCEA is suggesting that the duration of exposure to construction emissions is too short to perform a health risk assessment. According to the Office of Environmental Health Hazard Assessment (OEHHA), cancer risk should not be estimated for projects lasting less than two months due to the uncertainty in assessing very short-term exposures.[2] As stated on page 5-30 of the SCEA, project construction would last approximately 28 months, which is substantially greater than the two-month limitation for short-term exposures recommended by OEHHA. OEHHA also states that there is valid scientific concern that the rate of short-term exposure may influence the risk – in other words, a higher exposure to a carcinogen over a short period of time may be a greater risk than the same total exposure spread over a much longer period. Therefore, the explanation provided in the SCEA for not preparing a quantitative health risks assessment is incorrect.

On pages 5-33 of the SCEA, it is also stated that a health risks assessment was not conducted because the project's construction criteria air pollutant emissions would not exceed the South Coast Air Quality Management District's (SCAQMD's) localized significance thresholds (LSTs), and therefore TAC emissions from project construction would be less than significant. It is important to note that the SCAQMD's LSTs were designed to evaluate localized health risks from exposure to general criteria air pollutant emissions such as fine particulate matter ($PM_{2.5}$),[3] and they were not designed to evaluate localized health risks from exposure to TACs such as DPM. While DPM is a subgroup of $PM_{2.5}$, the toxicities are not equal and DPM only comprises a relatively small portion of the average $PM_{2.5}$ concentration in outdoor air. For example, in California only about 8 percent of the average ambient $PM_{2.5}$ concentration in outdoor air is comprised of DPM.[4] Other sources of $PM_{2.5}$ in outdoor air include dust, agriculture, wildfires, and pollen, which are generally less toxic than DPM from the exhaust of construction equipment. As a result, using the SCAQMD's LSTs for $PM_{2.5}$ as a surrogate for DPM emissions during project construction would substantially underestimate the potential health risks to nearby sensitive receptors.

Baseline has prepared a health risk assessment to estimate the incremental increase in cancer risk at nearby sensitive receptors exposed to DPM emissions during project construction. The annual average concentrations of DPM during construction were estimated in the vicinity of the project using the U.S. Environmental Protection Agency's AERMOD air dispersion model. For this analysis, emissions of exhaust coarse particulate matter (PM_{10}) were used as a surrogate for DPM. Exhaust DPM emissions from off-road diesel construction equipment were obtained

---

[2] Office of Environmental Health Hazard Assessment (OEHHA). 2015. Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments. February.
[3] South Coast Air Quality Management District (SCAQMD), 2003 (revised 2008). Final Localized Significance Threshold Methodology. July.
[4] California Air Resources Board (CARB), 2023. Overview: Diesel Exhaust & Health. https://ww2.arb.ca.gov/resources/overview-diesel-exhaust-and-health. Accessed April 1,2023.

from Appendix B of the SCEA. The input parameters and assumptions used for estimating emission rates of DPM from off-road diesel construction equipment are provided in **Attachment A**.

Daily emissions from construction were assumed to occur over the allowable construction hours established by the City of Los Angeles Municipal Code from 7:00 AM to 9:00 PM Monday through Friday and 8:00 AM to 6:00 PM on Saturday. The exhaust from off-road equipment was represented in the AERMOD model as an area source encompassing the project site with a unit emission rate of 1 gram per second, which was later scaled by the average emission rate.

A uniform grid of receptors spaced 10 meters apart with receptor heights at ground-level receptors was encompassed around the project site as a means of developing isopleths (i.e., concentration contours) that illustrate the air dispersion pattern from the various emission sources. The AERMOD model input parameters included five years of SCAQMD meteorological data from Station KCQT (USC/Downtown L.A.) located 5 miles southeast of the project site.

Based on the annual average concentrations of DPM estimated using the air dispersion model, potential health risks were evaluated for the maximally exposed individual resident (MEIR) located in the apartment building adjacent to the east of the project site. The incremental increase in cancer risk from on-site DPM emissions during construction was assessed for an infant exposed to DPM starting from birth. This exposure scenario represents the most sensitive individual who could be exposed to adverse air quality conditions in the vicinity of the project site. It was conservatively assumed that the MEIR would be exposed to an annual average DPM concentration over the entire estimated duration of construction. The input parameters and results of the health risk assessment are included in **Attachment A**.

Table 1 summarizes the estimated health risks at the MEIR due to unmitigated DPM emissions from project construction and compares them to the SCAQMD's thresholds of significance. The estimated cancer risk at the MEIR location from exposure to DPM emissions during project construction emissions is about 103 in a million, which is over ten times greater than the SCAQMD's threshold of 10 in a million. Therefore, project construction would expose sensitive receptors to substantial pollutant concentrations and the impact would be significant.

Table 1. Health Risks at MEIR During Project Construction

Construction Scenario	Diesel Particulate Matter	
	Cancer Risk (per million)	Chronic Hazard Index
Unmitigated Emissions	103	0.05
Thresholds of Significance	10	1
Thresholds Exceedance?	**Yes**	No

Source: See Attachment A

2022 Scoping Plan and Carbon Neutrality by 2045

Based on the California Supreme Court findings for Center for Biological Diversity v. Department of Fish & Wildlife (2015) (62 Cal.4th 204), a project's GHG emissions should be evaluated based on its effect on California's efforts to meet the State's long-term climate goals. As the Supreme Court held in that case, a project that would be consistent with meeting those goals can be found to have a less-than-significant impact on climate change under CEQA. If a project would contribute its "fair share" of what will be required to achieve those long-term climate goals, then a reviewing agency can find that the impact will not be significant because the project will help to solve the problem of global climate change (62 Cal.4th 220–223).

In December 2022, CARB adopted the *2022 Scoping Plan for Achieving Carbon Neutrality* (2022 Scoping Plan), which identifies strategies for achieving California's long-term climate goal of carbon neutrality by 2045 or earlier. Appendix D of the 2022 Scoping Plan includes recommendations for local government to take actions that align with the State's climate goals, with a focus on three priority areas: transportation electrification, vehicle miles travelled (VMT) reduction, and building decarbonization. According to Appendix D of the 2022 Scoping Plan, residential and mixed-use projects that have all the key project attributes in **Table 2** would accommodate growth in a manner consistent with the State's long-term climate goals: it should be noted that these key attributes only apply to projects in cities that have not adopted a local Climate Action Plan (CAP), such as the City of Los Angeles.

According to page 5-72 of the SCEA, the project would comply with the current Title 24 California Green Building Standards (CALGreen), which includes mandatory requirements for installing EV parking infrastructure. However, CALGreen also includes voluntary measures that are organized into two tiers with their own respective prerequisites and elective measures:

- Tier 1 prerequisites set a higher baseline than CALGreen mandatory measures.
- Tier 2 prerequisites include all of Tier 1 prerequisites plus some enhanced or additional measures.

The Tier 2 EV infrastructure requirements are currently the most ambitious voluntary standard that a residential project would need to implement to be considered consistent with the goals of the 2022 Scoping Plan. Because the proposed project has not committed to implementing the Tier 2 EV infrastructure requirements (or any voluntary requirements), the project would not be consistent with the transportation electrification goals of the 2022 Scoping Plan described in **Table 2**.

According to page 5-72 of the SCEA, the project would consume approximately 1,630,282 cubic feet of natural gas per year. This directly conflicts with the building decarbonization goals of the 2022 Scoping Plan described in **Table 2**.

Table 2. Key Residential and Mixed-Use Project Attributes that Reduce GHGs

Priority Areas	Key Project Attribute
Transportation Electrification	Provides electric vehicle (EV) charging infrastructure that, at minimum, meets the most ambitious voluntary standard in the California Green Building Standards Code (CALGreen) at the time of project approval.
VMT Reduction	Is located on infill sites that are surrounded by existing urban uses and reuses or redevelops previously undeveloped or underutilized land that is presently served by existing utilities and essential public services (e.g., transit, streets, water, sewer).
	Does not result in the loss or conversion of natural and working lands.
	Consists of transit-supportive densities (minimum of 20 residential dwelling units per acre), or is in proximity to existing transit stops (within a half mile), or satisfies more detailed and stringent criteria specified in the region's Sustainable Communities Strategy.
	Reduces parking requirements by: Eliminating parking requirements or including maximum allowable parking ratios (i.e., the ratio of parking spaces to residential units or square feet); or providing residential parking supply at a ratio of less than one parking space per dwelling unit; or for multifamily residential development, requiring parking costs to be unbundled from costs to rent or own a residential unit.
	At least 20 percent of units included are affordable to lower-income residents.
	Results in no net loss of existing affordable units
Building Decarbonization	Uses all-electric appliances without any natural gas connections and does not use propane or other fossil fuels for space heating, water heating, or indoor cooking.

Source: Appendix D of the 2022 Scoping Plan.

By not incorporating two of the three key project attributes from **Table 2** into the project design, the project would not be consistent with the priority GHG reduction strategies in the 2022 Scoping Plan to achieve the State's carbon neutrality goal by 2045 or earlier. We are aware that the SCEA (pages 5-123 through 5-135) attempted to evaluate the project's consistency with the 2022 Scoping Plan, but the SCEA erroneously compared the project design to the statewide actions to achieve carbon neutrality by 2045 instead of the local actions summarized in **Table 2**.

In summary, the SCEA did not properly evaluate the project's consistency with the 2022 Scoping Plan or demonstrate how the project would do its fair share to achieve the State's long-term climate action goal for carbon neutrality by 2045 or earlier. Furthermore, based on review of the SCEA, the project is clearly not designed to be consistent with the priority GHG reduction strategies of the 2022 Scoping Plan for transportation electrification and building decarbonization, and would not do its fair share to achieve the State's long-term climate action goal for carbon neutrality by 2045 or earlier. Therefore, the project would have a potentially significant impact related to GHG emissions.

CONCLUSIONS

Based on our review of the SCEA for the proposed project, a revised analysis should be prepared to properly evaluate the project's construction-related health risks and consistency with the 2022 Scoping Plan and long-term climate action goals. In addition, mitigation measures should be evaluated and implemented to reduce potentially significant impacts related to air quality and GHG emissions to a less-than-significant level.

Sincerely,

Patrick Sutton
Principal Environmental Engineer

ATTACHMENT A

Health Risk Assessment

Summary of AERMOD Model Parameters, Assumptions, and Results for DPM Emissions from Construction

AERMOD Model Parameters and Assumptions			
Source Type	**Units**	**Value**	**Notes**
Area Source: Off-Road Equipment Exhaust (DPM)			
Average Hours/Work Day	hours/day	13.33	Monday to Friday: 7 am to 9 pm; Saturday: 8 am to 6 pm
DPM Emission Rate	gram/second	0.00215	Exhaust PM10 emission obtained from SCEA Appendix B. This average daily DPM emission rate was calculated based on the annual off-road PM10 exhaust emissions and the construction duration of 609 work days. This rate was used as a scaling factor to convert the result from AERMOD, which was based on an emission rate of 1 gram/second.
Release Height	meters	5.0	SMAQMD, 2015
Initial Vertical Dimension	meters	1.4	USEPA, 2022
Population	people	9,818,605	South Coast AQMD Modeling Guidance for AERMOD
AERMOD Model Results			
Sensitive Receptor	**Pollutant**	**Annual Average Concentration**	**Notes**
MEIR (east of project site)	DPM ($\mu g/m^3$)	0.3612	DPM concentration from the construction of Parking and Warehouse

Notes:

DPM = diesel particulate matter

PM10 = particulate matter with aerodynamic resistance diameters equal to or less than 10 microns

$\mu g/m^3$ = micrograms per cubic meter

Sacramento Metropolitan Air Quality Management District (SMAQMD), 2015. *Guide to Air Quality Assessment in Sacramento County* . June.

U.S. Environmental Protection Agency (USEPA), 2022. *User's Guide for the AMS/EPA Regulatory Model (AERMOD)* .

Summary of Health Risk Assessment at the Maximally Exposed Individual Resident

Health Risk Assessment Parameters and Results				
Inhalation Cancer Risk Assessment for DPM	**Units**	**0-2 Years Old**	**2-16 Years Old**	**Notes**
DPM Concentration (C)	µg/m^3	0.361	0.361	ISCST3 Annual Average
Daily Breathing Rate (DBR)	L/kg-day	1090	572	95th percentile under age of 2 (OEHHA, 2015)
Inhalation absorption factor (A)	unitless	1.0	1.0	OEHHA, 2015
Exposure Frequency (EF)	unitless	0.96	0.96	350 days/365 days in a year (OEHHA, 2015)
Dose Conversion Factor (CF_D)	mg-m^3/µg-L	0.000001	0.000001	Conversion of µg to mg and L to m^3
Dose (D)	mg/kg/day	0.000378	0.000198	C*DBR*A*EF*CF_D (OEHHA, 2015)
Cancer Potency Factor (CPF)	(mg/kg/day)$^{-1}$	1.1	1.1	OEHHA, 2015
Age Sensitivity Factor (ASF)	unitless	10	3	OEHHA, 2015
Annual Exposure Duration (ED)	years	2.00	0.33	Based on total construction period of 28 months
Averaging Time (AT)	years	70	70	70 years for residents (OEHHA, 2015)
Fraction of time at home (FAH)	unitless	0.85	0.72	OEHHA, 2015
Cancer Risk Conversion Factor (CF)	m^3/L	1000000	1000000	Chances per million (OEHHA, 2015)
Cancer Risk	per million	100.9	2.2	D*CPF*ASF*ED/AT*FAH*CF (OEHHA, 2015)
Total Cancer Risk	per million	103.1		at MEIR location
Hazard Index for DPM	**Units**	**Value**		**Notes**
Chronic REL	µg/m^3	5.0		OEHHA, 2015
Chronic Hazard Index	unitless	0.07		At MEIR location

Notes:

DPM = diesel particulate matter

REL = reference exposure level

µg/m^3 = micrograms per cubic meter

L/kg-day = liters per kilogram-day

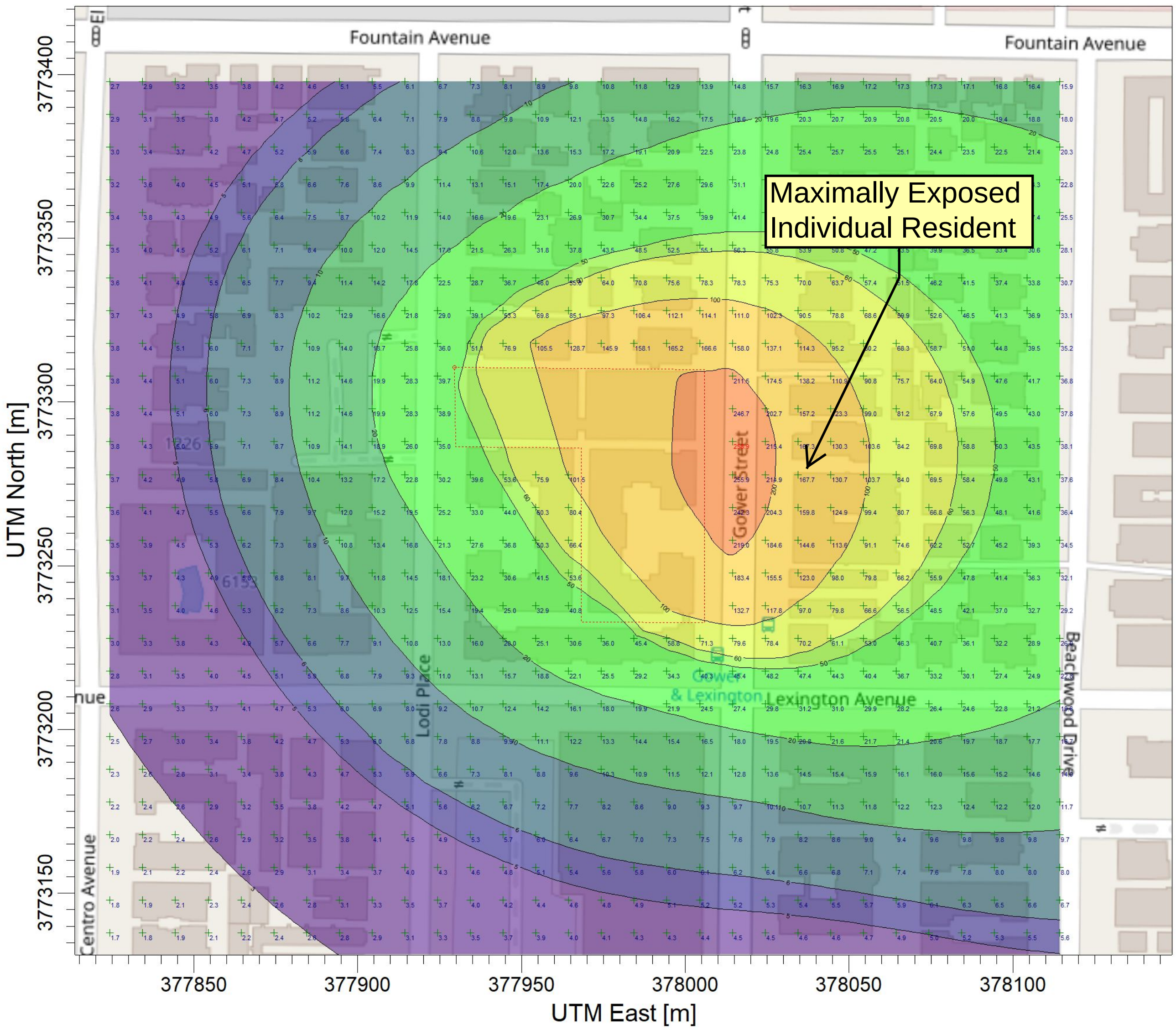
m^3/L = cubic meters per liter

(mg/kg/day)$^{-1}$ = 1/milligrams per kilograms per day

Office of Environmental Health Hazard Assessment (OEHHA), 2015. *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments. February.*

PROJECT TITLE:

C:\Users\patrick\Desktop\GowerAERMOD\GowerAERMOD.isc



PLOT FILE OF PERIOD VALUES AVERAGED ACROSS 0 YEARS FOR SOURCE GROUP: ALL ug/m^3

Max: 259 [ug/m^3] at (378014.36, 3773287.88)

3 5 6 10 20 50 60 100 200 259

COMMENTS:	SOURCES: **1**		
	RECEPTORS: **856**		
	OUTPUT TYPE: **Concentration**	SCALE: 1:2,107 0 0.05 km	
	MAX: **259 ug/m^3**		PROJECT NO.:

ATTACHMENT B

Staff Resume

Patrick Sutton, P.E.

Principal Environmental Engineer

Areas of Expertise

Air Quality, GHGs, Noise, Hazardous Materials, Geology, and Hydrology

Education

M.S., Civil and Environmental Engineering, University of California – Davis

B.S., Environmental Science, Dickinson College

Registration

Professional Engineer No. 13609 (RI)

Years of Experience

20 Years

Patrick Sutton is an environmental engineer who specializes in the assessment of hazardous materials released into the environment. Mr. Sutton prepares technical reports in support of environmental review, such as Phase I/II Environmental Site Investigations, Air Quality Reports, and Health Risk Assessments. He has prepared numerous CEQA/NEPA evaluations for air quality, GHGs, noise, energy, geology, hazardous materials, and water quality related to residential, commercial, and industrial projects, as well as large infrastructure developments. His proficiency in a wide range of modeling software (AERMOD, CalEEMod, RCEM, CT-EMFAC) as well as relational databases, GIS, and graphics design allows him to thoroughly and efficiently assess and mitigate environmental concerns.

For mixed-use development projects, Mr. Sutton has prepared health risk assessments for sensitive receptors exposed to toxic air contaminants based on air dispersion modeling. For large transportation improvement projects, Mr. Sutton has prepared air quality and hazardous materials technical reports in accordance with Caltrans requirements. The air quality assessments include the evaluation of criteria air pollutants, mobile source air toxics, and GHG emissions to support environmental review of the project under CEQA/NEPA and to determine conformity with the State Implementation Plan. The hazardous materials investigations include sampling and statistically analysis of aerially-deposited lead adjacent to highway corridors. Mr. Sutton is also an active member of ASTM International and is the author of the Standard Practice for Low-Flow Purging and Sampling Used for Groundwater Monitoring.

Project Experience

Oakland Downtown Specific Plan EIR. Prepared a program- and project-level Air Quality and GHG Emissions analysis. Developed a mitigation measure with performance standards to ensure GHG emissions from future projects comply with the Citywide 2030 GHG reduction target.

I-680 Express Lanes from SR 84 to Alcosta Boulevard Project. Prepared Initial Site Assessment and Preliminary Site Investigation to evaluate contaminants of potential concern in soil and groundwater. Prepared Air Quality Report to determine the project's conformity to federal air quality regulations and to support environmental review of the project under CEQA and NEPA.

Altamont Corridor Expressway (ACE/Forward) Project EIR/EIS. Prepared a program- and project-level Hazardous Materials analysis for over 120 miles of railroad corridor from San Jose to Merced. Hazardous materials concerns, such as release sites, petroleum pipelines, agricultural pesticides, and nearby school sites were evaluated in GIS.

Stonegate Residential Subdivision EIR. Prepared a project-level Hydrology and Water Quality analysis for a residential development located within the 100-year floodplain. The proposed project included modifications to existing levees and flood channels.

BART Silicon Valley Extension Project. Prepared Initial Site Assessment and Hazardous Materials EIS/EIR section for extending 6 miles of proposed BART service through the Cities of San Jose and Santa Clara.

Exhibit B

BASELINE
ENVIRONMENTAL CONSULTING

22 January 2024
23209-00

Marjan Kris Abubo
Lozeau Drury LLP
1939 Harrison St., Suite 150
Oakland, CA 94612

Subject: Review of Construction Health Risk Assessment for the 1201 N. Gower Street Project in the City of Los Angeles

Dear Mr. Abubo:

Baseline Environmental Consulting (Baseline) has reviewed the Construction Health Risk Assessment letter prepared by Air Quality Dynamics on November 27, 2023 (HRA Letter), to support the Sustainable Communities Environmental Assessment (SCEA) for the proposed 1201 N. Gower Street Project (project) in the City of Los Angeles, California. The HRA Letter includes comments regarding the accuracy of the construction health risks assessment prepared by Baseline for the proposed project on November 17, 2023, which showed that the project could expose nearby sensitive receptors to substantial concentrations of diesel particulate matter (DPM) during project construction that would result in an increased cancer risk of about 103 in a million; this is over ten times greater than the South Coast Air quality Management District's (SCAQMD's) threshold of 10 in a million. The HRA Letter also presents a new construction risk health assessment that contends the project would not increase the cancer risk at nearby sensitive receptors above the SCAQMD's threshold of 10 in a million.

Based on our review of the HRA Letter, we have responded to comments regarding Baseline's previous analysis of health risks during project construction and critical identified flaws in the new health risk assessment presented by Air Quality Dynamics, as described in detail below.

Response to Comment 1: Hours of Construction

On page 1 of the HRA Letter, it is stated that the health risk assessment prepared by Baseline incorrectly assumed that construction would occur from 7:00 AM to 9:00 PM Monday through Friday and 8:00 AM to 6:00 PM on Saturday. It should be noted that this assumption was based on page 5-183 of the SCEA, which states that construction would be permitted to occur during these time periods. According to the HRA Letter, project construction would occur from 8:00 AM to 4:00 PM Monday through Friday; however, this does not appear to be stated anywhere in the SCEA.

Baseline has updated our previous health risk assessment (see **Attachment A**) based on the refined project construction hours presented in the HRA Letter. As shown in **Table 1**, the project's estimated cancer risk at the maximally exposed individual resident (MEIR) would decrease from 103 to 87.5 in a million, which remains well above the SCAQMD's threshold of 10 in a million.

Table 1. Health Risks at MEIR During Project Construction

Construction Scenario	Diesel Particulate Matter	
	Cancer Risk (per million)	Chronic Hazard Index
Original Health Risk Assessment	103	0.05
Updated Health Risk Assessment	87.5	0.06
Thresholds of Significance	10	1
Thresholds Exceedance?	**Yes**	No

Source: See Attachment A

Response to Comment 2: Exposure Frequency

On page 1 of the HRA Letter, it is stated that the health risk assessment prepared by Baseline incorrectly assumed nearby sensitive receptors would be exposed to construction-related emissions 350 days per year. It should be noted that Baseline's exposure assumption of 350 days per year for residential receptors is based on guidance from the Office of Environmental Health Hazard Assessment (OEHHA).[1] According to the HRA Letter, the exposure frequency for nearby sensitive receptors should be based on the total days of construction, which would be 260 days per year. This appears to be a significant misunderstanding regarding the fundamental process of performing a health risk assessment and would be an unsubstantiated deviation from the OEHHA guidance, as explained below.

As described in Baseline's letter dated November 17, 2023, Baseline's health risk assessment was performed in accordance with OEHHA guidance. Similar to the air dispersion model prepared by Air Quality Dynamics for the HRA Letter, Baseline's updated health risk assessment assumes that DPM emissions would only occur during the hours of construction between 8:00 AM to 4:00 PM on weekdays. During this time period, the air dispersion model calculates hourly DPM concentrations at nearby receptors. During non-construction hours (weekends and between 4:00 PM and 8:00 AM on weekdays), the model assumes that the hourly DPM concentrations at nearby receptors is equal to zero. The model then calculates average DPM concentrations based on the hourly results during both the construction and non-construction

[1] Office of Environmental Health Hazard Assessment (OEHHA), 2015. Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments. February.

periods. To help illustrate this process, a hypothetical example of hourly DPM concentrations at a receptor for one week of construction is shown in **Table 2**.

Table 2. Hypothetical Hourly Pollutant Concentrations at a Receptor during one Week of Project Construction

Hour of Day	Concentration at Receptor (µg/m^3)							
	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Average
0:00	0	0	0	0	0	0	0	**45**
1:00	0	0	0	0	0	0	0	
2:00	0	0	0	0	0	0	0	
3:00	0	0	0	0	0	0	0	
4:00	0	0	0	0	0	0	0	
5:00	0	0	0	0	0	0	0	
6:00	0	0	0	0	0	0	0	
7:00	0	0	0	0	0	0	0	
8:00	0	0	0	0	0	0	0	
9:00	150	159	185	208	158	0	0	
10:00	158	207	179	200	198	0	0	
11:00	160	213	150	157	233	0	0	
12:00	189	215	165	220	197	0	0	
13:00	184	156	231	243	249	0	0	
14:00	225	150	202	169	214	0	0	
15:00	214	162	188	242	198	0	0	
16:00	154	170	158	183	250	0	0	
17:00	0	0	0	0	0	0	0	
18:00	0	0	0	0	0	0	0	
19:00	0	0	0	0	0	0	0	
20:00	0	0	0	0	0	0	0	
21:00	0	0	0	0	0	0	0	
22:00	0	0	0	0	0	0	0	
23:00	0	0	0	0	0	0	0	

Note: µg/m^3 = micrograms per cubic meter

As shown in **Table 2**, an air dispersion model is used to calculate hourly DPM concentrations at a receptor, including the hours when there are no construction emissions and the DPM concentration would be equal to zero. In this example, the hourly DPM concentrations would range from 150 to 250 micrograms per cubic meter (µg/m^3) during construction hours, but the average concentration for the entire week would be significantly lower (45 µg/m^3) because it includes the hourly concentrations equal to zero during the weekend and during non-construction hours on weekdays. The air dispersion model repeats this process for every hour of every day (including weekends) for an entire year or more to calculate an annual average concentration at a receptor.

In accordance with OEHHA guidance, Baseline's health risk assessment assumed that a child would be exposed to the average annual pollutant concentration for 350 out of 365 days per year. The HRA Letter erroneously states that Baseline's health risk assessment should only evaluate exposure to the annual average concentration based on the total number of weekdays in a year (260 days), which would ignore the weekends. As explained above, even though the construction emissions are modeled using a non-continuous source during the weekdays, the calculation of the average annual pollutant concentration includes the weekends when all hourly concentrations are equal to zero, which substantially dilutes (i.e., lowers) the average annual concentration. Essentially, the HRA Letter is suggesting that the annual average concentration that has been diluted by non-construction activities during weekends be applied to an exposure scenario that then ignores those weekends, without providing any justification to support this approach. This erroneous assumption would result in a substantial underestimate of the cancer risk by about 25 percent.[2]

There is an alternative method recommended by the OEHHA guidance where an exposure frequency of 260 days could be applied to an annual average concentration, but this methodology is not recommended for residential receptors and requires the use of an adjustment factor. For construction activities that occur 8-hours/5 days/week, an adjustment factor of 4.2 would need to be applied to the annual average DPM concentration to account for the dilution effect from non-construction hours. This would likely result in a higher cancer risk at the MEIR from project construction; however, it should be noted again that this methodology is not recommended for residential receptors.

Another alternative method would be to post-process the hourly raw dispersion model output to exclude air concentrations at nearby receptors during non-construction hours. This method is a more refined, complex, and less common because it is a time-consuming approach, but would result in a more representative exposure concentration.

Response to Comment 3: OEHHA Guidance

On pages 1 through 3 of the HRA Letter, Air Quality Dynamics contends that the 2015 OEHHA guidance[3] used by Baseline, which includes early-life exposure adjustments to characterize

---

[2] 1-(260 days/350 days) = 25.7%

[3] Office of Environmental Health Hazard Assessment (OEHHA), 2015. Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments. February.

carcinogenic exposures, should not have been used to evaluate health risks associated with exposure to DPM during project construction because:

1) Compliance with the OEHHA guidelines only applies to projects that are subject to Assembly Bill (AB) 2588;
2) Compliance with the OEHHA guidelines is not required under SCAQMD's Rules 1401, 1401.1, 1402, and 212; and,
3) The OEHHA guidance is not consistent with the U.S. Environmental Protection Agency's (EPA's) guidance for early-life exposure.[4]

Baseline did not state or suggest that using the OEHHA guidelines are a regulatory requirement or that the project is subject to AB 2588. Similarly, Baseline did not state or suggest that the project is subject to SCAQMD's Rules 1401, 1401.1, 1402, and 212. Baseline referenced the OEHHA guidance as a source of substantial evidence to support the justification for preparing a health risk assessment for construction emissions of DPM. The OEHHA guidelines are commonly used to conduct health risk assessments throughout California for a wide range of exposure scenarios and emission sources, including construction activities.

In 2005, the U.S. EPA published guidance for adjusting cancer potency factors to account for the increased sensitivity of children to early-life exposure of carcinogens. The U.S. EPA guidance recommends applying a 10-fold adjustment factor when calculating cancer risk for children exposed to carcinogens before 2 years of age, and a 3-fold adjustment factor for children from 2 through 15 years of age; however, this guidance only applies to chemicals with a "mutagenic mode of action" for carcinogenesis. The 2015 OEHHA guidance includes similar adjustment factors for early-life exposure, but they apply to all carcinogens including carcinogens that appear to act via a non-mutagenic mode of action. The 2015 OEHHA guidance and supporting documentation provides a thorough scientific review and evaluation of early-life exposure to carcinogens and states the following regarding the U.S. EPA's 2005 recommendation to limit the application of early-life adjustment factors to carcinogens with a "mutagenic mode of action":[5]

> OEHHA considers this approach to be insufficiently health protective. There is no obvious reason to suppose that the toxicokinetics of non-mutagens would be systematically different from those of mutagens. It would also be inappropriate to assume by default that non-mutagenic carcinogens are assumed to need a toxicodynamic correction factor of 1. Most if not all of the factors that make individuals

[4] U.S. Environmental Protection Agency, 2005. Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens, EPA/630/R-03/003F. March.

[5] Office of Environmental Health Hazard Assessment (OEHHA), 2009. Technical Support Document for Cancer Potency Factors: Methodologies for derivation, listing of available values, and adjustments to allow for early life stage exposures. May.

> exposed to carcinogens during an early-life stage potentially more susceptible than those individuals exposed during adulthood also apply to non-mutagenic carcinogen exposures (e.g., rapid growth and development of target tissues, potentially greater sensitivity to hormonal carcinogens, differences in metabolism). It should also be noted that carcinogens that do not cause gene mutations may still be genotoxic by virtue of causing chromosomal damage. Additionally, many carcinogens do not have adequate data available for deciding on a specific mode of action, or do not necessarily have a single mode of action.

Furthermore, the OEHHA guidelines and recommended early-life adjustment factors are widely used for health risk assessments throughout California. Examples include the 2020 San Francisco Citywide Health Risk Assessment,[6] the 2022 Port of San Diego's Updated Health Risk Assessment,[7] and the Bay Area Air Quality Management District's 2022 CEQA Air Quality Guidelines,[8] which all include the application of earl-life adjustment factors for children exposed to DPM and other carcinogens. Therefore, there is strong scientific evidence and consensus in California to support the use of OEHHA's early-life exposure adjustments for children exposed to DPM during construction, rather than to exclude these critical adjustments factors based on older and justifiably outdated guidance from the U.S. EPA.

Review of Air Quality Dynamics's Health Risk Assessment

The HRA Letter presents a new health risk assessment for the exposure of nearby receptors exposed to DPM emissions during project construction. The assessment included the use of similar parameters to those used in Baseline's health risk assessment (**Attachment A**), but it incorrectly applied an exposure frequency of 260 days per year instead of 350 days per year and excluded the use of early-life adjustments factors for children exposed to DPM (as recommended by OEHHA). As discussed under *Response to Comment 1*, applying an exposure frequency of 260 days per year results in an underestimate of the cancer risk by about 25 percent. And excluding OEHHA's early-life adjustment factors for cancer potency underestimates the cancer risk to children from the third trimester to the age of 2 by 90 percent and from 2 through the age of 15 by 67 percent. As shown in **Table 3**, accounting for these types of corrections individually or collectively would result in an exceedance of the SCAQMD's cancer risk threshold.

---

[6] San Francisco Department of Public Health, 2020. San Francisco Citywide Health Risk Assessment: Technical Support Documentation, September 2020.
[7] Port of San Diego, 2022. Updated Health Risk Assessment; Focusing on Diesel Particulate Matter at the District's Marine Cargo Terminals. July.
[8] Bay Area Air Quality Management District (BAAQMD), 2022. California Environmental Quality Act Air Quality Guidelines.

Table 3. Corrections to Air Quality Dynamic's Health Risk Assessment

Construction Scenario	Cancer Risk (per million)
Health Risk Assessment	9.1
Health Risk Assessment with Updated Exposure Frequency[1]	**12.2**
Health Risk Assessment with Early-Life Exposure Adjustment Factors[2]	**89.3**
Health Risk Assessment with Updated Exposure Frequency[1] and Early-Life Exposure Adjustment Factors[2]	**120**
Threshold of Significance	**10**

Note: Gray shading indicates an exceedance of the SCAQMD's threshold of significance.
1 Changed the exposure frequency from 260 days per year to 350 day per year.
2 Added early-life adjustment factors for cancer potency as recommend by OEHHA.

CONCLUSIONS

Based on our review of the HRA Letter, the major issues raised by Air Quality Dynamics regarding the accuracy of Baseline's construction health risks assessment are unsubstantiated. As shown in **Table 1**, Baseline refined our previous construction health risks assessment to account for the updated hours of construction, which were not previously documented in the SCEA, and the estimated cancer risk to nearby sensitive receptors (87.5 in a million) remains well above is the SCAQMD's threshold of 10 in a million. Baseline has also provided substantial evidence to demonstrate that there are major flaws in Air Quality Dynamics' health risk assumptions regarding the use of a lower exposure frequency and the exclusion of earl-life adjustment factors for cancer potency. As shown in **Table 3**, correcting these flaws in Air Quality Dynamics' health risk assessment would result in a cancer risk as high as 120 in million, which is higher than Baseline's updated cancer risk estimate (87.5 in a million) and significantly higher than the SCAQMD's threshold of 10 in a million. Therefore, Baseline recommends that the City of Los Angeles require the preparation an Environmental Impact Report to evaluate and mitigate the air quality concerns described above.

Sincerely,

Patrick Sutton
Principal Environmental Engineer

ATTACHMENT A

Updated Health Risk Assessment

Summary of AERMOD Model Parameters, Assumptions, and Results for DPM Emissions from Construction

AERMOD Model Parameters and Assumptions			
Source Type	**Units**	**Value**	**Notes**
Area Source: Off-Road Equipment Exhaust (DPM)			
Average Hours/Work Day	hours/day	8.00	Monday to Friday: 8 am to 4 pm
DPM Emission Rate	gram/second	0.00359	Exhaust PM10 emission obtained from SCEA Appendix B. This average daily DPM emission rate was calculated based on the annual off-road PM10 exhaust emissions and the construction duration of 609 work days. This rate was used as a scaling factor to convert the result from AERMOD, which was based on an emission rate of 1 gram/second.
Release Height	meters	5.0	SMAQMD, 2015
Initial Vertical Dimension	meters	1.4	USEPA, 2022
Population	people	9,818,605	South Coast AQMD Modeling Guidance for AERMOD

AERMOD Model Results			
Sensitive Receptor	**Pollutant**	**Annual Average Concentration**	**Notes**
MEIR (east of project site)	DPM ($\mu g/m^3$)	0.3032	DPM concentration from construction

Notes:

DPM = diesel particulate matter

PM10 = particulate matter with aerodynamic resistance diameters equal to or less than 10 microns

$\mu g/m^3$ = micrograms per cubic meter

Sacramento Metropolitan Air Quality Management District (SMAQMD), 2015. *Guide to Air Quality Assessment in Sacramento County* . June.

U.S. Environmental Protection Agency (USEPA), 2022. *User's Guide for the AMS/EPA Regulatory Model (AERMOD)* .

Summary of Health Risk Assessment at the Maximally Exposed Individual Resident

Health Risk Assessment Parameters and Results				
Inhalation Cancer Risk Assessment for DPM	**Units**	**0-2 Years Old**	**2-9 Years Old**	**Notes**
DPM Concentration (C)	μg/m^3	0.303	0.303	ISCST3 Annual Average
Daily Breathing Rate (DBR)	L/kg-day	1090	861	95th percentile (OEHHA, 2015)
Inhalation absorption factor (A)	unitless	1.0	1.0	OEHHA, 2015
Exposure Frequency (EF)	unitless	0.96	0.96	350 days/365 days in a year (OEHHA, 2015)
Dose Conversion Factor (CF_D)	mg-m^3/μg-L	0.000001	0.000001	Conversion of μg to mg and L to m^3
Dose (D)	mg/kg/day	0.000317	0.000250	C*DBR*A*EF*CF_D (OEHHA, 2015)
Cancer Potency Factor (CPF)	$(mg/kg/day)^{-1}$	1.1	1.1	OEHHA, 2015
Age Sensitivity Factor (ASF)	unitless	10	3	OEHHA, 2015
Annual Exposure Duration (ED)	years	2.00	0.33	Based on total construction period of 28 months
Averaging Time (AT)	years	70	70	70 years for residents (OEHHA, 2015)
Fraction of time at home (FAH)	unitless	0.85	0.72	OEHHA, 2015
Cancer Risk Conversion Factor (CF)	m^3/L	1000000	1000000	Chances per million (OEHHA, 2015)
Cancer Risk	per million	84.7	2.8	D*CPF*ASF*ED/AT*FAH*CF*IF
Total Cancer Risk	per million	87.5		at MEIR location
Hazard Index for DPM	**Units**	**Value**		**Notes**
Chronic REL	μg/m^3	5.0		OEHHA, 2015
Chronic Hazard Index	unitless	0.06		At MEIR location

Notes:

DPM = diesel particulate matter

REL = reference exposure level

μg/m^3 = micrograms per cubic meter

L/kg-day = liters per kilogram-day

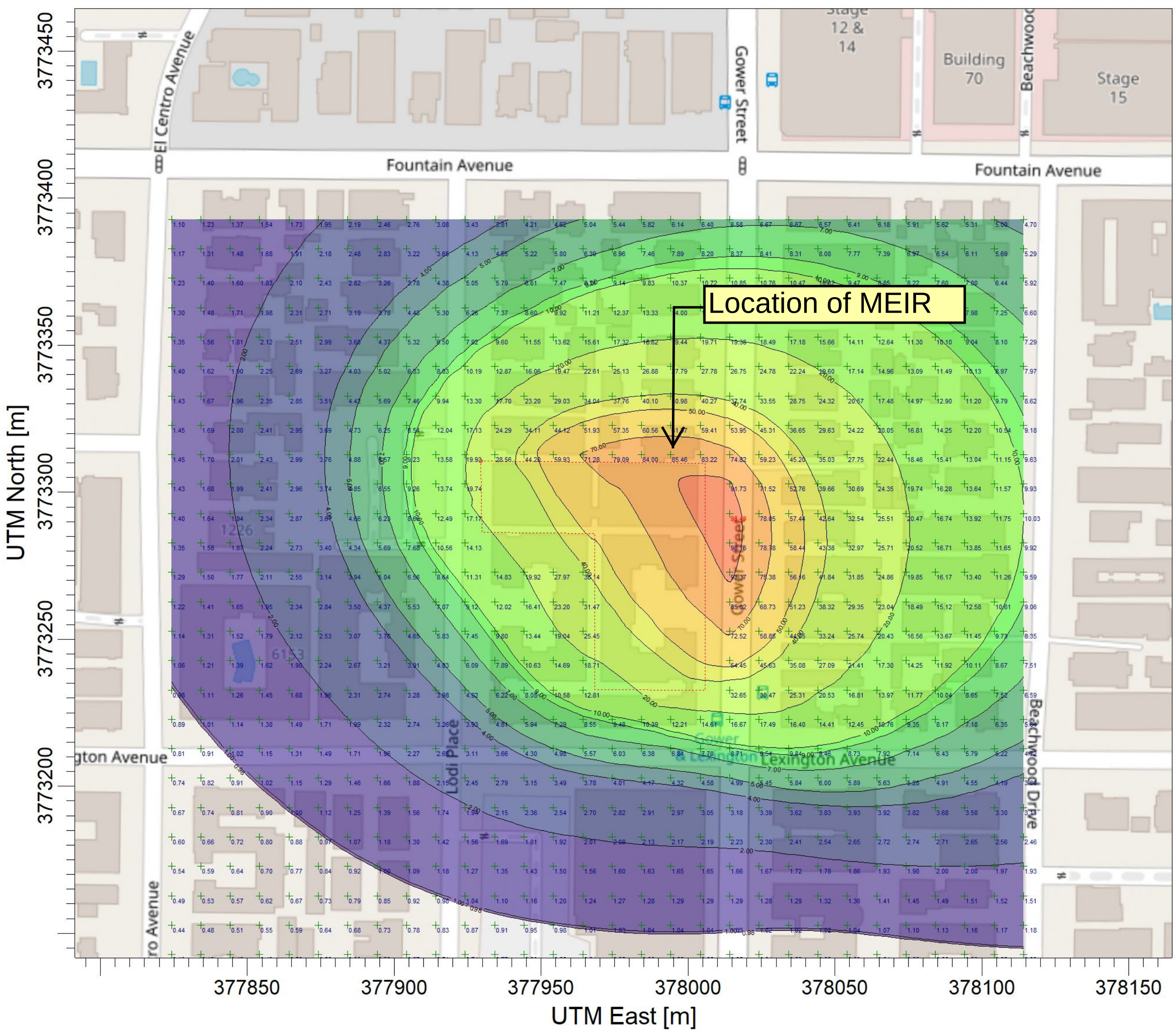
m^3/L = cubic meters per liter

$(mg/kg/day)^{-1}$ = 1/milligrams per kilograms per day

Office of Environmental Health Hazard Assessment (OEHHA), 2015. *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments. February.*

PROJECT TITLE:

C:\Users\patrick\Desktop\GowerAERMOD\GowerAERMOD.isc



PLOT FILE OF PERIOD VALUES AVERAGED ACROSS 0 YEARS FOR SOURCE GROUP: ALL

ug/m^3

Max: 98.49 [ug/m^3] at (378014.18, 3773292.76)

0.98 1.00 2.00 4.00 5.00 7.00 9.00 10.00 20.00 40.00 50.00 70.00 90.00 98.49

COMMENTS:	SOURCES: **1**		
	RECEPTORS: **856**		
	OUTPUT TYPE: **Concentration**	SCALE: 1:2,349 0 0.05 km	
	MAX: **98.49 ug/m^3**		PROJECT NO.:

Exhibit C

IEE INDOOR ENVIRONMENTAL ENGINEERING IEE
1448 Pine Street, Suite 103 San Francisco, California 94109
Telephone: (415) 567-7700
E-mail: offermann@IEE-SF.com
http://www.iee-sf.com

Date: November 2, 2023

To: Marjan Kris Abubo
Lozeau | Drury LLP
1939 Harrison Street, Suite 150
Oakland, California 94612

From: Francis J. Offermann PE CIH

Subject: Indoor Air Quality: 1201 N. Grower Street Project, Los Angeles, CA.
(IEE File Reference: P-4762)

Pages: 19

Indoor Air Quality Impacts

Indoor air quality (IAQ) directly impacts the comfort and health of building occupants, and the achievement of acceptable IAQ in newly constructed and renovated buildings is a well-recognized design objective. For example, IAQ is addressed by major high-performance building rating systems and building codes (California Building Standards Commission, 2014; USGBC, 2014). Indoor air quality in homes is particularly important because occupants, on average, spend approximately ninety percent of their time indoors with the majority of this time spent at home (EPA, 2011). Some segments of the population that are most susceptible to the effects of poor IAQ, such as the very young and the elderly, occupy their homes almost continuously. Additionally, an increasing number of adults are working from home at least some of the time during the workweek. Indoor air quality also is a serious concern for workers in hotels, offices and other business establishments.

The concentrations of many air pollutants often are elevated in homes and other buildings relative to outdoor air because many of the materials and products used indoors contain and release a variety of pollutants to air (Hodgson et al., 2002; Offermann and Hodgson, 2011). With respect to indoor air contaminants for which inhalation is the primary route of exposure, the critical design and construction parameters are the provision of adequate ventilation and the reduction of indoor sources of the contaminants.

Indoor Formaldehyde Concentrations Impact. In the California New Home Study (CNHS) of 108 new homes in California (Offermann, 2009), 25 air contaminants were measured, and formaldehyde was identified as the indoor air contaminant with the highest cancer risk as determined by the California Proposition 65 Safe Harbor Levels (OEHHA, 2017a), No Significant Risk Levels (NSRL) for carcinogens. The NSRL is the daily intake level calculated to result in one excess case of cancer in an exposed population of 100,000 (i.e., ten in one million cancer risk) and for formaldehyde is 40 μg/day. The NSRL concentration of formaldehyde that represents a daily dose of 40 μg is 2 $\mu g/m^3$, assuming a continuous 24-hour exposure, a total daily inhaled air volume of 20 m^3, and 100% absorption by the respiratory system. All of the CNHS homes exceeded this NSRL concentration of 2 $\mu g/m^3$. The median indoor formaldehyde concentration was 36 $\mu g/m^3$, and ranged from 4.8 to 136 $\mu g/m^3$, which corresponds to a median exceedance of the 2 $\mu g/m^3$ NSRL concentration of 18 and a range of 2.3 to 68.

Therefore, the cancer risk of a resident living in a California home with the median indoor formaldehyde concentration of 36 $\mu g/m^3$, is 180 per million as a result of formaldehyde alone. The CEQA significance threshold for airborne cancer risk is 10 per million, as established by the San Diego County Air Pollution Control District (SDAPCD, 2021).

Besides being a human carcinogen, formaldehyde is also a potent eye and respiratory irritant. In the CNHS, many homes exceeded the non-cancer reference exposure levels (RELs) prescribed by California Office of Environmental Health Hazard Assessment (OEHHA, 2017b). The percentage of homes exceeding the RELs ranged from 98% for the Chronic REL of 9 $\mu g/m^3$ to 28% for the Acute REL of 55 $\mu g/m^3$.

The primary source of formaldehyde indoors is composite wood products manufactured with urea-formaldehyde resins, such as plywood, medium density fiberboard, and particleboard. These materials are commonly used in building construction for flooring, cabinetry, baseboards, window shades, interior doors, and window and door trims.

In January 2009, the California Air Resources Board (CARB) adopted an airborne toxics control measure (ATCM) to reduce formaldehyde emissions from composite wood products, including hardwood plywood, particleboard, medium density fiberboard, and also furniture and other finished products made with these wood products (California Air Resources Board 2009). While this formaldehyde ATCM has resulted in reduced emissions from composite wood products sold in California, they do not preclude that homes built with composite wood products meeting the CARB ATCM will have indoor formaldehyde concentrations below cancer and non-cancer exposure guidelines.

A follow up study to the California New Home Study (CNHS) was conducted in 2016-2018 (Singer et. al., 2019), and found that the median indoor formaldehyde in new homes built after 2009 with CARB Phase 2 Formaldehyde ATCM materials had lower indoor formaldehyde concentrations, with a median indoor concentrations of 22.4 $\mu g/m^3$ (18.2 ppb) as compared to a median of 36 $\mu g/m^3$ found in the 2007 CNHS. Unlike in the CNHS study where formaldehyde concentrations were measured with pumped DNPH samplers, the formaldehyde concentrations in the HENGH study were measured with passive samplers, which were estimated to under-measure the true indoor formaldehyde concentrations by approximately 7.5%. Applying this correction to the HENGH indoor formaldehyde concentrations results in a median indoor concentration of 24.1 $\mu g/m^3$, which is 33% lower than the 36 $\mu g/m^3$ found in the 2007 CNHS.

Thus, while new homes built after the 2009 CARB formaldehyde ATCM have a 33% lower median indoor formaldehyde concentration and cancer risk, the median lifetime cancer risk is still 120 per million for homes built with CARB compliant composite wood products. This median lifetime cancer risk is more than 12 times the OEHHA 10 in a million cancer risk threshold (OEHHA, 2017a).

With respect to the 1201 N. Grower Street Project, Los Angeles, CA, the buildings consist of residential spaces.

The residential occupants will potentially have continuous exposure (e.g. 24 hours per day, 52 weeks per year). These exposures are anticipated to result in significant cancer risks resulting from exposures to formaldehyde released by the building materials and furnishing commonly found in residential construction.

Because these residences will be constructed with CARB Phase 2 Formaldehyde ATCM materials, and be ventilated with the minimum code required amount of outdoor air, the indoor residential formaldehyde concentrations are likely similar to those concentrations observed in residences built with CARB Phase 2 Formaldehyde ATCM materials, which is a median of 24.1 $\mu g/m^3$ (Singer et. al., 2020)

Assuming that the residential occupants inhale 20 m^3 of air per day, the average 70-year lifetime formaldehyde daily dose is 482 µg/day for continuous exposure in the residences. This exposure represents a cancer risk of 120 per million, which is more than 12 times the CEQA cancer risk of 10 per million. For occupants that do not have continuous exposure, the cancer risk will be proportionally less but still substantially over the CEQA cancer risk of 10 per million (e.g. for 12/hour/day occupancy, more than 6 times the CEQA cancer risk of 10 per million).

In addition, we note that the average outdoor air concentration of formaldehyde in California is 3 ppb, or 3.7 $\mu g/m^3$, (California Air Resources Board, 2004), and thus represents an average pre-existing background airborne cancer risk of 1.85 per million. Thus, the indoor air formaldehyde exposures describe above exacerbate this pre-existing risk resulting from outdoor air formaldehyde exposures.

Additionally, the SCAQMD's Multiple Air Toxics Exposure Study ("MATES V") identifies an existing cancer risk at the Project site of 541 per million due to the site's elevated ambient air contaminant concentrations, which are due to the area's high levels of vehicle traffic. These impacts would further exacerbate the pre-existing cancer risk to the building occupants, which result from exposure to formaldehyde in both indoor and outdoor air.

Appendix A, Indoor Formaldehyde Concentrations and the CARB Formaldehyde ATCM, provides analyses that show utilization of CARB Phase 2 Formaldehyde ATCM materials will not ensure acceptable cancer risks with respect to formaldehyde emissions from composite wood products.

Even composite wood products manufactured with CARB certified ultra low emitting formaldehyde (ULEF) resins do not insure that the indoor air will have concentrations of formaldehyde the meet the OEHHA cancer risks that substantially exceed 10 per million. The permissible emission rates for ULEF composite wood products are only 11-15% lower than the CARB Phase 2 emission rates. Only use of composite wood products made with no-added formaldehyde resins (NAF), such as resins made from soy, polyvinyl acetate, or methylene diisocyanate can insure that the OEHHA cancer risk of 10 per million is met.

The following describes a method that should be used, prior to construction in the environmental review under CEQA, for determining whether the indoor concentrations resulting from the formaldehyde emissions of specific building materials/furnishings selected exceed cancer and non-cancer guidelines. Such a design analyses can be used to identify those materials/furnishings prior to the completion of the City's CEQA review and project approval, that have formaldehyde emission rates that contribute to indoor concentrations that exceed cancer and non-cancer guidelines, so that alternative lower emitting materials/furnishings may be selected and/or higher minimum outdoor air ventilation rates can be increased to achieve acceptable indoor concentrations and incorporated as mitigation measures for this project.

Pre-Construction Building Material/Furnishing Formaldehyde Emissions Assessment

This formaldehyde emissions assessment should be used in the environmental review under CEQA to assess the indoor formaldehyde concentrations from the proposed loading of building materials/furnishings, the area-specific formaldehyde emission rate data for building materials/furnishings, and the design minimum outdoor air ventilation rates. This assessment allows the applicant (and the City) to determine, before the conclusion of the environmental review process and the building materials/furnishings are specified, purchased, and installed, if the total chemical emissions will exceed cancer and non-cancer guidelines, and if so, allow for changes in the selection of specific material/furnishings and/or the design minimum outdoor air ventilations rates such that cancer and non-cancer guidelines are not exceeded.

1.) Define Indoor Air Quality Zones. Divide the building into separate indoor air quality zones, (IAQ Zones). IAQ Zones are defined as areas of well-mixed air. Thus, each ventilation system with recirculating air is considered a single zone, and each room or group of rooms where air is not recirculated (e.g. 100% outdoor air) is considered a separate zone. For IAQ Zones with the same construction material/furnishings and design minimum outdoor air ventilation rates. (e.g. hotel rooms, apartments, condominiums, etc.) the formaldehyde emission rates need only be assessed for a single IAQ Zone of that type.

2.) Calculate Material/Furnishing Loading. For each IAQ Zone, determine the building material and furnishing loadings (e.g., m^2 of material/m^2 floor area, units of furnishings/m^2 floor area) from an inventory of all potential indoor formaldehyde sources, including flooring, ceiling tiles, furnishings, finishes, insulation, sealants, adhesives, and any products constructed with composite wood products containing urea-formaldehyde resins (e.g., plywood, medium density fiberboard, particleboard).

3.) Calculate the Formaldehyde Emission Rate. For each building material, calculate the formaldehyde emission rate (µg/h) from the product of the area-specific formaldehyde emission rate (µg/m^2-h) and the area (m^2) of material in the IAQ Zone, and from each furnishing (e.g. chairs, desks, etc.) from the unit-specific formaldehyde emission rate (µg/unit-h) and the number of units in the IAQ Zone.

NOTE: As a result of the high-performance building rating systems and building codes (California Building Standards Commission, 2014; USGBC, 2014), most manufacturers of building materials furnishings sold in the United States conduct chemical emission rate tests using the California Department of Health "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions for Indoor Sources Using Environmental Chambers," (CDPH, 2017), or other equivalent chemical emission rate testing methods. Most manufacturers of building furnishings sold in the United States conduct chemical emission rate tests using ANSI/BIFMA M7.1 Standard Test Method for Determining VOC Emissions (BIFMA, 2018), or other equivalent chemical emission rate testing methods.

CDPH, BIFMA, and other chemical emission rate testing programs, typically certify that a material or furnishing does not create indoor chemical concentrations in excess of the maximum concentrations permitted by their certification. For instance, the CDPH emission rate testing requires that the measured emission rates when input into an office, school, or residential model do not exceed one-half of the OEHHA Chronic Exposure Guidelines (OEHHA, 2017b) for the 35 specific VOCs, including formaldehyde, listed in Table 4-1 of the CDPH test method (CDPH, 2017). These certifications themselves do not provide the actual area-specific formaldehyde emission rate (i.e., $\mu g/m^2$-h) of the product, but rather provide data that the formaldehyde emission rates do not exceed the maximum rate allowed for the certification. Thus, for example, the data for a certification of a specific type of flooring may be used to calculate that the area-specific emission rate of formaldehyde is less than 31 $\mu g/m^2$-h, but not the actual measured specific emission rate, which may be 3, 18, or 30 $\mu g/m^2$-h. These area-specific emission rates determined from the product certifications of CDPH, BIFA, and other certification programs can be used as an initial estimate of the formaldehyde emission rate.

If the actual area-specific emission rates of a building material or furnishing is needed (i.e. the initial emission rates estimates from the product certifications are higher than desired), then that data can be acquired by requesting from the manufacturer the complete chemical emission rate test report. For instance if the complete CDPH emission test report is requested for a CDHP certified product, that report will provide the actual area-specific emission rates for not only the 35 specific VOCs, including formaldehyde, listed in Table 4-1 of the CDPH test method (CDPH, 2017), but also all of the cancer and reproductive/developmental chemicals listed in the California Proposition 65 Safe Harbor

Levels (OEHHA, 2017a), all of the toxic air contaminants (TACs) in the California Air Resources Board Toxic Air Contamination List (CARB, 2011), and the 10 chemicals with the greatest emission rates.

Alternatively, a sample of the building material or furnishing can be submitted to a chemical emission rate testing laboratory, such as Berkeley Analytical Laboratory (https://berkeleyanalytical.com), to measure the formaldehyde emission rate.

4.) Calculate the Total Formaldehyde Emission Rate. For each IAQ Zone, calculate the total formaldehyde emission rate (i.e. µg/h) from the individual formaldehyde emission rates from each of the building material/furnishings as determined in Step 3.

5.) Calculate the Indoor Formaldehyde Concentration. For each IAQ Zone, calculate the indoor formaldehyde concentration (µg/m^3) from Equation 1 by dividing the total formaldehyde emission rates (i.e. µg/h) as determined in Step 4, by the design minimum outdoor air ventilation rate (m^3/h) for the IAQ Zone.

(Equation 1)

where:

C_{in} = indoor formaldehyde concentration (µg/m^3)

E_{total} = total formaldehyde emission rate (µg/h) into the IAQ Zone.

Q_{oa} = design minimum outdoor air ventilation rate to the IAQ Zone (m^3/h)

The above Equation 1 is based upon mass balance theory, and is referenced in Section 3.10.2 "Calculation of Estimated Building Concentrations" of the California Department of Health "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions for Indoor Sources Using Environmental Chambers", (CDPH, 2017).

6.) Calculate the Indoor Exposure Cancer and Non-Cancer Health Risks. For each IAQ Zone, calculate the cancer and non-cancer health risks from the indoor formaldehyde concentrations determined in Step 5 and as described in the OEHHA Air Toxics Hot Spots Program Risk Assessment Guidelines; Guidance Manual for Preparation of Health Risk Assessments (OEHHA, 2015).

7.) Mitigate Indoor Formaldehyde Exposures of exceeding the CEQA Cancer and/or Non-Cancer Health Risks. In each IAQ Zone, provide mitigation for any formaldehyde exposure risk as determined in Step 6, that exceeds the CEQA cancer risk of 10 per million or the CEQA non-cancer Hazard Quotient of 1.0.

Provide the source and/or ventilation mitigation required in all IAQ Zones to reduce the health risks of the chemical exposures below the CEQA cancer and non-cancer health risks.

Source mitigation for formaldehyde may include:

1.) reducing the amount materials and/or furnishings that emit formaldehyde
2.) substituting a different material with a lower area-specific emission rate of formaldehyde

Ventilation mitigation for formaldehyde emitted from building materials and/or furnishings may include:

1.) increasing the design minimum outdoor air ventilation rate to the IAQ Zone.

NOTE: Mitigating the formaldehyde emissions through use of less material/furnishings, or use of lower emitting materials/furnishings, is the preferred mitigation option, as mitigation with increased outdoor air ventilation increases initial and operating costs associated with the heating/cooling systems.

Further, we are not asking that the builder "speculate" on what and how much composite materials be used, but rather at the design stage to select composite wood materials based on the formaldehyde emission rates that manufacturers routinely conduct using the California Department of Health "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions for Indoor Sources Using Environmental Chambers," (CDPH, 2017), and use the procedure described earlier above (i.e. Pre-Construction Building Material/Furnishing Formaldehyde Emissions Assessment) to insure that the materials selected achieve acceptable cancer risks from material off gassing of formaldehyde.

<u>Outdoor Air Ventilation Impact</u>. Another important finding of the CNHS, was that the outdoor air ventilation rates in the homes were very low. Outdoor air ventilation is a very important factor influencing the indoor concentrations of air contaminants, as it is the primary removal mechanism of all indoor air generated contaminants. Lower outdoor air exchange rates cause indoor generated air contaminants to accumulate to higher indoor air concentrations. Many homeowners rarely open their windows or doors for ventilation as a result of their concerns for security/safety, noise, dust, and odor concerns (Price, 2007). In the CNHS field study, 32% of the homes did not use their windows during the 24-hour Test Day, and 15% of the homes did not use their windows during the entire preceding week. Most of the homes with no window usage were homes in the winter field session. Thus, a substantial percentage of homeowners never open their windows, especially in the winter season. The median 24-hour measurement was 0.26 air changes per hour (ach), with a range of 0.09 ach to 5.3 ach. A total of 67% of the homes had outdoor air exchange rates below the minimum California Building Code (2001) requirement of 0.35 ach. Thus, the relatively tight envelope construction, combined with the fact that many people never open their windows for ventilation, results in homes with low outdoor air exchange rates and higher indoor air contaminant concentrations.

The 1201 N. Grower Street Project, Los Angeles, CA is close to roads with moderate to high traffic (e.g., Santa Monica Freeway - 66, N. Grower Street, Lexington Avenue, Fountain Avenue etc.), thus the Project site is a sound impacted site.

According to the Sustainable Communities Environmental Assessment – 1201 N. Grower Street Project, Los Angeles, CA (CAJA Environmental Services, 2023), only 15-minute short-term acoustic measurements have been made in February and June, 2022.

In order to design the building for this Project such that interior noise levels are acceptable, an acoustic study with actual on-site measurements of the existing ambient noise levels and modeled future ambient noise levels needs to be conducted. The acoustic study of the existing ambient noise levels should be conducted over a one-week period.

and report the dBA CNEL or Ldn. This study will allow for the selection of a building envelope and windows with a sufficient STC such that the indoor noise levels are acceptable. A mechanical supply of outdoor air ventilation to allow for a habitable interior environment with closed windows and doors will also be requires. Such a ventilation system would allow windows and doors to be kept closed at the occupant's discretion to control exterior noise within building interiors.

$PM_{2.5}$ Outdoor Concentrations Impact. An additional impact of the nearby motor vehicle traffic associated with this project, are the outdoor concentrations of $PM_{2.5}$. According to the Sustainable Communities Environmental Assessment – 1201 N. Grower Street Project, Los Angeles, CA (CAJA Environmental Services, 2023), the Project is located in the South Coast Air Basin, which is a State and Federal non-attainment area for $PM_{2.5}$.

Additionally, the SCAQMD's MATES V study cites an existing cancer risk of 541 per million at the Project site due to the site's high concentration of ambient air contaminants resulting from the area's high levels of motor vehicle traffic.

An air quality analyses should be conducted to determine the concentrations of $PM_{2.5}$ in the outdoor and indoor air that people inhale each day. This air quality analyses needs to consider the cumulative impacts of the project related emissions, existing and projected future emissions from local $PM_{2.5}$ sources (e.g. stationary sources, motor vehicles, and airport traffic) upon the outdoor air concentrations at the Project site. If the outdoor concentrations are determined to exceed the California and National annual average $PM_{2.5}$ exceedence concentration of 12 $\mu g/m^3$, or the National 24-hour average exceedence concentration of 35 $\mu g/m^3$, then the buildings need to have a mechanical supply of outdoor air that has air filtration with sufficient removal efficiency, such that the indoor concentrations of outdoor $PM_{2.5}$ particles is less than the California and National $PM_{2.5}$ annual and 24-hour standards.

It is my experience that based on the projected high traffic noise levels, the annual average concentration of $PM_{2.5}$ will exceed the California and National $PM_{2.5}$ annual and 24-hour standards and warrant installation of high efficiency air filters (i.e. MERV 13 or higher) in all mechanically supplied outdoor air ventilation systems.

Indoor Air Quality Impact Mitigation Measures

The following are recommended mitigation measures to minimize the impacts upon indoor quality:

Indoor Formaldehyde Concentrations Mitigation. Use only composite wood materials (e.g. hardwood plywood, medium density fiberboard, particleboard) for all interior finish systems that are made with CARB approved no-added formaldehyde (NAF) resins (CARB, 2009). CARB Phase 2 certified composite wood products, or ultra-low emitting formaldehyde (ULEF) resins, do not insure indoor formaldehyde concentrations that are below the CEQA cancer risk of 10 per million. Only composite wood products manufactured with CARB approved no-added formaldehyde (NAF) resins, such as resins made from soy, polyvinyl acetate, or methylene diisocyanate can insure that the OEHHA cancer risk of 10 per million is met.

Alternatively, conduct the previously described Pre-Construction Building Material/Furnishing Chemical Emissions Assessment, to determine that the combination of formaldehyde emissions from building materials and furnishings do not create indoor formaldehyde concentrations that exceed the CEQA cancer and non-cancer health risks.

It is important to note that we are not asking that the builder "speculate" on what and how much composite materials be used, but rather at the design stage to select composite wood materials based on the formaldehyde emission rates that manufacturers routinely conduct using the California Department of Health "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions for Indoor Sources Using Environmental Chambers", (CDPH, 2017), and use the procedure described above (i.e. Pre-Construction Building Material/Furnishing Formaldehyde Emissions Assessment) to insure that the materials selected achieve acceptable cancer risks from material off gassing of formaldehyde.

Outdoor Air Ventilation Mitigation. Provide each habitable room with a continuous mechanical supply of outdoor air that meets or exceeds the California 2016 Building Energy Efficiency Standards (California Energy Commission, 2015) requirements of the greater of 15 cfm/occupant or 0.15 cfm/ft^2 of floor area. Following installation of the system conduct testing and balancing to insure that required amount of outdoor air is entering each habitable room and provide a written report documenting the outdoor airflow rates. Do not use exhaust only mechanical outdoor air systems, use only balanced outdoor air supply and exhaust systems or outdoor air supply only systems. Provide a manual for the occupants or maintenance personnel, that describes the purpose of the mechanical outdoor air system and the operation and maintenance requirements of the system.

$PM_{2.5}$ Outdoor Air Concentration Mitigation. Install air filtration with sufficient $PM_{2.5}$ removal efficiency (e.g. MERV 13 or higher) to filter the outdoor air entering the mechanical outdoor air supply systems, such that the indoor concentrations of outdoor $PM_{2.5}$ particles are less than the California and National $PM_{2.5}$ annual and 24-hour standards. Install the air filters in the system such that they are accessible for replacement by the occupants or maintenance personnel. Include in the mechanical outdoor air ventilation system manual instructions on how to replace the air filters and the estimated frequency of replacement.

References

BIFA. 2018. BIFMA Product Safety and Performance Standards and Guidelines. www.bifma.org/page/standardsoverview

CAJA Environmental Services. 2023. Sustainable Communities Environmental Assessment – 1201 N. Grower Street Project, Los Angeles, CA.

California Air Resources Board. 2004. Formaldehyde in the Home. https://ww3.arb.ca.gov › research › indoor › formaldgl08-04.pdf

California Air Resources Board. 2009. Airborne Toxic Control Measure to Reduce Formaldehyde Emissions from Composite Wood Products. California Environmental Protection Agency, Sacramento, CA. https://www.arb.ca.gov/regact/2007/compwood07/fro-final.pdf

California Air Resources Board. 2011. Toxic Air Contaminant Identification List. California Environmental Protection Agency, Sacramento, CA. https://www.arb.ca.gov/toxics/id/taclist.htm

California Building Code. 2001. California Code of Regulations, Title 24, Part 2 Volume 1, Appendix Chapter 12, Interior Environment, Division 1, Ventilation, Section 1207: 2001 California Building Code, California Building Standards Commission. Sacramento, CA.

California Building Standards Commission (2014). 2013 California Green Building Standards Code. California Code of Regulations, Title 24, Part 11. California Building Standards Commission, Sacramento, CA http://www.bsc.ca.gov/Home/CALGreen.aspx.

California Energy Commission, PIER Program. CEC-500-2007-033. Final Report, ARB Contract 03-326. Available at: www.arb.ca.gov/research/apr/past/03-326.pdf.

California Energy Commission, 2015. 2016 Building Energy Efficiency Standards for Residential and Nonresidential Buildings, California Code of Regulations, Title 24, Part 6. http://www.energy.ca.gov/2015publications/CEC-400-2015-037/CEC-400-2015-037-CMF.pdf

CDPH. 2017. Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions for Indoor Sources Using Environmental Chambers, Version 1.1. California Department of Public Health, Richmond, CA. https://www.cdph.ca.gov/Programs/CCDPHP/ DEODC/EHLB/IAQ/Pages/VOC.aspx. Environmental Impact Report. SCH No. 2018011001.

EPA. 2011. Exposure Factors Handbook: 2011 Edition, Chapter 16 – Activity Factors. Report EPA/600/R-09/052F, September 2011. U.S. Environmental Protection Agency, Washington, D.C.

Hodgson, A. T., D. Beal, J.E.R. McIlvaine. 2002. Sources of formaldehyde, other aldehydes and terpenes in a new manufactured house. Indoor Air 12: 235–242.

OEHHA (Office of Environmental Health Hazard Assessment). 2015. Air Toxics Hot Spots Program Risk Assessment Guidelines; Guidance Manual for Preparation of Health Risk Assessments.

OEHHA (Office of Environmental Health Hazard Assessment). 2017a. Proposition 65 Safe Harbor Levels. No Significant Risk Levels for Carcinogens and Maximum Allowable Dose Levels for Chemicals Causing Reproductive Toxicity. Available at: http://www.oehha.ca.gov/prop65/pdf/safeharbor081513.pdf

OEHHA - Office of Environmental Health Hazard Assessment. 2017b. All OEHHA Acute, 8-hour and Chronic Reference Exposure Levels. Available at: http://oehha.ca.gov/air/allrels.html

Offermann, F. J. 2009. Ventilation and Indoor Air Quality in New Homes. California Air Resources Board and California Energy Commission, PIER Energy-Related Environmental Research Program. Collaborative Report. CEC-500-2009-085. https://www.arb.ca.gov/research/apr/past/04-310.pdf

Offermann, F. J. and A. T. Hodgson. 2011. Emission Rates of Volatile Organic Compounds in New Homes. Proceedings Indoor Air 2011 (12th International Conference on Indoor Air Quality and Climate 2011), June 5-10, 2011, Austin, TX.

Singer, B.C, Chan, W.R, Kim, Y., Offermann, F.J., and Walker I.S. 2020. Indoor Air Quality in California Homes with Code-Required Mechanical Ventilation. Indoor Air, Vol 30, Issue 5, 885-899.

South Coast Air Quality Management District (SCAQMD). 2015. California Environmental Quality Act Air Quality Handbook. South Coast Air Quality Management District, Diamond Bar, CA, http://www.aqmd.gov/home/rules-compliance/ceqa/air-quality-analysis-handbook

USGBC. 2014. LEED BD+C Homes v4. U.S. Green Building Council, Washington, D.C. http://www.usgbc.org/credits/homes/v4

APPENDIX A

INDOOR FORMALDEHYDE CONCENTRATIONS AND THE CARB FORMALDEHYDE ATCM

With respect to formaldehyde emissions from composite wood products, the CARB ATCM regulations of formaldehyde emissions from composite wood products, do not assure healthful indoor air quality. The following is the stated purpose of the CARB ATCM regulation - *The purpose of this airborne toxic control measure is to "reduce formaldehyde emissions from composite wood products, and finished goods that contain composite wood products, that are sold, offered for sale, supplied, used, or manufactured for sale in California"*. In other words, the CARB ATCM regulations do not "assure healthful indoor air quality", but rather "reduce formaldehyde emissions from composite wood products".

Just how much protection do the CARB ATCM regulations provide building occupants from the formaldehyde emissions generated by composite wood products? Definitely some, but certainly the regulations do not "*assure healthful indoor air quality*" when CARB Phase 2 products are utilized. As shown in the Chan 2019 study of new California homes, the median indoor formaldehyde concentration was of 22.4 $\mu g/m^3$ (18.2 ppb), which corresponds to a cancer risk of 112 per million for occupants with continuous exposure, which is more than 11 times the CEQA cancer risk of 10 per million.

Another way of looking at how much protection the CARB ATCM regulations provide building occupants from the formaldehyde emissions generated by composite wood products is to calculate the maximum number of square feet of composite wood product that can be in a residence without exceeding the CEQA cancer risk of 10 per million for occupants with continuous occupancy.

For this calculation I utilized the floor area (2,272 ft^2), the ceiling height (8.5 ft), and the number of bedrooms (4) as defined in Appendix B (New Single-Family Residence Scenario) of the Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions for Indoor Sources Using Environmental Chambers, Version 1.1, 2017, California Department of Public Health, Richmond, CA. https://www.cdph.ca.gov/Programs/CCDPHP/ DEODC/EHLB/IAQ/Pages/VOC.aspx.

For the outdoor air ventilation rate I used the 2019 Title 24 code required mechanical ventilation rate (ASHRAE 62.2) of 106 cfm (180 m^3/h) calculated for this model residence. For the composite wood formaldehyde emission rates I used the CARB ATCM Phase 2 rates.

The calculated maximum number of square feet of composite wood product that can be in a residence, without exceeding the CEQA cancer risk of 10 per million for occupants with continuous occupancy are as follows for the different types of regulated composite wood products.

Medium Density Fiberboard (MDF) – 15 ft^2 (0.7% of the floor area), or
Particle Board – 30 ft^2 (1.3% of the floor area), or
Hardwood Plywood – 54 ft^2 (2.4% of the floor area), or
Thin MDF – 46 ft^2 (2.0 % of the floor area).

For offices and hotels the calculated maximum amount of composite wood product (% of floor area) that can be used without exceeding the CEQA cancer risk of 10 per million for occupants, assuming 8 hours/day occupancy, and the California Mechanical Code minimum outdoor air ventilation rates are as follows for the different types of regulated composite wood products.

Medium Density Fiberboard (MDF) – 3.6 % (offices) and 4.6% (hotel rooms), or
Particle Board – 7.2 % (offices) and 9.4% (hotel rooms), or
Hardwood Plywood – 13 % (offices) and 17% (hotel rooms), or
Thin MDF – 11 % (offices) and 14 % (hotel rooms)

Clearly the CARB ATCM does not regulate the formaldehyde emissions from composite wood products such that the potentially large areas of these products, such as for flooring, baseboards, interior doors, window and door trims, and kitchen and bathroom cabinetry, could be used without causing indoor formaldehyde concentrations that result in CEQA cancer risks that substantially exceed 10 per million for occupants with continuous occupancy.

Even composite wood products manufactured with CARB certified ultra low emitting formaldehyde (ULEF) resins do not insure that the indoor air will have concentrations of formaldehyde the meet the OEHHA cancer risks that substantially exceed 10 per million. The permissible emission rates for ULEF composite wood products are only 11-15% lower than the CARB Phase 2 emission rates. Only use of composite wood products made with no-added formaldehyde resins (NAF), such as resins made from soy, polyvinyl acetate, or methylene diisocyanate can insure that the OEHHA cancer risk of 10 per million is met.

If CARB Phase 2 compliant or ULEF composite wood products are utilized in construction, then the resulting indoor formaldehyde concentrations should be determined in the design phase using the specific amounts of each type of composite wood product, the specific formaldehyde emission rates, and the volume and outdoor air ventilation rates of the indoor spaces, and all feasible mitigation measures employed to reduce this impact (e.g. use less formaldehyde containing composite wood products and/or incorporate mechanical systems capable of higher outdoor air ventilation rates). See the procedure described earlier (i.e. Pre-Construction Building Material/Furnishing Formaldehyde Emissions Assessment) to insure that the materials selected achieve acceptable cancer risks from material off gassing of formaldehyde.

Alternatively, and perhaps a simpler approach, is to use only composite wood products (e.g. hardwood plywood, medium density fiberboard, particleboard) for all interior finish systems that are made with CARB approved no-added formaldehyde (NAF) resins.