Summary of Written Public Comments
Submitted for Planning Commission Meeting – November 12, 2025

Comments Received BEFORE Planning Commission Agenda Publication			
Public Comment #	**Name**	**Agenda Item**	**Comment Summary or Full Comment, if brief**
#1	Mike Gabelman	PH-1	Returned Public Hearing notice with a note written on the post card stating that the Gabelman Family is in favor of the proposed exception.

Comments Received AFTER Planning Commission Agenda Publication			
Public Comment #	**Name**	**Agenda Item**	**Comment Summary or Full Comment, if brief**
#2	Martha Martinez	PH-1	Letter received regarding resident's concerns of possible encroachment onto her property by the development of the subject property.
#3	Brian B. Flynn, Lozeau Drury LLP (SAFER)	PH-2	Letter received in opposition of the project due to inadequate analysis, disclosure, and mitigation of the project's air quality impacts and noise impacts.

City of Monrovia
Planning Division
415 South Ivy Avenue
Monrovia, CA 91016

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Notice of Public Hearing
Monrovia Planning Commission

East Foothill Boulevard
Deodar West Lane
South Mountain Avenue
Wildrose Avenue
N
829

Project Location: 113 South Mountain Avenue

91016-303329

GABELMAN MICHAEL AND WENDY TRUST
GABELMAN FAMILY TRUST
829 WILDROSE AVE
MONROVIA, CA 91016

8517-027-019

We are in favor of the proposed Exceptions.
Mike Gabelman

NOTICE OF PUBLIC HEARING

The Monrovia **Planning Commission (PC)** will conduct a public meeting to determine whether or not the following request should be granted under Title 16 and/or Title 17 of the Monrovia Municipal Code. You will have an opportunity to testify or submit written comments. This project is Categorically Exempt (Class 3) from the California Environmental Quality Act (CEQA).

DATE & TIME:	**Wednesday, November 12, 2025 at 7:30PM**
HEARING LOCATION:	Monrovia City Hall (City Council Chambers), 415 South Ivy Avenue, Monrovia, California 91016
APPLICATION:	Variance (VAR2025-0001) — Minor Exception (ME2025-0010) Variance (VAR2025-0002) — Minor Exception (ME2025-0011) Level "6" Neighborhood Compatibility Design Review (DR2025-0018) — Minor Exception (ME2025-0018)
APPLICANT:	Khaty Damlakyan
PROJECT ADDRESS:	113 South Mountain Avenue
REQUEST:	A request for two Variances and two Minor Exceptions from MMC §17.12.030, a Minor Exception from MMC §17.24.050, and a Level "6" Neighborhood Compatibility Design Review to construct a 1,433 square foot, two-story single-family residence. The two Variance requests are to exceed the maximum Floor Area Ratio (57% in lieu of 40%) to meet the minimum dwelling size and for a reduced front yard setback (9' in lieu of 25'). Two Minor Exceptions are for a reduced side yard setback along the north side ground floor level (3' in lieu of 5') and a reduced rear yard setback (16' in lieu of 20'). The third Minor Exception is for a reduced driveway back-up clearance (10' in lieu of 25'). The property is located in the PD-2 (Planned Development – Area 2) zone.
ADDITIONAL INFORMATION:	Project materials will be available on Thursday, November 6, 2025 (after 4:00 p.m.) at Monrovia City Hall, and online at www.monroviaca.gov/projectsunderreview. For questions regarding this application, please contact the Planning Division at (626) 932-5565 or by email at planning@monroviaca.gov. This case **will not** alter the zoning status of your property.
PUBLIC COMMENTS:	You may submit public comments in person at the meeting, or in writing. Written comments must be received by 5:00 p.m. on November 12, 2025 to be distributed to the DRC Members.

If you challenge this application in court, you may be limited to raising only those issues you or someone else raised at the public meeting described in this notice, or in written correspondence delivered to the Planning Division at, or prior to, the public meeting.
Este aviso es para informarle sobre una junta pública acerca de la propiedad indicada mas arriba. Si necesita información adicional en español, por favor contactase con el Departamento de Planificación al número (626) 932-5565.

Fri 11/7/2025 2:47 PM

M Martinez [redacted]

Concerned that there will not be any encroachment onto my property

To planning

You forwarded this message on 11/10/2025 8:51 AM.
If there are problems with how this message is displayed, click here to view it in a web browser.

City of Monrovia planning commission

Regarding proposed property project at 113 South Mountain Avenue

I read on the website this requirement for the new property owner to confirm the property boundary to be based on a recorded survey and thus avoid any encroachment onto my property to the north of the project site.

Has the owner been required to have the property boundary lines marked with monuments and so recorded with the county reorders office so as to prevent any encroachment ? Will this be required ?

My existing fence at my address - 846 E Foothill Blvd is not on the correct place according to a survey I had done in May of 2025 . In the future I do plan to move it over the 4.34 feet at the rear of the property to 3.71 feet at the front of the shared property line . I haven't had the time/funding yet to be able to fix this at this time. I just want to make sure that the new proposed project will not be on that section of my property .

MINOR EXCEPTION ME2025-0010 (Reduced Side Yard Setback)

8. Prior to construction of any new perimeter fencing, the Applicant shall make a good faith effort to coordinate with adjacent property owners to confirm the property boundary based on a recorded survey and avoid any encroachment. Documentation of this effort shall be submitted to the Planning Division.

Thank you

Martha Martinez

846 E Foothill Blvd,

Monrovia CA 91016

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November 11, 2025

Via Email

Jhaila R. Brown, Chair
Cheryl Rose, Vice-Chair
Scott Austin
Lyle Janicek
Gary Schaeffler
Aaron Stehura
Michael Vachani
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John Mayer, Principal Planner
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415 South Ivy Avenue
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Re: SAFER Comment
701 South Myrtle Avenue Specific Plan
Case Nos.: GPA2025-0002, ZA2025-0001, SP2025-0002, TPM2025-0002, CUP2025-0010, SCH No. 2023120051
Planning Commission Agenda Item PH-2 (Nov. 12, 2025)

To Chair Brown, Vice-Chair Rose, Honorable Commissioners, and Principal Planner Mayer:

This comment is submitted on behalf of Supporters Alliance For Environmental Responsibility ("SAFER") regarding the 701 South Myrtle Specific Plan Project (Case Nos.: GPA2025-0002, ZA2025-0001, SP2025-0002, TPM2025-0002, CUP2025-0010) ("Project"), including its Draft Environmental Impact Report dated July 2, 2025 (SCH No. 2023120051) and Final Environmental Impact Report dated October 2, 2025 (collectively "the EIR").

SAFER is concerned that the EIR fails to comply with the California Environmental Quality Act ("CEQA") due to the EIR's failure to adequately analyze, disclose, and mitigate the Project' s significant air quality impacts and significant noise impacts. SAFER's review of the Project and EIR was assisted by air quality experts Paul E. Rosenfeld, Ph.D, and Matt Hagemann, P.G., C.Hg. of Soil/Water/Air Protection Enterprise and noise expert Ani Toncheva of the consulting firm Wilson Ihrig. Dr. Rosenfeld's comment and CV are attached hereto as **Exhibit A**. Ms. Toncheva's comment and CV are attached hereto as **Exhibit B**.

SAFER respectfully requests that the Planning Commission refrain from recommending

approval of the Project to the City Council until the EIR is revised to address SAFER's concerns as explained below.

PROJECT DESCRIPTION

The Project proposes the demolition of the existing Myrtle and Olive Business Park followed by the construction of a 5-story mixed-use building with 1.5 levels of subterranean parking. The building is proposed to include 204 multi-family residential apartment units, 2,370 sf of commercial retail space, 2,782 sf of fitness center space, 2,470 sf of leasing office/lobby/mail room space on the ground floor. The Project will provide 329 parking spaces with vehicular access provided from one driveway along West Olive Avenue.

The 1.61-acre Project site abuts West Olive Avenue to the north, South Myrtle Avenue to the east, an alley to the south beyond which are industrial and office buildings and private property containing commercial and industrial buildings to the west and southwest. The site is currently developed with a ~25,200-sf single story commercial/industrial office building that was constructed in 1979.

In addition to environmental review under CEQA, the Project requires: (1) a General Plan Amendment to amend the General Plan's Land Use Element's to change the land use designation of the Project site from O/RD/LM (Office/Research and Development/Light Manufacturing) to Planned Development with new development standards entitled PD-29 (Planned Development – Area 29); (2) a Zoning Code Amendment to reclassify the property from O/RD/LM to the Specific Plan (SP) zone; and (3) approval of a Specific Plan, Vesting Tentative Parcel Map, and Conditional Use Permit.

LEGAL STANDARD

CEQA requires that an agency analyze the potential environmental impacts of its proposed actions in an EIR (except in certain limited circumstances). (See, e.g., Pub. Res. Code, § 21100.) The EIR is the very heart of CEQA. (*Dunn-Edwards v. BAAQMD* (1992) 9 Cal.App.4th 644, 652.) "The 'foremost principle' in interpreting CEQA is that the Legislature intended the act to be read so as to afford the fullest possible protection to the environment within the reasonable scope of the statutory language." (*Communities for a Better Environment v. Cal. Resources Agency* (2002) 103 Cal.App.4th 98, 109.)

CEQA has two primary purposes. First, CEQA is designed to inform decision makers and the public about the potential, significant environmental effects of a project. (14 CCR § 15002(a)(1).) "Its purpose is to inform the public and its responsible officials of the environmental consequences of their decisions before they are made. Thus, the EIR 'protects not only the environment but also informed self-government.'" (*Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal.3d 553, 564.) The EIR has been described as "an environmental 'alarm bell' whose purpose it is to alert the public and its responsible officials to environmental

changes before they have reached ecological points of no return." (*Berkeley Keep Jets Over the Bay v. Bd. of Port Comm'rs*. (2001) 91 Cal.App.4th 1344, 1354 (*Berkeley Jets*); *County of Inyo v. Yorty* (1973) 32 Cal.App.3d 795, 810.)

Second, CEQA requires public agencies to avoid or reduce environmental damage when "feasible" by requiring "environmentally superior" alternatives and all feasible mitigation measures. (14 CCR § 15002(a)(2) and (3); see also *Berkeley Jets*, 91 Cal.App.4th at 1354; *Citizens of Goleta Valley,* 52 Cal.3d at 564.) The EIR serves to provide agencies and the public with information about the environmental impacts of a proposed project and to "identify ways that environmental damage can be avoided or significantly reduced." (14 CCR § 15002(a)(2).) If the project will have a significant effect on the environment, the agency may approve the project only if it finds that it has "eliminated or substantially lessened all significant effects on the environment where feasible" and that any unavoidable significant effects on the environment are "acceptable due to overriding concerns." (Pub. Res. Code, § 21081; 14 CCR § 15092(b)(2)(A) and (B).)

While the courts review an EIR using an "abuse of discretion" standard, "the reviewing court is not to 'uncritically rely on every study or analysis presented by a project proponent in support of its position. A 'clearly inadequate or unsupported study is entitled to no judicial deference.'" (*Berkeley Jets*, 91 Cal.App.4th at 1355 [quoting, *Laurel Heights Improvement Assn. v. Regents of University of California* (1988) 47 Cal. 3d 376, 391, 409, n. 12.) "A prejudicial abuse of discretion occurs 'if the failure to include relevant information precludes informed decisionmaking and informed public participation, thereby thwarting the statutory goals of the EIR process.'" (*Berkeley Jets*, *supra*, 91 Cal.App.4th at 1355.)

An EIR must "include[] sufficient detail to enable those who did not participate in its preparation to understand and to consider meaningfully the issues the proposed project raises." (*Sierra Club v. Cty. of Fresno* (2018) 6 Cal.5th 502, 510.) "Whether or not the alleged inadequacy is the complete omission of a required discussion or a patently inadequate one-paragraph discussion devoid of analysis, the reviewing court must decide whether the EIR serves its purpose as an informational document." (*Id*. at 516.) "The determination whether a discussion is sufficient is not solely a matter of discerning whether there is substantial evidence to support the agency's factual conclusions." (*Id*.) As the Court emphasized:

> [W]hether a description of an environmental impact is insufficient because it lacks analysis or omits the magnitude of the impact is not a substantial evidence question. A conclusory discussion of an environmental impact that an EIR deems significant can be determined by a court to be inadequate as an informational document without reference to substantial evidence.

(*Id.* at 514.)

In general, mitigation measures must be designed to minimize, reduce or avoid an identified environmental impact or to rectify or compensate for that impact. (14 CCR § 15370.)

Where several mitigation measures are available to mitigate an impact, each should be discussed and the basis for selecting a particular measure should be identified. (14 CCR § 15126.4(a)(1)(B).) A lead agency may not make the required CEQA findings unless the administrative record clearly shows that all uncertainties regarding the mitigation of significant environmental impacts have been resolved.

DISCUSSION

I. The EIR Fails to Adequately Analyze, Disclose, and Mitigate the Project's Significant Construction-Related Health Impacts.

Paul E. Rosenfeld, Ph.D., of the Soil/Water/Air Protection Enterprise reviewed the EIR's air quality analysis. Dr. Rosenfeld's comment letter and CV is attached as **Exhibit A**. Dr. Rosenfeld found that the EIR failed to adequately analyze and mitigate the human health impacts resulting from the Project's emissions of diesel particulate matter ("DPM"), a known toxic air contaminant ("TAC") and human carcinogen. (Ex. A, pp. 7-10.)

The EIR concludes that the Project's impacts from DPM will be less than significant but fails to support that conclusion with a quantified health risk assessment ("HRA") for construction-related emission. CEQA requires that that the EIR "correlate the increase in emissions generated by the Project to the adverse impacts on human health caused by those emissions." (Ex. A, p. 7.) Such an analysis is not possible without a quantified HRA. "A construction-phase HRA should have been performed to assess the potential health risks to nearby sensitive receptors from diesel particulate matter ("DPM") emissions generated during construction." (*Id*.)

Dr. Rosenfeld prepared a screening-level HRA to evaluate potential impacts to human health from DPM during construction of the Project using AERSCREEN, the leading screening-level air quality dispersion model. (Ex. A, p. 7.) According to the EIR's air quality modeling data, construction of the Project will generate approximately 107 pounds of DPM over the 690-day construction period. (*Id*.) Using those values, Dr. Rosenfeld conducted and HRA to calculate the increased cancer risk resulting from those DPM emissions to the maximally exposed individual receptor located approximately 50 meters downwind of the Project site. (Ex. A, pp.7-8.) Dr. Rosenfeld's HRA utilized age sensitivity factors in order to account for the increased sensitivity to carcinogens during early-in-life exposure and to assess the risk for susceptible subpopulations such as children. (Ex. A, p. 8.)

Dr. Rosenfeld's HRA found that increased cancer risk to infants due to construction-related emissions construction would be 86.2 in one million. (Ex. A, p. 10.) The construction-related cancer risk to infants exceeds SCAQMD's CEQA significance threshold of 10 in one million and, therefore, is significant. By failing to conduct a construction-related HRA, the EIR fails to provide substantial evidence that the Project's health impacts from DPM emissions would be less than significant. The EIR must be amended and recirculated in order to disclose

this impact and mitigate it to the extent feasible.

II. The EIR Fails to Adequately Analyze the Project's Construction-Related Emissions.

The EIR relies on the California Emissions Estimator Model ("CalEEMod") to estimate the Project's emissions of criteria pollutants,). (See Ex. A, p. 1.) CalEEMod relies on recommended default values based on site specific information but allows the user to override the default values if more specific information about a project is known. Dr. Rosenfeld reviewed the Project's available CalEEMod output files from the EIR and found that the values input into the model were inconsistent with information provided in the EIR, resulting in an underestimation of the Project's emissions. (Ex. A, pp. 1-7.)

Specifically, Dr. Rosenfeld found that the following values used in the EIR's air quality analysis were either inconsistent with information provided in the EIR or otherwise unjustified:

1. Unsubstantiated changes to land use size (Ex. A, p. 2.)
2. Unsubstantiated changes to construction trips/VMT parameters (Ex. A, pp. 2-5.)
3. Incorrect construction hauling length (Ex. A, pp. 5-7.)

Due to the unjustified edits to CalEEMod's default values, the EIR's air quality analysis underestimates the Project's emissions and fails to provide substantial evidence that those impacts will be less than significant. The EIR must be revised adequately evaluate the impacts that construction and operation of the Project will have on local and regional air quality.

III. The EIR Fails to Adequately Analyze, Disclose, and Mitigate the Project's Significant Noise Impacts.

Noise expert Ana Toncheva reviewed the EIR's noise analysis. Ms. Toncheva's comment letter and CV are attached as **Exhibit B**. Ms. Toncheva found that the EIR failed to adequately analyze and mitigate the Project's noise impacts by: (1) failing to provide adequate information about the noise model used in the EIR; (2) failing to accurately model the Project's construction noise; and (3) failing to accurately model the Project's operational noise.

A. The EIR fails to provide meaningful information regarding the noise model used in the EIR.

The EIR claims that a "CadnaA" model was used to calculate the Project's noise impacts during construction and operation. However, Ms. Toncheva's review of the EIR found that the EIR was missing crucial information needed to verify the EIR's conclusions:

> The report fails to provide figures showing this model, where receivers and sources were placed, and what building elements were included for shielding. Report table footnotes state that Exhibit 10-A and Exhibit 11-A identify noise source and receiver locations. However, Exhibit 10-A has incomplete information and Exhibit

> 11-A is missing entirely from the Noise Analysis report. Receiver locations are shown in Exhibit 5-A without any other model elements.

(Ex. B, p. 3.) As a result of this missing information, it is not possible "to verify the conclusions of the [EIR's] operational and construction noise analyses." (*Id*.) In order for the EIR to serve its purpose as an informational document, the EIR must be revised to include additional information on the CadnaA model so that the EIR's conclusions can be verified by the public.

B. The EIR fails to accurately analyze and mitigate the Project's construction-related noise impacts.

To calculate the Project's construction-related noise impacts from various pieces of construction equipment, the EIR's Noise Analysis purports to use reference levels and usage factors established by the Federal Highway Administration's Roadway Construction Noise Model ("RCNM"). However, Ms. Toncheva found that the reference noise levels used in the EIR do not match the reference levels provided in the RCNM. (Ex. B, p. 3.) The EIR must be revised to explain this discrepancy and amend the EIR's noise analysis as necessary.

Ms. Toncheva also identified several discrepancies between the EIR's conclusions and the information provided in the EIR's technical noise analysis. (Ex. B, pp. 3-4.) According to the EIR, construction noise was analyzed by combining the sound levels of construction equipment into a single level and then inputting that level into a noise model for the Project. However, as Ms. Toncheva explains,

- "The single reference sound power level of 116.6 dBA shown in Appendix 11.1 does not match any of the levels provided in Table 11-1." (Ex. B, p. 3.)

- "The report claims that the analysis models the combined level as a 'moving point within the construction area (Project site boundary)' [p. 56]. A footnote in Table 11-2 states that levels were calculated based on the distance between the activity and the nearest receiver. However, the Appendix 11.1 source tables indicate construction was modeled as multiple area sources located in different parts of the site using a single reference level." (Ex. B, p. 3.)

- "The Noise Analysis claims the source locations are shown in Exhibit 11-A. This exhibit is not in the report and no figures show where construction equipment was modeled." (Ex. B, p. 3.)

The above discrepancies must be addressed in a revised EIR in order for the EIR to serve its purpose as an informational document and to support its conclusions with substantial evidence.

Correcting for the EIR's errors, Ms. Toncheva recalculated the Project's noise impacts on the Oak Park Apartments, located 85 feet from the Project site.

Equipment	Ref. Lmax @ 50 ft. (dBA)	Usage Factor	Leq @ Nearest Rec. (dBA) (mixed ground)[1]	Increase Over Ambient (dB)	Reported Leq at Nearest Rec. (dBA)	Leq @ Nearest Rec. (dBA) (hard ground)[2]
Demolition						
Concrete Saw	90	0.2	77			78
Jackhammer	85	0.2	72			73
Chain Saw	85	0.2	72			73
		Total:	79	22	71	81
Paving						
Paver	85	0.5	76			77
Roller	85	0.2	72			73
Dump Truck	84	0.4	74			75
		Total:	79	22	63	80

[1] Leq = Lmax + 10*log(Usage Factor) – 20*log (D/50) – 10*G*log(D/50), where G=0.5
[2] G=1.0

(Ex. B, p. 4.) The EIR uses an absolute significance threshold of 80 dBA (based on the FTA Manual) and an increase-over-ambient threshold of 12 dB (based on Caltrans). The noise predictions shown above for mixed ground are up to 22 dB above the daytime ambient level of 57 dBA. The hard ground predictions exceed the 80 dBA absolute noise limit as well. The EIR failed to accurately disclose these impacts.

In addition to inaccurately calculating the Project's construction noise, the EIR also fails to demonstrate that the EIR's proposed mitigation measures will reduce impacts to less-than-significant levels. Mitigation Measure NOI-1 recommends the construction of a temporary noise barrier at the northern and western Project site boundaries. The Noise Analysis is inconsistent about the height of this barrier, alternatively claiming it will be 10 feet in the executive summary and claiming it will be 8 feet in the noise analysis. In order to reduce the noise levels shown above to less-than-significant levels, the barrier would need to reduce levels by 10 dB. (Ex. B, p.5.) However, the FTA recommends assuming a 8 dB reduction for a temporary noise barrier, which would not reduce this Project's noise levels to less than significant. Furthermore, NOI-1 does not require a noise barrier on the east side of the Project site, despite the fact that the Paragon Old Town Apartments is the closest sensitive receiver to the site. (*Id*.)

Based on the above, Ms. Toncheva concludes that "The Project[] should provide missing information on the CadnaA model used for construction noise, verify that all anticipated construction equipment was accounted for in the analysis, and correct ground type assumptions. If there are still significant impacts, as indicated above, the Project should verify that the noise barriers recommended in NOI-1 would be sufficient to reduce all impacts to less than significant." (Ex. B, p. 5.) The EIR must be revised in order to provide substantial evidence that the Project's noise impacts will, in fact, be less than significant.

C. The EIR fails to accurately analyze and disclose the Project's operational noise impacts.

The EIR concluded that operational noise impacts will be less than significant. However, Ms. Toncheva found two errors in the EIR's analysis. First, the EIR assumed that noise would attenuate by a factor of 0.5 based on a combination of hard and soft surfaces on and around the Project site. However, as Ms. Toncheva explains, "[m]ost of the ground between the sensitive building and the Project is pavement (hard ground), so the ground absorption factor of 0.5 would underestimate operational noise." (Ex. B, pp. 6-7.) Second, "the [EIR's] model used a height of 5 feet off the ground, which does not represent the upper floor residential units closest to the future rooftop equipment and would also underestimate operational noise at those upper floors." (*Id*., p. 7.) Correcting for those errors, Ms. Toncheva found that operational nighttime noise at nearby sensitive receptors would reach 52, dBA, which exceeds the City's nighttime threshold of 50dBA.

Based on her review, Ms. Toncheva concludes that "[t]he Project[] should provide missing information on the CadnaA model used for operational noise, verify that all rooftop equipment was accounted for in the analysis, and include predictions for courtyard and parking mechanical equipment omitted from the model. If there are still significant impacts, as indicated above, the Project should verify shielding from parapet walls and other mitigation would be sufficient to reduce the impact to less than significant." (Ex. B, p. 7.) The EIR must be revised to address these shortcomings in order to provide substantial evidence that the Project's operational noise impacts will be less than significant.

CONCLUSION

Approval of the Project and the EIR would violate CEQA by failing to adequately analyze, disclose, and mitigate the Project's significant air quality impacts and significant noise impacts. For those reasons, SAFER requests that the Planning Commission refrain from recommending approval of the Project and EIR to the City Council at this time, and, instead, direct staff to revise the EIR to address the concerns discussed above prior to taking any further action on this Project.

Sincerely,

Brian B. Flynn
Lozeau Drury LLP

EXHIBIT A

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

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

Matt Hagemann, P.G, C.Hg.
(949) 887-9013
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October 24, 2025

Brian Flynn
Lozeau | Drury LLP
1939 Harrison Street, Suite 150
Oakland, California 94612

Subject: **Comments on the 701 S. Myrtle Avenue Specific Plan and Development Project (SCH No. 2023120051)**

Dear Mr. Flynn,

We have reviewed the July 2025 Draft Environmental Impact Report ("DEIR") for the 701 S. Myrtle Avenue Specific Plan and Development Project ("Project") located in the City of Monrovia ("City"). The Project proposes to construct 204 multi-family residential apartment units, 2,370-square-feet ("SF") of commercial retail space, 2,782-SF of fitness center space, 2,470-SF of office space, and 323 parking spaces on the 1.61-acre site.

Our review concludes that the DEIR fails to adequately evaluate the Project's air quality and health risk impacts. As a result, emissions and health risk impacts associated with construction and operation of the proposed Project may be underestimated and inadequately addressed. A revised Environmental Impact Report ("EIR") should be prepared to adequately assess and mitigate the potential air quality and health risk impacts that the project may have on the environment.

Air Quality

Unsubstantiated Input Parameters Used to Estimate Project Emissions

When reviewing the Project's CalEEMod output files, provided in the Air Quality Impact Analysis ("AQ Report") provided as Appendix C to the DEIR, we identified several model inputs related to Project construction that are inconsistent with information disclosed in the DEIR. A revised EIR should be prepared to include an updated air quality analysis that provides a more detailed evaluation of the impact that construction of the Project may have on local and regional air quality.

Unsubstantiated Changes to Land Use Size

Review of the CalEEMod output files demonstrates that the "15287 - 701 S Myrtle Ave (Proposed) v2 Detailed Report" model includes 164,985-SF of "Apartments Mid Rise" space (see screenshot below) (Appendix C, pp. 117, 118).

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Apartments Mid Rise	204	Dwelling Unit	0.89	164,985	19,205	—	604	—
Strip Mall	2.37	1000sqft	0.01	2,370	0.00	—	—	Commercial Space
Health Club	2.78	1000sqft	0.01	2,782	0.00	—	—	Fitness Center
General Office Building	2.47	1000sqft	0.01	2,470	0.00	—	—	Leasing Office/Lobby/Mail Room
Unenclosed Parking with Elevator	329	Space	0.67	124,650	0.00	—	—	—
Recreational Swimming Pool	0.64	1000sqft	< 0.005	640	0.00	—	—	—

The residential square footage included in the model is unsubstantiated, as the DEIR fails to mention or specify the square footage of the proposed building area whatsoever. The DEIR states:

> "The building is proposed to include 204 multi-family residential apartment units, 2,370 square feet (s.f.) of commercial retail space, 2,782 s.f. of fitness center space, 2,470 s.f. of leasing office/lobby/mail room space on the ground floor, parking on a portion of the ground floor, and 1.5 levels of subterranean parking" (p. 3-1).

As indicated above, the DEIR does not include the projected square footage of the proposed apartment building. The square footage included in the model is thus unsupported and may be underestimated.

This potential underestimation presents an issue, as the land use size feature is used throughout CalEEMod to determine default variable and emission factors that affect the model's calculations. The square footage of each land use is used for certain calculations such as architectural coatings and energy use.[1] By potentially underestimating the size of the proposed housing, the model may underestimate the Project's construction and operational emissions and should not be relied upon to determine Project significance.

Unsubstantiated Changes to Construction Trips and VMT Parameters

Review of the CalEEMod output files demonstrates that the "15287 - 701 S Myrtle Ave (Proposed) v2 Detailed Report" model includes changes to the construction trips and VMT values (see screenshot below) (Appendix C, pp. 208, 209).

[1] "CalEEMod User Guide." CAPCOA, April 2022, available at: https://www.caleemod.com/documents/user-guide/01_User%20Guide.pdf, p. 30.

Screen	Justification
Land Use	Taken from site plan. Project total site acreage is 1.60 ac. Residential building square footage includes the total building unit area, balcony sf, and clubhouse sf.
Construction: Construction Phases	Taken from client data.
Construction: Off-Road Equipment	Taken from client data. T/L/B replaced with Crawler Tractor to accurately calculate disturbance for Site Preparation and Grading phases.
Construction: Trips and VMT	Vendor Trips adjusted based on CalEEMod defaults for Building Construction and number of days for all phases. Per client data, there will be about 20 workers daily during demolition, site preparation, and grading and a maximum of 200 workers during building construction. Based on contractor data for the grading phase, there will be 1,200 CY hauled per day using bottom dump (21-yards) trucks, which will be 57 trips per day for 45 haul days.
Construction: Architectural Coatings	SCAQMD Rule 1113
Operations: Vehicle Data	Trip characteristics based on information provided in the Traffic Analysis.
Operations: Hearths	SCAQMD Rule 445 no wood burning devices. Wood burning devices added to gas devices.
Operations: Architectural Coatings	SCAQMD Rule 1113
Operations: Refrigerants	As of 1 January 2022, new commercial refrigeration equipment may not use refrigerants with a GWP of 150 or greater. Further, R-404A (the CalEEMod default) is unacceptable for new supermarket and cold storage systems as of 1 January 2019 and 2023, respectively. Beginning 1 January 2025, all new air conditioning equipment may not use refrigerants with a GWP of 750 or greater.
Operations: Energy Use	Per client data, no natural gas will be utilized.

As a result of these changes, the model includes the following table (see excerpt below) (Appendix C, pp. 191, 192, 193):

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	40.0	18.5	LDA,LDT1,LDT2
Demolition	Vendor	3.00	10.2	HHDT,MHDT
Demolition	Hauling	13.9	20.0	HHDT
Demolition	Onsite truck	—	—	HHDT
Site Preparation	—	—	—	—
Site Preparation	Worker	40.0	18.5	LDA,LDT1,LDT2
Site Preparation	Vendor	6.00	10.2	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	40.0	18.5	LDA,LDT1,LDT2
Grading	Vendor	4.00	10.2	HHDT,MHDT
Grading	Hauling	57.0	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	400	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	10.6	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT

Note: the above screenshot does not capture the entire table.

The CalEEMod User's Guide requires any changes to model defaults be justified.[2] The justification provided for these changes is:

[2] "CalEEMod User Guide." CAPCOA, April 2022, available at: https://www.caleemod.com/documents/user-guide/01_User%20Guide.pdf, p. 13, 14.

"Vendor Trips adjusted based on CalEEMod defaults for Building Construction and number of days for all phases. Per client data, there will be about 20 workers daily during demolition, site preparation, and grading and a maximum of 200 workers during building construction. Based on contractor data for the grading phase, there will be 1,200 CY hauled per day using bottom dump (21-yards) trucks, which will be 57 trips per day for 45 haul days" (Appendix C, pp. 209).

Regarding the Project's construction-related vehicle trips, the DEIR provides the following table, citing "*UXR, 2025a, Table 3-2*" as the source (see excerpt below) (p. 4.2-25, Table 4.2-7):

Table 4.2-7 Construction Trip Assumptions

Construction Activity	Worker Trips Per Day	Vendor Trips Per Day	Hauling Trips Per Day[1]
Demolition	40	3	14
Site Preparation	40	6	0
Grading	40	4	57
Building Construction	400	11	0
Paving	5	15	0
Architectural Coating	40	4	0

[1] The number of worker, vendor, and hauling trips are rounded in the table above to whole numbers. (UXR, 2025a, Table 3-2)

Furthermore, the AQ Report, prepared by Urban Crossroads, includes the same construction trip assumptions (see screenshot below) (Appendix C, p. 37, Table 3-2):

TABLE 3-2: CONSTRUCTION TRIP ASSUMPTIONS

Construction Activity	Worker Trips Per Day	Vendor Trips Per Day	Hauling Trips[1] Per Day
Demolition	40	3	14
Site Preparation	40	6	0
Grading	40	4	57[4]
Building Construction	400	11	0
Paving	5	15	0
Architectural Coating	40	4	0

[1] It should be noted that the number of worker, vendor, and hauling trips are rounded in the table.

The provided table and source do not adequately substantiate the changes to the construction vehicle trips. Urban Crossroads is the environmental consulting firm that prepared the AQ Report and associated air modeling in CalEEMod. The construction trips and VMT values—and any changes in the CalEEMod model—should be provided the Project Applicant. The AQ Report, which reflects what is in the air modeling, or the CalEEMod output files themselves are insufficient justification. According to the CalEEMod User's Guide:

> "CalEEMod was also designed to allow the user to change the defaults to reflect site- or project-specific information, when available, provided that the information is supported by substantial evidence as required by CEQA." [3]

As the DEIR fails to provide an adequate source for the revised construction trips and VMT values, we cannot verify these changes. These unsupported changes present an issue, as CalEEMod uses the vendor and worker trip numbers to estimate the construction-related emissions associated with on-road vehicles.[4] By including unsupported changes to the default construction trips, the model may underestimate the Project's mobile-source construction-related emissions and should not be relied upon to determine Project significance.

Incorrect Construction Hauling Trip Length

Regarding the truck haul route for construction, the DEIR states:

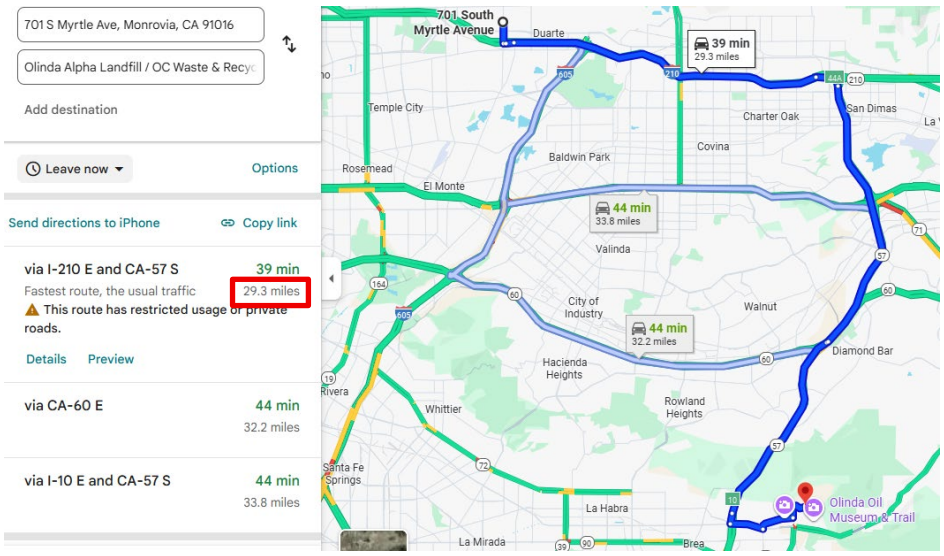
> "Project's grading operation would excavate approximately 54,000 cubic yards of raw cut, all of which would be exported from the Project site to a receiving site that is reasonably expected to be located within a 20-mile radius of the Project site" (p. 3-11)
>
> and
>
> "The Project's waste would be disposed of at the Olinda Alpha Sanitary Landfill" (p. 4.15-14).

Accordingly, the "15287 - 701 S Myrtle Ave (Proposed) v2 Detailed Report" CalEEMod model includes a 20-mile hauling trip length (see screenshot below) (Appendix C, pp. 191, 192, 193):

[3] "CalEEMod User Guide." CAPCOA, April 2022, available at: https://www.caleemod.com/documents/user-guide/01_User%20Guide.pdf, p. 10.
[4] "CalEEMod User Guide." CAPCOA, April 2022, available at: https://www.caleemod.com/documents/user-guide/01_User%20Guide.pdf, p. 37.

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	40.0	18.5	LDA,LDT1,LDT2
Demolition	Vendor	3.00	10.2	HHDT,MHDT
Demolition	Hauling	13.9	20.0	HHDT
Demolition	Onsite truck	—	—	HHDT
Site Preparation	—	—	—	—
Site Preparation	Worker	40.0	18.5	LDA,LDT1,LDT2
Site Preparation	Vendor	6.00	10.2	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	40.0	18.5	LDA,LDT1,LDT2
Grading	Vendor	4.00	10.2	HHDT,MHDT
Grading	Hauling	57.0	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	400	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	10.6	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	5.00	18.5	LDA,LDT1,LDT2
Paving	Vendor	15.0	10.2	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	40.4	18.5	LDA,LDT1,LDT2
Architectural Coating	Vendor	4.00	10.2	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

However, a review of Google Maps reveals that the Olinda Alpha Landfill is located approximately 29 miles from the Project site (see screenshot below).



The 20-mile hauling trip route is therefore underestimated by 9 miles. CalEEMod uses the hauling trips lengths to estimate the construction-related emissions associated with on-road vehicles.[5] By including an underestimated hauling trip length, the model underestimates the Project's construction-related emissions and should not be relied upon to determine Project significance.

Diesel Particulate Matter Emissions Inadequately Evaluated

The DEIR claims a less-than-significant health risk impact without conducting a quantified construction health risk assessment ("HRA"). The DEIR is thus inconsistent with CEQA's requirement to correlate the increase in emissions generated by the Project to the adverse impacts on human health caused by those emissions. Under CEQA, agencies must make a "reasonable effort to substantively connect a project's air quality impacts to likely health consequences." [6] To comply with this requirement, a construction-phase HRA should have been performed to assess the potential health risks to nearby sensitive receptors from diesel particulate matter ("DPM") emissions generated during construction. The resulting cancer risk estimate should then be compared against the SCAQMD established threshold of 10 in one million.[7]

Screening-Level Analysis Demonstrates Potentially Significant Health Risk Impact

We conducted a screening-level risk assessment using AERSCREEN, a screening-level air quality dispersion model which uses a limited amount of site-specific information to generate maximum reasonable downwind concentrations of air contaminants to which nearby sensitive receptors may be exposed.[8] We prepared a preliminary HRA of the Project's construction-related health risk impact to residential sensitive receptors using the annual PM_{10} exhaust estimates from the DEIR's CalEEMod output files.[9] Consistent with recommendations set forth by the Office of Environmental Health Hazard Assessment ("OEHHA"), we assumed residential exposure begins during the third trimester stage of life.[10]

The "15287 - 701 S Myrtle Ave (Proposed) v2 Detailed Report" model indicates that construction activities will generate approximately 107 pounds of DPM over the 690-day construction period.[11] The AERSCREEN model relies on a continuous average emission rate to simulate maximum downward concentrations from point, area, and volume emission sources. To account for the variability in

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[5] "CalEEMod User Guide." CAPCOA, April 2022, available at: https://www.caleemod.com/documents/user-guide/01_User%20Guide.pdf, p. 13, 14.
[6] "Sierra Club v. County of Fresno." Supreme Court of California, December 2018, a*vailable at:* https://law.justia.com/cases/california/supreme-court/2018/s219783a.html
[7] "South Coast AQMD Air Quality Significance Thresholds." SCAQMD, March 2023, *available at*: https://www.aqmd.gov/docs/default-source/ceqa/handbook/south-coast-aqmd-air-quality-significance-thresholds.pdf?sfvrsn=25.
[8] "Air Quality Dispersion Modeling - Screening Models," U.S. EPA, *available at:* https://www.epa.gov/scram/air-quality-dispersion-modeling-screening-models.
[9] "Appendices A-F Guidance Manual for Preparation of Health Risk Assessments." OEHHA, February 2015, available at: https://oehha.ca.gov/sites/default/files/media/downloads/crnr/2015gmappendicesaf.pdf, p. D-1.
[10] "Risk Assessment Guidelines: Guidance Manual for Preparation of Health Risk Assessments." OEHHA, February 2015, *available at:* https://oehha.ca.gov/media/downloads/crnr/2015guidancemanual.pdf, p. 8-18.
[11] See Attachment B for health risk calculations.

equipment usage and truck trips over construction of the Project, we calculated an average DPM emission rate by the following equation:

$$Emission\ Rate\ \left(\frac{grams}{second}\right) = \frac{107\ lbs}{690\ days} \times \frac{453.6\ grams}{lbs} \times \frac{1\ day}{24\ hours} \times \frac{1\ hour}{3{,}600\ seconds} = \mathbf{0.000816\ g/s}$$

Using this equation, we estimated a construction emission rate of 0.000816 grams per second ("g/s"). Construction and operation were simulated as a 1.5-acre rectangular area source in AERSCREEN, with approximate dimensions of 114- by 57-meters. A release height of three meters was selected to represent the height of stacks of operational equipment and other heavy-duty vehicles, and an initial vertical dimension of one and a half meters was used to simulate instantaneous plume dispersion upon release. An urban meteorological setting was selected with model-default inputs for wind speed and direction distribution. The population of Monrovia was obtained from U.S. 2024 Census data.[12]

The AESCREEN model generates maximum reasonable estimates of single-hour DPM concentrations for the Project. The U.S. Environmental Protection Agency ("U.S. EPA") suggests that the annualized average concentration of an air pollutant be estimated by multiplying the single-hour concentration by 10% in screening procedures.[13] The DEIR states that the closest known sensitive receptors include existing residences that are as close as 80 feet, or 24.4 meters, to the Project site (p. 4.2-11).

However, review of the AERSCREEN output files demonstrate that the *maximally* exposed individual receptor ("MEIR") is located approximately 50 meters downwind of the Project site.[14] Thus, the single-hour concentration estimated by AERSCREEN for construction of the Project is therefore approximately 3.198 µg/m^3 DPM at approximately 50 meters downwind. Multiplying this single-hour concentration by 10%, we get an annualized average concentration of 0.3198 µg/m^3 for Project construction.

We calculated the excess cancer risk to the MEIR using applicable HRA methodologies prescribed by OEHHA, as recommended by SCAQMD. Guidance from OEHHA and the California Air Resources Board ("CARB") recommends the use of a standard point estimate approach, including high-point estimate (i.e. 95th percentile) breathing rates and age sensitivity factors to account for the increased sensitivity to carcinogens during early-in-life exposure and accurately assess risk for susceptible subpopulations such as children. The residential exposure parameters used for the various age groups in our screening-level HRA are as follows:

[12] "Monrovia." U.S. Census Bureau, 2024, *available at:* https://datacommons.org/place/geoId/0648648.

[13] "Screening Procedures for Estimating the Air Quality Impact of Stationary Sources Revised." U.S. EPA, October 1992, *available at:* https://www.epa.gov/sites/default/files/2020-09/documents/epa-454r-92-019_ocr.pdf.

[14] See Attachment C for AERSCREEN output files.

Exposure Assumptions for Residential Individual Cancer Risk						
Age Group	**Breathing Rate** (L/kg-day)[15]	**Age Sensitivity Factor**[16]	**Exposure Duration** (years)	**Fraction of Time at Home**[17]	**Exposure Frequency** (days/year)[18]	**Exposure Time** (hours/day)
3rd Trimester	361	10	0.25	0.85	350	24
Infant (0 – 2)	1090	10	2	0.85	350	24
Child (2 – 16)	572	3	14	0.72	350	24
Adult (16 – 30)	261	1	14	0.73	350	24

For the inhalation pathway, the procedure requires the incorporation of several discrete variates to effectively quantify doses for each age group. Once determined, contaminant dose is multiplied by the cancer potency factor ("CPF") in units of inverse dose expressed in milligrams per kilogram per day (mg/kg/day^{-1}) to derive the cancer risk estimate. We used the following dose algorithm, therefore, to assess exposures:

$$Dose_{AIR,per\ age\ group} = C_{air} \times EF \times \left[\frac{BR}{BW}\right] \times A \times CF$$

where:

$Dose_{AIR}$ = dose by inhalation (mg/kg/day), per age group
C_{air} = concentration of contaminant in air (µg/m3)
EF = exposure frequency (number of days/365 days)
BR/BW = daily breathing rate normalized to body weight (L/kg/day)
A = inhalation absorption factor (default = 1)
CF = conversion factor (1x10-6, µg to mg, L to m3)

We then used the following equation for each appropriate age group to calculate the overall cancer risk:

[15] "Supplemental Guidelines for Preparing Risk Assessments for the Air Toxics 'Hot Spots' Information and Assessment Act." SCAQMD, October 2020, available at: http://www.aqmd.gov/docs/default-source/planning/risk-assessment/ab-2588-supplemental-guidelines.pdf?sfvrsn=19, p. 19; see also "Risk Assessment Guidelines Guidance Manual for Preparation of Health Risk Assessments." OEHHA, February 2015, available at: https://oehha.ca.gov/media/downloads/crnr/2015guidancemanual.pdf.

[16] "Risk Assessment Guidelines Guidance Manual for Preparation of Health Risk Assessments." OEHHA, February 2015, available at: https://oehha.ca.gov/media/downloads/crnr/2015guidancemanual.pdf, p. 8-5 Table 8.3.

[17] "Risk Assessment Procedures." SCAQMD, August 2017, available at: http://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1401/riskassessmentprocedures_2017_080717.pdf, p. 7.

[18] "Risk Assessment Guidelines Guidance Manual for Preparation of Health Risk Assessments." OEHHA, February 2015, available at: https://oehha.ca.gov/media/downloads/crnr/2015guidancemanual.pdf, p. 5-24.

$$Cancer\ Risk_{AIR} = Dose_{AIR} \times CPF \times ASF \times FAH \times \frac{ED}{AT}$$

where:

$Dose_{AIR}$ = do.se by inhalation (mg/kg/day), per age group
CPF = cancer potency factor, chemical-specific $(mg/kg/day)^{-1}$
ASF = age sensitivity factor, per age group
FAH = fraction of time at home, per age group (for residential receptors only)
ED = exposure duration (years)
AT = averaging time period over which exposure duration is averaged (always 70 years)

Consistent with the 690-day construction schedule, the annualized average concentration for construction was used for the entire third trimester of pregnancy (0.25 years) and the first 1.64 years of the entire infantile stage of life (0-2 years). The results of our calculations are shown in the table below.

The Maximally Exposed Individual at an Existing Residential Receptor				
Age Group	**Emissions Source**	**Duration** (years)	**Concentration** (ug/m3)	**Cancer Risk**
3rd Trimester	Construction	0.25	0.3198	4.35E-06
	Construction	*1.64*	*0.3198*	*8.62E-05*
	Operation	*0.36*	*	*
Infant (0 - 2)	Total	2		8.62E-05
Child (2 - 16)	Operation	14	*	*
Adult (16 - 30)	Operation	14	*	*
Lifetime		**30**		**9.05E-05**

**Operational HRA not conducted due to the residential nature of the Project.*

The estimated excess cancer risks for the 3rd trimester of pregnancy and infants at the MEIR located approximately 50 meters away, over the course of construction, are approximately 4.35 and 86.2 in one million, respectively. The excess cancer risk over the course of construction is approximately 90.5 in one million. The infant and lifetime construction cancer risks exceed the SCAQMD's threshold of 10 in one million, resulting in a potentially significant impact not addressed or identified by the DEIR or associated documents.

Our analysis represents a screening-level HRA, which is known to be conservative. The purpose of the screening-level HRA is to demonstrate the potential link between project-generated emissions and

adverse health risk impacts. The U.S. EPA Exposure Assessment Guidelines suggest an iterative, tiered approach to exposure assessments, starting with a simple screening-level evaluation using basic tools and conservative assumptions.[19] If required, a more refined analyses with advanced models and detailed input data can follow.

Our screening-level HRA demonstrates that construction of the Project could result in a potentially significant health risk impact. A revised EIR should therefore be prepared to include a refined HRA, as recommended by the U.S. EPA. If the refined analysis similarly reaches a determination of significant impact, then mitigation measures should be incorporated, as described in our "Feasible Mitigation Measures Available to Reduce Emissions" section below.

Mitigation

Feasible Mitigation Measures Available to Reduce Emissions

The DEIR is required under CEQA to implement all feasible mitigation to reduce the Project's potential impacts. As demonstrated above, the Project may result in a significant health risk impact that should be mitigated further if a refined HRA similarly demonstrates a significant impact. To reduce the DPM emissions associated with Project construction, we recommend the DEIR consider several mitigation measures as listed below.

The Southern California Association of Governments' Certified Final Program Environmental Impact Report for Connect SoCal 2024 recommends the following Project-level air quality mitigation measures:[20]

- Assemble a comprehensive inventory list (i.e., make, model, engine year, horsepower, emission rates) of all heavy-duty off-road (portable and mobile) equipment (50 horsepower [hp] and greater) that could be used an aggregate of 40 or more hours for the construction project. Prepare a plan for approval by the applicable air district demonstrating achievement of the applicable percent reduction for a CARB-approved fleet.
- Ensure that all construction equipment is properly tuned and maintained.
- Develop a traffic plan to minimize traffic flow interference from construction activities. The plan may include advance public notice of routing, use of public transportation, and satellite parking areas with a shuttle service. Schedule operations affecting traffic for off-peak hours. Minimize obstruction of through traffic lanes. Provide a flag person to guide traffic properly and ensure safety at construction sites.
- Obtain CARB Portable Equipment Registration with the state or a local district permit for portable engines and portable engine-driven equipment units used at the project work site, with the exception of on-road and off-road motor vehicles. Arrange appropriate consultations with

[19] "Exposure Assessment Tools by Tiers and Types - Screening-Level and Refined." U.S. EPA, May 2024, *available at:* https://www.epa.gov/expobox/exposure-assessment-tools-tiers-and-types-screening-level-and-refined.
[20] "Certified Final Program Environmental Impact Report for Connect SoCal 2024." SCAG, May 2020, *available at:* https://scag.ca.gov/program-environmental-impact-report-0.

CARB or the local air district to determine registration and permitting requirements prior to equipment operation at the site.

- Use Tier 4 Final equipment or better for all engines above 50 hp. In the event that construction equipment cannot meet to Tier 4 Final or better engine certification, the Project representative or contractor must demonstrate through future study with written findings supported by substantial evidence that is approved by the project's lead agency before using other technologies/strategies. Alternative applicable strategies may include, but would not be limited to, construction equipment with Tier 4 Interim or reduction in the number and/or horsepower rating of construction equipment and/or limiting the number of construction equipment operating at the same time. All equipment must be tuned and maintained in compliance with the manufacturer's recommended maintenance schedule and specifications. All maintenance records for each equipment and their contractor(s) should make available for inspection and remain on-site for a period of at least two years from completion of construction, unless the individual project can demonstrate that Tier 4 Final or better engines would not be required to mitigate emissions below significance thresholds. Project sponsors should also consider including ZE/ZNE technologies where appropriate and feasible or higher tier standard diesel equipment as it becomes developed and feasible.
- Require contractors to assemble a comprehensive inventory list (i.e., make, model, engine year, horsepower, emission rates) of all heavy-duty off-road (portable and mobile) equipment (50 horsepower and greater) that could be used an aggregate of 40 or more hours for the construction project.

Provided above are several mitigation measures that would reduce Project-related DPM emissions. These measures offer a cost-effective, feasible way to incorporate lower-emitting design features into the proposed Project, which subsequently reduces emissions released during Project construction.

A revised EIR should be prepared that includes all feasible mitigation measures, as well as an updated health risk analysis to ensure that the necessary mitigation measures are implemented to reduce emissions to the maximum extent feasible. The revised EIR should also demonstrate a commitment to the implementation of these measures prior to Project approval, to ensure that the Project's potentially significant emissions are reduced to the maximum extent possible.

Disclaimer

SWAPE has received limited documentation regarding this project. Additional information may become available in the future; thus, we retain the right to revise or amend this report when additional information becomes available. Our professional services have been performed using that degree of care and skill ordinarily exercised, under similar circumstances, by reputable environmental consultants practicing in this or similar localities at the time of service. No other warranty, expressed or implied, is made as to the scope of work, work methodologies and protocols, site conditions, analytical testing results, and findings presented. This report reflects efforts which were limited to information that was reasonably accessible at the time of the work, and may contain informational gaps, inconsistencies, or

otherwise be incomplete due to the unavailability or uncertainty of information obtained or provided by third parties.

Sincerely,

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

Paul E. Rosenfeld, Ph.D.

Attachment A: CalEEMod Output Files
Attachment B: Health Risk Calculations
Attachment C: AERSCREEN Output Files
Attachment D: Matt Hagemann CV
Attachment E: Paul Rosenfeld CV

701 S. Myrtle Avenue Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	701 S. Myrtle Avenue
Construction Start Date	3/3/2025
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	0.50
Precipitation (days)	24.4
Location	701 S Myrtle Ave, Monrovia, CA 91016, USA
County	Los Angeles-South Coast
City	Monrovia
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	4907
EDFZ	7
Electric Utility	Southern California Edison
Gas Utility	Southern California Gas
App Version	2022.1.1.30

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Apartments Mid Rise	204	Dwelling Unit	0.89	195,840	19,205	—	604	—
Strip Mall	2.37	1000sqft	0.01	2,370	—	—	—	—

Health Club	2.78	1000sqft	0.01	2,782	—	—	—	—
General Office Building	2.47	1000sqft	0.01	2,470	—	—	—	—
Unenclosed Parking with Elevator	329	Space	0.67	124,650	—	—	—	—
Recreational Swimming Pool	0.64	1000sqft	0.01	640	—	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.71	1.76	27.0	19.0	0.09	0.85	10.5	11.4	0.80	4.27	5.06	—	12,731	12,731	0.66	1.65	24.5	13,265
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	26.4	26.4	15.3	16.9	0.03	0.60	3.02	3.22	0.55	0.72	0.90	—	5,177	5,177	0.23	0.30	0.36	5,273
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.77	2.70	6.60	7.30	0.02	0.23	2.09	2.32	0.21	0.69	0.91	—	2,913	2,913	0.14	0.28	2.54	3,001
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.51	0.49	1.20	1.33	< 0.005	0.04	0.38	0.42	0.04	0.13	0.17	—	482	482	0.02	0.05	0.42	497

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	2.71	1.76	27.0	19.0	0.09	0.85	10.5	11.4	0.80	4.27	5.06	—	12,731	12,731	0.66	1.65	24.5	13,265
2026	0.36	0.30	2.41	3.37	< 0.005	0.11	0.07	0.18	0.11	0.02	0.12	—	525	525	0.02	0.01	0.23	527
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	1.90	1.55	15.3	16.9	0.03	0.60	3.02	3.22	0.55	0.72	0.90	—	5,177	5,177	0.23	0.30	0.36	5,273
2026	26.4	26.4	6.57	16.0	0.02	0.19	3.02	3.21	0.17	0.72	0.89	—	5,100	5,100	0.22	0.30	0.34	5,195
2027	26.4	26.4	0.31	2.25	< 0.005	< 0.005	0.53	0.53	< 0.005	0.12	0.13	—	532	532	0.01	0.02	0.04	538
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.87	0.66	6.60	7.30	0.02	0.23	2.09	2.32	0.21	0.69	0.91	—	2,913	2,913	0.14	0.28	2.54	3,001
2026	2.77	2.70	2.18	4.33	0.01	0.08	0.54	0.62	0.08	0.13	0.20	—	1,087	1,087	0.05	0.05	0.98	1,104
2027	1.14	1.14	0.01	0.10	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	23.2	23.2	< 0.005	< 0.005	0.03	23.5
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.16	0.12	1.20	1.33	< 0.005	0.04	0.38	0.42	0.04	0.13	0.17	—	482	482	0.02	0.05	0.42	497
2026	0.51	0.49	0.40	0.79	< 0.005	0.02	0.10	0.11	0.01	0.02	0.04	—	180	180	0.01	0.01	0.16	183
2027	0.21	0.21	< 0.005	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.84	3.84	< 0.005	< 0.005	0.01	3.89

3. Construction Emissions Details

3.1. Demolition (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.78	1.49	14.0	13.1	0.02	0.58	—	0.58	0.54	—	0.54	—	2,257	2,257	0.09	0.02	—	2,265
Demolition	—	—	—	—	—	—	1.14	1.14	—	0.17	0.17	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.78	1.49	14.0	13.1	0.02	0.58	—	0.58	0.54	—	0.54	—	2,257	2,257	0.09	0.02	—	2,265
Demolition	—	—	—	—	—	—	1.14	1.14	—	0.17	0.17	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.17	0.14	1.34	1.26	< 0.005	0.06	—	0.06	0.05	—	0.05	—	216	216	0.01	< 0.005	—	217
Demolition	—	—	—	—	—	—	0.11	0.11	—	0.02	0.02	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.03	0.03	0.24	0.23	< 0.005	0.01	—	0.01	0.01	—	0.01	—	35.8	35.8	< 0.005	< 0.005	—	36.0
Demolition	—	—	—	—	—	—	0.02	0.02	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.04	0.70	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	138	138	0.01	< 0.005	0.51	140
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.08	0.02	1.19	0.46	0.01	0.01	0.26	0.27	0.01	0.07	0.08	—	966	966	0.05	0.15	2.24	1,015
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.05	0.59	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	131	131	0.01	< 0.005	0.01	133
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.07	0.01	1.23	0.47	0.01	0.01	0.26	0.27	0.01	0.07	0.08	—	966	966	0.05	0.15	0.06	1,013
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	12.8	12.8	< 0.005	< 0.005	0.02	12.9
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.12	0.04	< 0.005	< 0.005	0.02	0.03	< 0.005	0.01	0.01	—	92.6	92.6	0.01	0.01	0.09	97.2
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.11	2.11	< 0.005	< 0.005	< 0.005	2.14
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	15.3	15.3	< 0.005	< 0.005	0.02	16.1

3.3. Site Preparation (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.29	0.24	2.12	2.05	< 0.005	0.15	—	0.15	0.14	—	0.14	—	290	290	0.01	< 0.005	—	291
Dust From Material Movement	—	—	—	—	—	—	0.53	0.53	—	0.06	0.06	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.05	0.41	0.39	< 0.005	0.03	—	0.03	0.03	—	0.03	—	55.6	55.6	< 0.005	< 0.005	—	55.7
Dust From Material Movement	—	—	—	—	—	—	0.10	0.10	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.07	0.07	< 0.005	0.01	—	0.01	< 0.005	—	< 0.005	—	9.20	9.20	< 0.005	< 0.005	—	9.23

Dust From Material Movement	—	—	—	—	—	—	0.02	0.02	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.17	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	34.6	34.6	< 0.005	< 0.005	0.13	35.1
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	6.38	6.38	< 0.005	< 0.005	0.01	6.46
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.06	1.06	< 0.005	< 0.005	< 0.005	1.07
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.5. Grading (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.86	1.57	14.3	13.2	0.02	0.72	—	0.72	0.66	—	0.66	—	2,236	2,236	0.09	0.02	—	2,244
Dust From Material Movement	—	—	—	—	—	—	7.62	7.62	—	3.48	3.48	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.23	0.19	1.76	1.63	< 0.005	0.09	—	0.09	0.08	—	0.08	—	276	276	0.01	< 0.005	—	277
Dust From Material Movement	—	—	—	—	—	—	0.94	0.94	—	0.43	0.43	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.04	0.32	0.30	< 0.005	0.02	—	0.02	0.01	—	0.01	—	45.6	45.6	< 0.005	< 0.005	—	45.8
Dust From Material Movement	—	—	—	—	—	—	0.17	0.17	—	0.08	0.08	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.03	0.52	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	104	104	< 0.005	< 0.005	0.38	105
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.81	0.16	12.8	4.96	0.07	0.13	2.78	2.91	0.13	0.76	0.89	—	10,392	10,392	0.57	1.63	24.1	10,916
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	12.3	12.3	< 0.005	< 0.005	0.02	12.5
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.10	0.02	1.65	0.61	0.01	0.02	0.34	0.36	0.02	0.09	0.11	—	1,281	1,281	0.07	0.20	1.28	1,344
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.04	2.04	< 0.005	< 0.005	< 0.005	2.06
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	< 0.005	0.30	0.11	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	212	212	0.01	0.03	0.21	223

3.7. Building Construction (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.54	0.46	4.40	4.16	0.01	0.19	—	0.19	0.17	—	0.17	—	1,143	1,143	0.05	0.01	—	1,147
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.54	0.46	4.40	4.16	0.01	0.19	—	0.19	0.17	—	0.17	—	1,143	1,143	0.05	0.01	—	1,147
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.08	0.81	0.77	< 0.005	0.03	—	0.03	0.03	—	0.03	—	210	210	0.01	< 0.005	—	211
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.15	0.14	< 0.005	0.01	—	0.01	0.01	—	0.01	—	34.8	34.8	< 0.005	< 0.005	—	34.9
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.97	0.87	0.88	14.1	0.00	0.00	2.64	2.64	0.00	0.62	0.62	—	2,796	2,796	0.12	0.10	10.2	2,838
Vendor	0.10	0.04	1.57	0.77	0.01	0.02	0.37	0.39	0.01	0.10	0.11	—	1,383	1,383	0.06	0.19	3.78	1,446

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.96	0.86	0.97	11.9	0.00	0.00	2.64	2.64	0.00	0.62	0.62	—	2,650	2,650	0.12	0.10	0.27	2,683
Vendor	0.10	0.04	1.64	0.78	0.01	0.02	0.37	0.39	0.01	0.10	0.11	—	1,384	1,384	0.06	0.19	0.10	1,443
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.18	0.16	0.19	2.30	0.00	0.00	0.48	0.48	0.00	0.11	0.11	—	495	495	0.02	0.02	0.81	501
Vendor	0.02	0.01	0.30	0.14	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	254	254	0.01	0.04	0.30	266
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.04	0.42	0.00	0.00	0.09	0.09	0.00	0.02	0.02	—	81.9	81.9	< 0.005	< 0.005	0.13	83.0
Vendor	< 0.005	< 0.005	0.06	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	42.1	42.1	< 0.005	0.01	0.05	44.0
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.9. Building Construction (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.53	0.44	4.12	4.11	0.01	0.17	—	0.17	0.16	—	0.16	—	1,143	1,143	0.05	0.01	—	1,146

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.07	0.64	0.64	< 0.005	0.03	—	0.03	0.02	—	0.02	—	177	177	0.01	< 0.005	—	177
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.12	0.12	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	29.2	29.2	< 0.005	< 0.005	—	29.3
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.84	0.74	0.88	11.1	0.00	0.00	2.64	2.64	0.00	0.62	0.62	—	2,597	2,597	0.12	0.10	0.24	2,629
Vendor	0.10	0.04	1.57	0.74	0.01	0.02	0.37	0.39	0.01	0.10	0.11	—	1,360	1,360	0.06	0.19	0.10	1,419
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.11	0.15	1.80	0.00	0.00	0.40	0.40	0.00	0.09	0.09	—	407	407	0.02	0.01	0.62	413
Vendor	0.02	0.01	0.24	0.11	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	210	210	0.01	0.03	0.24	220
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.03	0.33	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	67.5	67.5	< 0.005	< 0.005	0.10	68.4

Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	34.8	34.8	< 0.005	< 0.005	0.04	36.3
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.11. Paving (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.32	0.27	2.39	3.05	< 0.005	0.11	—	0.11	0.11	—	0.11	—	457	457	0.02	< 0.005	—	459
Paving	0.01	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.32	0.27	2.39	3.05	< 0.005	0.11	—	0.11	0.11	—	0.11	—	457	457	0.02	< 0.005	—	459
Paving	0.01	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.13	1.11	1.42	< 0.005	0.05	—	0.05	0.05	—	0.05	—	213	213	0.01	< 0.005	—	214
Paving	< 0.005	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.02	0.20	0.26	< 0.005	0.01	—	0.01	0.01	—	0.01	—	35.2	35.2	< 0.005	< 0.005	—	35.4
Paving	< 0.005	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.32	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	67.7	67.7	< 0.005	< 0.005	0.23	68.7
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.28	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	64.2	64.2	< 0.005	< 0.005	0.01	65.0
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.13	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	30.4	30.4	< 0.005	< 0.005	0.05	30.8
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.03	5.03	< 0.005	< 0.005	0.01	5.09
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.13. Architectural Coating (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.14	0.19	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	22.3	22.3	< 0.005	< 0.005	—	22.3
Architectural Coatings	26.2	26.2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.00	2.00	< 0.005	< 0.005	—	2.01
Architectural Coatings	2.36	2.36	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.33	0.33	< 0.005	< 0.005	—	0.33
Architectural Coatings	0.43	0.43	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.17	0.15	0.18	2.23	0.00	0.00	0.53	0.53	0.00	0.12	0.12	—	519	519	0.02	0.02	0.05	526
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.01	0.02	0.21	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	47.5	47.5	< 0.005	< 0.005	0.07	48.1
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	7.86	7.86	< 0.005	< 0.005	0.01	7.96
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.15. Architectural Coating (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.14	0.19	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	22.3	22.3	< 0.005	< 0.005	—	22.3
Architectural Coatings	26.2	26.2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.96	0.96	< 0.005	< 0.005	—	0.96
Architectural Coatings	1.13	1.13	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.16	0.16	< 0.005	< 0.005	—	0.16

Architectural Coating	0.21	0.21	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.16	0.14	0.17	2.06	0.00	0.00	0.53	0.53	0.00	0.12	0.12	—	510	510	0.01	0.02	0.04	515
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.09	0.00	0.00	0.02	0.02	0.00	0.01	0.01	—	22.3	22.3	< 0.005	< 0.005	0.03	22.5
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.69	3.69	< 0.005	< 0.005	0.01	3.73
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetati	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Demolition	Demolition	3/3/2025	4/18/2025	5.00	35.0	—
Site Preparation	Site Preparation	4/21/2025	7/25/2025	5.00	70.0	—
Grading	Grading	7/28/2025	9/26/2025	5.00	45.0	—
Building Construction	Building Construction	9/29/2025	3/20/2026	5.00	125	—
Paving	Paving	3/23/2026	11/13/2026	5.00	170	—
Architectural Coating	Architectural Coating	11/16/2026	1/22/2027	5.00	50.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Demolition	Rubber Tired Dozers	Diesel	Average	1.00	2.00	367	0.40
Demolition	Concrete/Industrial Saws	Diesel	Average	1.00	8.00	33.0	0.73
Demolition	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Site Preparation	Crawler Tractors	Diesel	Average	1.00	8.00	84.0	0.37
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Grading	Crawler Tractors	Diesel	Average	1.00	8.00	84.0	0.37

Building Construction	Cranes	Diesel	Average	1.00	8.00	367	0.29
Building Construction	Forklifts	Diesel	Average	1.00	8.00	82.0	0.20
Paving	Pavers	Diesel	Average	1.00	8.00	81.0	0.42
Paving	Rollers	Diesel	Average	1.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	1.00	37.0	0.48

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	10.0	18.5	LDA,LDT1,LDT2
Demolition	Vendor	—	10.2	HHDT,MHDT
Demolition	Hauling	13.9	20.0	HHDT
Demolition	Onsite truck	—	—	HHDT
Site Preparation	—	—	—	—
Site Preparation	Worker	2.50	18.5	LDA,LDT1,LDT2
Site Preparation	Vendor	—	10.2	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	7.50	18.5	LDA,LDT1,LDT2
Grading	Vendor	—	10.2	HHDT,MHDT
Grading	Hauling	150	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	202	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	43.6	10.2	HHDT,MHDT

Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	5.00	18.5	LDA,LDT1,LDT2
Paving	Vendor	—	10.2	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	40.4	18.5	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	10.2	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	396,576	132,192	12,746	3,957	1,751

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (Ton of Debris)	Acres Paved (acres)
Demolition	0.00	0.00	0.00	1,950	—

Site Preparation	—	—	35.0	0.00	—
Grading	—	54,000	67.5	0.00	—
Paving	0.00	0.00	0.00	0.00	0.67

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Apartments Mid Rise	—	0%
Strip Mall	0.00	0%
Health Club	0.00	0%
General Office Building	0.00	0%
Unenclosed Parking with Elevator	0.67	100%
Recreational Swimming Pool	0.00	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2025	0.00	532	0.03	< 0.005
2026	0.00	532	0.03	< 0.005
2027	0.00	532	0.03	< 0.005

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	25.9	annual days of extreme heat
Extreme Precipitation	9.15	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	16.9	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters

Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	3	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	3	1	1	3
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	84.6
AQ-PM	72.9
AQ-DPM	90.9
Drinking Water	60.3
Lead Risk Housing	58.0
Pesticides	0.00
Toxic Releases	74.4
Traffic	79.3
Effect Indicators	—
CleanUp Sites	94.4
Groundwater	84.1
Haz Waste Facilities/Generators	92.2
Impaired Water Bodies	23.9
Solid Waste	87.9
Sensitive Population	—
Asthma	51.9

Cardio-vascular	36.9
Low Birth Weights	24.6
Socioeconomic Factor Indicators	—
Education	57.6
Housing	29.7
Linguistic	62.2
Poverty	57.3
Unemployment	59.4

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	34.23585269
Employed	39.71512896
Median HI	41.62710124
Education	—
Bachelor's or higher	42.08905428
High school enrollment	100
Preschool enrollment	67.62479148
Transportation	—
Auto Access	27.46054151
Active commuting	71.5642243
Social	—
2-parent households	74.77223149
Voting	15.57808289
Neighborhood	—
Alcohol availability	32.86282561

Park access	46.97805723
Retail density	48.49223662
Supermarket access	75.78596176
Tree canopy	64.69908893
Housing	—
Homeownership	32.22122418
Housing habitability	28.71808033
Low-inc homeowner severe housing cost burden	9.444373155
Low-inc renter severe housing cost burden	67.40664699
Uncrowded housing	29.84729886
Health Outcomes	—
Insured adults	36.09649686
Arthritis	0.0
Asthma ER Admissions	61.9
High Blood Pressure	0.0
Cancer (excluding skin)	0.0
Asthma	0.0
Coronary Heart Disease	0.0
Chronic Obstructive Pulmonary Disease	0.0
Diagnosed Diabetes	0.0
Life Expectancy at Birth	69.5
Cognitively Disabled	66.4
Physically Disabled	38.4
Heart Attack ER Admissions	45.6
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	61.6

Physical Health Not Good	0.0
Stroke	0.0
Health Risk Behaviors	—
Binge Drinking	0.0
Current Smoker	0.0
No Leisure Time for Physical Activity	0.0
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	11.7
Elderly	61.3
English Speaking	50.0
Foreign-born	68.7
Outdoor Workers	34.3
Climate Change Adaptive Capacity	—
Impervious Surface Cover	26.6
Traffic Density	83.7
Traffic Access	23.0
Other Indices	—
Hardship	56.6
Other Decision Support	—
2016 Voting	34.0

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	75.0
Healthy Places Index Score for Project Location (b)	42.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes

Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Land Use	See comment on: "Unsubstantiated Changes to Land Use Size".
Construction: Construction Phases	Consistent with DEIR.
Construction: Off-Road Equipment	Consistent with DEIR.
Construction: Architectural Coatings	Consistent with DEIR.

Construction				
2025			**Total**	
Annual Emissions (tons/year)	0.04		Total DPM (lbs)	107.2054795
Daily Emissions (lbs/day)	0.219178082		Total DPM (g)	48628.40548
Construction Duration (days)	304		Emission Rate (g/s)	0.000815694
Total DPM (lbs)	66.63013699		Release Height (meters)	3
Total DPM (g)	30223.43014		Total Acreage	1.61
Start Date	3/3/2025		Max Horizontal (meters)	114.15
End Date	1/1/2026		Min Horizontal (meters)	57.08
Construction Days	304		Initial Vertical Dimension (meters)	1.5
2026			Setting	Urban
Annual Emissions (tons/year)	0.02		Population	37,787
Daily Emissions (lbs/day)	0.109589041		Start Date	3/3/2025
Construction Duration (days)	365		End Date	1/22/2027
Total DPM (lbs)	40		Total Construction Days	690
Total DPM (g)	18144		Total Years of Construction	1.89
Start Date	1/1/2026		Total Years of Operation	28.11
End Date	1/1/2027			
Construction Days	365			
2027				
Annual Emissions (tons/year)	0.005			
Daily Emissions (lbs/day)	0.02739726			
Construction Duration (days)	21			
Total DPM (lbs)	0.575342466			
Total DPM (g)	260.9753425			
Start Date	1/1/2027			
End Date	1/22/2027			
Construction Days	21			

The Maximally Exposed Individual at an Existing Residential Receptor				
Age Group	**Emissions Source**	**Duration** (years)	**Concentration** (ug/m3)	**Cancer Risk**
3rd Trimester	Construction	0.25	0.3198	4.35E-06
	Construction	*1.64*	*0.3198*	*8.62E-05*
	Operation	*0.36*	*	*
Infant (0 - 2)	Total	2		8.62E-05
Child (2 - 16)	Operation	14	*	*
Adult (16 - 30)	Operation	14	*	*
Lifetime		**30**		**9.05E-05**

AERSCREEN 21112 / AERMOD 21112 10/21/25
16:26:21

TITLE: 701 South Myrtle Avenue, Construction

********** AREA PARAMETERS **********

SOURCE EMISSION RATE:	0.816E-03	g/s	0.647E-02	lb/hr
AREA EMISSION RATE:	0.125E-06	g/(s-m2)	0.994E-06	lb/(hr-m2)
AREA HEIGHT:	3.00	meters	9.84	feet
AREA SOURCE LONG SIDE:	114.15	meters	374.51	feet
AREA SOURCE SHORT SIDE:	57.08	meters	187.27	feet
INITIAL VERTICAL DIMENSION:	1.50	meters	4.92	feet
RURAL OR URBAN:	URBAN			
POPULATION:	37787			
INITIAL PROBE DISTANCE =	5000.	meters	16404.	feet

********** BUILDING DOWNWASH PARAMETERS **********

BUILDING DOWNWASH NOT USED FOR NON-POINT SOURCES

********** FLOW SECTOR ANALYSIS **********

25 meter receptor spacing: 1. meters - 5000. meters

MAXIMUM IMPACT RECEPTOR

Zo SECTOR	SURFACE ROUGHNESS	1-HR CONC (ug/m3)	RADIAL (deg)	DIST (m)	TEMPORAL PERIOD
1*	1.000	3.198	5	50.0	WIN

* = worst case diagonal

********** MAKEMET METEOROLOGY PARAMETERS **********

MIN/MAX TEMPERATURE: 250.0 / 310.0 (K)

MINIMUM WIND SPEED: 0.5 m/s

ANEMOMETER HEIGHT: 10.000 meters

SURFACE CHARACTERISTICS INPUT: AERMET SEASONAL TABLES

DOMINANT SURFACE PROFILE: Urban
DOMINANT CLIMATE TYPE: Average Moisture
DOMINANT SEASON: Winter

ALBEDO: 0.35
BOWEN RATIO: 1.50
ROUGHNESS LENGTH: 1.000 (meters)

SURFACE FRICTION VELOCITY (U*) NOT ADUSTED

METEOROLOGY CONDITIONS USED TO PREDICT OVERALL MAXIMUM IMPACT

YR	MO	DY	JDY	HR
10	01	10	10	01

H0	U*	W*	DT/DZ	ZICNV	ZIMCH	M-O LEN	Z0	BOWEN	ALBEDO	REF WS
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50

HT	REF TA	HT
10.0	310.0	2.0

********** AERSCREEN AUTOMATED DISTANCES **********
OVERALL MAXIMUM CONCENTRATIONS BY DISTANCE

DIST (m)	MAXIMUM 1-HR CONC (ug/m3)	DIST (m)	MAXIMUM 1-HR CONC (ug/m3)
1.00	2.437	2525.00	0.1996E-01

25.00	2.878	2550.00	0.1969E-01
50.00	3.198	2575.00	0.1943E-01
75.00	2.490	2600.00	0.1917E-01
100.00	1.623	2625.00	0.1892E-01
125.00	1.199	2650.00	0.1868E-01
150.00	0.9357	2675.00	0.1844E-01
175.00	0.7586	2700.00	0.1821E-01
200.00	0.6325	2725.00	0.1798E-01
225.00	0.5388	2750.00	0.1776E-01
250.00	0.4666	2775.00	0.1754E-01
275.00	0.4101	2800.00	0.1732E-01
300.00	0.3642	2825.00	0.1711E-01
325.00	0.3265	2850.00	0.1691E-01
350.00	0.2953	2875.00	0.1671E-01
375.00	0.2688	2900.00	0.1651E-01
400.00	0.2462	2925.00	0.1632E-01
425.00	0.2266	2950.00	0.1613E-01
450.00	0.2097	2975.00	0.1594E-01
475.00	0.1948	2999.99	0.1576E-01
500.00	0.1816	3025.00	0.1559E-01
525.00	0.1699	3050.00	0.1541E-01
550.00	0.1594	3075.00	0.1524E-01
575.00	0.1501	3100.00	0.1507E-01
600.00	0.1416	3125.00	0.1491E-01
625.00	0.1340	3150.00	0.1475E-01
650.00	0.1270	3175.00	0.1459E-01
675.00	0.1206	3200.00	0.1443E-01
700.00	0.1148	3225.00	0.1428E-01
725.00	0.1094	3250.00	0.1413E-01
750.00	0.1044	3275.00	0.1398E-01
775.00	0.9986E-01	3300.00	0.1384E-01
800.00	0.9563E-01	3325.00	0.1369E-01
825.00	0.9169E-01	3350.00	0.1355E-01
850.00	0.8803E-01	3375.00	0.1342E-01
875.00	0.8461E-01	3400.00	0.1328E-01
900.00	0.8142E-01	3425.00	0.1315E-01
925.00	0.7844E-01	3450.00	0.1302E-01
950.01	0.7564E-01	3475.00	0.1289E-01
975.00	0.7301E-01	3500.00	0.1277E-01
1000.00	0.7054E-01	3525.00	0.1264E-01
1025.00	0.6820E-01	3550.00	0.1252E-01
1050.00	0.6601E-01	3575.00	0.1240E-01
1075.00	0.6434E-01	3600.00	0.1228E-01
1100.00	0.6234E-01	3625.00	0.1217E-01
1125.00	0.6045E-01	3650.00	0.1205E-01
1150.00	0.5865E-01	3675.00	0.1194E-01
1175.00	0.5694E-01	3700.00	0.1183E-01
1200.00	0.5532E-01	3725.00	0.1172E-01
1225.00	0.5378E-01	3750.00	0.1162E-01
1250.00	0.5231E-01	3775.00	0.1151E-01

1275.00	0.5091E-01	3800.00	0.1141E-01
1300.00	0.4957E-01	3825.00	0.1131E-01
1325.00	0.4829E-01	3850.00	0.1120E-01
1350.00	0.4707E-01	3875.00	0.1111E-01
1375.00	0.4590E-01	3900.00	0.1101E-01
1400.00	0.4478E-01	3925.00	0.1091E-01
1425.00	0.4370E-01	3950.00	0.1082E-01
1450.00	0.4267E-01	3975.00	0.1073E-01
1475.00	0.4169E-01	4000.00	0.1063E-01
1500.00	0.4074E-01	4025.00	0.1054E-01
1525.00	0.3982E-01	4050.00	0.1045E-01
1550.00	0.3894E-01	4075.00	0.1037E-01
1575.00	0.3810E-01	4100.00	0.1028E-01
1600.00	0.3729E-01	4125.00	0.1020E-01
1625.00	0.3650E-01	4150.00	0.1011E-01
1650.00	0.3575E-01	4175.00	0.1003E-01
1675.00	0.3502E-01	4200.00	0.9948E-02
1700.00	0.3431E-01	4225.00	0.9867E-02
1725.00	0.3363E-01	4250.00	0.9788E-02
1750.00	0.3298E-01	4275.00	0.9710E-02
1775.00	0.3234E-01	4300.00	0.9632E-02
1800.00	0.3173E-01	4325.00	0.9556E-02
1824.99	0.3113E-01	4350.00	0.9481E-02
1850.00	0.3056E-01	4375.00	0.9407E-02
1875.00	0.3000E-01	4400.00	0.9334E-02
1900.00	0.2946E-01	4425.00	0.9262E-02
1924.99	0.2894E-01	4450.00	0.9191E-02
1950.00	0.2843E-01	4475.00	0.9121E-02
1975.00	0.2794E-01	4500.00	0.9052E-02
2000.00	0.2746E-01	4525.00	0.8983E-02
2025.00	0.2700E-01	4550.00	0.8916E-02
2050.00	0.2655E-01	4575.00	0.8849E-02
2075.00	0.2611E-01	4600.00	0.8784E-02
2100.00	0.2569E-01	4625.00	0.8719E-02
2124.99	0.2527E-01	4650.00	0.8655E-02
2150.00	0.2487E-01	4675.00	0.8592E-02
2175.00	0.2448E-01	4700.00	0.8529E-02
2200.00	0.2410E-01	4725.00	0.8467E-02
2225.00	0.2373E-01	4750.00	0.8407E-02
2250.00	0.2337E-01	4775.00	0.8346E-02
2275.00	0.2302E-01	4800.00	0.8287E-02
2300.00	0.2268E-01	4825.00	0.8228E-02
2325.00	0.2235E-01	4850.00	0.8170E-02
2350.00	0.2202E-01	4875.00	0.8113E-02
2375.00	0.2170E-01	4900.00	0.8057E-02
2400.00	0.2139E-01	4924.99	0.8001E-02
2425.00	0.2109E-01	4950.00	0.7946E-02
2450.00	0.2080E-01	4975.00	0.7891E-02
2475.00	0.2051E-01	5000.00	0.7837E-02
2500.00	0.2023E-01		

********** AERSCREEN MAXIMUM IMPACT SUMMARY **********

3-hour, 8-hour, and 24-hour scaled
concentrations are equal to the 1-hour concentration as referenced in
SCREENING PROCEDURES FOR ESTIMATING THE AIR QUALITY
IMPACT OF STATIONARY SOURCES, REVISED (Section 4.5.4)
Report number EPA-454/R-92-019
http://www.epa.gov/scram001/guidance_permit.htm
under Screening Guidance

CALCULATION PROCEDURE	MAXIMUM 1-HOUR CONC (ug/m3)	SCALED 3-HOUR CONC (ug/m3)	SCALED 8-HOUR CONC (ug/m3)	SCALED 24-HOUR CONC (ug/m3)	SCALED ANNUAL CONC (ug/m3)
FLAT TERRAIN	3.282	3.282	3.282	3.282	N/A
DISTANCE FROM SOURCE	58.00 meters				
IMPACT AT THE AMBIENT BOUNDARY	2.437	2.437	2.437	2.437	N/A
DISTANCE FROM SOURCE	1.00 meters				

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

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

- **Geologic and Hydrogeologic Characterization, Investigation and Remediation Strategies**
- **Industrial Stormwater Compliance**
- **CEQA Review**
- **Expert Testimony**

Professional Certifications:
California Professional Geologist, P.G.
California Certified Hydrogeologist, C.Hg.

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

Professional Experience:
30 years of experience in environmental policy, contaminant assessment and remediation, stormwater compliance, and CEQA review. Spent nine years with the U.S. EPA in the Resource Conservation Recovery Act (RCRA) and Superfund programs and served as EPA's Senior Science Policy Advisor in the Western Regional Office where I identified emerging threats to groundwater. While with EPA, I served as a Senior Hydrogeologist in the oversight of the assessment of seven major military facilities undergoing base closure. Led numerous enforcement actions under provisions of the Resource Conservation and Recovery Act (RCRA) and directed efforts to improve hydrogeologic characterization and water quality monitoring. For the past 15 years, as a founding partner with SWAPE, I developed extensive client relationships and has managed complex projects that include consultations as an expert witness and a regulatory specialist, and managing projects ranging from industrial stormwater compliance to CEQA review of impacts from hazardous waste, air quality and greenhouse gas emissions.

Positions held include:

Government:
Senior Science Policy Advisor and Hydrogeologist, U.S. Environmental Protection Agency (1989–1998);

Hydrogeologist, National Park Service, Water Resources Division (1998 – 2000);
Geologist, U.S. Forest Service (1986 – 1998).

Educational:
Geology Instructor, Golden West College, 2010 – 2104, 2017;
Adjunct Faculty Member, San Francisco State University, Department of Geosciences (1993 – 1998);
Instructor, College of Marin, Department of Science (1990 – 1995).

Private Sector:
Founding Partner, Soil/Water/Air Protection Enterprise (SWAPE) (2003 – present);
Senior Environmental Analyst, Komex H2O Science, Inc. (2000 -- 2003);
Executive Director, Orange Coast Watch (2001 – 2004);
Geologist, Dames & Moore (1984 – 1986).

Senior Regulatory and Litigation Support Analyst:

With SWAPE, responsibilities have included:

- Lead analyst and testifying expert, for both plaintiffs and defendants, in the review of over 300 environmental impact reports and negative declarations since 2003 under CEQA that identify significant issues with regard to hazardous waste, water resources, water quality, air quality, greenhouse gas emissions, and geologic hazards.
- Recommending additional mitigation measures to lead agencies at the local and county level to include additional characterization of health risks and implementation of protective measures to reduce exposure to hazards from toxins.
- Stormwater analysis, sampling and best management practice evaluation, for both government agencies and corporate clients, at more than 150 industrial facilities.
- Serving as expert witness for both plaintiffs and defendants in cases including contamination of groundwater, CERCLAcompliance in assessment and remediation, and industrial stormwater contamination.
- Technical assistance and litigation support for vapor intrusion concerns, for both government agencies and corporate clients.
- Lead analyst and testifying expert in the review of environmental issues in license applicationsfor large solar power plants before the California Energy Commission.
- Manager of a project to evaluate numerous formerly used military sites in the western U.S.
- Manager of a comprehensive evaluation of potential sources of perchlorate contamination in Southern California drinking water wells.
- Manager and designated expert for litigation support under provisions of Proposition 65 in the review of releases of gasoline to sources drinking water at major refineries and hundreds of gas stations throughout California.

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

- Senior author of a report on the extent of perchlorate contamination that was used in testimony by the former U.S. EPA Administrator and General Counsel.
- Senior researcher in the development of a comprehensive, electronically interactive chronology of MTBE use, research, and regulation.
- Senior researcher in the development of a comprehensive, electronically interactive chronology of perchlorate use, research, and regulation.
- Senior researcher in a study that estimates nationwide costs for MTBE remediation and drinking

water treatment, results of which were published in newspapers nationwide and in testimony against provisions of an energy bill that would limit liability for oil companies.
- Research to support litigation to restore drinking water supplies that have been contaminated by MTBE in California and New York.
- Lead author for a multi-volume remedial investigation report for an operating school in LosAngeles that met strict Sate of California regulatory requirements.
- Development of strategic approaches for cleanup of contaminated sites in consultation withclients and regulators.

Hydrogeology:

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

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

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

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

- Received an EPA Bronze Medal for contribution to the development of national guidance for the protection of drinking water.
- Managed the Sole Source Aquifer Program and protected the drinking water of two communities through designation under the Safe Drinking Water Act. Prepared geologic reports, conducted hearings, and responded to public comments from residents who were very concerned about the impact of designation.
- Reviewed a number of Environmental Impact Statements for planned major developments, including large hazardous and solid waste disposal facilities, mine reclamation, and water transfer.

Served as a hydrogeologist with the RCRA Hazardous Waste program. Duties included:

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

- Wrote contract specifications and supervised contractor's investigations of waste sites.

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

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

Policy:

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

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

Geology:

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

- Mapping geology in the field, and used aerial photographic interpretation and mathematical models to determine slope stability.
- Coordinating research with community stakeholders who were concerned with natural resource protection.
- Characterizing the geology of an aquifer that serves as the sole source of drinking water for thecity of Medford, Oregon.

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

Duties included the following:

- Supervising year-long effort for soil and groundwater sampling.
- Conducting aquifer tests.
- Investigating active faults beneath sites proposed for hazardous waste disposal.

Teaching:

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

- At San Francisco State University, held an adjunct faculty position and taught courses in environmental geology, oceanography (lab and lecture), hydrogeology, and groundwater contamination.
- Served as a committee member for graduate and undergraduate students.
- Taught courses in environmental geology and oceanography at the College of Marin.
- Part time geology instructor at Golden West College in Huntington Beach, California from 2010 to 2014 and in 2017.

Summary of Testimony Experience Over Past Four Years

In Re New Jersey Department of Environmental Protection et al. vs. E.I. DuPont de Nemours and Company, in the United States District Court, District of New Jersey, Civil Action No. 1:19-cv-14766-RMB-JBC. Deposition in 2025. Representing Plaintiffs in matters regarding contamination of groundwater, wastewater, soil, and air with per- and poly-fluoroalkyl substances.

In Re Edmond Asher, et al., vs. RTX Corporation (f/k/a Raytheon Technologies Corporation, et al.) in the County of Huntington Superior Court, Indiana, Cause number 35D01-2006-CT-000338. Deposition in 2024. Representing Plaintiffs in matters regarding contamination of groundwater and soil vapor with trichlorethylene.

In Re Wright vs Consolidated Rail Corporation In the Circuit Court of Cook County, Illinois, Case No: 21L3966. Deposition in 2023, Representing Plaintiff in matters involving groundwater and drinking water contamination of perchloroethylene, trichlorethylene, 1,2-dichloroethane, and carbon tetrachloride.

In Re Behr Dayton Thermal Products LLC In the United States District Court for the Southern District of Ohio Western Division at Dayton, Case No: 08-cv-326. Deposition in 2022. Representing Plaintiff in matters regarding contamination of groundwater and indoor air with perchloroethylene and trichloethelene.

Orange County Water District vs. Sabic Innovative Plastics US, LLC, et al. In the Court of Appeal, Fourth District,

Division 1, California, Case No: D070553. Deposition in 2020. Representing Plaintiff in matters involving compliance with The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).
Los Angeles Waterkeeper vs. AAA Plating and Inspection, Inc. In the United States District Court for the Central District of California, Case No: No. CV 18-5916 PA (GJSx). Deposition in 2019. Expert witness representing Plaintiff in matters involving contaminated stormwater runoff at an industrial facility in Compton, California.

Californians for Alternatives to Toxics vs. Schneider Dock and Intermodal Facility. In the United States District Court for the Northern District of California, Case No: 3:17-cv-05287-JST. Deposition in 2019. Expert witness representing Plaintiff in matters involving contaminated stormwater runoff at an industrial facility in Eureka, California.

Bells et al. vs. The 3M Company et al. In the United States District Court for the District of Colorado, Case No: 1:16-CV-02531-RBJ. Deposition in 2018. Expert witness representing Plaintiff on matters regarding the general hydrogeological conditions present in an area impacted by per- and poly-fluoroalkyl substances.

Ungar vs. Foundation for Affordable Housing. In the Superior Court, State of California, Los Angeles County, Case No. BC628890 Deposition in 2017. Expert witness representing defendant on matters involving alleged drinking water contamination.

Invited Testimony, Reports, Papers and Presentations:

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

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

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

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

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

Brown, A., Farrow, J., Gray, A. and **Hagemann, M.**, 2004. An Estimate of Costs to Address MTBEReleases from Underground Storage Tanks and the Resulting Impact to Drinking Water Wells.

Presentation to the Ground Water and Environmental Law Conference, National GroundwaterAssociation.

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

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

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

Hagemann, M.F., 2003. Perchlorate Contamination of the Colorado River. Invited presentation to ameeting of tribal representatives, Parker, AZ.

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

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

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

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

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

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

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

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

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

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

Hagemann, M.F., 2001. Estimated Costs to Address MTBE Releases from Leaking Underground StorageTanks.

Unpublished report.

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

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

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

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

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

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

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

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

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

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

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

Other Experience:
Selected as subject matter expert for the California Professional Geologist licensing examinations,2009-2011.

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

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Paul Rosenfeld, Ph.D.

Chemical Fate and Transport & Air Dispersion Modeling

Principal Environmental Chemist

Risk Assessment & Remediation Specialist

Education

Ph.D. Soil Chemistry, University of Washington, 1999. Dissertation on volatile organic compound filtration.

M.S. Environmental Science, U.C. Berkeley, 1995. Thesis on organic waste economics.

B.A. Environmental Studies, U.C. Santa Barbara, 1991. Focus on wastewater treatment.

Professional Experience

Dr. Rosenfeld has over 25 years of experience conducting environmental investigations and risk assessments for evaluating impacts to human health, property, and ecological receptors. His expertise focuses on the fate and transport of environmental contaminants, human health risk, exposure assessment, and ecological restoration. Dr. Rosenfeld has evaluated and modeled emissions from oil spills, landfills, boilers and incinerators, process stacks, storage tanks, confined animal feeding operations, industrial, military and agricultural sources, unconventional oil drilling operations, and locomotive and construction engines. His project experience ranges from monitoring and modeling of pollution sources to evaluating impacts of pollution on workers at industrial facilities and residents in surrounding communities. Dr. Rosenfeld has also successfully modeled exposure to contaminants distributed by water systems and via vapor intrusion.

Dr. Rosenfeld has investigated and designed remediation programs and risk assessments for contaminated sites containing lead, heavy metals, mold, bacteria, particulate matter, petroleum hydrocarbons, chlorinated solvents, pesticides, radioactive waste, dioxins and furans, semi- and volatile organic compounds, PCBs, PAHs, creosote, perchlorate, asbestos, per- and poly-fluoroalkyl substances (PFOA/PFOS), unusual polymers, fuel oxygenates (MTBE), among other pollutants. Dr. Rosenfeld also has experience evaluating greenhouse gas emissions from various projects and is an expert on the assessment of odors from industrial and agricultural sites, as well as the evaluation of odor nuisance impacts and technologies for abatement of odorous emissions. As a principal scientist at SWAPE, Dr. Rosenfeld directs air dispersion modeling and exposure assessments. He has served as an expert witness and testified about pollution sources causing nuisance and/or personal injury at sites and has testified as an expert witness on numerous cases involving exposure to soil, water and air contaminants from industrial, railroad, agricultural, and military sources.

Professional History:

Soil Water Air Protection Enterprise (SWAPE); 2003 to present; Principal and Founding Partner
UCLA School of Public Health; 2007 to 2011; Lecturer (Assistant Researcher)
UCLA School of Public Health; 2003 to 2006; Adjunct Professor
UCLA Environmental Science and Engineering Program; 2002-2004; Doctoral Intern Coordinator
UCLA Institute of the Environment, 2001-2002; Research Associate
Komex H_2O Science, 2001 to 2003; Senior Remediation Scientist
National Groundwater Association, 2002-2004; Lecturer
San Diego State University, 1999-2001; Adjunct Professor
Anteon Corp., San Diego, 2000-2001; Remediation Project Manager
Ogden (now Amec), San Diego, 2000-2000; Remediation Project Manager
Bechtel, San Diego, California, 1999 – 2000; Risk Assessor
King County, Seattle, 1996 – 1999; Scientist
James River Corp., Washington, 1995-96; Scientist
Big Creek Lumber, Davenport, California, 1995; Scientist
Plumas Corp., California and USFS, Tahoe 1993-1995; Scientist
Peace Corps and World Wildlife Fund, St. Kitts, West Indies, 1991-1993; Scientist

Publications:

Rosenfeld, P.E., Spaeth, K.R., McCarthy, S.J. *et al.* Camp Lejeune Marine Cancer Risk Assessment for Exposure to Contaminated Drinking Water From 1955 to 1987. *Water Air Soil Pollut* **235**, 124 (2024). https://doi.org/10.1007/s11270-023-06863-y.

Rosenfeld P.E., Spaeth K.R., Remy L.L., Byers V., Muerth S.A., Hallman R,C., Summers-Evans J., Barker S. (2023) Perfluoroalkyl substances exposure in firefighters: Sources and implications, *Environmental Research*, Volume 220, https://doi.org/10.1016/j.envres.2022.115164.

Rosenfeld P.E. and Spaeth K.R., (2023) Authors' Response to Letter to the Editor from Bullock and Ramacciotti, *Water Air Soil Pollution* Volume 234, https://doi.org/10.1007/s11270-023-06165-3

Rosenfeld P. E., Spaeth K., Hallman R., Bressler R., Smith, G., (2022) Cancer Risk and Diesel Exhaust Exposure Among Railroad Workers. *Water Air Soil Pollution.* **233,** 171.

Remy, L.L., Clay T., Byers, V., **Rosenfeld P. E.** (2019) Hospital, Health, and Community Burden After Oil Refinery Fires, Richmond, California 2007 and 2012. *Environmental Health.* 18:48

Simons, R.A., Seo, Y. **Rosenfeld, P**., (2015) Modeling the Effect of Refinery Emission On Residential Property Value. *Journal of Real Estate Research*. 27(3):321-342

Chen, J. A, Zapata A. R., Sutherland A. J., Molmen, D.R., Chow, B. S., Wu, L. E., **Rosenfeld, P. E.,** Hesse, R. C., (2012) Sulfur Dioxide and Volatile Organic Compound Exposure To A Community In Texas City Texas Evaluated Using Aermod and Empirical Data. *American Journal of Environmental Science*, 8(6), 622-632.

Rosenfeld, P.E. & Feng, L. (2011). *The Risks of Hazardous Waste.* Amsterdam: Elsevier Publishing.

Cheremisinoff, N.P., & **Rosenfeld, P.E.** (2011). *Handbook of Pollution Prevention and Cleaner Production: Best Practices in the Agrochemical Industry*, Amsterdam: Elsevier Publishing.

Gonzalez, J., Feng, L., Sutherland, A., Waller, C., Sok, H., Hesse, R., **Rosenfeld, P.** (2010). PCBs and Dioxins/Furans in Attic Dust Collected Near Former PCB Production and Secondary Copper Facilities in Sauget, IL. *Procedia Environmental Sciences*. 113–125.

Feng, L., Wu, C., Tam, L., Sutherland, A.J., Clark, J.J., **Rosenfeld, P.E.** (2010). Dioxin and Furan Blood Lipid and Attic Dust Concentrations in Populations Living Near Four Wood Treatment Facilities in the United States. *Journal of Environmental Health*. 73(6), 34-46.

Cheremisinoff, N.P., & **Rosenfeld, P.E.** (2010). *Handbook of Pollution Prevention and Cleaner Production: Best Practices in the Wood and Paper Industries.* Amsterdam: Elsevier Publishing.

Cheremisinoff, N.P., & **Rosenfeld, P.E.,** (2009). *Handbook of Pollution Prevention and Cleaner Production: Best Practices in the Petroleum Industry*. Amsterdam: Elsevier Publishing.

Wu, C., Tam, L., Clark, J., **Rosenfeld, P**. (2009). Dioxin and furan blood lipid concentrations in populations living near four wood treatment facilities in the United States. *WIT Transactions on Ecology and the Environment, Air Pollution,* 123 (17), 319-327.

Cheremisinoff, N.P., **Rosenfeld, P.E.** Davletshin, A.R. (2008). ***Responsible Care***. Gulf Publishing. Texas.

Tam L. K., Wu C. D., Clark J. J. and **Rosenfeld, P.E.** (2008). A Statistical Analysis Of Attic Dust And Blood Lipid Concentrations Of Tetrachloro-p-Dibenzodioxin (TCDD) Toxicity Equivalency Quotients (TEQ) In Two Populations Near Wood Treatment Facilities. *Organohalogen Compounds*, 70, 002252-002255.

Tam L. K., Wu C. D., Clark J. J. and **Rosenfeld, P.E.** (2008). Methods For Collect Samples For Assessing Dioxins And Other Environmental Contaminants In Attic Dust: A Review. *Organohalogen Compounds*, 70, 000527-000530.

Hensley, A.R. A. Scott, J. J. J. Clark, **Rosenfeld, P.E.** (2007). Attic Dust and Human Blood Samples Collected near a Former Wood Treatment Facility. *Environmental Research*. 105, 194-197.

Rosenfeld, P.E., J. J. J. Clark, A. R. Hensley, M. Suffet. (2007). The Use of an Odor Wheel Classification for Evaluation of Human Health Risk Criteria for Compost Facilities. *Water Science & Technology* 55(5), 345-357.

Rosenfeld, P. E., M. Suffet. (2007). The Anatomy of Odour Wheels for Odours of Drinking Water, Wastewater, Compost And The Urban Environment. *Water Science & Technology* 55(5), 335-344.

Sullivan, P. J. Clark, J.J.J., Agardy, F. J., **Rosenfeld, P.E.** (2007). *Toxic Legacy, Synthetic Toxins in the Food, Water, and Air in American Cities.* Boston Massachusetts: Elsevier Publishing

Rosenfeld, P.E., and Suffet I.H. (2004). Control of Compost Odor Using High Carbon Wood Ash. *Water Science and Technology*. 49(9),171-178.

Rosenfeld P. E., J.J. Clark, I.H. (Mel) Suffet (2004). The Value of An Odor-Quality-Wheel Classification Scheme for The Urban Environment. *Water Environment Federation's Technical Exhibition and Conference (WEFTEC) 2004*. New Orleans, October 2-6, 2004.

Rosenfeld, P.E., and Suffet, I.H. (2004). Understanding Odorants Associated with Compost, Biomass Facilities, and the Land Application of Biosolids. *Water Science and Technology*. 49(9), 193-199.

Rosenfeld, P.E., and Suffet I.H. (2004). Control of Compost Odor Using High Carbon Wood Ash, *Water Science and Technology*, 49(9), 171-178.

Rosenfeld, P. E., Grey, M. A., Sellew, P. (2004). Measurement of Biosolids Odor and Odorant Emissions from Windrows, Static Pile and Biofilter. *Water Environment Research*. 76(4), 310-315.

Rosenfeld, P.E., Grey, M and Suffet, M. (2002). Compost Demonstration Project, Sacramento California Using High-Carbon Wood Ash to Control Odor at a Green Materials Composting Facility. *Integrated Waste Management Board Public Affairs Office*, Publications Clearinghouse (MS–6), Sacramento, CA Publication #442-02-008.

Rosenfeld, P.E., and C.L. Henry. (2001). Characterization of odor emissions from three different biosolids. *Water Soil and Air Pollution*. 127(1-4), 173-191.

Rosenfeld, P.E., and Henry C. L., (2000). Wood ash control of odor emissions from biosolids application. *Journal of Environmental Quality.* 29, 1662-1668.

Rosenfeld, P.E., C.L. Henry and D. Bennett. (2001). Wastewater dewatering polymer affects on biosolids odor emissions and microbial activity. *Water Environment Research*. 73(4), 363-367.

Rosenfeld, P.E., and C.L. Henry. (2001). Activated Carbon and Wood Ash Sorption of Wastewater, Compost, and Biosolids Odorants. *Water Environment Research*, 73, 388-393.

Rosenfeld, P.E., and Henry C. L., (2001). High carbon wood ash effect on biosolids microbial activity and odor. *Water Environment Research*. 131(1-4), 247-262.

Chollack, T. and **P. Rosenfeld. (**1998). Compost Amendment Handbook for Landscaping. Prepared for and distributed by the City of Redmond, Washington State.

Rosenfeld, P. E. (1992). The Mount Liamuiga Crater Trail. *Heritage Magazine of St. Kitts*, 3(2).

Rosenfeld, P. E. (1993). High School Biogas Project to Prevent Deforestation on St. Kitts. *Biomass Users Network*, 7(1).

Rosenfeld, P. E. (1998). Characterization, Quantification, and Control of Odor Emissions from Biosolids Application To Forest Soil. Doctoral Thesis. University of Washington College of Forest Resources.

Rosenfeld, P. E. (1994). Potential Utilization of Small Diameter Trees on Sierra County Public Land. Master's thesis reprinted by the Sierra County Economic Council. Sierra County, California.

Rosenfeld, P. E. (1991). How to Build a Small Rural Anaerobic Digester & Uses Of Biogas In The First And Third World. Bachelor's Thesis. University of California.

Presentations:

Rosenfeld, P.E., "The science for Perfluorinated Chemicals (PFAS): What makes remediation so hard?" Law Seminars International, (May 9-10, 2018) 800 Fifth Avenue, Suite 101 Seattle, WA.

Rosenfeld, P.E., Sutherland, A; Hesse, R.; Zapata, A. (October 3-6, 2013). Air dispersion modeling of volatile organic emissions from multiple natural gas wells in Decatur, TX. *44th Western Regional Meeting, American Chemical Society.* Lecture conducted from Santa Clara, CA.

Sok, H.L.; Waller, C.C.; Feng, L.; Gonzalez, J.; Sutherland, A.J.; Wisdom-Stack, T.; Sahai, R.K.; Hesse, R.C.; **Rosenfeld, P.E.** (June 20-23, 2010). Atrazine: A Persistent Pesticide in Urban Drinking Water. *Urban Environmental Pollution*. Lecture conducted from Boston, MA.

Feng, L.; Gonzalez, J.; Sok, H.L.; Sutherland, A.J.; Waller, C.C.; Wisdom-Stack, T.; Sahai, R.K.; La, M.; Hesse, R.C.; **Rosenfeld, P.E.** (June 20-23, 2010). Bringing Environmental Justice to East St. Louis, Illinois. *Urban Environmental Pollution.* Lecture conducted from Boston, MA.

Rosenfeld, P.E. (April 19-23, 2009). Perfluoroctanoic Acid (PFOA) and Perfluoroactane Sulfonate (PFOS) Contamination in Drinking Water From the Use of Aqueous Film Forming Foams (AFFF) at Airports in the United States. *2009 Ground Water Summit and 2009 Ground Water Protection Council Spring Meeting*, Lecture conducted from Tuscon, AZ.

Rosenfeld, P.E. (April 19-23, 2009). Cost to Filter Atrazine Contamination from Drinking Water in the United States" Contamination in Drinking Water From the Use of Aqueous Film Forming Foams (AFFF) at Airports in the United States. *2009 Ground Water Summit and 2009 Ground Water Protection Council Spring Meeting*. Lecture conducted from Tuscon, AZ.

Wu, C., Tam, L., Clark, J., **Rosenfeld, P**. (20-22 July (2009). Dioxin and furan blood lipid concentrations in populations living near four wood treatment facilities in the United States. Brebbia, C.A. and Popov, V., eds., *Air Pollution XVII: Proceedings of the Seventeenth International Conference on Modeling, Monitoring and Management of Air Pollution*. Lecture conducted from Tallinn, Estonia.

Rosenfeld, P. E. (October 15-18, 2007). Moss Point Community Exposure To Contaminants From A Releasing Facility. *The 23rd Annual International Conferences on Soils Sediment and Water.* Platform lecture conducted at University of Massachusetts, Amherst MA.

Rosenfeld, P. E. (October 15-18, 2007). The Repeated Trespass of Tritium-Contaminated Water Into A Surrounding Community Form Repeated Waste Spills From A Nuclear Power Plant. *The 23rd Annual International Conferences on Soils Sediment and Water*. Platform lecture conducted from University of Massachusetts, Amherst MA.

Rosenfeld, P. E. (October 15-18, 2007). Somerville Community Exposure To Contaminants From Wood Treatment Facility Emissions. The *23rd Annual International Conferences on Soils Sediment and Water*. Lecture conducted from University of Massachusetts, Amherst MA.

Rosenfeld P. E. (March 2007). Production, Chemical Properties, Toxicology, & Treatment Case Studies of 1,2,3-Trichloropropane (TCP). *The Association for Environmental Health and Sciences (AEHS) Annual Meeting*. Lecture conducted from San Diego, CA.

Rosenfeld P. E. (March 2007). Blood and Attic Sampling for Dioxin/Furan, PAH, and Metal Exposure in Florala, Alabama. *The AEHS Annual Meeting.* Lecture conducted from San Diego, CA.

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

Hensley A.R., Scott, A., **Rosenfeld P.E.,** Clark, J.J.J. (November 4-8, 2006). Dioxin Containing Attic Dust And Human Blood Samples Collected Near A Former Wood Treatment Facility. *APHA 134 Annual Meeting & Exposition.* Lecture conducted from Boston Massachusetts.

Paul Rosenfeld Ph.D. (October 24-25, 2005). Fate, Transport and Persistence of PFOA and Related Chemicals. Mealey's C8/PFOA. *Science, Risk & Litigation Conference.* Lecture conducted from The Rittenhouse Hotel, Philadelphia, PA.

Paul Rosenfeld Ph.D. (September 19, 2005). Brominated Flame Retardants in Groundwater: Pathways to Human Ingestion, *Toxicology and Remediation PEMA Emerging Contaminant Conference*. Lecture conducted from Hilton Hotel, Irvine California.

Paul Rosenfeld Ph.D. (September 19, 2005). Fate, Transport, Toxicity, And Persistence of 1,2,3-TCP. *PEMA Emerging Contaminant Conference.* Lecture conducted from Hilton Hotel in Irvine, California.

Paul Rosenfeld Ph.D. (September 26-27, 2005). Fate, Transport and Persistence of PDBEs. *Mealey's Groundwater Conference.* Lecture conducted from Ritz Carlton Hotel, Marina Del Ray, California.

Paul Rosenfeld Ph.D. (June 7-8, 2005). Fate, Transport and Persistence of PFOA and Related Chemicals. *International Society of Environmental Forensics: Focus on Emerging Contaminants*. Lecture conducted from Sheraton Oceanfront Hotel, Virginia Beach, Virginia.

Paul Rosenfeld Ph.D. (July 21-22, 2005). Fate Transport, Persistence and Toxicology of PFOA and Related Perfluorochemicals. *2005 National Groundwater Association Ground Water and Environmental Law Conference*. Lecture conducted from Wyndham Baltimore Inner Harbor, Baltimore Maryland.

Paul Rosenfeld Ph.D. (July 21-22, 2005). Brominated Flame Retardants in Groundwater: Pathways to Human Ingestion, Toxicology and Remediation. *2005 National Groundwater Association Ground Water and Environmental Law Conference.* Lecture conducted from Wyndham Baltimore Inner Harbor, Baltimore Maryland.

Paul Rosenfeld, Ph.D. and James Clark Ph.D. and Rob Hesse R.G. (May 5-6, 2004). Tert-butyl Alcohol Liability and Toxicology, A National Problem and Unquantified Liability. *National Groundwater Association. Environmental Law Conference*. Lecture conducted from Congress Plaza Hotel, Chicago Illinois.

Paul Rosenfeld, Ph.D. (March 2004). Perchlorate Toxicology. *Meeting of the American Groundwater Trust*. Lecture conducted from Phoenix Arizona.

Hagemann, M.F., **Paul Rosenfeld, Ph.D.** and Rob Hesse (2004). Perchlorate Contamination of the Colorado River. *Meeting of tribal representatives*. Lecture conducted from Parker, AZ.

Paul Rosenfeld, Ph.D. (April 7, 2004). A National Damage Assessment Model for PCE and Dry Cleaners. *Drycleaner Symposium. California Ground Water Association*. Lecture conducted from Radison Hotel, Sacramento, California.

Rosenfeld, P. E., Grey, M., (June 2003) Two stage biofilter for biosolids composting odor control. *Seventh International In Situ And On Site Bioremediation Symposium Battelle Conference* Orlando, FL.

Paul Rosenfeld, Ph.D. and James Clark Ph.D. (February 20-21, 2003) Understanding Historical Use, Chemical Properties, Toxicity and Regulatory Guidance of 1,4 Dioxane. *National Groundwater Association. Southwest Focus Conference. Water Supply and Emerging Contaminants*. Lecture conducted from Hyatt Regency Phoenix Arizona.

Paul Rosenfeld, Ph.D. (February 6-7, 2003). Underground Storage Tank Litigation and Remediation. *California CUPA Forum*. Lecture conducted from Marriott Hotel, Anaheim California.

Paul Rosenfeld, Ph.D. (October 23, 2002) Underground Storage Tank Litigation and Remediation. *EPA Underground Storage Tank Roundtable*. Lecture conducted from Sacramento California.

Rosenfeld, P.E. and Suffet, M. (October 7- 10, 2002). Understanding Odor from Compost, *Wastewater and Industrial Processes. Sixth Annual Symposium on Off Flavors in the Aquatic Environment. International Water Association*. Lecture conducted from Barcelona Spain.

Rosenfeld, P.E. and Suffet, M. (October 7- 10, 2002). Using High Carbon Wood Ash to Control Compost Odor. *Sixth Annual Symposium on Off Flavors in the Aquatic Environment. International Water Association*. Lecture conducted from Barcelona Spain.

Rosenfeld, P.E. and Grey, M. A. (September 22-24, 2002). Biocycle Composting for Coastal Sage Restoration. *Northwest Biosolids Management Association*. Lecture conducted from Vancouver Washington.

Rosenfeld, P.E. and Grey, M. A. (November 11-14, 2002). Using High-Carbon Wood Ash to Control Odor at a Green Materials Composting Facility. *Soil Science Society Annual Conferenc*e. Lecture conducted from Indianapolis, Maryland.

Rosenfeld. P.E. (September 16, 2000). Two stage biofilter for biosolids composting odor control. *Water Environment Federation.* Lecture conducted from Anaheim California.

Rosenfeld. P.E. (October 16, 2000). Wood ash and biofilter control of compost odor. *Biofest.* Lecture conducted from Ocean Shores, California.

Rosenfeld, P.E. (2000). Bioremediation Using Organic Soil Amendments. *California Resource Recovery Association*. Lecture conducted from Sacramento California.

Rosenfeld, P.E., C.L. Henry, R. Harrison. (1998). Oat and Grass Seed Germination and Nitrogen and Sulfur Emissions Following Biosolids Incorporation with High-Carbon Wood-Ash. *Water Environment Federation 12th Annual Residuals and Biosolids Management Conference Proceedings*. Lecture conducted from Bellevue Washington.

Rosenfeld, P.E., and C.L. Henry. (1999). An evaluation of ash incorporation with biosolids for odor reduction. *Soil Science Society of America*. Lecture conducted from Salt Lake City Utah.

Rosenfeld, P.E., C.L. Henry, R. Harrison. (1998). Comparison of Microbial Activity and Odor Emissions from Three Different Biosolids Applied to Forest Soil. *Brown and Caldwell.* Lecture conducted from Seattle Washington.

Rosenfeld, P.E., C.L. Henry. (1998). Characterization, Quantification, and Control of Odor Emissions from Biosolids Application To Forest Soil. *Biofest.* Lecture conducted from Lake Chelan, Washington.

Rosenfeld, P.E, C.L. Henry, R. Harrison. (1998). Oat and Grass Seed Germination and Nitrogen and Sulfur Emissions Following Biosolids Incorporation with High-Carbon Wood-Ash. Water Environment Federation 12th Annual Residuals and Biosolids Management Conference Proceedings. Lecture conducted from Bellevue Washington.

Rosenfeld, P.E., C.L. Henry, R. B. Harrison, and R. Dills. (1997). Comparison of Odor Emissions from Three Different Biosolids Applied to Forest Soil. *Soil Science Society of America*. Lecture conducted from Anaheim California.

Teaching Experience:

UCLA Department of Environmental Health (Summer 2003 through 20010) Taught Environmental Health Science 100 to students, including undergrad, medical doctors, public health professionals and nurses. The course focused on the health effects of environmental contaminants.

National Ground Water Association, Successful Remediation Technologies. Custom Course in Sante Fe, New Mexico. May 21, 2002. Focused on fate and transport of fuel contaminants associated with underground storage tanks.

National Ground Water Association; Successful Remediation Technologies Course in Chicago Illinois. April 1, 2002. Focused on fate and transport of contaminants associated with Superfund and RCRA sites.

California Integrated Waste Management Board, April and May 2001. Alternative Landfill Caps Seminar in San Diego, Ventura, and San Francisco. Focused on both prescriptive and innovative landfill cover design.

UCLA Department of Environmental Engineering, February 5, 2002. Seminar on Successful Remediation Technologies focusing on Groundwater Remediation.

University Of Washington, Soil Science Program, Teaching Assistant for several courses including Soil Chemistry, Organic Soil Amendments, and Soil Stability.

U.C. Berkeley, Environmental Science Program Teaching Assistant for Environmental Science 10.

Academic Grants Awarded:

California Integrated Waste Management Board. $41,000 grant awarded to UCLA Institute of the Environment. Goal: To investigate the effect of high carbon wood ash on volatile organic emissions from compost. 2001.

Synagro Technologies, Corona California: $10,000 grant awarded to San Diego State University.
Goal: investigate the effect of biosolids for restoration and remediation of degraded coastal sage soils. 2000.

King County, Department of Research and Technology, Washington State. $100,000 grant awarded to University of Washington: Goal: To investigate odor emissions from biosolids application and the effect of polymers and ash on VOC emissions. 1998.

Northwest Biosolids Management Association, Washington State. $20,000 grant awarded to investigate the effect of polymers and ash on VOC emissions from biosolids. 1997.

James River Corporation, Oregon: $10,000 grant was awarded to investigate the success of genetically engineered Poplar trees with resistance to round-up. 1996.

United State Forest Service, Tahoe National Forest: $15,000 grant was awarded to investigating fire ecology of the Tahoe National Forest. 1995.

Kellogg Foundation, Washington D.C. $500 grant was awarded to construct a large anaerobic digester on St. Kitts in West Indies. 1993

Deposition and/or Trial Testimony:

In the District Court of Harris County Texas
Mt Davis Interest, Inc v Sesco Cement Corp
Cause No 2023-26512
Trial 6-6-2-25

In the United States Southern District of New York
Gallo vs Avon Products Inc., et al
Civil Action No.: 1:23-cv-2023
Deposition 4-24-2025

In Vanderburgh Superior Court 5, County of Vanderburgh, Indiana
Markello v CSX
Civil Action No 82D05-2011-CT-004962
Deposition 3-26-25

Iin the Circuit Court of Cook County Illinois
Jarosiewicz v Northeast Regional Railroad
Case No 2023 L 002290
Deposition 2-27-25

In the District Court 191st Judicial District Dallas County
Acklin v Poly America International
Cause No DC-22-08610
Deposition 1-8-2025

United States District Court, Norther District of California
Asustin Vs Monsanto
Case No 2:23-cv-272
Deposition 12-20-25

In Jefferson Circuit Court Division One, Louisville, Kentucky
Stafford vs, CSX
Case No. 18-CI-001790

Deposition: 8-27-24

In the Twenty-Second Judicial Circuit of St. Louis. State of Missouri
Patricia Godfrey vs, Amtrak
Case No. 2122-CC-00525
Deposition: 7-17-24

In the Circuit Court of Jefferson County Alabama
Linda Early Vs. CSX
Case number CV-2021-00241
Deposition 6-24-24

In the Court of Common Please Lucas County, Ohio
Brenda Conkright vs. CSX
Case No. G-4801-CI-0202102664-000
Deposition: 6-4-24

In the Commonwealth of Kentucky, Greenup Circuit Court
Patsy Sue Napier vs. CSX
Case No. 19-CI-0012
Deposition: 5-8-2-24

In United States District Court of Hawaii
Patrick Feindt, Jr. et al. vs. The United States of America
Case No. 1:22-cv-LEK-KJM
Trial 3-29-24 and 4-5-24

In the District Court of Hood County State of Texas
Artie Gray vs. Exxon Mobil
Case No. C-2018047
Rosenfeld Deposition:4-22-2024

In the Elkhart Superior Court State of Indiana
Estate of Clark Stacy vs. Penn Central Corporation
Cause No 2D01-2001-CT-00007
Rosenfeld Deposition 1-25-2024 and 3-7-2024

In the Circuit Court of Trempealeau County, State of Wisconsin
Michael J. Sylla et al. vs. High-Crush Whitehall LLC
Case No. 2019-CV-63, 2019-CV-64, 2019-CV-65, 2019-CV-66
Rosenfeld Deposition: 3-5-2024

In the Circuit Court of Trempealeau County, State of Wisconsin
Leland Drangstveit vs. High-Crush Blair LLC
Case No. 19-CV-66
Rosenfeld Deposition 3-5-2024

In the Circuit Court of Jefferson County Alabama
Donald Lee Ashworth vs. CSX Transportation Inc.
Case No CV-2021-901261
Rosenfeld Deposition 1-23-2024

In the United States District Court for the Eastern District of Wisconsin
Gary L Siepe vs. Soo Line Railroad
Case No. 2:21-cv-00919
Rosenfeld Deposition 1-19-2024

In the United States District Court for the Western District of Louisiana
Ricky Bush v. Clean Harbors Colfax LLC
Case No. 1:22-cv-02026-DDD-JPM
Rosenfeld Deposition 12-18-2023 and 1-15-2024

In United States District Court of Hawaii
Patrick Feindt, Jr. et al. vs. The United States of America
Case No. 1:22-cv-LEK-KJM
Rosenfeld Deposition 11-29-2023

In the Circuit Court for the Twentieth Judicial Circuit St. Clair County, Illinois
Timothy Gray vs. Rural King et al.
Case No 2022-LA-355
Rosenfeld Deposition 9-26-2023

In United States District Court Eastern District of Wisconsin
Gary L. Siepe vs. Soo Line Railroad Company
Case No. 2:21-cv-00919
Rosenfeld Deposition 9-15-2023

In the Circuit Court of Cook County Illinois
Donald Fox vs. BNSF
Case No. 2021 L12
Rosenfeld Deposition 9-12-2023

In the Court of Common Please Cuyahoga County, Ohio
Thomas Schleich vs. Penn Central Corporation
Lead Case No. CV-20-939184
Rosenfeld Deposition 8-27-2023

In the Circuit Court of Jackson County Missouri at Kansas City
Timothy Dalsing vs. BNSF
Case No. No. 2216-cv06539
Rosenfeld Deposition 7-28-2023

In the United States District Court for the Southern District of Texas Houston Division
International Terminals Company LLC Deer Park Fire Litigation
Lead Case No. 4:19-cv-01460
Rosenfeld Deposition 7-25-2023

In the Circuit Court of Livingston County Missouri
Shirley Ralls vs. Canadian Pacific Railway and Soo Lind Railroad
Case No. 28LV-CV0020
Rosenfeld Daubert Hearing 7-18-2023 Trial Testimony 7-19-2023

In the Circuit Court of Cook County Illinois
Brenda Wright vs. Penn Central and Conrail
Case No. No. 2032L003966
Rosenfeld Deposition 6-13-2023

In the Circuit Court Common Please Philadelphia of Jefferson County Alabama
Frank Belle vs. Birmingham Southern Railroad Company et al.
Case No. 01-cv-2021-900901.00
Rosenfeld Deposition 4-6-2023

In the Circuit Court of Jefferson County Alabama
Linda De Gregorio vs. Penn Central
Case No. 002278
Rosenfeld Deposition 3-27-20203

In the United States District Court Eastern District of New York
Rosalie Romano et al. vs. Northrup Grumman Corporation
Case No. 16-cv-5760
Rosenfeld Deposition 3-16-2023

In the Superior Court of Washington, Spokane County
Judy Cundy vs. BNSF
Case No. 21-2-03718-32
Rosenfeld Deposition 3-9-2023

In The Court of Common Pleas of Philadelphia County, PA Civil Trial Division
Feaster v Conrail
Case No. 001075
Rosenfeld Deposition 2-1-2023

In United States District Court for the Central District of Illinois
Sherman vs. BNSF
Case No. 3:17-cv-01192
Rosenfeld Deposition 1-18-2023

In United States District Court District of Colorado
Gonzales vs. BNSF
Case No. 1:21-cv-01690
Rosenfeld Deposition 1-17-2023

In United States District Court District of Colorado
Abeyta vs. BNSF
Case No. 1:21-cv-01689-KMT
Rosenfeld Deposition 1-3-2023

In United States District Court For The Easter District of Louisiana
Nathaniel Smith vs. Illinois Central Railroad
Case No. 2:21-cv-01235
Rosenfeld Deposition 11-30-2022

In the Superior Court of the State of California, County of San Bernardino
Billy Wildrick, Plaintiff vs. BNSF Railway Company
Case No. CIVDS1711810
Rosenfeld Deposition 10-17-2022

In the State Court of Bibb County, State of Georgia
Richard Hutcherson, Plaintiff vs Norfolk Southern Railway Company
Case No. 10-SCCV-092007
Rosenfeld Deposition 10-6-2022

In the Civil District Court of the Parish of Orleans, State of Louisiana
Millard Clark, Plaintiff vs. Dixie Carriers, Inc. et al.
Case No. 2020-03891
Rosenfeld Deposition 9-15-2022

In The Circuit Court of Livingston County, State of Missouri, Circuit Civil Division

Shirley Ralls, Plaintiff vs. Canadian Pacific Railway and Soo Line Railroad
Case No. 18-LV-CC0020
Rosenfeld Deposition 9-7-2022

In The Circuit Court of the 13th Judicial Circuit Court, Hillsborough County, Florida Civil Division
Jonny C. Daniels, Plaintiff vs. CSX Transportation Inc.
Case No. 20-CA-5502
Rosenfeld Deposition 9-1-2022

In The Circuit Court of St. Louis County, State of Missouri
Kieth Luke et. al. Plaintiff vs. Monsanto Company et. al.
Case No. 19SL-CC03191
Rosenfeld Deposition 8-25-2022

In The Circuit Court of the 13th Judicial Circuit Court, Hillsborough County, Florida Civil Division
Jeffery S. Lamotte, Plaintiff vs. CSX Transportation Inc.
Case No. NO. 20-CA-0049
Rosenfeld Deposition 8-22-2022

In State of Minnesota District Court, County of St. Louis Sixth Judicial District
Greg Bean, Plaintiff vs. Soo Line Railroad Company
Case No. 69-DU-CV-21-760
Rosenfeld Deposition 8-17-2022

In United States District Court Western District of Washington at Tacoma, Washington
John D. Fitzgerald Plaintiff vs. BNSF
Case No. 3:21-cv-05288-RJB
Rosenfeld Deposition 8-11-2022

In Circuit Court of the Sixth Judicial Circuit, Macon Illinois
Rocky Bennyhoff Plaintiff vs. Norfolk Southern
Case No. 20-L-56
Rosenfeld Deposition 8-3-2022, Trial 1-10-2023

In Court of Common Pleas, Hamilton County Ohio
Joe Briggins Plaintiff vs. CSX
Case No. A2004464
Rosenfeld Deposition 6-17-2022

In the Superior Court of the State of California, County of Kern
George LaFazia vs. BNSF Railway Company.
Case No. BCV-19-103087
Rosenfeld Deposition 5-17-2022

In the Circuit Court of Cook County Illinois
Bobby Earles vs. Penn Central et. al.
Case No. 2020-L-000550
Rosenfeld Deposition 4-16-2022

In United States District Court Easter District of Florida
Albert Hartman Plaintiff vs. Illinois Central
Case No. 2:20-cv-1633
Rosenfeld Deposition 4-4-2022

In the Circuit Court of the 4th Judicial Circuit, in and For Duval County, Florida
Barbara Steele vs. CSX Transportation

Case No.16-219-Ca-008796
Rosenfeld Deposition 3-15-2022

In United States District Court Easter District of New York
Romano et al. vs. Northrup Grumman Corporation
Case No. 16-cv-5760
Rosenfeld Deposition 3-10-2022

In the Circuit Court of Cook County Illinois
Linda Benjamin vs. Illinois Central
Case No. No. 2019 L 007599
Rosenfeld Deposition 1-26-2022

In the Circuit Court of Cook County Illinois
Donald Smith vs. Illinois Central
Case No. No. 2019 L 003426
Rosenfeld Deposition 1-24-2022

In the Circuit Court of Cook County Illinois
Jan Holeman vs. BNSF
Case No. 2019 L 000675
Rosenfeld Deposition 1-18-2022

In the State Court of Bibb County State of Georgia
Dwayne B. Garrett vs. Norfolk Southern
Case No. 20-SCCV-091232
Rosenfeld Deposition 11-10-2021

In the Circuit Court of Cook County Illinois
Joseph Ruepke vs. BNSF
Case No. 2019 L 007730
Rosenfeld Deposition 11-5-2021

In the United States District Court For the District of Nebraska
Steven Gillett vs. BNSF
Case No. 4:20-cv-03120
Rosenfeld Deposition 10-28-2021

In the Montana Thirteenth District Court of Yellowstone County
James Eadus vs. Soo Line Railroad and BNSF
Case No. DV 19-1056
Rosenfeld Deposition 10-21-2021

In the Circuit Court Of The Twentieth Judicial Circuit, St Clair County, Illinois
Martha Custer et al. vs Cerro Flow Products, Inc.
Case No. 0i9-L-2295
Rosenfeld Deposition 5-14-2021
Trial October 8-4-2021

In the Circuit Court of Cook County Illinois
Joseph Rafferty vs. Consolidated Rail Corporation and National Railroad Passenger Corporation d/b/a AMTRAK,
Case No. 18-L-6845
Rosenfeld Deposition 6-28-2021

In the United States District Court For the Northern District of Illinois

Theresa Romcoe vs. Northeast Illinois Regional Commuter Railroad Corporation d/b/a METRA Rail
Case No. 17-cv-8517
Rosenfeld Deposition 5-25-2021

In the Superior Court of the State of Arizona In and For the Cunty of Maricopa
Mary Tryon et al. vs. The City of Pheonix v. Cox Cactus Farm, L.L.C., Utah Shelter Systems, Inc.
Case No. CV20127-094749
Rosenfeld Deposition 5-7-2021

In the United States District Court for the Eastern District of Texas Beaumont Division
Robinson, Jeremy et al vs. CNA Insurance Company et al.
Case No. 1:17-cv-000508
Rosenfeld Deposition 3-25-2021

In the Superior Court of the State of California, County of San Bernardino
Gary Garner, Personal Representative for the Estate of Melvin Garner vs. BNSF Railway Company.
Case No. 1720288
Rosenfeld Deposition 2-23-2021

In the Superior Court of the State of California, County of Los Angeles, Spring Street Courthouse
Benny M Rodriguez vs. Union Pacific Railroad, A Corporation, et al.
Case No. 18STCV01162
Rosenfeld Deposition 12-23-2020

In the Circuit Court of Jackson County, Missouri
Karen Cornwell, Plaintiff, vs. Marathon Petroleum, LP, Defendant.
Case No. 1716-CV10006
Rosenfeld Deposition 8-30-2019

In the United States District Court For The District of New Jersey
Duarte et al, Plaintiffs, vs. United States Metals Refining Company et. al. Defendant.
Case No. 2:17-cv-01624-ES-SCM
Rosenfeld Deposition 6-7-2019

In the United States District Court of Southern District of Texas Galveston Division
M/T Carla Maersk vs. Conti 168., Schiffahrts-GMBH & Co. Bulker KG MS "Conti Perdido" Defendant.
Case No. 3:15-CV-00106 consolidated with 3:15-CV-00237
Rosenfeld Deposition 5-9-2019

In The Superior Court of the State of California In And For The County Of Los Angeles – Santa Monica
Carole-Taddeo-Bates et al., vs. Ifran Khan et al., Defendants
Case No. BC615636
Rosenfeld Deposition 1-26-2019

In The Superior Court of the State of California In And For The County Of Los Angeles – Santa Monica
The San Gabriel Valley Council of Governments et al. vs El Adobe Apts. Inc. et al., Defendants
Case No. BC646857
Rosenfeld Deposition 10-6-2018; Trial 3-7-19

In United States District Court For The District of Colorado
Bells et al. Plaintiffs vs. The 3M Company et al., Defendants
Case No. 1:16-cv-02531-RBJ
Rosenfeld Deposition 3-15-2018 and 4-3-2018

In The District Court Of Regan County, Texas, 112th Judicial District
Phillip Bales et al., Plaintiff vs. Dow Agrosciences, LLC, et al., Defendants

Cause No. 1923
Rosenfeld Deposition 11-17-2017

In The Superior Court of the State of California In And For The County Of Contra Costa
Simons et al., Plaintifs vs. Chevron Corporation, et al., Defendants
Cause No. C12-01481
Rosenfeld Deposition 11-20-2017

In The Circuit Court of The Twentieth Judicial Circuit, St Clair County, Illinois
Martha Custer et al., Plaintiff vs. Cerro Flow Products, Inc., Defendants
Case No.: No. 0i9-L-2295
Rosenfeld Deposition 8-23-2017

In United States District Court For The Southern District of Mississippi
Guy Manuel vs. The BP Exploration et al., Defendants
Case No. 1:19-cv-00315-RHW
Rosenfeld Deposition 4-22-2020

In The Superior Court of the State of California, For The County of Los Angeles
Warrn Gilbert and Penny Gilber, Plaintiff vs. BMW of North America LLC
Case No. LC102019 (c/w BC582154)
Rosenfeld Deposition 8-16-2017, Trail 8-28-2018

In the Northern District Court of Mississippi, Greenville Division
Brenda J. Cooper, et al., Plaintifs, vs. Meritor Inc., et al., Defendants
Case No. 4:16-cv-52-DMB-JVM
Rosenfeld Deposition July 2017

In The Superior Court of the State of Washington, County of Snohomish
Michael Davis and Julie Davis et al., Plaintiff vs. Cedar Grove Composting Inc., Defendants
Case No. 13-2-03987-5
Rosenfeld Deposition, February 2017
Trial March 2017

In The Superior Court of the State of California, County of Alameda
Charles Spain., Plaintiff vs. Thermo Fisher Scientific, et al., Defendants
Case No. RG14711115
Rosenfeld Deposition September 2015

In The Iowa District Court In And For Poweshiek County
Russell D. Winburn, et al., Plaintiffs vs. Doug Hoksbergen, et al., Defendants
Case No. LALA002187
Rosenfeld Deposition August 2015

In The Circuit Court of Ohio County, West Virginia
Robert Andrews, et al. vs. Antero, et al.
Civil Action No. 14-C-30000
Rosenfeld Deposition June 2015

In The Iowa District Court for Muscatine County
Laurie Freeman et. al. Plaintiffs vs. Grain Processing Corporation, Defendant
Case No. 4980
Rosenfeld Deposition May 2015

In the Circuit Court of the 17th Judicial Circuit, in and For Broward County, Florida
Walter Hinton, et. al. Plaintiff, vs. City of Fort Lauderdale, Florida, a Municipality, Defendant.

Case No. CACE07030358 (26)
Rosenfeld Deposition December 2014

In the United States District Court Western District of Oklahoma
Tommy McCarty, et al., Plaintiffs, vs. Oklahoma City Landfill, LLC d/b/a Southeast Oklahoma City Landfill, et al. Defendants.
Case No. 5:12-cv-01152-C
Rosenfeld Deposition: July 2014

In the County Court of Dallas County Texas
Lisa Parr et al, *Plaintiff*, vs. Aruba et al, *Defendant.*
Case Number cc-11-01650-E
Rosenfeld Deposition: March and September 2013
Rosenfeld Trial: April 2014

In the County of Kern, Unlimited Jurisdiction
Rose Propagation Services vs. Heppe Enterprises
Case No. S-1500-CV-278190, LHB
Rosenfeld Deposition: May 2014

In the Circuit Court of Baltimore County Maryland
Philip E. Cvach, II et al., *Plaintiffs* vs. Two Farms, Inc. d/b/a Royal Farms, Defendants
Case Number: 03-C-12-012487 OT
Rosenfeld Deposition: September 2013

In the Court of Galveston County, Texas 56th Judicial District
MDL Litigation Regarding Texas City Refinery Ultracracker Emission Event Litigation
Cause No. 10-UC-0001
Rosenfeld Deposition: March 2013
Rosenfeld Trial: September 2013

In the United States District Court of Southern District of Texas Galveston Division
Kyle Cannon, Eugene Donovan, Genaro Ramirez, Carol Sassler, and Harvey Walton, each Individually and on behalf of those similarly situated, *Plaintiffs,* vs. BP Products North America, Inc., *Defendant.*
Case 3:10-cv-00622
Rosenfeld Deposition: February 2012
Rosenfeld Trial: April 2013

In the United States District court of Southern District of California
United States of America, Plaintiff vs. 2,560 Acres of Land, more or less, located in Imperial County, State of California; and Donald L. Crawford, et. al.
Civil No. 3:11-cv-02258-IEG-RBB
Rosenfeld Deposition: December 2012, January 2013

In the Court of Common Pleas of Tuscarawas County Ohio
John Michael Abicht, et al., Plaintiffs, vs. Republic Services, Inc., et al., Defendants
Case No. 2008 CT 10 0741 (Cons. w/ 2009 CV 10 0987)
Rosenfeld Deposition October 2012

In the Court of Common Pleas of Tuscarawas County Ohio
John Michael Abicht, et al., *Plaintiffs,* vs. Republic Services, Inc., et al., *Defendants*
Case Number: 2008 CT 10 0741 (Cons. w/ 2009 CV 10 0987)
Rosenfeld Deposition: October 2012

In the United States District Court for the Middle District of Alabama, Northern Division
James K. Benefield, et al., Plaintiffs, vs. International Paper Company, Defendant.

EXHIBIT B

WILSON IHRIG
ACOUSTICS, NOISE & VIBRATION

CALIFORNIA
WASHINGTON
NEW YORK

WI #25-002.15

October 10, 2025

Brian Flynn
Lozeau | Drury LLP
1939 Harrison Street, Suite 150
Oakland, CA 94612

SUBJECT: 701 S. Myrtle Specific Plan and Development Project
City of Monrovia, CA
Review and Comment on Noise Study

Dear Mr. Flynn,

Per your request, Wilson Ihrig has reviewed the information and noise impact analysis in the following documents:

701 S. Myrtle Specific Plan and Development Project
Draft Environmental Impact Report, July 2025 (DEIR)
Appendix I Noise Analysis, May 2025 (Noise Analysis)

The Proposed 701 South Myrtle Specific Plan and Development Project (Project) would result in the demolition of existing structures and the development of the 1.61-acre site with a mixed-use building including residential and commercial uses. The development is planned to include a fitness center, courtyards, and swimming pool. The project site is surrounded by industrial and commercial uses to the south and residential uses to the east, west, and north.

Wilson Ihrig, Acoustical Consultants, has practiced exclusively in the field of acoustics since 1966. During our 57 years of operation, we have prepared hundreds of noise studies for Environmental Impact Reports and Statements. We have one of the largest technical laboratories in the acoustical consulting industry. We also utilize industry-standard acoustical programs such as Roadway Construction Noise Model (RCNM), SoundPLAN, and CADNA. In short, we are well qualified to prepare environmental noise studies and review studies prepared by others.

Adverse Effects of Noise[1]

Although the health effects of noise are not taken as seriously in the United States as they are in other countries, they are real and, in many parts of the country, pervasive.

Noise-Induced Hearing Loss. If a person is repeatedly exposed to loud noises, he or she may experience noise-induced hearing impairment or loss. In the United States, both the Occupational Health and Safety Administration (OSHA) and the National Institute for Occupational Safety and Health (NIOSH) promote standards and regulations to protect the hearing of people exposed to high levels of industrial noise.

Speech Interference. Another common problem associated with noise is speech interference. In addition to the obvious issues that may arise from misunderstandings, speech interference also leads to problems with concentration fatigue, irritation, decreased working capacity, and automatic stress reactions. For complete speech intelligibility, the sound level of the speech should be 15 to 18 dBA higher than the background noise. Typical indoor speech levels are 45 to 50 dBA at 1 meter, so any noise above 30 dBA begins to interfere with speech intelligibility. The common reaction to higher background noise levels is to raise one's voice. If this is required persistently for long periods of time, stress reactions and irritation will likely result.

Sleep Disturbance. Noise can disturb sleep by making it more difficult to fall asleep, by waking someone after they are asleep, or by altering their sleep stage, e.g., reducing the amount of rapid eye movement (REM) sleep. Noise exposure for people who are sleeping has also been linked to increased blood pressure, increased heart rate, increase in body movements, and other physiological effects. Not surprisingly, people whose sleep is disturbed by noise often experience secondary effects such as cognitive decline, increased fatigue, depressed mood, and decreased work performance.

Cardiovascular and Physiological Effects. Human's bodily reactions to noise are rooted in the "fight or flight" response that evolved when many noises signaled imminent danger. These include increased blood pressure, elevated heart rate, and vasoconstriction. Prolonged exposure to acute noises can result in permanent effects such as hypertension and heart disease.

Impaired Cognitive Performance. Studies have established that noise exposure impairs people's abilities to perform complex tasks (tasks that require attention to detail or analytical processes) and it makes reading, paying attention, solving problems, and memorizing more difficult. This is why there are standards for classroom background noise levels and why offices and libraries are designed to provide quiet work environments.

[1] More information on these and other adverse effects of noise may be found in *Guidelines for Community Noise*, eds B Berglund, T Lindvall, and D Schwela, World Health Organization, Geneva, Switzerland, 1999. (https://iris.who.int/handle/10665/66217)

Missing CadnaA Model Information

The Noise Analysis states that a CadnaA model was developed to calculate operational and construction noise levels [p. 37]. The report fails to provide figures showing this model, where receivers and sources were placed, and what building elements were included for shielding. Report table footnotes state that Exhibit 10-A and Exhibit 11-A identify noise source and receiver locations. However, Exhibit 10-A has incomplete information and Exhibit 11-A is missing entirely from the Noise Analysis report. Receiver locations are shown in Exhibit 5-A without any other model elements. Without proper figures of the CandaA models it is difficult to understand the model geometry and to verify the conclusions of the operational and construction noise analyses.

Potentially Significant Construction Noise Impacts

The DEIR underestimates construction noise from the Project and fails to properly document construction noise predictions. The Noise Analysis shows reference levels for 3 pieces of equipment per activity in Table 11-1. The report references levels and usage factors provided by the Federal Highway Administration (FHWA) Roadway Construction Noise Model (RCNM) [p.55-56]. However, some of the levels shown in the "Reference Noise Level @ 50 Feet" column do not march RCNM Lmax levels adjusted with RCNM usage factors. The report appendices do not provide additional calculations. Table 1 below shows a comparison of some example equipment reference levels.

Table 1 Construction Equipment Reference Noise Levels

Equipment	RCNM Lmax @ 50 ft. (dBA)	RCNM Usage Factor	Calculated Leq @ 50 ft. (dBA)[1]	Reported Leq @ 50 ft. (dBA)
Concrete Saw	90	0.2	83	83
Jackhammer	85	0.2	78	82
Chain Saw	85	0.2	78	77
Grader	85	0.4	81	81
Vibratory Roller	85	0.2	78	73
Compactor	80	0.2	73	76
Paver	85	0.5	82	74
Dump Truck	84	0.4	80	73
Roller	85	0.2	78	72

[1] Leq = Lmax + 10 * log(Usage Factor)

Noise Analysis Table 11-1 shows combined levels from the three pieces listed and converts those levels to sound power levels. The report states these inputs were used in a CadnaA noise model. The single reference sound power level of 116.6 dBA shown in Appendix 11.1 does not march any of the levels provided in Table 11-1. Noise Analysis Table 11-2 shows estimated levels at receivers for each construction activity. The report claims that the analysis models the combined level as a "moving point within the construction area (Project site boundary)" [p. 56]. A footnote in Table 11-2 states that levels were calculated based on the distance between the activity and the nearest receiver. However, the Appendix 11.1 source tables indicate construction was modeled as multiple area sources located in different parts of the site using a single reference level. The area sources are not labeled by activity. The Noise Analysis claims the source locations are shown in Exhibit 11-A. This exhibit is not in the report and no figures show where construction equipment was modeled.

The Noise Analysis references RCNM and FTA methodology for calculating construction levels [p. 56], but does not appear to follow it. The Federal Highway Administration Transit Noise and Vibration Impact Assessment Manual (FTA Manual) provides "general" and "detailed" assessment methodology for construction noise in Section 7. A **general** FTA assessment, which uses the two noisiest pieces of equipment expected for each phase and assumes all equipment operates at the center of the project site, necessitates a usage factor of 100%. The correct FTA procedure dictates that equipment usage factors should exclusively be applied in a **detailed** FTA construction noise assessment. In such cases, noise levels should be calculated using the closest distance between receptors and construction equipment for *all* equipment expected to be used in each phase of construction (not just the noisiest pieces).

Table 2 below shows calculated noise levels for three sample activities at Oak Park Apartments (R3), 85 feet from the site. These predictions use only the equipment included in the Noise Analysis predictions, RCNM reference levels and usage factors, the closest distance between the construction site and the residences, and two separate ground factors to show the effect of the ground-type selection. As shown, the calculated activity levels for "mixed ground" are 8-16 dB higher than the reported levels.

Table 2 Construction Noise Levels at Oak Park Apartments (R3) for Demolition, Grading, and Paving

Equipment	Ref. Lmax @ 50 ft. (dBA)	Usage Factor	Leq @ Nearest Rec. (dBA) (mixed ground)[1]	Increase Over Ambient (dB)	Reported Leq at Nearest Rec. (dBA)	Leq @ Nearest Rec. (dBA) (hard ground)[2]
Demolition						
Concrete Saw	90	0.2	77			78
Jackhammer	85	0.2	72			73
Chain Saw	85	0.2	72			73
		Total:	79	22	71	81
Paving						
Paver	85	0.5	76			77
Roller	85	0.2	72			73
Dump Truck	84	0.4	74			75
		Total:	79	22	63	80

[1] Leq = Lmax + 10*log(Usage Factor) – 20*log (D/50) – 10*G*log(D/50), where G=0.5
[2] G=1.0

The DEIR construction noise analysis ignores several factors which would result in even higher levels. The Noise Analysis incorrectly uses an attenuation factor of 0.5 to represent mixed hard and soft ground, despite the fact that the project site is completely surrounded by pavement with very little landscaping [p. 37]. Calculated activity levels for "hard ground" are 2 dB higher than those for "mixed ground." The DEIR lists additional equipment anticipated on site in Table 3-5, which was not included in the Noise Analysis, such as dozers, backhoes, and tractors [DEIR, p. 3-12]. Calculated activity levels for *all* equipment would be higher than shown above. Finally, the DEIR project description states that sidewalks along West Olive Avenue and South Myrtle Avenue would be reconstructed. This work may be closer than the distance assumed above and would also raise levels [DEIR p. 3-8].

The DEIR adopts an absolute construction noise limit of 80 dBA (based on the FTA Manual) and a 12 dB increase threshold (based on Caltrans). The noise predictions shown in Table 2 for mixed ground are up to 22 dB above the daytime ambient level of 57 dBA measured at L3 [p. 20]. The hard ground predictions exceed the 80 dBA absolute noise limit as well.

The Noise Analysis does acknowledge that construction noise is anticipated to result in significant impacts. Mitigation measure NOI-1 recommends the construction of a temporary noise barrier at the northern and western Project site boundaries. The Noise Analysis is inconsistent about the height of this barrier – the executive summary states 10 feet [p. 1] and the construction noise section states 8 feet [p. 58]. Further, the report does not provide any back-up calculations for mitigated noise levels. The noise control section claims that an effective barrier can reduce noise levels by 10 to 15 dBA [p. 10]. However, Table 11-3 shows only a 3-dB reduction at R3 and an *increase* at R2, which the report does not address. Predicted levels shown in Table 2 (above) would clearly exceed the 12-dB increase threshold with only a 3-dB barrier reduction and the impact would remain significant.

A noise barrier would need to provide at least 10 dB attenuation to reduce construction noise levels shown in Table 2 below the DEIR construction noise increase criteria. While a solid barrier using the materials required by NOI-01 (masonry blocks, glass, or earthen berm) *could* achieve reduction of 10 to 15 dB depending on site geometry, contractors are reluctant to employ such barriers. RCNM suggests using 8 dB for a more typical temporary barrier construction, if equipment is completely shielded from all receivers.[2] This would not reduce levels below the threshold and the impact would remain significant.

The Noise Analysis does not recommend a barrier on the east side of the project, even though Paragon Old Town Apartments (R2) is the closest sensitive receiver to the site. Calculated construction noise levels at R2 would be very close to those shown in Table 2 for R3, since the distances are similar. The predictions are 15 to 17 dB above the daytime ambient level of 63 dBA measured at L2 [p. 20]. A noise barrier would need to provide at least 5 dB attenuation to reduce construction noise levels shown in Table 2 below the DEIR construction noise increase criteria.

The Projects should provide missing information on the CadnaA model used for construction noise, verify that all anticipated construction equipment was accounted for in the analysis, and correct ground type assumptions. If there are still significant impacts, as indicated above, the Project should verify that the noise barriers recommended in NOI-01 would be sufficient to reduce all impacts to less than significant.

Potentially Significant Construction Vibration Impacts

Noise Analysis Table 11-7 shows that the highest estimated vibration level (for a vibratory roller) at R2 is only 1 dB below the 80 VdB threshold. As stated above, the project description states that sidewalks along West Olive Avenue and South Myrtle Avenue would be reconstructed. If any roadwork is done along with the sidewalk replacement, the vibratory roller would exceed the DEIR criteria. The Project should confirm this is not the case.

[2] https://www.fhwa.dot.gov/environment/noise/construction_noise/rcnm/rcnm.pdf

Potentially Significant Operational Noise Impacts

The DEIR underestimates mechanical noise from the Project and fails to properly document the operational noise predictions. The Noise Analysis claims that Exhibit 10-A shows operational noise sources [p. 49] and receivers [p. 53]. The exhibit (partially reproduced below) does not label any receivers. It's not clear from the figure key if the blue rectangles represent clusters of units. The CadnaA tables in Appendix 10.3 does show 276 AC unit point sources and provide coordinates for those sources. The Appendix does not indicate if all sources were active when calculating predicted noise levels at receivers. The DEIR mentions architectural elements on the roof to provide screening for mechanical equipment (DEIR, p. 3-8), but the Noise Analysis does not provide any information on what shielding, if any, was applied to the CadnaA calculations.

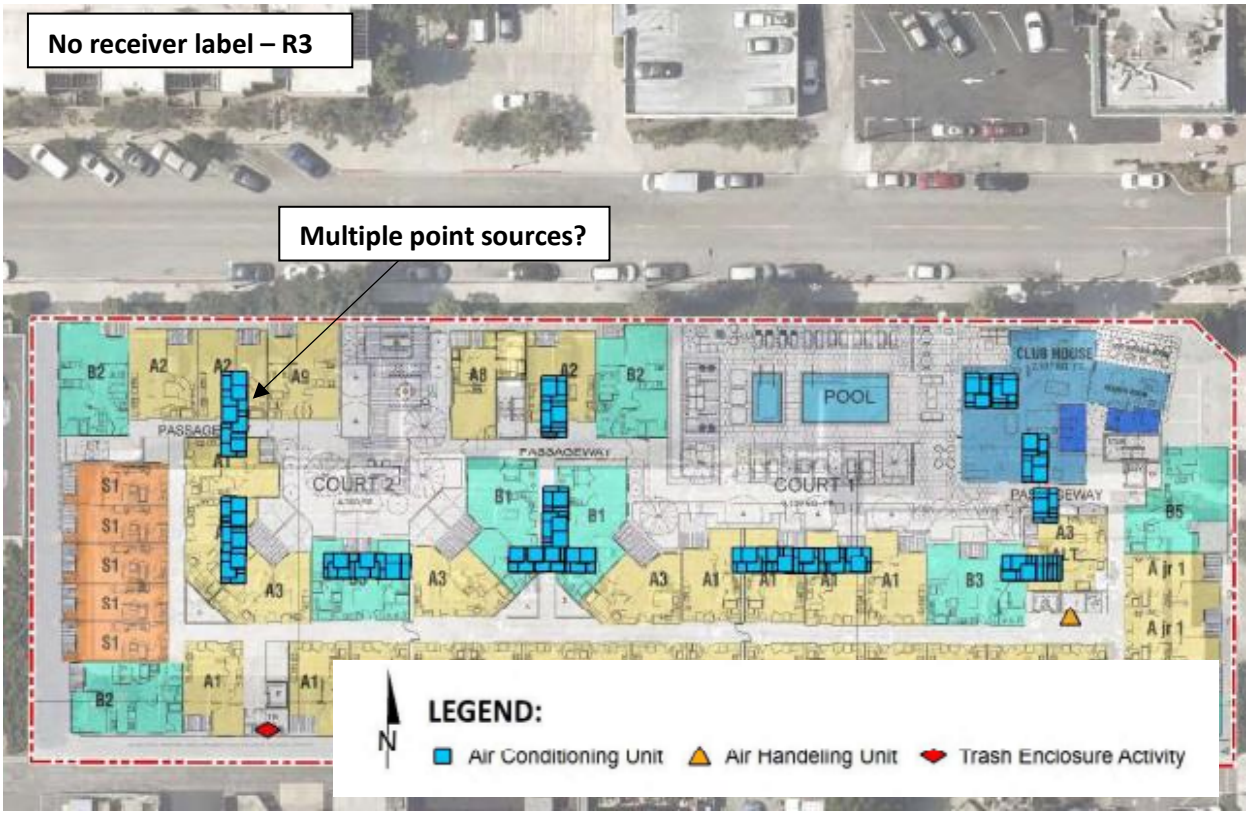

Figure 1 Noise Analysis Exhibit 10-A

Noise Analysis Table 10-2 shows operational noise level predictions for each receiver [p. 52]. For receiver R3 north of the Project site, the table shows 41.9 dBA for daytime and 39.9 dBA for nighttime mechanical noise [p. 51]. Based on the input sound power reference level of 76 dBA shown in Table 10-1 [p. 51] and Appendix 10.3, it appears the results in Table-2 do not represent all of the units anticipated to operate on the roof, as they are illustrated in Exhibit 10-A.

There are several errors in the operational noise predictions based on the description provided in the Noise Analysis which may have contributed to the low noise levels. First, the Noise Analysis states that a default attenuation factor of 0.5 was used for the CandaA model to represent a combination of hard and soft surfaces [p. 37]. Most of the ground between the sensitive building and the Project is pavement (hard ground), so the ground absorption factor of 0.5 would underestimate operational

noise. Second, the receiver table in Appendix 10.3 shows that the model used a height of 5 feet off the ground, which does not represent the upper floor residential units closest to the future rooftop equipment and would also underestimate operational noise at those upper floors.

Based on the reference data for the rooftop equipment shown in Table 10-1, the height of the roof shown in Appendix 10.3, the approximate distance from R3 to closest cluster of units shown in Exhibit 10-A, the approximate height of a 3-story receiver, and using the conversion of sound power to sound pressure equation below, we would expect the level from just one AC unit to be 37 dBA. Assuming the closest cluster of units is made up of 27 sources (one tenths of the total), the predicted level at R3 would be 52 dBA. This exceeds the City's nighttime criteria of 50 dBA. The increase over the measured nighttime ambient of 47 dBA is *at* the nighttime increase criteria for off-site operational noise shown in Table 6-1. Noise levels from all of the rooftop equipment shown in Exhibit 10-A (276 AC units and 1 air handler) would be higher.

$$Lp = Lw - \left|10 \cdot \log\left(\frac{Q}{4\pi \cdot r^2}\right)\right|$$

where:

Lw = 76 dBA
Q = 2 (directivity factor for a half-sphere)
r = 35m (approximate diagonal distance from the roof to nearest residence)

$$Lp = 76 - \left|10 \cdot \log\left(\frac{2}{4\pi \cdot 35^2}\right)\right| = 37\ dBA$$

$$Lp\ (27\ units) = 37 + 10 \cdot \log(27) = 52\ dBA$$

Further, the operational noise analysis appears to exclude noise from mechanical equipment associated with the courtyard swimming pool or transfer air fans needed to ventilate subterranean parking garage levels.

The Projects should provide missing information on the CadnaA model used for operational noise, verify that all rooftop equipment was accounted for in the analysis, and include predictions for courtyard and parking mechanical equipment omitted from the model. If there are still significant impacts, as indicated above, the Project should verify shielding from parapet walls and other mitigation would be sufficient to reduce the impact to less than significant.

Traffic Analysis Missing Validation

The DEIR fails to properly establish existing traffic noise along West Olive Avenue where Oak Park Apartments are located. Noise Analysis Table 7-6 shows a modeled existing CNEL of 61.7 dBA at the nearest receiving land use. This is 4.7 dB higher than the 57.2 dBA CNEL measured at L3, as reported in Appendix 5.2 [p.82]. The Caltrans Technical Noise Supplement to the Traffic Noise Analysis Protocol (TeNS) provides procedures for traffic studies, including a discussion of model accuracy tolerances.[3] The TeNS recommends that "differences of 5 dBA or more should be approached with caution" when validating traffic noise models [TeNS p. 4-13]. The Project should address this discrepancy and validate the traffic model using measured baseline.

[3] https://dot.ca.gov/-/media/dot-media/programs/environmental-analysis/documents/env/tens-sep2013-a11y.pdf

Conclusion

The DEIR operational and construction noise analysis contains errors and fails to identify potentially significant impacts and the recommended construction noise mitigation measures are insufficient. The DEIR fails to validate the traffic noise model. Finally, sidewalk replacement work may result in potentially significant construction noise and vibration impacts.

Please feel free to contact me with any questions on this information.

Very truly yours,

Ani Toncheva, Senior Consultant, WILSON IHRIG

WILSON IHRIG
ACOUSTICS, NOISE & VIBRATION

ANI TONCHEVA

Senior Consultant

Since joining the firm in 2011, Ani has conducted analyses for transit systems, vibration-sensitive research facilities, public infrastructure, construction, and other environmental noise. She has contributed to literature reviews, including research on current practices of historical preservation. She has extensive experience working on construction projects in New York City and is well-versed in local noise codes.

Education

- B.A., Physics; Bard College, New York

Professional Associations

- *Member*, National Council of Acoustical Consultants (NCAC)
- *Member*, Acoustical Society of America (ASA)
- *Member*, WTS (Women's Transportation Seminar)
- *Board Member,* Transportation Research Forum (TRF), NY Chapter and International Board

Project Experience

National Academies of Sciences, NCHRP 25-25/Task 72, Current Practices to Address Construction Vibration and Potential Effects to Historic Buildings Adjacent to Transportation Projects
This report summarizes the results of the literature search and the survey of transportation agencies and provides a detailed discussion of seven informative case studies. A recommended guideline approach for addressing construction vibration effects on historic buildings has also been provided. Assisted with the literature review and case studies.

National Academies of Sciences, ACRP 07-14, Improving Intelligibility of Airport Terminal Public Address Systems
These guidelines are intended to be used by airport operators and design consultants. The research tasks included a literature review, questionnaire to airport operators, a sample passenger survey, acoustic measurements at six airports, and a presentation of best practices for acoustics, PA system design and specifications. Assisted with data analysis for acoustic measurements as part of this study.

101 Mass Avenue Mixed-Used Air Rights Project, Boston, MA
Responsible for developing a Finite Element model of mixed-use development, built over MBTA commuter railway tracks, and spanning I-90 to analyze predicted building response to ground-borne vibration.

180 Jones Street Affordable Housing and Mixed-Use Development, San Francisco, CA
Prepared a CCR Title 24 Noise Study Report for a new mixed-use building. The project included 70 residential units and on-site community facilities.

206th Street Theater Vibration Study, New York, NY
Analyzed ground vibration measurements at the site of the planned theater located near NYCT rail lines.

1801 Haight Street Mixed-Use Development, San Francisco, CA
Prepared a CCR Title 24 Noise Study Report for a new low-rise mixed-use building.

Analog (ArtX) Hotel, Palo Alto, CA
Prepared preliminary basis of design guidelines for a new five-story boutique hotel in a residential area. Work included evaluating exterior noise from a project that may affect guest areas and interior noise and vibration isolation measures.

Centene Corporation Theater, Clayton, MO
Conducted vibration measurements on the site to define and identify frequency and levels of vibration. The purpose of the study was to assess possible intrusion from trains and other sources into the proposed auditorium.

David Geffen Hall Renovation, Lincoln Center, New York, NY
Conducted vibration measurements on multiple levels of the existing David Geffen Hall structure to measure ground-borne vibration from subway trains. Performed background noise measurements inside the hall to determine ground-borne noise from subway trains.

Esther's Orbit Room, Oakland, CA
Prepared a CCR Title 24 Noise Study Report for the renovation of low-rise buildings near elevated train track. The project included a restaurant with live music, an artist gallery space, a wellness center, and two residential units.

First Congregational Church of Berkeley Pilgrim Hall Replacement, Berkeley, CA
Responsible for developing a 3D computer model of a new hall to prepare a basis of design guidelines for room acoustics and noise control and assist in developing acoustic specifications for various disciplines.

Gansevoort Cooperative, New York, NY
Conducted measurements inside several units in a mixed-use building to characterize commercial noise levels and recommend mitigation measures.

Hollis Life Science, Emeryville, CA
Conducted a drawing review regarding the new air handler units, exhaust fans, and related noise, and vibration-generating equipment, to recommend base isolation requirements to control vibration within the building, and to assess noise control requirements.

Sunnydale Block 3A & 3B Mixed-Use Residential Development, San Francisco, CA
Prepared a CCR Title 24 Noise Study Report for two, mixed-use, 5-story buildings. The project was part of the complete rebuild of the existing Sunnydale-Velasco Housing Authority site through the HOPE SF Program.

Pace University Performing Arts, New York, NY
Conducted a vibration feasibility study for the proposed fit-out in an existing mixed-use commercial/residential building to accommodate the university's dance program. The analysis

included vibration measurements of the existing space to characterize the floor response and determine vibration transmission between the dance spaces and residences on the upper floors. Estimated dance-induced vibration and provided recommendations on possible structural modifications to reduce vibration.

The Perelman Performing Arts Center at The World Trade Center, New York, NY
Conducted structure-borne vibration measurements as part of building vibration isolation design for the flexible performance space. Conducted quality control field visits during isolation pad installation.

Carroll Gardens, Citizen's Place, Brooklyn, NY
Conducted a baseline noise and vibration study in the vicinity of planned pilot test program. Observed pile operations and conducted short-term noise and vibration measurements during impact and vibratory pile driving tests.
Columbia University Medical Center Medical and Graduate Education Building, New York, NY
Conducted baseline noise survey and performed attended noise measurements during preliminary construction work. Installed long-term noise monitors and assisted with implementing a sophisticated remote noise monitoring system for a six-month construction phase, including building demolition.

East Side Coastal Resiliency Noise Monitoring Plan, New York, NY
Prepared noise monitoring plan for residences located near planned construction activities involving the use of pile driving methods for the installation of a flood protection system.

Fulton Municipal Manufactured Gas Plant Environment Remediation, New York, NY
Conducted a baseline noise and vibration study in the vicinity of planned Gowanus Canal remediation for the former MGP site, including long-term unattended and short-term noise and vibration measurements.

Former Citizens Gas Works MGP Site Pilot Test Program, New York, NY
Collected long-term baseline noise and vibration data. Conducted short-term attended noise and vibration measurements at during pile operations. Vibration measurements were conducted at nearby residences and at the MTA NYCT structure near the project site.

Gowanus Canal Remediation, New York, NY
Conducted baseline noise measurements and ongoing long-term noise and vibration monitoring in the vicinity of Gowanus Canal Superfund Site 4th Street turning basin dredging and capping pilot study.

Hudson Yards Tower C Foundations and Utilities, New York, NY
Conducted a baseline noise survey prior to construction work, including a combination of long-term unattended and short-term attended noise measurements.

Jewish Community Center of East Bay, Oakland, CA
Oversaw the preparation of a construction noise management plan, which included detailed predictions of noise levels from planned activities and mitigation recommendations. The project consisted of renovation of existing buildings and outdoor facilities.

MacArthur BART Garage and Residences TOD, Oakland, CA
Prepared monitoring reports for ongoing long-term vibration monitoring.

MSK 74th Street, New York, NY
Conducted baseline noise survey, assisted in developing construction noise control and mitigation plan, and implemented a long-term noise monitoring program at two locations. Provided weekly reports of monitoring data with on-going assessments of Contractor compliance with project noise limits and coordinated interior short-term measurements in nearby residential buildings.

NYMTA No. 7 Line Subway Extension, New York, NY
Performed long-term noise monitoring for the ventilation shaft construction site.

NYMTA No. 7 Line Subway Extension Site L Ventilation Facility Construction, New York, NY
The project involved the mining and lining of two shafts and the construction of a 2-story ventilation building at Site L near Dyer Avenue on West 41st Street. Assisted with long-term noise compliance monitoring and preparation of monthly noise monitoring reports.

NYMTA ESA/LIRR Grand Central Terminal Fit-Out, New York, NY
Prepared the Contractor's noise and vibration control plan updates for fit-out work conducted underground at the Grand Central Terminal Suburban Level. Performed field measurements of construction equipment noise and prepared noise emission certificates.

NYMTA Railcar Acceptance and Testing Facility, Brooklyn, NY
Prepared a construction noise control plan, which included predictions of noise levels from planned activities and mitigation recommendations. The project site was below grade and surrounded by residences and a school overlooking the work.

NYMTA Sandy Powers Repairs, New York, NY
Prepared a construction noise control, monitoring, and mitigation plan, which included detailed predictions of noise levels from planned activities and mitigation recommendations. The project included 18 sites and the plan contained site-specific calculations, monitoring locations, and noise control measures for each site.

PANYNJ Lincoln Tunnel Helix Structural Rehabilitation, NJ
Assisted in developing a construction noise control and mitigation plan and implementing a remote long-term noise monitoring program at three locations. Performed noise measurements of nighttime construction activities in the vicinity of sensitive receptors.

PANYNJ World Trade Center Vehicle Security Facility, New York, NY
Conducted baseline noise surveys, assisted in developing construction noise control plans, and implementing a remote long-term noise monitoring program at six locations around the perimeter of the site at noise sensitive receptors. Provided weekly reports of monitoring data with on-going assessments of Contractor compliance with project noise limits.

PANYNJ Midtown Bus Terminal Replacement Program – Dyer Deck-Overs, New York, NY
Prepared a construction noise control and mitigation plan, which included detailed predictions of noise levels from planned activities and mitigation recommendations. The site included eight work

areas, both at grade and on lower level and was surrounded by mid- and high-rise residential buildings overlooking the construction area.

PANYNJ Rehabilitation of Trans-Manhattan Expressway Overpasses, New York, NY
Developed construction noise monitoring criteria for the project based on background levels measured at each work area. The project consisted of the replacement of two bridge structures and the rehabilitation of four additional bridges. The anticipated work was surrounded by mid- and high-rise residential uses.

San Francisco Planning Department, Alameda Street Wet Weather Tunnel and Folsom Area Sewer Improvement, San Francisco, CA
Project Manager in charge of noise and vibration analysis for Folsom Area stormwater infrastructure improvements, as part of the San Francisco Public Utilities Commission's (SFPUC) flood resilience efforts under the Sewer System Improvement Program. Work included baseline noise survey, noise and vibration predictions, evaluation of applicable criteria and recommendations for noise and vibration control measures.

SLAC LCSS Construction Vibration Study, Menlo Park, CA
Generated a site-specific vibration propagation model and analyzed the potential for vibration impacts to ongoing scientific experiments during the construction of a new building on the SLAC campus. Testing included measuring transfer mobilities, determining the vibration response of particle beamline equipment, and vibration generated by construction equipment.

CEQA Peer Reviews, California
Peer review of noise and vibration analyses prepared per CEQA. These projects have primarily focused on the construction and operation of new facilities including residential in-fill, office and mixed-use projects, and educational buildings.

Chevron Oil Refinery, SNR Plant, El Segundo, CA
Development of three-dimensional acoustic model of project site for an environmental noise study to understand prevalence of noise created by the SNR plant located in the oil refinery, determination of regulatory compliance, development of noise criteria for tonal components observed in the adjacent communities and development of noise mitigation options for regulatory compliance and reduction of community annoyance.

Millennium Bulk Terminal, Longview, WA
Prepared noise analysis for the project's NEPA and SEPA environmental impact statements. Tasks included future rail traffic modeling using CadnaA and preparation of noise contours using GIS.

Peninsula Humane Society & SPCA Haskin Hill Sanctuary, Loma Mar, CA
Prepared an environmental study for a planned animal sanctuary in Loma Mar. Work included baseline noise measurements, predictions of expected noise from the completed project and a review of compliance with local regulations and CEQA.

ACTC I-680 Roadway Improvements and HOV Express Lanes, Contra Costa County, CA
Assisted with predictions for traffic noise study. The work included noise modelling and impact assessments consistent with FHWA and Caltrans procedures and methodology for multiple project alternatives.

ACTC I-880/Whipple Interchange, Hayward, CA
Project Manager for a traffic noise study. The work included noise modelling and impact assessments consistent with FHWA and Caltrans procedures and methodology for multiple project alternatives.

I-80/Ashby Avenue (SR-13) Interchange Improvements, Berkeley, CA
Project Manager for a traffic noise study. The work included noise modelling and impact assessments consistent with FHWA and Caltrans procedures and methodology for multiple project alternatives.

Junipero Serra Traffic Noise Study, South San Francisco, CA
Noise analysis of existing traffic noise and potential benefits of noise abatement measures such as sound walls and quieter pavement.

Riverstone Apartments, Seattle, WA
This street will serve the future Star Lake Station currently under construction for Sound Transit's Federal Way Link Extension. As part of the Federal Way project, improvements to the street include the addition of a turning lane and traffic light (currently in place) at the end of a roadway. The study provided an independent assessment of the potential for traffic noise impacts on the residents of Riverstone based on FTA project noise criterion.

50 Pine Street Condominiums, New York, NY
The project involved evaluating noise at residential dwelling units for NYC noise code compliance. Measured noise levels from mechanical equipment in an enclosed courtyard.

Uptown Newport, Newport Beach, CA
Evaluation of noise levels due to mechanical equipment at adjacent property. Assisted heavily with data analysis from long-term monitoring and data presentation for the legal team.

BART Berryessa Station Transit Noise Impact and Mitigation, San Jose, CA
Assisted with noise predictions and barrier design recommendations. Project is a 10.2-mile extension of a heavy rail transit system in the San Francisco Bay Area, and this is one of the stations along the new route.

California High-Speed Rail Fresno-Merced Corridor, Fresno-Merced, CA
Lead noise analyst for the project's environmental impact assessment. Tasks included characterizing the existing noise conditions and assessing noise impacts from transit operations and construction-related activities.

Caltrain Peninsula Corridor Electrification, San Francisco Peninsula, CA
Analyzed previous noise study. Assisted in developing current noise prediction model and GIS model for vibration. Helped prepare FEIR. This project included extensive ambient noise and vibration measurement surveys; the development of noise and vibration prediction models for HST operations; prediction of wayside noise and vibration levels for HST operations; evaluation of

environmental noise and vibration impacts using FRA procedures and criteria and determining the need for any type of noise mitigation.

LA Metro Purple (D) Line Subway Extension - Section 3, Los Angeles, CA
Responsible for developing detailed 3D computer models for two transit stations using EASE software.

Maryland Transit Administration (MTA) Purple Line LRT Final Design, Bethesda to New Carrollton, MD
Responsible for developing detailed 3D computer models for three transit stations using EASE software. Developed 3D models of TPSS sites to evaluate noise from mechanical equipment.

MBTA Green Line Extension Design/Build (GLX), Boston, MA
Lead analyst on noise predictions and barrier design. Work included planning field measurements, conducting data analysis, predicting noise impacts from project operations, and making barrier design recommendations.

Metrolinx Eglinton Crosstown LRT, Toronto, Ontario
Reviewed historic reports for relevant data, assisted with GIS model and preparation for noise and vibration measurements. The TTC is planning to construct the Eglinton Tunnel subway line and needed to address what mitigation could be necessary to reduce ground-borne noise and vibration impacts. The proposed study would determine the most likely range of ground-borne noise and vibration levels in residences and other sensitive buildings along the planned alignment.

Niagara Frontier Transportation Authority (NFTA) LRRT-LRV Midlife Rebuild, Buffalo, NY
Participated in vehicle noise qualification testing program for refurbished light rail transit vehicles.

RTD Eagle P3 Northwest Corridor Noise and Impacts, Denver, CO
Assisted with data analysis and helped prepare the final technical report. The project consists of 33 miles of EMU Commuter Rail connecting downtown Denver Union Station to the Denver International Airport. This project also includes a Commuter Rail Maintenance Facility with a capacity to store and service 100 EMU.

Santa Clara VTA, Vasona LRT Corridor Tire-Derived Aggregate (TDA) Underlayment Performance Testing, San Jose, CA
Project Manager in charge of planning a series of tests to document the performance of TDA ballast underlayment over time, as required by FTA. Previous tests were done in 2006, 2006, and 2009. Work will include documenting vibration isolation performance, rail strain, and rail deflection.

Sound Transit Northgate Link Vibration Attenuation Estimates, Seattle, WA
Provided general field support for all elements of testing. Tasks included moving equipment into/out of the tunnel, deploying sensors on campus, and attending to wireless antennas during testing. To derive the relationship between vibration measured in the Northgate link tunnel and building vibration at research facilities on the University of Washington campus, field tests were conducted using a shaker in the tunnel while simultaneously measuring the vibration response in UW buildings using a wireless data collection system.

TJPA San Francisco Downtown Rail Extension (The Portal), San Francisco, CA
Project Manager in charge of preliminary engineering noise and vibration analysis. The project consists of a 2.4-mile at-grade and tunnel alignment starting at the existing Caltrain terminal station and railyard and ending at the Salesforce Transit Center. Provided updated noise and vibration predictions for the project based on current design and abasement measure design recommendations based on new field testing and updated analysis. Provided an additional study and report of vibration impacts on a sensitive structure along the alignment and possible mitigation strategies.

Toronto Transit Commission (TTC) Scarborough Subway Extension, Toronto, ONT, Canada
Conducted force density level (FDL) measurements and analysis for the Toronto Rocket vehicles on TTC standard double ties on the Toronto-York Spadina Subway Extension. Predicted ground-borne noise and vibration levels at sensitive receptors along the Scarborough extension and prepared project memos.

VTA's BART Silicon Valley Extension Phase II (BSVII)* (*2020+)
Responsibilities included station acoustics and speech intelligibility design and evaluation of operational train noise and vibration. The largest single public infrastructure project ever constructed in Santa Clara County, this phase of VTA's BART to Silicon Valley project will extend BART service six miles from the Berryessa Transit Center into San Jose and ending in the City of Santa Clara.

WMATA On-Call Task: Green Line Noise and Vibration, Washington, DC
Conducted extensive field measurements inside homes and along tunnels to document ground-borne noise and vibration due to WMATA Green Line trains. Performed rail roughness measurements along sections of track within the study area. Analyzed recordings to determine train passby levels and plotted data to compare results for the different vehicle fleets and compare to applicable criteria.

Washington Metropolitan Area Transit Authority (WMATA) Vehicles Out-of-Round Wheel Study, DC
Assisted with modal analysis on nine wheelsets of WMATA vehicles.