

Executive Summary

The first part of this report reviews what is known about the relationships between transportation and land use. These relationships work in both directions: the density, mix, and design of land uses influence travel patterns, and transportation investments influence development patterns. The second part presents a step-by-step approach to developing an integrated transportation and land-use plan.

What We Know About Land Use and Transportation

Recent research shows that urban form influences travel patterns. People who live in sprawling suburban areas make different transportation choices than those who live in more compact, pedestrian-friendly places. *Making the Land Use, Transportation, Air Quality Connection* (the LUTRAQ project) shows that locating planned moderate-density development near transit is likely to result in higher use of transit, walking, and bicycling than would normally be the case under more typical suburban development patterns. A national analysis of commuter- and light-rail corridors shows that ridership on these systems is dependent upon the density of employment in the central business district and density of residences in the corridors. Evaluations of mixed use and urban design demonstrate that these factors influence people's choice of travel modes.

Improvements in transportation systems have lowered the cost of transportation both within and between cities. Lower transportation costs have supported the dispersion of residents and jobs. At the same time, businesses have clustered at the most accessible and visible places in the regions—the crossroads of transportation routes. As a result, metropolitan areas have become polycentric regions with commuter sheds and markets that extend far into the countryside. Additions to the transportation system today do not have the same dramatic regional effects as the proliferation of the streetcar and the railroad at the turn of the twentieth century, or the automobile half a century later. Nonetheless, transportation improvements continue to influence urban form by supporting land-use changes in the corridors where travel is improved.

In sum, recent empirical research shows that integrating the planning of transportation and land use holds great promise for minimizing the adverse impacts of growth and development. These lessons can be applied to fast growing regions in the United States to produce development that is less dependent on the automobile.

How to Develop an Integrated Alternative

A step-by-step approach, common to many planning processes, was used to develop and evaluate the LUTRAQ alternative. Integrated transportation and land-use alternatives differ from standard alternatives in their goals and assumptions, and they may require some changes in models or analytical tools. However, the process of developing and evaluating these alternatives is similar to most planning processes.

Clarify the scope of the project.

The LUTRAQ project was developed as an alternative for an Environmental Impact Statement/Major Investment Study. It challenged the idea that land uses must be held constant when addressing transportation needs. Other integrated alternatives have been developed in other metropolitan areas for growth management and regional transportation plans. The federal Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) is facilitating many of these efforts.

Decide who will be involved.

The LUTRAQ alternative was developed by non-profit advocacy groups working with governmental agencies. Other integrated plans have been led by state departments of transportation, cities, counties, metropolitan planning organizations, and other non-profit groups.

Define a range of alternatives.

The LUTRAQ alternative began with an inventory of existing land uses and an identification of trends. Then, integrated alternatives were developed and tested in an iterative process to understand better the types of changes in land use and transportation policy that would work together to reduce automobile dependence. Similarly, other projects have developed one or more alternatives that differ from current trends or address transportation needs with varying investments and policies.

Determine performance measures for comparing alternatives.

The LUTRAQ alternatives analysis focused on performance measures generated by a regional travel demand model, such as mode choice and daily vehicle miles of travel. Other projects have developed performance measures that are consistent with the goals of those projects and the ability of available technical tools to measure the desired characteristics.

Select analytical tools for analyzing alternatives.

The LUTRAQ project team worked with Metro, the Portland-area regional government, to improve the agency's travel demand model so that it would be more sensitive to the pedestrian environment and the mix and density of uses. Efforts to link travel-demand and land-use models were not successful. Other projects have developed or applied land-use models or created innovative uses of qualitative and quantitative tools.

Simulate alternatives and interpret results.

The LUTRAQ analysis showed that an integrated land-use/transportation/demand-management alternative was more successful at meeting the transportation needs of the study area than just building highways. Results from other studies have similarly assisted regions in deciding how to grow and how best to invest transportation resources.

Implement the preferred alternative.

The LUTRAQ alternative is being implemented—in content, if not in name—by the Portland-area regional government (Metro) through its regional growth-management process. In December 1994, Metro adopted the Region 2040 Growth Concept, a regional land-use/transportation plan that incorporates many of the LUTRAQ concepts. In November 1996, Metro adopted a Functional Plan to require that cities and counties change their comprehensive plans and zoning ordinances to comply with the Growth Concept. In addition, Metro is working on its regional transportation plan which will also implement the Growth Concept. Other regions are also adopting policies to limit the extent of urban areas and to focus growth into transit-served locations.

