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Ken Alex
Director, Governor's Office of Planning and Research
c/o Christopher Calfee
1400 Tenth Street
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RE: Comments on SB 226 CEQA Guidelines

Dear Mr. Alex:

As a physician, public health professional, and California resident who has worked to improve the California Environmental Quality Act (CEQA) process for over a decade, I would like provide the following comments on the proposed guidelines for implementing Senate Bill 226. My comments focus on the adequacy of the proposed standards for infill projects for the protection of public health.

SB 226 proposes a sensible and rational trade-off—to limit the application of CEQA's procedural requirements where established mitigations, regulations and standards assure that a project achieves CEQA's substantive policy ends—including greenhouse gas emissions reductions, energy and water conservation, and the protection of human health. The success of this trade-off will depend of the quality of these infill standards and whether they serve as a reliable, robust, and comprehensive proxy for the achievement of environmental policy and public health goals.

Overall, I believe that the draft CEQA guidelines under Section 15183.3 provide a clear procedural structure for implementing SB 226; however, the proposed standards for infill projects in Appendix M, which these guidelines reference, have several important gaps and weaknesses that should be addressed, as follows:

1) The standards, as proposed, are insufficient to protect public health from air pollution, noise, and traffic hazards in infill areas.
2) Infill standards need to avoid the demolition and loss of affordable housing.
3) Standards must recognize that while limiting VMT is beneficial regionally, increased vehicle traffic density in infill areas can still lead to significant environmental degradation.
4) Infill standards for residential uses need to include standards for infrastructure necessary for "complete", walkable neighborhoods.
5) Infill standards should be sufficiently specified to be objectively and consistently evaluated.

I elaborate on these issues in the subsequent sections of this letter.

1) Adequate analysis and mitigation of significant public health impacts is an existing mandate of CEQA

While its role as a tool for public health is not widely recognized, CEQA provides one of the State's most enduring and important laws to protect and promote human health and welfare.[1] CEQA clearly articulates that the well-being of people is an environmental policy goal (California Public Resources Code. § 21000). State regulations for CEQA require an Environmental Impact Report (EIR) be prepared whenever environmental effects of a project have the potential to cause substantial adverse effects on human beings, either directly or indirectly (CCR §15065). Regulations further require that, when prepared, an EIR discuss "health and safety problems caused by the physical changes" (CCR §15126.2). Historically, guidance for the practice of CEQA has not specified the types of public health effects requiring analysis nor related analytic methods or standards of significance; however, courts have repeatedly affirmed CEQA's mandate to analyze potentially significant adverse health effects.[2]

SB 226 similarly requires that the infill standards for CEQA streamlining attend to the "protection of public health, including the health of vulnerable populations from air or water pollution, or soil contamination." Importantly, SB 226 does not limit the scope of public health protection considered in the standards. Beyond contaminated air, water, and soil, environmental factors relevant for public health and safety include noise, parks and natural areas, transportation systems, housing, and public infrastructure such as schools, hospitals, and community facilities.

Infill standards must be sufficient to address the breadth of potentially significant adverse human health impacts that may result from the development of infill projects in California. The narrative accompanying the draft guidelines includes a very limited discussion of the potential health benefits and harms of infill development. The regional air pollution and local active transportation benefits of infill development are substantial and recognized in the guidelines and standards; however, infill development can often increase the population exposed to and the intensity of exposure to air pollutants, noise exposure, and pedestrian and bicycle collision hazards. Analysis of health impacts at the regional scale, such as the Woodcock et al. analysis cited by OPR, obscures differences in intra-regional effects and related environmental justice impacts. Planners and public health professionals alike increasingly recognize that these aggregate regional environmental health benefits can mask localized increases in environmental health hazards. Furthermore, without the implementation of substantial countermeasures, mode shifts to greater active transport use will increase pedestrian and bicyclist injuries.[3] These environmental health hazards are not reasons by themselves to prohibit infill development from

[1] Bhatia R, Wernham A. Integrating Human Health into Environmental Impact Assessment: An Unrealized Opportunity for Environmental Health and Justice. Environmental Health Perspectives. 2008; 116: 991–1000.

[2] See for example: Berkeley Keep Jets Over the Bay Committee vs. Board of Port Commissioners of the City of Oakland, 91 Cal. App. 4th 1344, 1359 (2001). *Bakersfield Citizens for Local Control v. City of Bakersfield* , 124 Cal. App. 4th 1184 (2004). Californians for Alternatives to Toxics v. Department of Food and Agriculture, 136 Cal. App. 4th 1, 10 (2005).

[3] Elvik R. The non-linearity of risk and the promotion of environmentally sustainable transport. Accid Anal Prev. 2009; 41: 849-855. Bhatia R, Wier M. 2011. "Safety In Numbers" Re-examined: Can we make valid or practical inferences from available evidence? Accident Analysis & Prevention 43(1): 235-240.

any area; however, these environmental health threats require acknowledgement in the infill standards and effective management through local policies and regulations.

1A) Standards to protect new residential development from air pollution hot spots should be based on a cumulative assessment of hazardous pollutant concentrations

The proposed infill standards recognize the strong evidence-based relationship between vehicle air pollution emissions and health impacts. Vehicle emissions including particulate matter, carbon monoxide, nitrogen dioxide, and ozone have well-established causal relationships with human health and are subject to nationwide ambient air quality standards, monitoring and control requirements under the Federal Clean Air Act.[4] A Health Effects Institute (HEI) Report in 2008 concluded that "evidence was now sufficient to infer a causal relationship between exposure to traffic-related air pollution and exacerbation of asthma and suggestive to infer a causal relationship with onset of childhood asthma, non-asthma respiratory symptoms, impaired lung function, and total and cardiovascular mortality."[5]

The implementation of air pollution regulations under the Clean Air Act does not assure that air pollution standards are achieved equitably in all areas. Ambient concentrations of PM 2.5 and NO2 vary greatly in California among and within regions, with levels exceeding the current national standard in sub-areas of major population centers. These gaps in regulatory protection are related, in part, to the failure of the current ambient air quality monitoring network to adequately assess intra-regional variation in pollutant levels.[6] For example, PM 2.5 concentrations are known to be much higher near busy highways, rail yards, and ports than at regional monitors but inadequate intra-regional monitoring means that these higher levels are often not considered by regulators.

An infill criterion based on roadway volume and proximity alone, as currently proposed in Appendix M, would not be protective for air pollution risks due to hotspots of air pollution. Proximity to roadways is a rough and imprecise proxy for health-relevant air pollution exposure. The impact of roadways depends on not only vehicle volume and proximity, but also wind direction, meteorology, pollutant type, and, most importantly, background pollutant levels. In many areas, air pollution concentrations are lower than Federal and State criteria air pollutant standards even within 500 feet of busy freeways. In other areas, particularly those with higher background concentrations, air pollution concentrations from roadways contribute to non-conformance of state and Federal standards well outside a 500 foot boundary.[7] Infill projects may also be impacted by regulated non-roadway air pollution sources, such as ports, rail yards, and distribution centers.

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[4] USEPA (U.S. Environmental Protection Agency). 2011. Clean Air Act. U.S. Environmental Protection Agency: Washington, DC. Available at: www.epa.gov/air/caa/.

[5] HEI (Health Effects Institute). 2009. Traffic-Related Air Pollution: A Critical Review of the Literature on Emissions, Exposure, and Health Effects. Special Report #17. Available at: pubs.healtheffects.org/view.php?id=306.

[6] Stuart AL, Mudhasakul S, Sriwatanapongse W. The social distribution of neighborhood-scale air pollution and monitoring protection. J Air Waste Manag Assoc 2009; 59:591-602.

[7] Wu J Houston D, Lurmann F, Ong P, Winer A. Exposure of PM2.5 and EC from diesel and gasoline vehicles in communities near the Ports of Los Angeles and Long Beach, California. Atmospheric Environment 2009; 43: 1962–1971.

Public health impacts depend on cumulative exposure to air pollutants and not exposure attributable to a single source. Existing state and federal standards for air pollutants, including standards for NO2 and PM2.5, provide scientifically defensible and robust criteria for infill standards for residential projects. Technology to assess intra-regional exposure variation and project level pollutant concentrations now exists with computational modeling approaches such as dispersion modeling and land use regression.[13] These tools can be used to create maps of cumulative air pollution concentrations within regions (see map in Attachment I). This approach is being employed in the San Francisco Community Risk Reduction Plan to evaluate whether infill residential development needs additional ventilation system protections.

Additionally, available, state, regional, and local policy and regulatory strategies exist to mitigate the impacts of air pollution hotspots. For example, in San Francisco, the Health Code now requires that sponsors assess air quality for new residential uses near freeways and other busy roadways, and, where needed, design the building or ventilation systems to protect indoor air quality. Other innovative technological strategies, such as reducing highway speeds and smoothing traffic flow at the regional level, could substantially reduce near-roadway concentrations of particulate matter and nitrogen dioxides.[8]

1B) Infill standards should include noise protections for residential, school, and other noise sensitive uses

Urban noise can result in health consequences equal in import to air pollution. Sufficient scientific evidence documents that chronic exposure to moderate levels of noise below levels required for mechanical damage to hearing can result in other health and physiological impacts including cognitive impairment, decreased school performance, sleep disturbance, and hypertension and ischemic heart disease.[9] Numerous well designed studies also show that children exposed to chronic transportation noise have deficits in school performance and educational outcomes.[10]

Infill projects are commonly located in close proximity to noise sources, such as commercial and industrial uses, high volume arterial streets, and transit corridors.[11] Health-protective performance standards for noise protection would be an important complement to the infill standards. Fortunately, authoritative sources for such standards already exist. The California Noise Insulation Standards (California Code of Regulations, Title 24 Section 1207 et seq.) establishes a health protective interior noise standard of 45 dBA Ldn. This standard is

[8] Keuken MP, Jonkers S, Wilmink IR, Wesseling J. Reduced NOx and PM10 emissions on urban motorways in The Netherlands by 80 km/h speed management. Sci Total Environ 2010; 408:2517-26.

[9] Passchier-Vermeer W, Passchier WF. 2000. Noise exposure and public health. Environmental Health Perspectives 108: 123-131. Babisch W. (2008) Road traffic noise and cardiovascular risk. Noise & Health. 10:27-33.

[10] Shield BM, Dockrell JE. 2003. The effects of noise on children at school: a review. Journal of Building Acoustics 10: 97-106. Stansfeld SA, Matheson MP. (2003) Noise Pollution: non-auditory effects on health. British Medical Bulletin. 68:243-257.

[11] Seto EY, Holt A, Rivard T, Bhatia R. (2007) Spatial distribution of traffic induced noise exposures in a US city: an analytic tool for assessing the health impacts of urban planning decisions. International Journal of Health Geography. 6:24.

equivalent to the EPA recommended levels for health and welfare protection in residential interiors. Standard acoustical treatments exist to achieve these standards. Under California law, residential structures located where the Ldn or CNEL exceeds 60 dbA require an acoustical analysis showing that the proposed design will limit exterior noise to the prescribed allowable interior noise level.

Infill standards are also required to protect new residential, school, and institutional uses from excessive ambient levels of noise. Many jurisdictions specify ambient noise levels that are acceptable for residential and other sensitive use development in their General Plans. However, these standards are inconsistently applied and enforced in practice. Infill performance standards should explicitly reference and apply these existing local noise compatibility standards.

1C) Infill standards should include protections from pedestrian injury hazards

In 2010, California's traffic fatalities decreased 11.9 percent from 3,081 in 2009 to 2,715; however, pedestrian fatalities increased 15.4 percent from 567 to 599 over the same time period. Nationwide, pedestrians, who are more likely to be lower-income transit-dependent households, experience a disproportionate share of traffic injuries and fatalities.[12] Environmental factors that are causally associated with pedestrian-vehicle collision frequencies include traffic volumes, vehicle speed, roadway width, intersection design and geometry, and transit stops.[13] Infill projects are often developed in a location of a city with the highest levels of these environmental risk factors. Furthermore, by their nature, infill projects aim to increase residential density and therefore pedestrian exposure to these hazards.

To protect public health for residents of infill projects it is important that infill standards include adequate protective criteria for pedestrian collision hazards. For example, performance standards could require implementation of pedestrian safety mitigations in areas where the

[12] NHTSA (National Highway Safety Administration). 2010. Traffic Safety Facts. US DOT – Washington, DC: NHTSA. Available at: www-nrd.nhtsa.dot.gov/Pubs/811394.pdf.

[13] Ewing R. 2006. Fatal and non-fatal injuries. In: understanding the relationship between public health and the built environment: A report prepared for the LEED-ND Core Committee. Available at: www.activeliving.org/files/LEED_ND_report.pdf. Lee C, Abdel-Aty M. Comprehensive analysis of vehicle-pedestrian crashes at intersections in Florida. Accident Analysis and Prevention. 2005; 37:775-786. Loukaitou-Sideris A, Ligget R, Sung HG. Death on the crosswalk: a study of pedestrian-automobile collisions in Los Angeles. Journal of Planning Education and Research. 2007; 26:338-351. Wier M, Weintraub J, Seto E, Humphreys E, Bhatia R. An area-level model of vehicle-pedestrian injury collisions with implications for land use and transportation planning. Accid Anal Prev. 2009; 41:137–145. Sebert-Kuhlmann AK, Brett J, Thomas D, Sain SR. Environmental characteristics associated with pedestrian-motor vehicle collisions in Denver, Colorado. Am J Public Health. 2009;9 9:1632-7. Leaf WA, Preusser DF. Literature Review on Vehicle Travel Speeds and Pedestrian Injuries. Washington DC: National Highway Traffic Safety Administration; 1999. M C Taylor, D A Lynam and A Baruya. The effects of drivers' speed on the frequency of road accidents. Crowthorne, UK: Transport Research Laboratory, 2000. Cameron MH, Elvik R. Nilsson's Power Model connecting speed and road trauma: applicability by road type and alternative models for urban roads. Accid Anal Prev. 2010;42:1908-15. NHTSA (National Highway Traffic Safety Administration). 1999. Literature Review on Vehicle Travel Speeds and Pedestrian Injuries. Washington, DC: DOT HS 809 021. Available at: http://www.nhtsa.gov/people/injury/research/pub/hs809012.html.

frequency of vehicle-pedestrian collisions exceed or are expected to exceed public health objectives. Healthy People 2020, the nation's public health goals, set a target of 20.3 pedestrian injuries per 100,000 population. Criteria could also be based on the density of injuries per street mile. Required mitigations could include a number of the proven pedestrian safety countermeasures based on Federal Highway Administration and other authoritative research.[14]

2) <u>Infill standards need to be protective of affordable housing</u>

Infill projects occasionally require the demolition of existing structures, including existing housing. Infill projects are often proposed in lower-income areas and may not always replace housing demolished in the course of development at the same level of affordability, resulting in involuntary displacement. Infill standards need to be protective of affordable housing by ensuring that housing demolished in the course of development be replaced at least on a 1:1 basis at the same level of affordability. Replacement housing also needs to be accessible to existing residents to avoid involuntary displacement.

3) <u>Infill projects may result in significant increases in local area traffic volume and associated environmental degradation</u>

The primary criterion for residential projects is projected reduction of project-generated VMT per capita relative to existing regional VMT per capita. This criterion is protective against harmful consequences of the growth of vehicle use on regional energy use and air pollutant levels. However, infill projects can still contribute substantial new vehicle traffic to a local area, increasing the concentration or density of vehicle flows on streets, arterials, and highways. Traffic density is a good proxy for several adverse environmental health exposures associated with vehicle use. The intensity of vehicle air pollution emissions, traffic noise, and safety hazards to non-motorized users are all generally proportional to the density and proximity of vehicles in an area. Local roadway vehicle density is typically unregulated and increases in local traffic volumes could thus lead to degradation of existing environmental conditions in infill areas. As discussed above, infill projects may occur in areas where existing traffic-related environmental hazards are already significant. Infill standards must recognize and attend to the local impacts of increases in VMT. For example, an additional infill standard for residential projects could limit qualified projects to those where VMT density is less than specific criterion (e.g. the 90th percentile of VMT density in the region). This would prevent the further spatial concentration of adverse public health impacts associated with VMT density.

4) <u>Infill Standards should include minimum standards for infrastructure, such as neighborhood parks and schools</u>

Public health depends not only on the absence of environmental hazards but additionally on the sufficiency of resources for health. Accessible neighborhood infrastructure of sufficient quality is necessary for walkable neighborhoods and the transportation goals of SB 226. Proximity of parks, recreational facilities and natural areas contribute to physical activity and better self-

[14] Federal Highway Administration. 2012. Proven Safety Countermeasures. Available at: http://safety.fhwa.dot.gov/provencountermeasures/.

rated health.[15,16,17] Proximity to schools results in more children walking and/or bicycling to school.[18] Over the past decade, many infill residential projects have been proposed or developed in locations without essential public infrastructure for complete neighborhoods. Additional infill standards need to ensure a minimum level of necessary infrastructure. For example, a standard could require sufficient school capacity for new infill project residents in neighborhood schools or, alternatively, plan to provide the increase in school demand. Similar standards should exist for parks and other essential neighborhood infrastructure.

5) Poorly specified infill standards could lead to inconsistent and subjective interpretation

A number of standards appear to be weakly specified which could lead to inconsistent interpretation and application. While the standards should not be overly proscriptive, there are opportunities to strengthen the standards in several cases. Below are examples:

- Standards for renewable energy could be replaced by quantitative performance objectives, for example, the amount of renewable energy generation as a percent of total energy use.
- Standards for active transportation could provide specificity with regards to expected or qualifying design features.
- Standards for transit stop proximity could also specify minimum transit service frequency.

The checklist in Appendix N should include explicit questions on issues of public health importance

Environmental factors relevant for public health and safety include the quality of air, soil, and water, the level of environmental noise, food resources, parks and public spaces, natural areas, natural resources, transportation systems, housing, and public infrastructure such as schools, hospitals, and community facilities. The practice of environmental assessment under CEQA has historically not attended to the public health consequences of changes in these environmental factors. In part, this gap may be a result of the invisibility of public health criteria in the current CEQA checklist—Appendix G of the State's CEQA guidelines. Appendix N, the infill environmental checklist form, should attend to this deficiency by explicitly listing several of the most common public health consequences associated with physical environmental change. Additions to the checklist in Appendix N consistent with SB 226 are suggested below.

- ☑ *Would the project's physical changes result in public health and safety problems, directly or indirectly? (CCR §15126.2)*
  - ☑ *Could the project create or exacerbate a known environmental health hazard?*

[15] Kahn EB. The effectiveness of interventions to increase physical activity. American Journal of Preventative Medicine. 2002;22:87-88.
[16] Bauman A, Bull F. Environmental Correlates of Physical Activity and Walking in Adults and Children: A Review of Reviews. London: National Institute of Health and Clinical Excellence; 2007.
[17] Vries S, de Verheij RA, Groenewegen PP, Spreeuwenberg P. Natural environments - healthy environments? An exploratory analysis of the relationship between green space and health. Environment and Planning. 2003;35:1717-1731.
[18] Dellinger A, Staybtib C. Barriers to Children Walking and Bicycling to School. Morbidity and Mortality Weekly Report. 2002;51:701-704.

- ☑ *Would the project increase population exposure to a known environmental health hazard?*
- ☑ *Would the project create or contribute to "hotspots" of air pollutants above existing State or Federal Air Quality Standards OR would the project locate a new sensitive use in a location above existing State of Federal Air Quality Standards?*
- ☑ *Would the project provide sufficient accessibility to public facilities or resources, such as parks and public and natural spaces that provide resources for physical activity, leisure, socialization, and recuperation?*
- ☑ *Would the project result in a net loss of affordable housing?*
- ☑ *Could the project affect disparities in exposure to environmental hazards?*

Thank you for the opportunity to provide these comments on the proposed SB 226 guidelines. I hope these suggestions will serve to better leverage growth and development in California for public health benefits. I would strongly suggest that OPR continue to engage with the public health community in the development of these infill standards.

Sincerely,

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CC:

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Attachment I
Variation in $PM_{2.5}$ levels in San Francisco, California