



**BERKELEY LAB**



# MODELING MOBILITY FOR CLEANER TRANSPORTATION

Transportation is the largest source of greenhouse gas emissions in the U.S., and the pollution it generates disproportionately affects the health of people in historically underserved communities. Planners tend to lack tools for forecasting how these communities will be affected by emerging transportation technologies, strategies and policies. If planners could simulate these transportation changes, they could identify likely impacts on the people and communities most vulnerable to congestion and pollution.

## THE PROJECT

To enable detailed simulations of current and future transportation systems, researchers at Berkeley Lab and UrbanSim, Inc. developed the Behavior, Energy, Autonomy, and Mobility (BEAM) Comprehensive Regional Evaluator (CORE) Modeling Framework. Modeling individual decisions — such as where and how people travel to where they live and work — allows researchers to evaluate strategies for easing congestion, improving mobility, and reducing pollution. BEAM CORE ensures that transportation agencies, policymakers and private companies can make more informed planning decisions to equitably benefit all members of the community.



**CLEANER**  
transportation



**IMPROVED**  
air quality



**LOWER**  
transportation costs



+ WE PARTNERED WITH +



**UrbanSim**



**NREL**  
Transforming ENERGY



## BACKGROUND

As a National Laboratory funded by the U.S. Department of Energy, Berkeley Lab is committed to a just and equitable energy transition. We strive to ensure that the impacts of our research benefit all communities, as well as future generations. To meet these goals, we partner with community-based organizations, public, and private agencies to help make clean energy technologies and resources accessible to all.

To this end, researchers at Berkeley Lab created the high-resolution tool BEAM CORE to simulate complex integrated transportation systems. BEAM CORE allows planners to study impacts of emerging transportation modes and technologies on outcomes such as congestion, energy use, mobility, and health, in order to mitigate potential negative impacts on the people the transportation system serves.

[Visit Berkeley Lab's BEAM Website](#) ▶



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### ABOUT THE PRINCIPAL INVESTIGATOR

C. Anna Spurlock is a research scientist and deputy head of the Sustainable Energy and Environmental Systems Department at Berkeley Lab. An environmental and behavioral economist by training, she is principal investigator for several large-scale transportation modeling projects, and has a leadership role in Berkeley Lab's Sustainable Transportation Initiative. In 2021-2022, she spent a year as a Justice40 Fellow at the U.S. Department of Energy. She earned her master's and Ph.D. in Agricultural and Resource Economics at UC Berkeley.

Spurlock, Anna, et. al. **Behavior, Energy, Autonomy & Mobility Comprehensive Regional Evaluator: Overview, calibration and validation summary of an agent-based integrated regional transportation modeling workflow.** *Lawrence Berkeley National Laboratory* (2024).

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