

Merge Lanes Ahead

/////// *Conserving energy through land use and transportation planning.* //

Land Use and Transportation

Land use and transportation are strongly linked, and both ultimately affect energy consumption. This fact sheet examines how land use planning and management can improve transportation and mobility.

Increasing Density

Robert Cervero, a professor of planning at the University of California at Berkeley, suggests a number of initiatives that can improve mobility in our cities. The first is to increase densities.

Cervero's work focuses on floor area ratios (or FAR), a measure of density used for nonresidential buildings (primarily office



buildings.) A building's FAR is determined by dividing its square footage by the square

$$FAR = \frac{BUILDING\ SQUARE\ FOOT}{LAND\ SQUARE\ FOOT}$$

footage of the parcel of land it sits on. A FAR of 0.3 means that the building square footage is 30 percent of the land area, while a FAR of 5.0 means that the building square footage is five times greater than the land area.

Cervero argues that the density of workplaces is the single most important factor in determining the type of transportation used by people in the suburbs. He says that floor area ratios below 0.5 don't work from a transportation perspective — the density is too low to support mass transit but high enough to cause congestion. Cervero has found that most suburban employment centers have average floor area ratios of only 0.3 to 0.4.

Two of the densest suburbs Cervero looked at support his contention — Bellevue, Washington (a suburb of Seattle) and Uptown, Texas (a suburb of Houston.) In Bellevue, which has an average FAR of 7.5, 27 percent of the workers get to work by mass transit, walking, vanpooling, or cycling (compared to

This fact sheet is one of a series examining the relationships between transportation, land use and energy.

Other topics include:

- Fact Sheet 1..... Introduction*
- Fact Sheet 2..... Transportation and energy consumption*
- Fact Sheet 3..... Traffic congestion*
- Fact Sheet 4..... Street design*
- Fact Sheet 6..... Economics of driving your car*
- Fact Sheet 7..... Reducing automobile travel*
- Fact Sheet 8..... Community case studies*
- Fact Sheet 9..... Road blocks to change*

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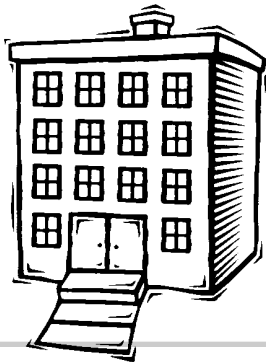
Figure 1: Floor Area Ratio Concept

Floor Area Ratio is determined by dividing the square footage of the building by the square footage of the land on which it sits.



Property Size = 100,000 sq. ft.
 Building Size = 30,000 sq. ft.
 Floor Area Ratio = $\frac{30,000}{100,000} = 0.3$

30% of property is built upon with a one story building.



Property Size = 100,000 sq. ft.
 Building Size = 500,000 sq. ft.
 Floor Area Ratio = $\frac{500,000}{100,000} = 5.0$

Building covers entire site and is five stories in height.

less than 10 percent in an average U.S. city.) In Uptown, which has an average FAR of 5.0, 22 percent of the workers arrive without a car. Of course, Cervero points out, density works best when it's combined with other programs. Bellevue restricts the number of parking spaces provided by employers to two spaces per 1000 square feet of building area. Uptown uses high quality van pools and an extensive network of reserved High Occupancy Vehicle (HOV) lanes.

Successful public transit also needs higher residential densities. Cervero suggests that public transit will never become a viable alternative to the car until suburban residential densities are much higher.

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Mixed Use Developments

The second initiative that can help increase mobility is the creation of more mixed use developments. Mixed use developments contain a mix of office, retail, commercial and residential areas that are laid out so that people can walk or bicycle from their homes to shops and offices.

Some of the benefits of mixed use development are:

- many trips are “internalized,” and can be accomplished without leaving the development;
- trips are more evenly distributed throughout the day rather than concentrated in the mornings and evenings;
- fewer parking spaces are needed because peak parking demands fall at different times; and

- workers are more likely to share rides because they don't feel stranded during their lunch hour.

A study conducted in 1989 found that 50 percent of suburban office workers needed to leave their worksite

during the lunch hour to take care of personal business (Hooper 1989.) In mixed use developments, many of these lunch-time errands could be accomplished by walking instead of in a car.



Site Planning & Design

Walking and cycling would be feasible in more mixed use developments if the sites were designed to be friendly to pedestrians rather than cars. Pedestrian-friendly design means:

- Putting buildings closer to the street;
- Placing parking at the rear of buildings (to make walking more interesting);
- Providing landscaped pedestrian and bicycle paths; and
- Building bicycle and pedestrian networks that minimize conflicts with automobiles.

Similarly, design should encourage people to use public transit. Many transit stops are located along busy, noisy, polluted highways. Locating stops near building complexes, integrating stops with neighborhood stores, and having front-door loading and drop-off zones all help encourage transit use. Three west coast transit agencies (Seattle, WA; Oakland, CA; and Orange County, CA) have established specific sets of design criteria that are aggressively promoted to new developments within their service areas (Institute of Traffic Engineers 1989). Orlando's Lynx transit system has developed two excellent books on design criteria, the *LYNX Mobility Design Manual*, and the *Customer Amenities Manual*.

Neotraditional Planning

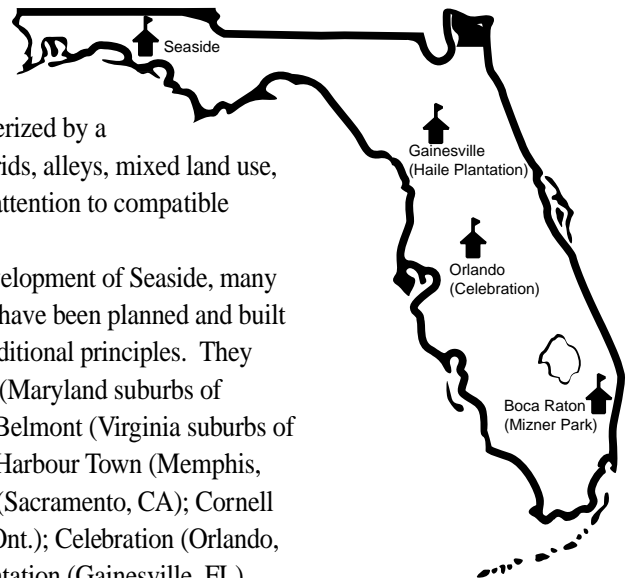
Many of these land management ideas have been incorporated into a concept known as "neotraditional planning," which is being promoted as one answer to urban sprawl and its associated problems of wasteful auto dependency, traffic congestion, lack of a sense of place, visually unappealing landscapes, and segregation of neighborhoods by race, economic class and age.

Also known as New Urbanism, pedestrian pockets, urban villages, or transit-oriented design, neotraditional planning got its start in the early 1980s with the development of a resort community in the Florida Panhandle known as Seaside. Communities planned according to neotraditional principles draw their inspiration from communities built before or during the early part of this century. These communities, such as Annapolis, MD, Oak Park, IL, Princeton, NJ and Winter Park, FL, have smaller residential lots and higher densities which support public transit and the ability to walk to shopping, workplaces and public spaces. Neotraditional planning is characterized by a network of street grids, alleys, mixed land use, "walkability," and attention to compatible design.

Since the development of Seaside, many other communities have been planned and built according to neotraditional principles. They include: Kentlands (Maryland suburbs of Washington, DC); Belmont (Virginia suburbs of Washington, DC); Harbour Town (Memphis, TN); Laguna West (Sacramento, CA); Cornell (north of Toronto, Ont.); Celebration (Orlando, FL); and Haile Plantation (Gainesville, FL).

Today's suburban problems took more than 40 years to create and it's not realistic to expect that they can be fixed overnight. But there have been some notable efforts.

Haile Plantation, a project begun in the 1970s outside Gainesville, Florida, has reworked its development to incorporate a number of neotraditional planning concepts, including a mixed use urban core, narrower streets and an emphasis on walking and cycling rather than driving. A number of Florida shopping centers built in the 1950s and 60s also are being redeveloped to make them more pedestrian-friendly. One of these is the Colonial Mall in Orlando; another is Mizner Park in Boca Raton.



What you can do

Traffic congestion and energy consumption are complex problems that won't be resolved solely through land use management. They will require a combination of efforts involving the supply of transportation infrastructure, travel demand management and land use management.

Many of the ideas presented in this fact sheet are not new, but they often face resistance

when they are proposed. Increased densities and small lots are almost always opposed by suburbanites, even though they are a necessary prerequisite for improving transit and walkability. The information presented here shows that mixed uses, compactness and grid street

patterns can help improve traffic congestion and save energy as well.

If you are interested in promoting these ideas and concepts in your community, you should first examine the comprehensive plan, subdivision regulations and zoning code. What do these documents say about densities and mixed uses? Are the densities high enough to support transit, walking and cycling? Do they offer flexibility for neotraditional development? Second, you should travel to Seaside, Haile Plantation, Celebration, Mizner Park, and other neotraditional developments outside of Florida to see what these projects look like and how they work. Third, you should share these ideas with the local Chamber of Commerce and development community. After all, these are the people that will ultimately implement these ideas.



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