



Connecting Transportation & Land Use Planning

The Transportation-Land Use Connection

This brief defines and explains the transportation and land use connection relating to conventional and smart development.

Transportation systems and land use patterns influence each other. Roads, transit, and other transportation elements shape land development, while the distribution and types of land uses affect travel patterns and transportation facilities. A dispersed pattern of low-density development relies almost exclusively on cars as the primary mode for transportation.

Alternatively, denser urban centers can combine different land uses in closer proximity, encouraging:

- Walking
- Biking
- Transit
- Other forms of travel

Like many planning issues, the link between land use and transportation is extremely complex. Many options have been proposed for strengthening the transportation and land use connection. Incorporating elements of Smart Growth offer a choice of transportation options.

Conventional Development Patterns

The layout and design of land uses affects the choice of mode of travel. Often, development patterns isolate various land uses, such as residential, office, and retail land uses. Low-density commercial and residential developments have the following problems:

- Large lots and low density discourages walking and bicycling
- Street layout funnel traffic onto

major arterials, causing congestion on major streets

- Roads are designed for mobility of cars as opposed to accessibility for all modes
- Streets are wide with multiple lanes of traffic and often lack sidewalks
- In commercial areas, large parking lots often separate retail businesses
- Buildings set far apart by vast parking areas, and wide access roads discourage walking between uses.
- Residential streets have gradual curves encouraging higher speeds, and may end in cul-de-sacs, minimizing through-traffic
- Community development codes usually include neighborhood street layout and design standards that only conform to the automobile

The Highway-Land Use Connection

Highways are connectors but also a barrier between land uses, dividing communities and the connection to other streets. Traffic congestion affects the desirability of doing business along parts of a highway corridor.



Communities that separate land uses (above) encourage driving and require longer travel times. Improvements designed to ease congestion often attract more traffic requiring more improvements in the future. Increased highway capacity may result in the spread of development to peripheral areas, leaving vacant and abandoned areas behind.

For more information...

American Planning Association recommend books

Transportation and Land Use Innovations by Reid Ewing (1997).

Transportation-Land Use Connection: A Framework for Practical Policy by Paul Thorsnes (1994).

Linking Transportation and Land Use by Fostering Inter-Jurisdictional Cooperation by Daniel Carlson and Stephen King (1998).

Other Resources

Transportation Efficient Land Use Strategies <http://www.lcd.state.or.us/tgm/pub/1transp.htm>

“Smart Growth and the Transportation and Land Use Connection: What Does Research Tell Us?” by Susan Handy <http://www.smartgrowth.umd.edu/publications/HandyPaper2.pdf>

“Making Better Communities by Linking Transportation and Land Use: Changing Local Plans and Programs.” Bay Area Association of Governments. <http://www.abag.ca.gov/planning/lut/lutc.html>

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Traffic volumes and choices of mode of travel are influenced by the *location, density, and mixture* of land uses. Land use planning and transportation infrastructure need to work together. Communities should plan for the future and be aware of how their land use plans will affect the levels of traffic, appearance, and points of congestion on highways. Connected sidewalks, attractive walking environments, and pedestrian crosswalks in compact settlements:

- Encourage alternative modes of transportation
- Decrease reliance on existing transportation infrastructure
- In the long-run, can save money for your community
- Give residents travel options and improve livability

Newer Development Patterns: Smart Growth

The design of newer development patterns displays a different street layout and land use. This alternative includes an integration of different land uses in closer proximity by promoting higher densities with a mix of land uses. The principles of this form of development include:

- The revitalization of cities and older suburbs with new growth in already developed areas
- The protection of farms, open spaces, and sensitive environments from new development
- The reduced cost of building and maintaining public infrastructure and services. Compact communities can be less costly to local governments, allowing communities to spend money on other services.

- Traffic calming devices on local streets, such as traffic circles or speed humps
- The addition of on-street parking provides a buffer between moving vehicles and pedestrians, while moderating traffic speeds
- Houses built closer to the sidewalk and street. Porches instead of garages in front facilitate interaction and are pedestrian friendly



West Linn's Willamette District. City architectural standards create an attractive streetscape in a suburban environment. Active storefronts create a walk that is inviting to pedestrians. Office and apartment space is available above the first floor retail, making the district a mixed use environment that is active throughout the day.

Summary

Transportation investments have a significant influence on surrounding land uses. Land use patterns also affect the utilization of transportation facilities. These interrelated effects will occur regardless of whether city officials consider land use in determining their transportation investments. Governments, developers, and citizens can work together to design integrated land use and transportation plans that will help achieve a shared vision for the future. Integrating land use and transportation more effectively can help shape priorities for transportation investments and ensure that new transportation projects and land use plans support and reinforce each other.

Next steps

A change in conventional land use and transportation patterns often requires action by the local government to encourage smart growth developments. Taken together, a package of simple measures can help create communities that are more livable and offer travel choices. Examples of policies include:

- Change zoning codes to allow for mixed-use developments
- Change ordinances and design guidelines to alter setback requirements
- Require developers to implement sidewalks, bike paths, street trees, and pedestrian amenities to encourage alternative modes of transportation

- Change minimum parking requirements to reduce the amount of unused space between two points
- Alter ordinances to change building size, height, and orientation to encourage pedestrian friendly environments
- Implement bonuses that allow developers to exceed zoning requirements
- Transportation facilities that cross city and county lines often lack coordinated planning, construction, and maintenance. Cooperative planning partnerships among local jurisdictions can help address problems, and county governments can work with cities to coordinate improvements to major roads.

Developed by graduate students in the School of Urban Studies and Planning, College of Urban and Public Affairs, Portland State University, June 2003

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