

TRANSPORTATION INTERFACES

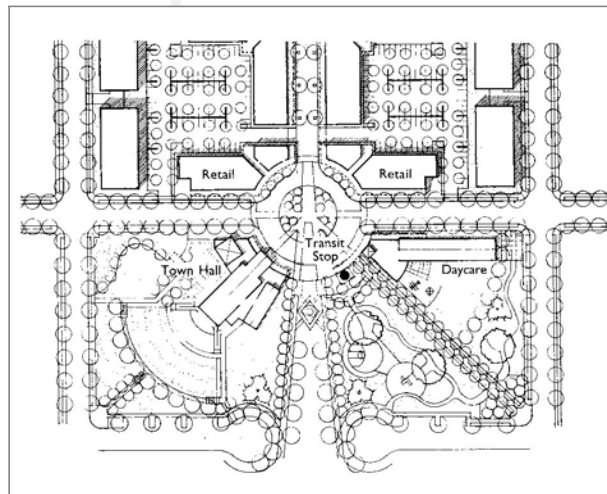


Just as transit-oriented development works to support transit use, the transportation interfaces, including transit, sustain the TOD and the people who use it. The transportation side of the TOD equation typically consists of (1) transit stops or stations (bus or rail), (2) parking facilities, (3) park-and-rides and (4) streets.

TRANSIT STOPS AND STATIONS

Transit service is usually located within the center area of a TOD rather than at its edge. Where possible, bus service along arterial roads is diverted into the center of major TODs.

Light rail stations are also centrally located, as long as the tracks do not interfere with pedestrian movement. Where transit speeds would be compromised by routing into the center of a TOD, the transit can remain at the edge of the TOD at an arterial, with appropriate pedestrian-friendly connections.



In a TOD, transit stops are located in an easily accessible central area, surrounded by retail, civic and other higher-intensity uses.

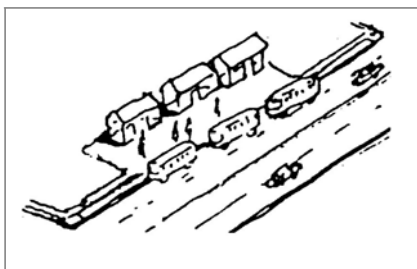
TODs can be designed so that transit riders disembarking from a bus or train can orient themselves easily. Locating common destinations in view from the stop or station reduces the perceived walking distance for pedestrians.

Where a TOD is created from a redeveloped site, fences, earth berms and other barriers to pedestrian and bicycle movement are removed. Parking lots, busy roads and other obstructions do not interrupt pedestrian and bicycle access to transit.

When designed well, transit stops or stations are prominent focal points for the TOD, not just as passenger waiting areas. They serve and strengthen the core of the TOD.

Transit facilities in TODs range from on-street transfer points to large transit stations. Each facility requires a different scale and treatment.

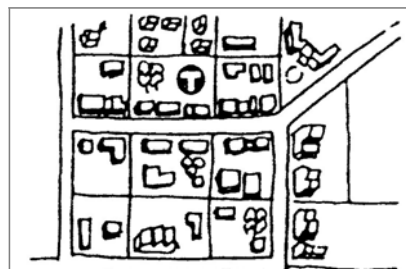
Range of Transit Facilities



On-Street Transfer Point

- Serves intersecting routes, generally with untimed transfers
- Often used to transfer to other routes; buses do not lay over

Typically located in a central business district or on a commercial corridor



Transit Center

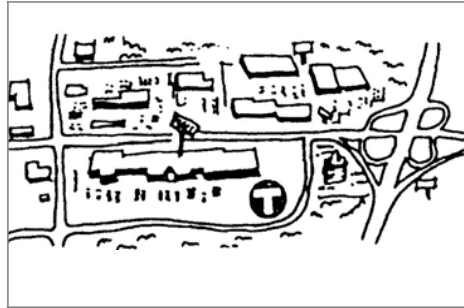
- Timed-transfer centers located in small-scale development, part of a subregional circulation system
- Accommodates several buses at a time, with space for layovers
- Encourage multiple modes of transportation

Left: On-Street Transfer Point

Right: Transit Center

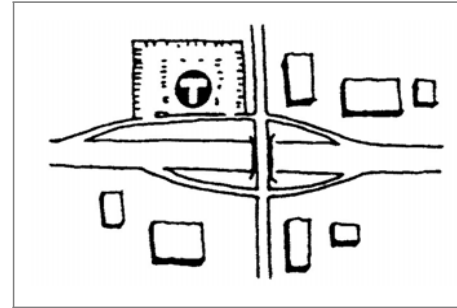
TOD Settings for On-Street Transfer Point and Transit Center:

- Urban Downtown
- Urban Neighborhood/Corridor
- Suburban Town Center



Transit Station

- Freestanding timed-transfer center located in a large-scale development such as shopping mall or independent site; part of regional circulation system
- Accommodates several buses simultaneously; space for bus layovers



Park-and-Ride

- Facility that requires commuter express service, land for parking and immediate access to Interstate highway system
- Accommodates buses, van pools and parked vehicles; size may vary

Left: Transit Station

Right: Park-and-Ride

TOD Settings for Transit Station:

- Urban Downtown
- Suburban Town Center

TOD Settings for Park-and-Ride:

- Suburban Town Center
- Commuter Town

Transit Stop and Station Design in TODs

For All TOD Transit Facilities

- Well-lighted
- Enables visual surveillance from adjacent streets and buildings
- Not located adjacent to blank walls and fences
- Comfortable waiting areas, appropriate to year-round weather
- Shelters complement the architectural character of neighborhood
- Sited where the street is level, where there is a barrier-free sidewalk, and where there is space to build a firm-surfaced pad that can accommodate a wheelchair as well as standing passengers

- Transit system maps that include connecting routes
- Bicycle storage where bicycle traffic warrants
- Shopping-cart corrals for transit users where transit customers patronize large retailers (grocery or big box)

For Medium and Large Transit Facilities

- Designed and planned as prominent public landmarks
- Distinguished with attractive plazas, landscaping, active retail and other amenities.
- Display monitors for arrival information or large windows with direct views of arrival areas
- Telephones to facilitate being picked up on arrival or for emergencies

For Stops and Stations Along Bus Corridors

- Simple facilities at stops with lower patronage, such as a shaded bench in a paved waiting area.
- Enclosed or otherwise protected shelters at stops with moderate to high patronage

PARKING IN A TOD

Providing space and facilities for parking is necessary to sustain a TOD, and there are various ways to do it – on-street parking, surface lots, parking structures or under ground. Generally, TODs need fewer parking spaces than parking requirements cities typically impose for residential, retail and employment land uses.

Amount of Parking

TODs can increase transit accessibility and, in combination with mixed land uses, offer opportunities to reduce the number of parking spaces below conventional community parking requirements for residential, retail and employment uses.

TOD Parking Management Strategy

The savings can be significant. The cost of surface parking on high- cost land can start at \$5,000 per space. A parking space in structures can cost from \$10,000 to \$20,000 per space. Underground parking exceeds \$20,000 per space, depending on geologic conditions and the number of levels provided.

Considering that the combinations of land uses in a mixed-use configuration can vary widely, a TOD project needs to incorporate an analysis of parking needs. However, as a general rule of thumb, a TOD's parking needs can be reduced minimally by 10% to 12% from conventional parking requirements.

Adopting a TOD parking management strategy can reduce parking demand and the number of parking spaces needed. Key features the strategy include:

Shared Parking

Shared parking is publicly and/or privately owned parking that is used by two or more separate land uses without conflict. The success of shared parking depends on the specific uses on site and the interaction of uses. Shared parking works best when adjacent land uses have different peak-activity periods.

District Parking

District parking is a large-scale application of shared parking, usually implemented in urban commercial and retail areas using one or more parking facilities. District parking can be particularly beneficial to new development because it can reduce the marginal costs of new construction. Districts can allow developers to contribute cash in lieu of providing parking themselves.

Promotion of Increased Transit Use

A significant percentage of new residents in a TOD is expected to use transit. Project-specific transit promotional programs or the use of TDM strategies can be used to boost transit use.

Reduction in Vehicle Use

Residents and commuters to a TOD will live and work close enough to a variety of uses to be able to walk, bike or use transit to meet many of their daily needs. The result can be a reduction in vehicle ownership as some households decide to meet their mobility needs with one auto rather than two.

In-Lieu Parking Fees

Developers can be given the option to pay parking fees used to construct and operate parking structures that provide shared parking for the TOD.

On-Street Parking

On-street parking is an important source to meet parking demand. It helps meet projected parking demand with convenient parking in front of businesses, homes and other buildings.



On-street parking counts toward the overall supply of parking in an area. On-street parking is beneficial from a livability standpoint because it slows traffic and creates a buffer between pedestrians and traffic.

On-street parking is an important part of the parking supply calculation.

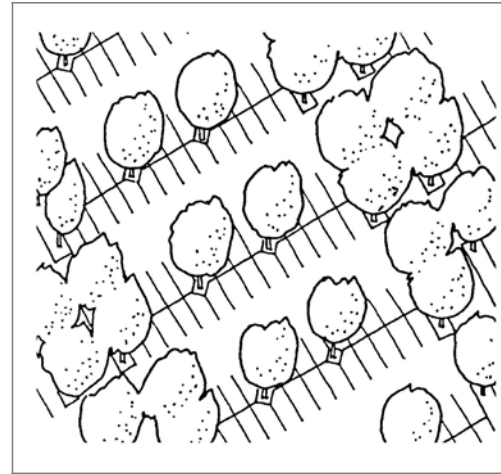
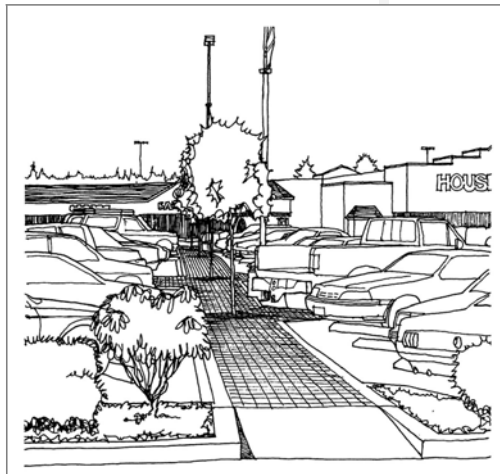
Surface Parking

In TODs, surface parking lots are minimized. Where necessary, they can be sited to the rear of buildings, away from local streets and pedestrian connections.

Parking lots are best positioned in the center of the block, surrounded by buildings, or adjacent to busy automobile-oriented arterials where pedestrian traffic is less.

Surface parking lots can be an interim use in a new growth or redeveloping area that is being transformed over time (perhaps over 5 to 10 years) to a TOD with a higher intensity of development.

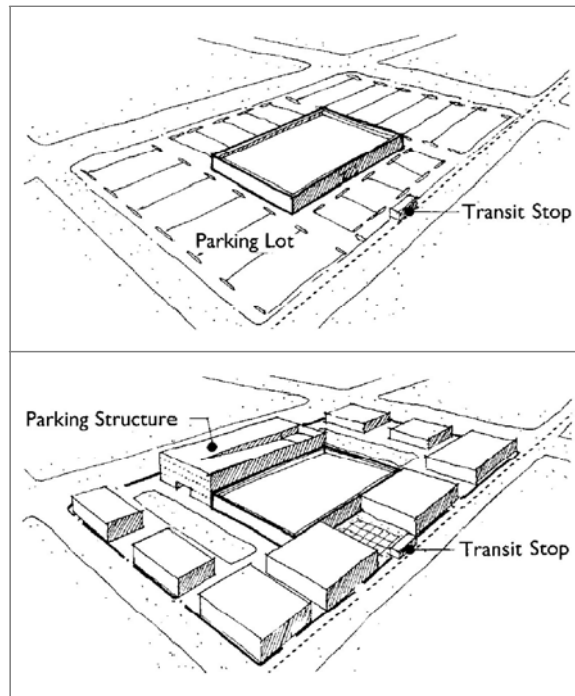
Best practices include treating stormwater on-site with landscaped detention and infiltration ponds to reduce stormwater outflows and minimize demand on infrastructure.



Left: Large parking lots should have landscaped pedestrian pathways to improve pedestrian connections and safety. (Graphic source: "Creating Transit Station Communities," Puget Sound Regional Council, June 1999.

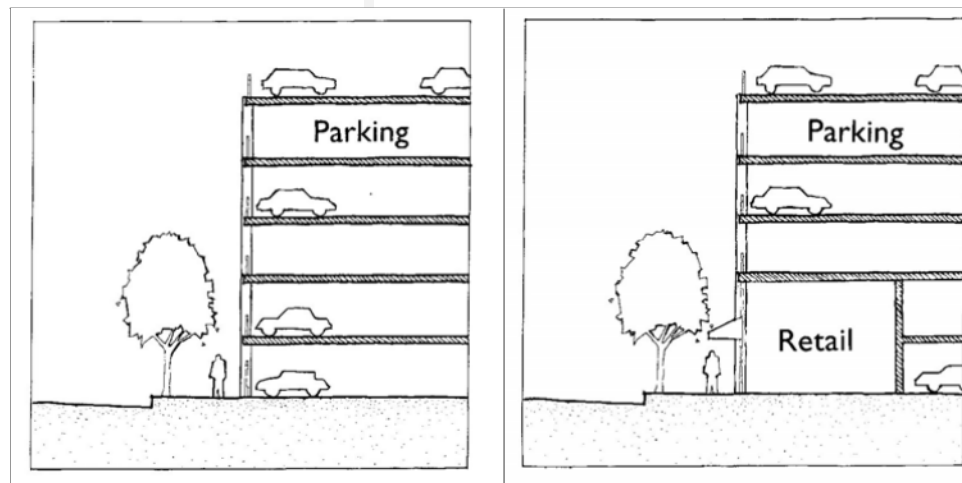
Right: If surface parking lots are unavoidable, they can have "orchard" tree planting to reduce solar heat gain, provide shade and improve the appearance of the property.

Redeveloping Parking Lots



As land prices rise and foster more efficient use of land, parking lots may be redeveloped to include complementary uses and transit-supportive intensities with parking accommodated in a parking garage structure.

Structured Parking



Parking structures can be critical for achieving higher densities necessary to sustain a TOD but it's important to keep the pedestrian in mind.

Left: Above-ground parking structure creating a face to the street that is not friendly to pedestrians.

Right: Active uses, such as retail or small offices, lining the ground level of a parking structure.

PARK-AND-RIDES

Generally, park-and-ride lots are not part of TODs because they reduce the potential for the more intensive land uses that encourage a greater diversity and activity of uses. They can work successfully, however, in a number of special circumstances.

In Outlying Areas

Park-and-ride facilities can be built at transit locations where regional automobile and transit accessibility is good but the potential for TOD is poor. For example, locations where the contiguous developable area is restricted by busy highways, power lines or other constraints are more suitable for park-and-ride lots.

Across from a TOD

Occasionally, surface park-and-ride lots may be appropriate on one side of a transit station or stop when that side is cut off from the other by an arterial street, highway, tracks or other barrier. This configuration creates a one-sided TOD, requiring safe and convenient pedestrian connections and crosswalks from the park- and-ride lots. The distance from the park-and-ride to the transit station would be walkable, and the large expanse of parking would not detract from core retail and civic uses or residential neighborhoods within the TOD.

As Structured Parking

Where park-and-rides are inevitable within pedestrian-oriented districts, parking space can be built as a structured and/or underground facility. Above-ground parking structures fronting on pedestrian-oriented streets can create a pedestrian-friendly environment by providing leaseable ground-floor space for retail or other uses.

In Linear Configurations

“Parking streets” can provide minimal surface parking at transit stations, with one or two rows of diagonal parking running adjacent to light rail tracks or along linear parks adjacent to transit. Parking streets offer parking spaces that do not interfere with pedestrian access or displace higher-intensity uses from the TOD’s center.

As an Interim Use

Surface park-and-ride lots can also constitute an interim use, banking land where higher-intensity uses are ultimately expected. As the TOD is developed at a higher density, the park-and-ride lot could be moved outside the TOD and the parking lot infilled with buildings. Alternately, the lot could be replaced with a structured or underground parking.

BICYCLE PARKING

In a TOD, ample bicycle parking is needed in secure, convenient locations.

Bicycle traffic can be further accommodated by offering convenient opportunities to safely park bikes. Larger employers may be in a position to provide lockers and showers to encourage bicycle commuting.