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Land Use Efficiency Tool Improvements May Help Governments Meet Sustainability Targets Equitably

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POLICY BRIEF

Issue

In California, Sustainable Communities Strategies guide regional implementation of greenhouse gas reduction strategies through land use development and transportation investments. An objective of these strategies is to reduce vehicle miles traveled (VMT). A variety of web-based mapping and quantitative analysis tools can help planners evaluate whether a given land use efficiency strategy can meet goals, but there has been limited information about the coverage, breadth, and availability of these tools. Research has identified equity metrics as a common gap. Local governments and regional agencies, particularly those with limited planning or technical capacity, would benefit from knowing which of these many tools could serve their needs and whether a new tool that incorporated equity in land use efficiency strategies would be beneficial.

Researchers at UC Davis studied methods and tools available to regional and local governments to evaluate the land use efficiency and equity of their policies and plans. The research team then conducted a

workshop with regional and local government representatives to identify which tools would be most effective for their needs, gaps in those tools, and how tools could be improved in the future.

Key Research Findings

No single evaluation tool perfectly addresses land use efficiency, VMT reduction, gentrification, and equity. Of the eleven tools reviewed, four included land use efficiency variables, seven focused on VMT reduction, four measured gentrification, and five incorporated an equity lens in the analysis (Figure 1). Five tools addressed more than one category of analysis. Most tools were interactive web maps that examined existing conditions. Only two tools—both in the VMT category—had the ability to forecast changes. Tools varied widely in the kinds of data inputs they incorporated. Tools assessing VMT and equity used the widest variety of data sources and reported outputs at multiple spatial resolutions from the parcel level to the regional level.

Tools	VMT	Gentrification	Equity	Land Use	Tool Accessibility
Transportation Disparities Mapping Tool	✓		✓	✓	●●●●
Housing + Transportation Affordability Index	✓		✓		●●●●
Metropolitan Accessibility Explorer	✓		✓	✓	●●●●
Access Across America	✓				●●●●
California Induced Travel Calculator	✓				●●●●
Displacement Alert Project		✓			●●●●
Gentrification Comparison Tool		✓			●●●●
Santa Clara Countywide VMT Evaluation Tool	✓			✓	●●
Seattle Displacement Risk Index		✓	✓		●
Smart Location Database	✓				●●●●
Urban Displacement Project: Displacement Typology		✓	✓	✓	●●●●

Figure 1. Tool evaluation summary with categorization of land use efficiency tools. The “tool accessibility” category indicates how user friendly each tool was; four dots indicate the highest ease of use, one dot indicates the least.

The geographic coverage of tools varied, as well, with some focusing on single cities or regions, some focusing on California, and some focusing on the entire United States. Many tools were easy for non-experts to use, but a few required specialized knowledge to indicate proper inputs and interpret outputs.

Stakeholders value quantitative tools that help their organizations meet sustainability targets.

Representatives from metropolitan planning organizations (MPOs) indicated that quantitative mapping tools support their evaluations of proposed planning projects and help to facilitate conversations among staff about the potential VMT or greenhouse gas emissions impacts. Local government representatives stated that these kinds of tools aid in providing a more comprehensive view of urban development. Both groups reported that the tools help inform grant and funding applications, especially for those that support investment targets in disadvantaged communities.

Stakeholders identified several concerns about the tools.

Stakeholders were concerned about the transferability of tools across jurisdictions and area types (e.g., across urban, suburban, and rural areas) and the lack of community input in the tools' development. A lack of critical local knowledge means that these tools have a limited ability to address equity. Stakeholders were also concerned about the limited number of tools with forecasting ability. Accordingly, while publicly available tools may allow for a ready-made overview of land use and other key indicators in their jurisdictions, many stakeholders relied on their own internal tools to inform planning efforts.

A new tool that eliminates gaps and limitations of existing tools is needed.

Any new tool should integrate localized data that could be coupled with statewide data. Local government staff emphasized the need for more robust data on rural communities and attributes relevant to rural land use. An improved tool would feature a standardized methodology so that agencies could compare equivalent units across regions and scales in the state. Stakeholders agreed that evaluation tools could be platforms from which to hold discussions on interagency collaboration.

Equity metrics are critical components of any land use efficiency tool.

Many of the tools reviewed lacked an equity component. CalEnviroScreen, a tool that focuses on environmental justice and environmental health, provides a model for developing a similar tool focused on land use efficiency goals. CalEnviroScreen is used by many governments and transportation agencies statewide because of funding mandates that require investment in disadvantaged communities. California's requirement to reduce greenhouse gas emissions through land use strategies supports the development of a tool that analyzes VMT impacts, gentrification pressures, and equity of development strategies.

More Information

This policy brief is drawn from "Tools and Best Practices for Land Use Efficiency and Equity in Cities," a report from the National Center for Sustainable Transportation, authored by Peter Nguyen and Jesus M. Barajas of the University of California, Davis. The full report can be found on the NCST website at <https://ncst.ucdavis.edu/project/tools-and-best-practices-land-use-efficiency-and-equity-cities>.

For more information about the findings presented in this brief, contact Jesus Barajas at jmbarajas@ucdavis.edu.

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