



KIMLEY-HORN

Parking Planning White Paper Series



Transit-Oriented Development
Design Principles and
PARKING
Policies



Kimley»Horn

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Introduction

According to Wikipedia, a transit-oriented development (TOD) is “a mixed-use residential and commercial area designed to maximize access to public transport, and often incorporates features to encourage transit ridership. A TOD neighborhood typically has a center with a transit station or stop (train station, metro station, tram stop, or bus stop), surrounded by relatively high-density development with progressively lower-density development spreading outward from the center. TODs generally are located within a radius of one-quarter to one-half mile (400 to 800 m) from a transit stop, as this is considered to be an appropriate scale for pedestrians, thus solving the last mile problem.”

An interesting, often overlooked and somewhat ironic dimension of developing successful TODs is the important role that parking plays in the planning and implementation of such districts.

This white paper was developed primarily as a primer for parking professionals on the planning and design principles that inform TODs. TODs can be described in a number of ways depending on your perspective or interest. This paper approaches the topic primarily from a planning perspective with special focus on access management issues.

Our approach examines TODs through three major planning categories:

1. Land Use and Development
2. Mobility Management
3. Community Design

Under each of these categories, we provide a concise description of the high-level goals of each major area along with sub-categories that relate to specific TOD-related dynamics. These categories are supplemented with key success strategies summarized in a bulleted format.

Land Use and Development

From a land use and development perspective, a TOD is



designed to provide a concentrated mix of complementary, well-integrated land uses within walking distance of the transit station.

Mixture of Complementary Transit-Supportive Uses

Providing these complementary and integrated land uses proximate to transit resources and within a high quality and walkable urban environment helps foster the following TOD transit station area planning objectives:

- ▲ Provide a range of higher intensity uses including residential, office, retail, and civic uses
- ▲ Minimize automobile-dependent uses
- ▲ Provide uses that attract/generate pedestrian activity
- ▲ Support the locating of special traffic generators, such as stadiums or colleges, adjacent or within station areas
- ▲ Encourage multi-use developments
- ▲ Encourage a mixture of housing types
- ▲ Preserve and protect existing stable neighborhoods
- ▲ Encourage development of workforce/ affordable housing
- ▲ Encourage upgrading of existing uses to make them more pedestrian friendly

Increase Land Use Intensity

One of the primary reasons for investing in TODs is to leverage transit infrastructure to encourage increased land use density and thereby enhance property values and increase the community tax base. The following are typical community planning goals or metrics related to increasing land use density:

- ▲ Encourage higher densities for new development near the transit stations, with lower densities adjacent to existing single-family neighborhoods



- ▲ Ensure minimum densities for new residential development within 1/4-mile walk from a transit station are 20 units per acre or greater, where appropriate
- ▲ Ensure non-residential intensities within 1/4-mile walk from a transit station will be, at a minimum, 0.75 FAR, where appropriate
- ▲ Allow lesser intensities or densities for new development, if necessary, to preserve existing structures, character, neighborhoods, or to mitigate traffic impacts

Mobility Management

As noted earlier, the importance of right-sizing parking development can, ironically, be one of the most important planning elements in terms of creating a successful TOD. The key is a balanced approach to parking and a range of supporting mobility management strategies to enhance the transportation network and promote good walking, bicycle, parking, and transit connections. Having a comprehensive transportation demand management (TDM) program is also a core success strategy.

Key sub-categories in this area include:

- ▲ Active Transportation (Pedestrian and Bicyclist Systems)
- ▲ Street Network Design
- ▲ Parking and TDM Strategies



Active Transportation (Pedestrian and Bicyclist Systems)

The following are typical planning goals or metrics related to mobility management strategies:

- ▲ Provide an extensive pedestrian system throughout the station area to minimize walking distances
- ▲ Eliminate gaps in the station area pedestrian networks
- ▲ Establish pedestrian and bicyclist connections between station areas and surrounding neighborhoods
- ▲ Design the pedestrian system to be accessible, safe, and attractive for all users
- ▲ Ensure that the pedestrian network will accommodate large groups of pedestrians
- ▲ Utilize planting strips/street trees, on-street parking, and/or bicycle lanes to separate pedestrians from vehicles
- ▲ Encourage the provision of bicycle amenities, especially bicycle parking

Street Network

Key goals related to street network design and configuration include:

- ▲ Design streets to be multimodal, with emphasis on pedestrian and bicyclist circulation
- ▲ Redesign existing street intersections, with a greater emphasis on pedestrian and bicycle crossings
- ▲ Develop an interconnected street network designed around a block system, with blocks a maximum length of 400'
- ▲ Ensure that the pedestrian network will accommodate large groups of pedestrians comfortably
- ▲ Consider new mid-block street crosswalks
- ▲ Incorporate traffic calming into the design of new streets



- ▲ Incorporate “Complete Streets” design principles
- ▲ Consider landscaped “bulb-outs” at intersections to improve sight distances

Parking and Transportation Demand Management

Basic parking and TDM strategies to support successful TODs include:

- ▲ Reduce parking requirements over time in station areas and establish parking maximums
- ▲ Minimize large surface parking lots for private development
- ▲ Encourage shared parking facilities
- ▲ Encourage the development of integrated access management strategies
- ▲ Build in TDM strategies to complement parking and transit programs
- ▲ Promote “unbundling” of parking
- ▲ Promote “Car Sharing” programs
- ▲ Tie parking to overall district management
- ▲ Effectively manage on-street parking (including implementation of paid parking if it does not already exist)
- ▲ Provide effective parking and transportation information and wayfinding



Community Design

Using good urban design principles to enhance the community identity of TODs and station areas and to make them attractive, safe, and convenient places is critical to attracting and retaining businesses and residents on a long-term basis.

Building and Site Design

Leveraging smart growth practices, sustainable urban design principles and elements of “form-based code” are defining attributes of most successful TODs. Key design strategies include:

- ▲ Design buildings to front on public streets or on open spaces, with windows and doors at street level
- ▲ Locate building entrances to minimize walking distance between the transit station and the buildings
- ▲ Design parking structures to include active uses on the ground floor street frontage
- ▲ Limit building heights to 120', with the tallest and most intensely developed structures located near the transit stations
- ▲ Screen unsightly elements, such as dumpsters, loading docks, service entrances, and outdoor storage
- ▲ Consider safety and security concerns during design.

Streetscape

Key streetscape design elements might include:

- ▲ Design the streetscape to encourage pedestrian activity
- ▲ Maximize the use of on-street parking
- ▲ Include elements such as street trees, pedestrian-scale lighting, and benches
- ▲ Place utilities underground whenever possible.

Open Space

Key open space design elements might include:



- ▲ Establish public open spaces around transit stations
- ▲ Design open spaces to be centers of activity
- ▲ Orient surrounding buildings onto the open spaces

Striking the Right Balance

Striking a balance between parking supply and development is a crucial challenge in developing the character of TODs. Residents near TOD projects are twice as likely not to own a car as other U.S. households. They're also two to five times more likely to commute by transit than others in the region. On the other hand, residents will need access to cars even if not on a daily basis, and commercial establishments require some amount of parking to accommodate their non-walking clientele. In many cases, developers will be unable to secure financing unless parking is provided.

Unfortunately, many communities have simply applied conventional parking ratios to TOD projects. Because such standards have a suburban bias and are based largely on low-density single land uses, they limit the expected community benefits of TOD, and possibly, lead to project failure.

Right-sizing parking for TOD requires a multipronged approach to understanding the existing and projected parking utilization and available supply in and around a TOD project area as well as the projected demand for new parking once the project is completed. Conducting a diagnostic parking study that is comprehensive and aligned with mobility choices is essential to this effort. Once the facts about demand, price, utilization, built form/development pattern, and household characteristics are understood, appropriate strategies can be employed.

Key elements include understanding differences among markets, unbundling or separating the full cost of parking from the associated use, and reducing (or eliminating) minimum parking requirements for certain land uses or certain areas. Understanding the parking uses by market and type makes it possible to look for opportunities for implementation of a wide range of measures—from new technology (e.g., smart



parking) to specific policies and physical design modification to consolidating and locating parking more efficiently.

In an article on the importance of parking to TOD, Mark Gander, Principal Planner and Director of Urban Mobility and Development at AECOM and a member of the Board of Directors for the Green Parking Council, outlined three strategies to ensure that parking meets the needs of a TOD project while not impacting the TOD's benefits. Gander groups these strategies into the following categories: reduction, demand, design, and pricing. Each of these categories is discussed briefly below.

Reduction

Considering the research, along with the information developed by a parking supply and demand study, municipalities should make every effort to reduce parking requirements for TOD projects. Eliminating parking minimums and instead employing parking maximums for TOD projects will help decrease parking oversupply. Similarly, requiring shared parking where multiple developers combine parking needs into one shared parking lot or structure may also help eliminate an oversupply of parking.

Demand

Reducing the need for car travel is critical to decreasing parking demand. Municipalities or developers should consider establishing car sharing programs where multiple users have access to a fleet of cars when they need them. Similarly, municipalities and transit agencies could increase incentives for using public transportation, including providing subsidized transit passes, establishing residential parking programs for adjacent neighborhoods backed by parking enforcement, and constructing bicycle parking facilities.

Design

Designing for pedestrians is an important element to right-sizing parking. It requires reducing or eliminating design elements that hamper pedestrian use such as the number and size of curb cuts. It also requires adding elements that provide for greater pedestrian safety and aesthetic appeal. These elements might include constructing pedestrian



walkways separated from parking and roads, wrapping parking behind existing buildings, designing the first level of parking structures to include other uses such as stores and restaurants, and adding public amenities like art space or public plazas that incorporate green infrastructure.

Pricing

Pricing is another strategy that can be used to influence how and where parking is used and located within a transit station area. On-street parking can be priced to encourage availability of on-street spots for preferred populations such as short-term customers. In this case, the cost of parking for 15 or 30 minutes near shops located in the transit station area might be minimal, while parking prices for more than 30 minutes is set quite high. Another strategy is to price parking to reflect parking desirability; i.e., spaces closest to activity hubs and on-street are priced higher than spaces at the downtown fringe and parking garages.



In Summary

TODs generally include four foundational elements:

1. Development around transit that is dense and compact, at least relative to its surroundings;
2. A rich mix of land uses—housing, work, and other destinations, creating a lively place and balancing peak transit flows;
3. A great public realm—sidewalks, plazas, bike paths, a street grid that fits, and buildings that address the street at ground level; and
4. A new deal on parking—less of it; shared wherever possible; energy efficient and designed properly.

While increasing transit ridership, walking, and biking are essential to establishing sustainable and livable communities, the car will continue as the principal mobility choice for years to come. Given this circumstance, municipalities and developers will have to provide parking for TOD projects and the surrounding area, but should do so in a way that is appropriately sized and located.