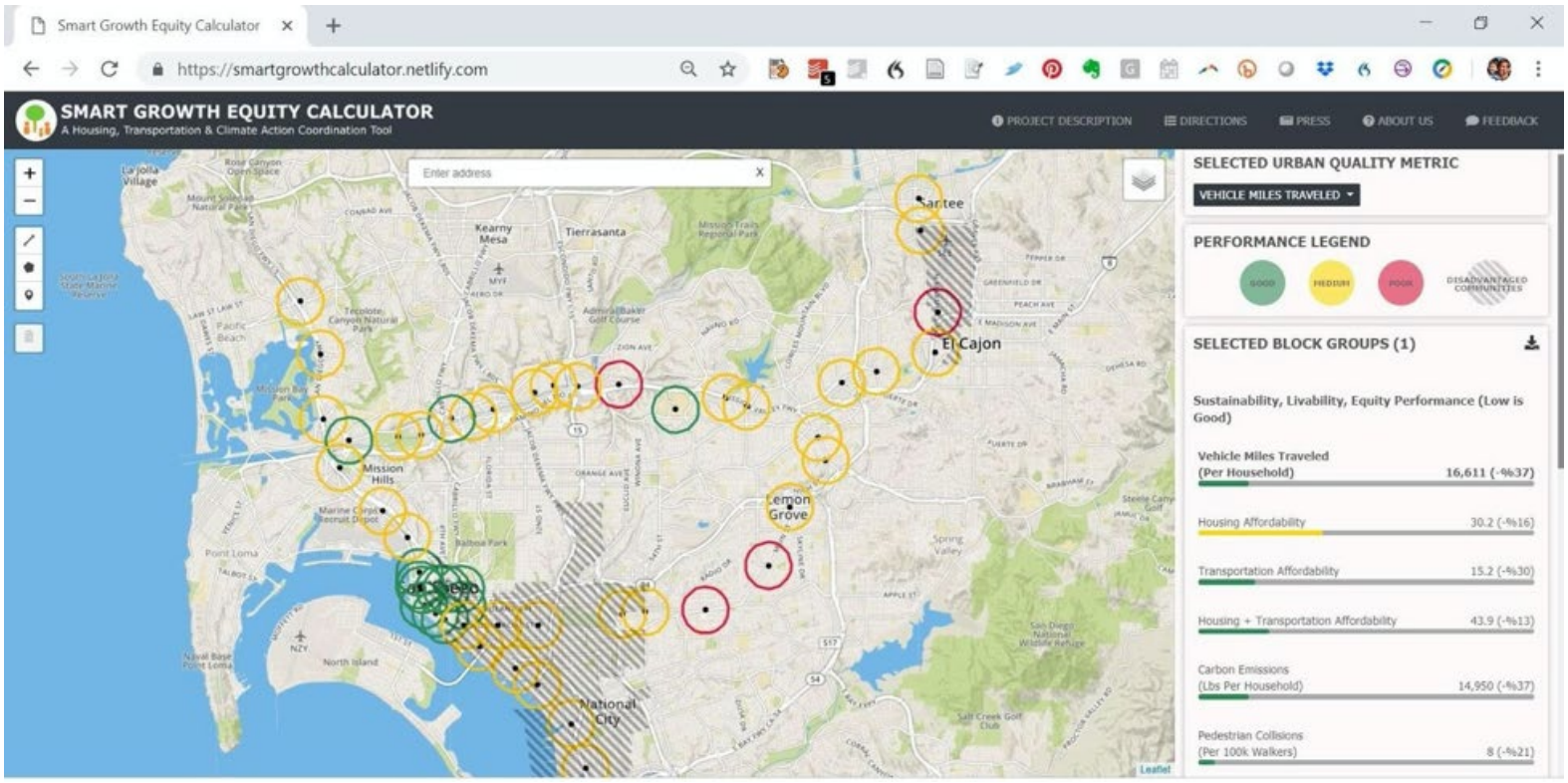
SJSU SAN JOSÉ STATE UNIVERSITY

MTI MINETA TRANSPORTATION INSTITUTE

A Smart Growth & Equity Framework and Tool for Measuring, Understanding, and Realizing Transportation Land Use Coordination for Sustainability, Livability, and Equity

Project 1899
February 2020

Bruce Appleyard, PhD, Chris Allen, and Jonathan Stanton



Example of a tool to create SLE smart growth frameworks: Smart Growth Calculator with Transit and Disadvantaged Communities overlay

A crucial component of urban expansion is the understanding and implementation of "smart growth." How we designate land for use, what transportation we value and where we build it, and other smart growth decisions affect much more than our daily commutes. Smart growth is actually an important key to achieving sustainable, livable, and equitable (SLE) outcomes for individuals and society. "Smart growth" is the successful coordination and integration of transportation and land use. It has been shown to affect both environmental and quality of life outcomes. In the past, city planners, engineers, policymakers, and other professionals have long endeavored to successfully actualize smart growth but have failed to make it a reality.

This research aims to bring to fruition the coordination of transportation and land use ("smart growth") by the collection of key agents (MPOs, DOTs, and local land use authorities, etc.) through new measurement and policy guidance frameworks and tools. Ultimately, researchers wanted to develop frameworks that guide the use of tools to measure and understand urban quality and then inform policy decisions toward SLE outcomes.

Study Methods

Researchers began by reviewing current literature and practices of smart growth. They then discussed the use of possible tools, all through the lenses of sustainability, livability, and equity (SLE). Specifically,

research focused on efforts to operationalize the Livability Principles of the 2009 HUD/DOT/EPA Partnership for Sustainable Communities and Caltrans' Smart Mobility Framework. The report starts by looking at feedback from key stakeholders and then reviewing past work on frameworks for understanding the strengths and weaknesses of urban places.

For illustration purposes, this report uses an online tool called the Smart Growth Equity Calculator (https://smartgrowthcalculator.netlify.com/). The methods employed aim to demonstrate that adopting new frameworks to *measure* SLE urban quality and *understand* transportation and land use integration (smart growth) is the first step toward *realizing* it.

Tools like the SGE Calculator can help create frameworks for smart growth to ultimately improve people's quality of life.

Findings

This research explores many useful planning tools and measures, focusing on the use of the Smart Growth Equity Calculator as an illustrative example. In one instance, the SGE Calculator was used in research of light rail placement and use in San Diego, California. In this instance, research revealed stations more easily accessible and usable were associated with positive quality of life outcomes such as lower rates of obesity, cardiovascular disease, and asthma. These higher performing stations also have higher rates of walking, bicycling, and transit ridership, and lower rates of driving, carbon emissions and pollution, household transportation cost burdens, and even unemployment rates. This specific example showed a need for planners and decision makers to value urban, more walkable, transit accessible areas where there can be a more effective movement of people prioritized over the efficient movement of vehicles.

Overall, the research reveals performance measures and planning support tools are useful only insofar as they help inform agency decisions about future policies, plans, and investments. Performance measures should be defined and measured in order to help communities understand tradeoffs and benefits involved in providing opportunities for people to achieve sustainability, livability, and equity outcomes.

Policy Recommendations

This research aims to help agencies understand smart growth and make better, more coordinated transportation and land use decisions.

Agencies should employ tools to better understand the SLE performance of smart growth and then create frameworks to make more informed decisions for how communities and regions should grow and evolve, now and in the future.

About the Principal Investigator

Dr. Bruce Appleyard is an Associate Professor in of City Planning and Urban Design at San Diego State University. He holds a PhD in City & Regional Planning from UC Berkeley. He is the author of many scholarly articles and serves as the Associate Director of SDSU's Center for the Study of Human Dynamics in our Mobile Age (HDMA), as well as SDSU's Active Transportation Research Center.

To Learn More

For more details about the study, download the full report at transweb.sjsu.edu/1899.

MTI is a University Transportation Center sponsored by the U.S. Department of Transportation's Office of the Assistant Secretary for Research and Technology and by Caltrans. The Institute is located within San José State University's Lucas Graduate School of Business.