

# Encouraging Everyday Movement Through Planning and Mobility Design Will Improve Physical and Emotional Well-Being

By Alberto Ayala

What if I told you that we can make some of our biggest improvements for health and air quality by cutting carbon and other greenhouse gas emissions? As we've burned fossil fuels to facilitate economic growth, technology, and our current way of life, we became a car-centric culture and lost some health benefits of regular walking and physical activity in daily living, which has led to the spread of obesity and diseases such as diabetes, heart disease and cancer. With hotter, colder, wetter, drier and ever-stormier conditions heading our way, a population already struggling with chronic diseases will face additional challenges of asthma, heat stress, heart attacks and the stress and trauma of catastrophic events. This takes a toll on our residents – especially our low-income and environmental justice communities – our economic resilience and prosperity, and on our healthcare system. In fact, climate change is the world's greatest challenge and threatens every aspect of modern life including our physical and emotional well-being and our healthcare systems. However, changes in the built environment and transportation systems offer hope and efficient ways to improve health as we reduce carbon emissions.

As part of the Mayors' Commission on Climate Change, a technical advisory committee was convened to articulate how the built environment – the streets, houses, buildings, trees and plants all around us – can help achieve carbon neutrality for Sacramento and West Sacramento by 2045. Many of the committee's recommendations to achieve carbon neutrality could also greatly improve public health for our communities. Here are three general principles, and several proposed strategies, that I'd like to highlight for their health and climate change benefits.

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The central idea is simple: Focus inside current city limits for development and redevelopment. First, increase investments in existing communities by enforcing an urban growth strategy boundary, modifying single-family zoning to allow more residential density and increasing taxes and fees on vacant parcels inside city limits, so that property owners will be discouraged from allowing land with a potential for infill development remain unused.

These strategies would encourage more housing and development in existing communities and enable more people to live closer to daily destinations, making it practical to walk and bike instead of drive. Replacing driving with physical movement would lead to many improvements in chronic health issues and mental well-being.

The committee also recommended constructing 75,000 new housing units, especially lower-cost housing, within a half mile of light rail stations. New housing near transit would not only encourage people to walk to transit to get to where they need to go, but it would also provide linkages to jobs, food and health services for the one-third of adults who do not drive.

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Second, electrify the transportation system by accelerating the placement of electric vehicle charging and fueling infrastructure. More charging stations for battery electric vehicles (EV) are needed in new commercial and multifamily buildings. In addition, the region needs more hydrogen fueling stations to support a growing number of fuel cell electric vehicles. Unlike traditional cars, electric cars produce zero tailpipe emissions and would greatly reduce ozone and particulate matter pollution that make breathing difficult, cause long-term respiratory illnesses and trigger early deaths in the Sacramento region. EVs even help mitigate the urban heat island effect of our changing climate, as they don't release waste heat as internal combustion engines do. Electric vehicles are a cornerstone of California's climate strategy. With programs like [Our Community Car Share](#) – the nation's first all-electric car-share program free for low-income communities – and [the Green City Initiative](#), our region is already leading the way in pioneering new strategies.

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Lastly, planting trees and vegetation improves public health, increases community resilience and reduces carbon. Moreover, planting trees and vegetation is a strategy that will only grow in effectiveness and value over time. The Built Environment Committee specifically recommended planting trees in disadvantaged communities, placing thick vegetative barriers along freeway edges and restoring natural areas.

A healthy urban forest reduces ozone formation and captures particulate matter, especially the smaller particles which pose a greater threat. People who live under a tree canopy report better overall health. Trees reduce ambient air temperature, provide shade for pedestrians and cyclists, beautify neighborhoods and add property value. Trees and shrubs, when planted along freeways and other busy roads, protect people from toxic air contaminants generated by traffic. By restoring natural areas with native trees and shrubs, we would not only enhance carbon sequestration, but also increase parkland for exercise and mental health, support native species, recharge groundwater and build flood resilience.

This is an exciting set of draft recommendations. When these and all the other recommendations of the Built Environment Committee are up for consideration by the Climate Commissioners, the strategies with health co-benefits should be given priority. Not only will they deliver the most for our money, but we'll get the health and resiliency benefits *before* the benefits of the GHG emissions reductions.

As a growing body of [research](#) shows, [sustained physical activity](#) is a critical factor to the health and longevity of communities in the world's "blue zones" – places like Sardinia, Okinawa, and Costa Rica where people reach centenarian ages without major illnesses. Through urban planning and mobility designs that encourage everyday movement, we have an opportunity to embed exercise as part of everyday life – making it simpler and more accessible than a trip to the gym – while reducing carbon emissions and building healthy, resilient communities.



Alberto Ayala is the Air Pollution Control Officer and Executive Director of the Sacramento Metropolitan Air Quality Management District. Governed by a 14-member Board of Directors, the Sac Metro Air District provides regional leadership for protecting public health and the environment from the adverse effects of air and carbon pollution and implements economically sensible policies for achieving the state's air quality and climate goals. Alberto came to the Air District from the California Air Resources Board, where he served most recently as Deputy Executive Officer. Prior to CARB, Alberto was a member of the engineering faculty at West Virginia University, where he still holds an Adjunct Professor appointment, and a Design Engineer for Teledyne Ryan Aeronautical. He has published extensively in scientific journals, is a nationally and internationally recognized speaker, and occasionally lectures in English or Spanish as a Visiting Professor in the U.S. and abroad. Alberto holds B.S., M.S.E., and Ph.D. degrees in mechanical engineering from the University of California, Davis. His internships were with GE's Corporate Research Center in New York, the California Energy Commission, and the Atmospheric Boundary Layer Wind Tunnel Laboratory at UC Davis.

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