



## Health cobenefits and transportation-related reductions in greenhouse gas emissions in the San Francisco Bay area

**Author(s):** Maizlish N, Woodcock J, Co S, Ostro B, Fanai A, Fairley D  
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### Abstract:

**OBJECTIVES:** We quantified health benefits of transportation strategies to reduce greenhouse gas emissions (GHGE). **METHODS:** Statistics on travel patterns and injuries, physical activity, fine particulate matter, and GHGE in the San Francisco Bay Area, California, were input to a model that calculated the health impacts of walking and bicycling short distances usually traveled by car or driving low-emission automobiles. We measured the change in disease burden in disability-adjusted life years (DALYs) based on dose-response relationships and the distributions of physical activity, particulate matter, and traffic injuries. **RESULTS:** Increasing median daily walking and bicycling from 4 to 22 minutes reduced the burden of cardiovascular disease and diabetes by 14% (32,466 DALYs), increased the traffic injury burden by 39% (5907 DALYS), and decreased GHGE by 14%. Low-carbon driving reduced GHGE by 33.5% and cardiorespiratory disease burden by less than 1%. **CONCLUSIONS:** Increased physical activity associated with active transport could generate a large net improvement in population health. Measures would be needed to minimize pedestrian and bicyclist injuries. Together, active transport and low-carbon driving could achieve GHGE reductions sufficient for California to meet legislative mandates.

### Resource Description

**Cross-cutting Themes:** Mitigation

**Exposure :** Air Pollution

**Air Pollution:** Particulate Matter

**Geographic Feature:** Ocean/Coastal

**Geographic Location:** United States

**Health Impact:** Cardiovascular Impact, Injury, Morbidity/Mortality, Respiratory Impact

**Cardiovascular Impact:** Other Cardiovascular Impact, Specify

**Respiratory Impact:** Other Respiratory Impact, Specify

**Respiratory Condition (other) :** non-malignant respiratory disease, not specified

**Model/Methodology:** Exposure Change Prediction, Outcome Change Prediction

# Climate Change and Human Health Literature Portal

**Resource Type:** Research Article

**Adaptation:** Secondary Health Impacts of Adaptation

**Mitigation:** Secondary Health Impacts of Mitigation

**Climate Change and Socioeconomic Scenarios:** Other Climate Change Scenario, Specify

**Timescale:** Long-Term (>10 years)