BERKELEY LAB SUSTAINABLE TRANSPORTATION INITIATIVE
BEAM: The Modeling Framework for Behavior, Energy, Autonomy, and Mobility

https://beam.lbl.gov/

Timecode	Audio
00:00:05 - 00:00:14	The performance of our transportation system depends on millions of personal decisions—from where to travel and how to get there, to where to live and work.
00:00:15 - 00:00:28	With new transportation technologies, like electric and autonomous vehicles, the complexity of projecting the impacts of individual mobility decisions is increasingly challenging for cities and local planners.
00:00:29 - 00:00:51	This is why Berkeley Lab researchers with support of the Department of Energy's Vehicle Technologies Office have developed a tool called BEAM -- that stands for Behavior, Energy, Autonomy, and Mobility. BEAM is an agent-based transportation model that simulates the interactions of individual decision-makers in the transportation system.
00:00:52 - 00:00:58	BEAM enables the evaluation of strategies that ease congestion, improve mobility, and reduce pollution.
00:00:59 - 00:01:21	BEAM simulates a regional transportation network that is centered around four groundbreaking capabilities: the ability to model human behavior for individual travel decisions, the inclusion of conventional and new modes of travel, the ability to connect with other tools, and the ability for collaborators to access BEAM's open source code.
00:01:22 - 00:01:30	BEAM captures how individual travel decisions vary based on different socio-economic characteristics, travel needs, and constraints.
00:01:31 - 00:01:46	It takes into consideration traditional transportation modes such as private vehicles, walking, biking, and public transit as well as newer transportation modes such as shared vehicles, ride hailing, e-scooters, and mobility on demand.
00:01:47 - 00:02:02	BEAM integrates with other cutting-edge models, which enables Berkeley Lab researchers to simulate how public access to technologies, such as electric charging infrastructure, impact the adoption of emerging vehicle innovations, change the way public space is used over time,
00:02:03 - 00:02:06	and affect greenhouse gas emissions and energy use.
00:02:07 - 00:02:24	As an open-source platform, BEAM allows the development and user community to collaboratively build, expand, and revise the model based on real-time transportation system changes. Open Source allows BEAM

	to evolve with our rapidly changing transportation system.
00:02:25 - 00:02:33	BEAM's capabilities make it a powerful tool to analyze how policy and new technology can help ease congestion and improve mobility.
00:02:34 - 00:02:45	With this knowledge, transportation agencies, policy makers, and private companies can make more informed planning decisions to equitably benefit all members of the community.
00:02:45 - 00:02:49	Consider how adding a bus lane could make it faster to use public transit.
00:02:50 - 00:02:54	This would potentially entice more people to travel via bus, leading to less congestion.
00:02:55 - 00:03:03	BEAM can simultaneously take a scenario, such as this one, and analyze travel behavior in conjunction with multiple other scenarios.
00:03:04 - 00:03:14	For example, a city agency might want to understand the simultaneous impacts of adding a new bus lane, introducing congestion pricing and offering a ride-hailing service.
00:03:15 - 00:03:42	Berkeley Lab researchers partner with public agencies to use BEAM to model the effects of new policies or system design decisions. BEAM can help regional planning organizations, businesses and communities use data obtained from previous studies and demonstration sites to model the effects of a new service or policy at full scale. This allows BEAM's powerful modeling capabilities to enable informed, equitable deployment.
00:03:43 - 00:03:55	To learn more and partner with Berkeley Lab transportation systems researchers, visit beam.lbl.gov.