

TECHNICAL ADVISORY

Strategies to Reduce Air Pollution Exposure near High-Volume Roadways

Infill development (the opposite of urban sprawl) provides many environmental and public health benefits. It promotes physical activity, which improves public health, and can reduce the length and number of driving trips that Californians must take to get where they need to go. This reduces health-damaging air pollution and greenhouse gases that cause climate change.

Many infill neighborhoods already exist in California, and more neighborhoods are likely to grow in this way because of local, regional, and statewide efforts to protect the environment and public health. However, Californians living and working in these neighborhoods may also spend more time near high-volume roadways where exposure to traffic pollution, air toxics, and noise can contribute to health problems like the worsening of asthma and other respiratory problems, cardiovascular disease and even premature death. The California Air Resources Board (CARB) has developed a Technical Advisory that identifies effective strategies that planners and other land use decision-makers can implement locally and in the near-term to reduce exposure to near-roadway pollution as we pursue infill development while also protecting public health. These strategies complement the state's many efforts to reduce air pollution from all sources, including cars and trucks.

Technical Advisory key findings:

The scientific literature supports seven effective strategies, divided into three categories:

	Strategies that reduce traffic emissions	<ol style="list-style-type: none"> 1. Speed reduction mechanisms including roundabouts 2. Traffic signal management 3. Speed limit reductions on high-speed roadways (>55 mph)
	Strategies that reduce the concentration of traffic pollution	<ol style="list-style-type: none"> 4. Urban design that promotes air flow and reduces the concentration of pollution along street corridors 5. Solid barriers such as sound walls 6. Vegetation that reduces the concentration of pollution
	Strategies that remove pollution from indoor air	<ol style="list-style-type: none"> 7. Indoor high efficiency filtration that removes pollution from the air

Background and motivation for the Technical Advisory:

- Near-roadway pollution has well-documented health impacts.
- In 2005, the CARB wrote the "Land Use Handbook" with recommendations for siting and building new developments to be protective of public health, including siting schools, day care centers, playgrounds, and housing 500 feet or more from freeways, urban roads with 100,000 vehicles/day, or rural roads with 50,000 vehicles/day.
- Since 2005, research has shown that infill development leads to public health, climate, financial, and other benefits.
- Also, California has many policies and plans to reduce car and truck pollution statewide which are already improving air quality, but will take time before the benefits are achieved.
- New research shows that there are strategies that can be applied locally and in the near-term to reduce air pollution exposure and its health effects while we await the full benefits of statewide programs to reduce air pollution from cars and trucks.

How should the Technical Advisory be used?

- The intended audience includes public health, air quality, and planning professionals and policy makers, among other key stakeholders.
- Users can reference the Technical Advisory when developing local policies aimed at reducing exposure to traffic emissions and when weighing multiple options to reduce emissions and/or exposure at a specific site.
- CARB hopes that the Technical Advisory will increase awareness of the need for strategies that will protect public health while we also make strides to reduce the need for driving which has environmental and public health benefits, including reducing regional air pollution.

For more information:

Visit CARB's webpage on community health and land use at: arb.ca.gov/ch/landuse.htm

And CARB's webpage on public health and the built environment at: arb.ca.gov/research/vprp/vprp.htm

What research is CARB doing in this area?

CARB is currently involved in many projects related to the interactions among air pollution, sustainable community design, and health. For a list of completed and ongoing sustainable communities research projects, visit: arb.ca.gov/research/sustainable/sustainable.htm.

To search for related research projects, visit: arb.ca.gov/research/research.htm.

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