

Research You Can Use

In the old days, metropolitan planning organizations developed their plans by testing different transportation alternatives against a single future land-use forecast. One alternative might have more highways, another more transit, or a new beltway, or more arterial street improvements. But future land-use patterns were always assumed to be fixed.

All that changed in the early 1990s with the advent of regional scenario planning, which matches alternative land-use plans with alternative transportation plans. These packages are then weighed on the basis of vehicle miles generated, land consumption rates, air pollutant emission levels, housing affordability indexes, and other outcome measures. The most cost-effective plan is generally adopted.

The rise of scenario planning coincided with the recognition that state and local governments could not “pave their way out of congestion.” Instead, they would have to reduce the need for car travel by smarter land-use planning. Scenarios got a major boost from the well-publicized success of Portland, Oregon’s LUTRAQ (Land Use, Transportation, Air Quality) plan, which called for light-rail investments combined with transit-oriented development and travel demand management policies. Portland Metro, the regional government, dropped a proposed new beltway—and continued sprawl—in favor of the plan when regional travel forecasts showed that LUTRAQ would produce dramatically fewer vehicle miles traveled.

Keith Bartholomew, who teaches planning at the University of Utah, recently completed a “meta-analysis” of LUTRAQ and other regional scenario plans. Bartholomew served as LUTRAQ’s project director when he was with 1000 Friends of Oregon. He now lives in Salt Lake City, where another high-profile scenario planning process, Envision Utah, is guiding development.

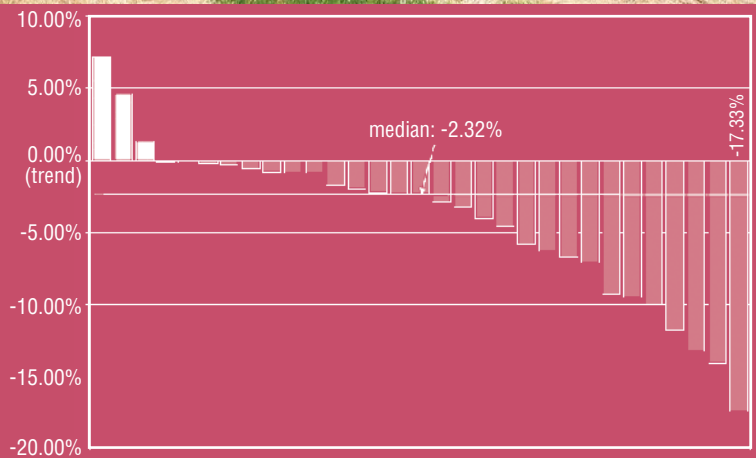
What is a meta-analysis? It’s a special kind of study used most often in scientific fields. It

Regional Scenario Plans and Meta-Analysis



Tony Hayden; Alpha Studio, Lebanon, Oregon

Michael Sonnenfeldt; Source: Keith Bartholomew



Differences in vehicle miles traveled over a 20-year period.

combines the statistical results of individual studies to come up with weighted averages. Those headline-grabbing articles about cancer risks or drug effectiveness are likely to be meta-analyses of existing studies.

But meta-analyses are rare in urban planning. That makes Bartholomew’s study noteworthy. His sample consists of 80 scenario planning projects from 48 U.S. metropolitan areas. His meta-analysis shows that regional scenario planning has become a common best practice.

The typical scenario planning process compares a “trend” development pattern, usually a continuation of urban sprawl, to one or more compact alternatives. The alternatives usually have higher gross densities, mix land uses to a greater extent, and channel more development into urban centers. They invest more in transit, less in highways. The results are not impressive: For 31 studies, Bartholomew reports a median VMT reduction relative to trend of 2.3 percent, and a median reduction of NO_x (nitrogen oxide) emissions of 2.1 percent.

But that’s not the end of the story. Bartholomew also reports a big difference in VMT from study to study, ranging from an increase of seven percent over a 20-year span for plans involving more dispersed development to a decrease of 17 percent for plans doing everything possible to contain VMT.

A full meta-analysis would go further. Bartholomew identifies many of the sources of variation that could be modeled in a more complete study. They include:

- Planning time horizon (the farther out, the bigger the impact).
- Rate of growth (the more growth that can be redirected, the bigger the impact).
- Nature of the scenarios (the denser and more centered, the bigger the impact).

- Reallocation of transportation dollars (the higher the transit investment, the bigger the impact).
- Addition of travel demand management strategies (compounding the effects of compact land-use and rail investments).

Before you begin prodding your MPO to follow Portland’s lead, consider that scenario planning does not always result in a LUTRAQ-like consensus plan. Minneapolis–St. Paul ended its attempt with a change of administration and some bad press. Cleveland gave up when a shortage of political will, and unrestrictive zoning, made implementation impossible. Pre-Katrina New Orleans abandoned its process because of the lack of growth and lack of transit.

Bartholomew’s article, “Land Use-Transportation Scenario Planning: Promise and Reality,” will appear in an upcoming issue of the journal *Transportation*. Good planning research, it should be noted, often finds its way into non-planning journals such as *Transportation*, *Housing Policy Debate*, and *Economic Development Quarterly*. In addition, see Uri Avin’s and Jane Dembner’s how-to article in *Planning* (November 2001) and Bob Johnston’s international review (at www.vtpi.org).

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