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Integration in urban development and
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Integration in urban development and transportation planning

Iman Farzin*, Ph.D. Candidate, Department of Civil and Environmental Engineering,
Tarbiat Modares University, Tehran, Iran

1- Introduction

The increasing use of private cars has caused many problems such as waste of time, environmental pollution, and the need for large investments. In order to achieve sustainable development, coordination between transportation and land use planning is essential to reduce the tendency to use private cars. Transit-oriented development (TOD) is a dense development with a good combination of uses in the vicinity of public transport stations and routes.

There are many definitions of TOD. The most comprehensive definition is provided by Calthorpe. He defines TOD as follows:

“TOD is a functional combination of land use with public transport by creating compact, walkable and mixed-use neighborhoods at a distance within walking distance from public transport stations” .

The combination of residential, retail, office and public use facilities in a pedestrian-friendly environment facilitate the use of public transport, cycling and walking.

2- The effect of urban development on transportation and transportation

The interaction between urban and transportation planning is as follows in eight cases.

- ✓ Development location
- ✓ Development density
- ✓ Land use mix
- ✓ Cycling, cycling, and walking conditions
- ✓ The quality and proximity of public transport and transportation
- ✓ Parking management
- ✓ Restrictions on personal car movement
- ✓ Transportation Demand Management

The following is a description of each case.

2-1 Development location

The first and foremost choice for development is its location in relation to city centers and transportation corridors. Previous studies have shown that people's travel habits are strongly influenced by the type of transport corridor near their place of residence

2-2 Development density

After location, the density of development is its most important feature. In addition to the concept of density, clustering is also defined as the closeness of related jobs.

Density and clustering affect the travel pattern through the following mechanisms.

- ✓ Land use access
- ✓ Increasing the variety of transportation modes
- ✓ Reduce personal car access

Density in the origin and destination of both affects travel behavior. The study found that increasing the density of residential areas to 40 people per 4,000 square meters increases the use of public transport by 2 to 7 percent. While increasing the density of commercial areas to 100 people working in 4000 square meters, it will increase the use of public transport by 4%, which will be about 11% of the total trips.

2-3 Land use mix

Land use mixing is defined as the placement of different types of land use such as residential, recreational, office and industrial near each other. Land use mixing is defined on a variety of scales, such as land mixing on the scale of a building (micro-occupations on the lower floors and office and commercial occupations on the upper floors) or on the scale of a street.

Land use mixing reduces travel distance and thus the use of walking and cycling methods.

2-4 Cycling and walking conditions

Cycling and walking conditions are affected by the quantity and quality of pedestrians, pedestrian lanes, network connection routes, and the security and the attractiveness of facilities for walking and cycling.

Improving cycling and walking conditions increases the tendency to travel by non-motorized vehicles, increases travel by public transport, and reduces the use of private cars.

2-5 Quality and proximity of public transport and transportation

The effect of public transport on travel behavior has been studied in many studies. Clearly, cities that invest heavily in public transportation are more successful at moving travel from private cars to the public transportation.

The distance required to reach the bus stations, as well as the quality of public transport, have a significant impact on the travel pattern.

2-6 Parking management

The provision of public transport alone does not guarantee the sustainability of the travel model. Other aspects of land use planning play a key role in mode choice; so choosing the right place for new development requires precision. As an increase in the quality of public transport and transportation services, it is not efficient in places where large volumes of trips are operated by private cars.

2-7 Restriction on personal car movement

The European project "integrate transport and land use planning" explicitly states the following:

" transport and land use policies are only successful if they provide the necessary rules for sustainable urban transport".

In practice, this definition means that policies make other modes more attractive than private cars. One of the useful policies to do this is called filter-permeability.

2-8 Travel Demand Management

Traffic management policies and programs of transport demand (also commonly

known as mobility management) lead to more efficient travel behaviors. These policies can be used as a substitute for expanding road capacity and increasing the number of parking lots. Managing the demand for transport and transportation directly affects land use by eliminating the need for more roads and parking lots. Programs such as reducing the demand for private car travel can lead to a 10 to 30 percent reduction in private car travel.

3- Conclusion

Given the need for integration in land transportation and land use planning, it is better for some government officials to reform their policies based on the economic growth of automobiles. The following are three golden rules for achieving the goal of sustainable transportation and economic growth by integrating land use and transportation planning

All major developments should focus on public transportation.

A major step in integrating land use planning and transportation is to focus on the development process around public transportation. The move of a large segment of society towards a model of sustainable development requires the improvement of public transport for short and medium distance trips. It is important to note that the design should be such that people can use the most stable mode, such as cycling and walking, for their short trips. The concept of public TOD means that public transport must be physically in development, but quality considerations must be taken into account when using public transport and how public transport affects development.

Development should be such that travel by car is minimized.

This requires that public transport be connected to the nearest development center so that public transportation can be faster than a private car. In order to achieve this, in some cases, the right of precedence of public transport must be taken into account, or special lines must be considered for these modes. Also, access from public transport to major development centers (or vice versa) by walking and cycling will be faster and more attractive than private cars. It should be noted that only in the case of daily and regular public transport services, this will be achieved and the need for travel created due to high development will be met

Development should be done as much as possible in the neighborhood of the major pre-built centers.

If the new development of the center or in the neighborhood of the major centers of households, employment, goods, and services - which are the centers of public transport and transportation - is not, the new development will be dominated by travel by private car.

Keyword: Sustainable Development, Interaction of Urban Development and Public Transportation, Successful Experiences of Integration of Urban Development and Public Transportation, Sustainable Transportation

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