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Bob Silvestri  
Community Venture Partners, Inc.  
73 Surrey Avenue  
Mill Valley, CA 94941

**Subject: Comments on the air quality analysis done for the *Sir Francis Drake Boulevard Rehabilitation Project Draft Environmental Impact Report***

Dear Mr. Silvestri:

Thank you for asking me to review the *Sir Francis Drake Boulevard Rehabilitation Project Draft Environmental Impact Report* (DEIR – October 2017) prepared and recently released for public comment by the Marin County Department of Public Works (DPW). As a consultant in environmental air quality and acoustics, I have more than 20 years of experience in the preparation and review of environmental technical reports for a wide variety of commercial, transportation, and urban development projects in California.

This letter responds to the DEIR's failure to adequately address all air quality issues of importance, specifically the following:

- The DEIR did nothing substantive (i.e., quantitative) to address the ambient air quality consequences of either the construction of the proposed roadway improvements or of the modified traffic flows after project construction is complete. It includes only summary conclusions about the project not having adverse impacts on ambient pollutant levels and toxic air contaminant (TAC) health risks (DEIR p. 125 – 127).
- There is no assurance that a program of roadway modifications merely following the specifications of Caltrans' *Highway Design Manual* will always be beneficial to local air quality. In contrast, the Bay Area Air Quality Management District (BAAQMD) *California Environmental Quality Act Air Quality Guidelines (CEQA Guidelines)* includes methodology and significance criteria for analyzing the ambient air quality impacts and

TAC health risks of stationary and mobile source projects. But the DEIR did not follow the *CEQA Guidelines* to address such air quality impacts.

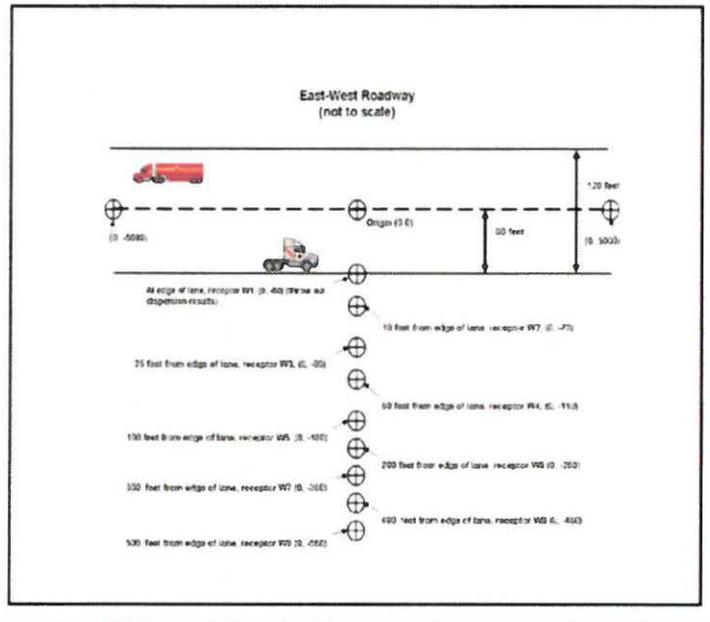
The DEIR's proposed "Basic Construction Mitigation Measures" (Mitigation Measure AIR-1, DEIR p. 124) are only effective at reducing fugitive dust from project construction, not PM2.5 from equipment diesel engine exhaust. The DEIR has quantified the construction PM2.5 but has not modeled their ambient impacts on the identified local sensitive receptors. The BAAQMD has recommended the dispersion model SCREEN3 (see *Recommended Methods for Screening and Modeling Local Risks and Hazards* – p. 45) for determining project construction PM2.5 increments and TAC health impacts at the identified local sensitive receptors that it identifies near project construction sites.

The BAAQMD's dispersion model of choice for roadway projects is CAL3QHCR, which can be set up to be sensitive to the effects of increased traffic volumes (i.e., more cars = more pollutant sources), increased traffic congestion (i.e., slower traffic emits more pollutants per vehicle mile and additional emissions come from increased idling near signalized intersections ) and changes to roadway configuration (e.g., narrowed travel lanes concentrate pollutants initially, so they disperse more slowly with potentially higher concentrations downwind). CAL3QHCR is specifically identified for ambient concentration and TAC risk analysis in *Recommended Methods for Screening and Modeling Local Risks and Hazards* (see excerpts below from it, p. 70 – 74)

*"The US EPA's CAL3QHCR model is an air dispersion model for predicting air quality impacts of pollutants near roadways. The CAL3QHCR is a refined version of the original California Line Source Dispersion Model (CALINE) that was developed as a modeling tool to predict roadside carbon monoxide (CO) concentrations. The CAL3QHCR model not only predicts CO concentrations, but also can be used to estimate ambient PM2.5 concentrations from idling or moving motor vehicles ...*

*"Figure 27 [from Risk Modeling Approach, copied below] illustrates the example scenario described in this section ... The District recommends using a receptor grid that encompasses the length of the roadway and has receptors spaced every 50 to 100 meters."*

Figure 27 Example Scenario East-West Roadway and Receptors Placements for CAL3QHCR



The *CEQA Guidelines* also recommend quantitative significance criteria for assessing ambient air quality and TAC impacts at the project-specific and cumulative levels. These criteria include health risk/hazard/concentration thresholds addressing ambient pollutant concentrations. The DEIR lists these ambient/risk thresholds, which are particularly important for roadway projects (see DEIR p. 121, its text quoted below), but does not use them with SCREEN3 to determine project construction impacts, nor with CAL3QHCR to determine project operational impacts.

*“For new sources of Toxic Air Contaminants (TACs), during either project construction or project operation, expose sensitive receptors to substantial levels of TACs under project conditions resulting in (a) an increase in cancer risk level greater than 10 in one million, (b) a non-cancer risk (chronic or acute) hazard index greater than 1.0, or (c) an increase of annual average PM2.5 of greater than 0.3 micrograms per cubic meter; or, under cumulative conditions, resulting in (a) a cancer risk level greater than 100 in a million, (b) a non-cancer risk (chronic or acute) hazard index greater than 10.0, or (c) annual average PM2.5 of greater than 0.8 micrograms per cubic meter<sup>33</sup>”*

*“<sup>33</sup> Pursuant to the BAAQMD CEQA Guidelines, when siting new TAC sources consider receptors located within 1,000 feet. For this threshold, sensitive receptors include residential uses, schools, parks, daycare centers, nursing homes, and medical centers. The cumulative analysis should consider the combined risk from all TAC sources.”*

A quantitative analysis is necessary considering the importance of Sir Francis Drake Boulevard to Marin’s transportation system and by the many people living along it, and other sensitive uses, that could suffer from possible increased pollutant exposures consequent to the project

design. The DEIR must use CAL3QHCR to look at the PM<sub>2.5</sub> levels at sensitive receptors in the roadway corridor by modeling the proposed roadway configuration changes potentially affecting average speeds, idling times at intersections and changes to traffic lane widths.

The DEIR does not include dimensioned plans of project-related lane width changes or other roadway configuration changes or traffic link levels of service or of idling times at intersections. There is no quantitative air quality modeling using actual data, only summary conclusions about the project not having adverse impacts on ambient pollutant levels (see text below from DEIR p. 125 – 127). The lack of information about lane widths and similar design data makes it impossible to perform dispersion modeling of air quality impacts; consequently, the DEIR's air quality conclusions are unsupported. Given the DEIR's failure to do proper quantitative analysis, as noted herein, there remains the distinct possibility that project impacts on ambient air quality and health risk will be significant and unmitigated.

*“(3) **Operational Emissions.** Long-term air emission impacts are associated with stationary sources and mobile sources. Stationary source emissions result from the consumption of natural gas and electricity. Mobile source emissions result from vehicle trips and result in air pollutant emissions affecting the entire air basin ... The proposed project includes roadway improvements that maintain and improve travel efficiency on Sir Francis Drake Boulevard; therefore, the proposed project would not result in an increase in vehicular trips through the project area. The project would not be a source of stationary source emissions. Therefore, operation of the project would not be expected to result in a violation of air quality standards.”*

*“Single-family residences are located adjacent to the existing pavement. Other sensitive receptors within the project area include multi-family housing and Bacich Elementary School, Kent Middle School, Marin Catholic High School, College of Marin, and Marin General Hospital ... implementation of the Basic Construction Mitigation Measures required in Mitigation Measure AIR-1 would reduce construction-related emissions to a less-than-significant level, ... Once the project is constructed, the project would not be a source of substantial toxic emissions. The proposed project would not increase vehicle trips and would therefore not result in additional emissions. Therefore, sensitive receptors are not expected to be exposed to substantial pollutant concentrations during project construction or operation.”*

The increase of vehicle trips on a roadway is not the only parameter affecting local pollutant levels near a roadway. Increased traffic flow congestion, increased idling at intersections, and increased initial pollutant concentrations in narrowed lanes can also lead to higher local pollutant concentrations. CAL3QHCR must be set up to reflect existing roadway conditions and the changes in configuration proposed by the project with model receptors placed at all the local sensitive receptors identified in the DEIR (see 2<sup>nd</sup> paragraph in the DEIR text quote above).

The DEIR air quality analysis as it stands now is inadequate to assure that local residents and

other sensitive receptors in the Sir Francis Drake Boulevard corridor would not be exposed to unacceptable ambient pollutant levels and TAC health risks if the proposed project roadway reconfiguration is implemented. The DEIR must conduct dispersion modeling studies of project construction and operational ambient impacts and TAC health risks, then evaluate the need for exposure mitigations based on the findings. Such analysis in comparison with accompanying CEQA significance criteria is recommended by the BAAQMD *CEQA Guidelines* and mitigation of any identified project ambient air quality impacts is mandated by the *Marin Countywide Plan* (see Plan text below as quoted in the DEIR p. 119)

- ***“Policy AIR-2.1: Buffer Emission Sources and Sensitive Land Uses.*** *Consider potential air pollution and odor impacts from land uses that may emit pollution and/or odors when locating (a) air pollution sources, and (b) residential and other pollution-sensitive land uses in the vicinity of air pollution sources (which may include freeways, manufacturing, extraction, hazardous materials storage, landfill, food processing, wastewater treatment, and other similar uses).”*
- ***“Implementing Program AIR-2.b: Protect Sensitive Receptors Near High-Volume Roadways.*** *Amend the Development Code to require mitigation measures such as increased indoor air filtration to ensure the protection of sensitive receptors (facilities where individuals are highly susceptible to the adverse effects of air pollutants, such as housing, child care centers, retirement homes, schools, and hospitals) near freeways, arterials, and other major transportation corridors.”*

Sincerely,



Geoffrey Hornek