

Active Travel Co-Benefits of Travel Demand Management Policies that Reduce Greenhouse Gas Emissions

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Health guidelines suggest that children and adolescents should exercise one hour a day and adults about 20 minutes a day.

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There is increasing evidence that improved health outcomes may be a significant co-benefit of land use plans and transport policies that increase active transport (or “active travel”)—walking, biking or other physical activity for the purpose of transportation—as they reduce greenhouse gas emissions (GHGs). A greater understanding of these benefits may broaden the constituency for regional planning that supports local and national GHG reduction goals.

Study Methods

In this study, the California’s Activity-based Travel Demand Model (ABM) is applied to (1) demonstrate how this new generation of travel models can be used to produce the active travel data (age and gender distributions) required by comparative risk assessment models to estimate health outcomes for regional land use and transport plans and (2) identify the potential magnitude of change in the use of active transport from land use, transit, and distance-based vehicle pricing policies for California and its five major regions for a 2035 time horizon.



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Findings

The results of this study suggest that if expected trends are realized in the future, then, under the policies currently in place, individuals will spend, on average, only about four to six minutes a day walking and less than a minute a day biking for purposeful travel. If a distance-based vehicle pricing policy is implemented, this active travel time may be increased by 10% for walking and 17% for biking. Concurrently, GHG from vehicle miles traveled (VMT) may be reduced by approximately 16%. Increases in transit service and transit-supportive development patterns may increase active

travel by as much as 2% to 3% for both walk and bike modes while also reducing VMT by 4%, on average. The combination of all three policies achieves the biggest impact. Specifically, time spent walking increases by approximately 13% and biking by 19%, with an overall decrease in VMT of 19%.

Policy Recommendations

Major California metropolitan planning organizations (MPOs) are beginning to adopt the methods developed by this study to create health performance measures that may be included in regional transportation plans. Future applications of ABMs will no doubt improve the representation of spatial, travel time, and travel cost variables and thus improve the accuracy and precision of health- and active transport-related performance measures.

About the Authors

Dr. Caroline Rodier is a Research Associate at Mineta Transportation Institute and Associate Director of the Urban Land Use and Transportation Center at the University of California, Davis. Richard Lee is a lecturer in the Urban and Regional Planning Department at San José State University. Brandon Haydu currently is working on a variety of travel demand modeling projects as a Transportation Planner for Fehr and Peers. Nicholas J. Linesch is a researcher at Institute of Transportation Studies, Davis.

To Learn More

For more details about the study, download the full report at transweb.sjsu.edu/project/1109.html