

**LOGIN/SIGN UP TO SAVE****Implementation Guides** August 2021

How to implement transit-oriented development

[Finance and Economics](#)[Transport](#)[Urban Planning and Design](#)Originally Published: **March 2019**Author(s): **C40 Cities Climate Leadership Group, C40 Knowledge Hub**

Transit-oriented development (TOD) is a type of urban development that clusters jobs, housing, services and amenities around public transport hubs. It is compact, mixed-use, and pedestrian and cycle friendly. TOD brings many benefits, including:

- increased public transport use and fare revenue.
- reduced congestion and air pollution.
- increased job availability, convenience and sense of community for residents.
- a way to build homes without increasing sprawl or exacerbating air pollution and congestion.

Pursuing TOD is a core requirement for cities to achieve a significant modal shift away from reliance on private vehicles, and will be a key lever for supporting the long-term recovery of public transport systems in cities following the COVID-19 pandemic. It requires long-term vision and investment. Cities as diverse as Portland, Cape Town, Curitiba, Tokyo and Stockholm are leading the way. This is how your city can join them.

Establish a long-term, city-owned and city-wide vision for TOD

Local clean energy benefits

Promoting dense, mixed-use neighbourhoods also leads to more balanced energy demand profiles throughout

the day compared with single-use residential or commercial districts. It is therefore also beneficial for local clean energy initiatives, as well as district heating and cooling networks.

A city's TOD vision is usually established at the mayoral (or equivalent) level. This is sometimes linked to a comprehensive urban development plan, or equivalent city-wide land use plan.

Realising TOD is a long-term undertaking, so it is important that the vision is seen to be owned more widely by the city and its residents (and not by the political party in power when it is established). This requires widespread cross-party support and long-term investment in transit and urban development.

Cities should take steps to ensure that their TOD vision has this support by inviting widespread participation in its development. Engage with residents through city-scale consultation to frame and design TOD to work locally. In Portland, Oregon citizen participation is key to the Portland Plan and the 'complete neighbourhoods' concept it promotes. Consultations attracted more than 20,000 comments and ideas from citizens.

Implementation of this vision will require careful communication and participatory design with local communities, as explained later in this article.

Consider developing a complementary '15-minute city' vision

The '15-minute city' is an urban planning concept that strives to ensure that everyone, in every neighbourhood, can meet most of their daily needs within a short walk or bike ride from their home. It creates a 'human-scale' city composed of vibrant, people-friendly, 'complete' neighbourhoods, connected by quality public transport and cycling infrastructure for the longer trips that residents want or need to make. It is broader and more flexible than TOD, but these approaches are mutually supportive. A '15-minute city' vision can help to ensure TOD delivers quality neighbourhood upgrades and equitable public transport access, for example. Learn more about it, and cities' many 15-minute city-style visions, plans and programmes, in Why every city can benefit from a '15-minute city' vision.

Measure access to transit and consider setting city targets

Cities can set TOD targets to send a clear signal to developers and citizens about their urban development future. TOD targets set by cities typically take one or a combination of the following forms:

- **A percentage of new development within a certain radius of transit stations.** For example, in New York, upzoning under PlaNYC aims for 95% of new housing to be built within half a mile of mass transit stations.¹ Los Angeles has set incremental TOD targets for new housing units within

1,500 feet of transit stations: 17,000 by 2017 (this has been met); 57% by 2025; and 55% by 2035.^{2,3}



English

- **A percentage of the population living in TOD zones.** Portland's TOD approach is framed around 'complete neighbourhoods.' Neighbourhoods are designed to accelerate the shift to active transportation modes and to provide residents with access to local amenities like schools, stores and parks within a 20-minute walk. In 2012, 45% of Portland's population lived in a 'complete neighbourhood,' and the city aims to reach 80% by 2035.⁴
- **Percentage of population with access to public transport.** Cape Town's TOD Strategic Framework has set targets to improve access to transit by 12% by 2032, and to reduce passenger kilometres travelled by 23%. The framework prioritises a shift towards public transport, reduced travel distances and costs (which is especially important for lower income groups who spend a higher proportion of their income on transport), and alleviation of urban sprawl through better land use.

Setting these targets is not a requirement for implementing TOD – some cities prefer not to set targets because meeting them relies on developers and the real estate market. Nevertheless, target setting can be a useful tool pursuing TOD, sending a signal about future development priorities and establishing a mandate to enact zoning updates and other regulatory changes required.

To inform target setting and monitor progress, cities should assess the current and changing levels of access to transit. The People Near Transit Metric offers an approach to measure the number of residents living within short walking distance (1km) of high-quality rapid transit.

Identify where to apply TOD and the appropriate density and development mix

TOD cannot be applied everywhere across a transit network, as densities of jobs and residents vary widely. It usually targets areas that already have transit access.

Cities should commission analysis to determine which areas are good candidates for TOD, the level of density those areas can absorb, and the appropriate local development mix to strike the right balance between jobs, housing and other amenities.⁵

The World Bank's Three Values (3V) framework can guide this analysis. It assesses:⁶

- **Node value.** This is the importance of public transit network stations, based on passenger traffic, connections with other transport modes, and centrality within the network.
- **Place value.** This is the quality and attractiveness of the area around the station, determined by the diversity of land use, availability of essential services like schools and healthcare, proportion of everyday amenities that can already be accessed by walking or cycling, pedestrian accessibility and



the size of urban blocks around the station, among other factors.

- **Market potential value or ‘market readiness.’** This is the unrealised market value of the area surrounding the station. This measures major variables that can influence demand and supply for land. Demand includes considerations such as current and future number of jobs in the surrounding area and those accessible within 30-minute transit, current and future housing densities. Supply is, for example, the amount of developable land, possible changes in zoning policy and market vibrancy. This should incorporate an analysis of the real estate market and feasibility criteria to determine realistic future development demand, and establish the maximum feasible affordable housing requirements.⁷ These factors are vital because TOD is implemented by the private sector, rather than the city government; regulations in favour of TOD will have no impact unless developers are building, or will build, in the area.

Cities can target TOD in areas where there are imbalances between node, place and market potential value. For instance, by improving the urban environment around a major transport hub, or by improving public transport service in a booming area.

City planners can also use ITDP’s *TOD Standard 3.0* to help identify priority areas for investment and densification as well as visit GPSC’s Transit-Oriented Development site, which provides a host of tools and resources to support the planning and implementation of TOD in lower-middle income countries.

Update regulations to align land use and planning regulations with transit strategies – and be sure to invest in attractive public transport

Transport and planning departments must work together to develop a joint strategy for delivering TOD. This is important because land use changes for TOD are pegged against transport infrastructure. Consider also hiring a consultant to support updates to planning regulations if local capacity is limited.

The core land use and planning regulation updates needed are:

- upzoning (or rezoning) for denser development;
- downzoning in non-transit accessible locations; and
- a shift to mixed-use zoning in the area near transit hubs.

Cities can also replace regulations for ‘parking minimums’ with ‘parking maximums’ to discourage driving and to make better use of valuable urban space, especially in new developments. Mexico City is among the cities to have replaced parking minimums with parking maximums. Read *Empty Spaces: Real parking needs at five TODs* for guidance on how much parking is needed in transit-oriented developments.

TOD around transit hubs must be coupled with expansion and upgrading of walking, cycling and public transport infrastructure within the city, as well as investment in regional transit infrastructure outside of the city. In the medium-long term, as density increases, investment in transit must keep up with increased

demand – if not, new residents will drive instead of using public transport. This would  English impacts on parking, increased local traffic congestion, and eliminate the emissions reduction potential of TOD.

Promote benefits that will win the local argument with residents and businesses

Residents can be resistant to TOD as they typically don't like changes that allow for more local development. To win local support, cities should raise awareness of the expected benefits, and engage residents and businesses about how to maximise those benefits and avoid negative outcomes. This might include committing to protecting valued green spaces, for example. A complementary '15-minute city' style vision could help in this regard. Engage on an ongoing basis to monitor actual benefits and residents' evolving concerns as TOD is implemented in their neighbourhood.

The benefits will differ depending on the neighbourhood characteristics, as well as dynamics between existing and incoming residents, residents and businesses, and renters and home owners. Cities should conduct analysis of the local area to inform citizen engagement strategies and policies to work locally.

The main benefits of TOD that resonate with local residents and businesses are:

- **The city and neighbourhood will become more liveable**, with shorter commuting times, vibrant communities and well-used public areas.
- **Cost and convenience savings** from reduced – or even no – need for car ownership and expanded mobility options. In many cities, car-based transportation is the second highest household expense, after housing, making TOD an important affordability strategy.⁸
- **Improved congestion, air quality and health** through reduced vehicle traffic and increased physical activity.
- **Local job creation and better access to jobs.** Cities can increase support for TOD by committing to hire and provide on-the-job training for local workers.
- **Increased local retail and services income** from increased foot traffic.

For more details of these benefits, read *Why shifting to green and healthy transport modes delivers vast rewards for cities.*

Existing property owners will also usually benefit from increased local house prices. The rent and land value premium enjoyed by property owners will depend on type of transit, distance from transit and current market conditions. However, as this will usually impact negatively on renters, this argument should be used with caution and must be complemented with a high proportion of affordable new housing (see below).

Design TOD to work for everyone

If cities don't emphasise equitable TOD, it can displace lower income groups through gentrification. Existing homeowners benefit through raised property values, but it becomes more difficult for renters and younger people to buy or rent homes in the area.

TOD also offers some of the best opportunities for building affordable homes in cities. Developers can build more homes in less space and with less parking, which can otherwise account for a significant part of construction costs.⁹

Inequitable planning also risks undermining the premise of TOD (see box below). Cities must balance the need to attract developers who will seek to maximise profits while taking on development risk, with the need to ensure access to homes, job opportunities and services for all residents at all income levels.

Cities should:

- **Act early to preserve and create affordable housing in target areas before land values increase** when the area is upzoned or new transit is built.
- **Allocate a significant portion of new development to affordable housing.** The locally appropriate requirement for affordable new housing (often given as a % of units to be developed on site) will depend on the way affordable housing is funded and managed locally, and what the market can afford. This will be informed by the market analysis outlined earlier. The figure should be as high as possible, but if set too high, developers may not build at all and everyone loses.
- **Ensure that the market study considers the expected income levels of households** who will likely seek to rent or purchase TOD housing, relative to area averages, and address this in the % affordability requirements.

Read [Policy and Planning Tools for Urban Green Justice](#) and [Steps to avoid stalled equitable TOD projects](#) for more information on how to make equitable TOD work. [15-minute cities: How to ensure a place for everyone](#) also looks at ways to avoid displacement.

Getting the balance right between community and developer interests

If the scales are tipped too much in favour of developers, the project may be seen as working to promote developer profits at the expense of local people, and risk losing crucial local support.

It also undermines the premise of TOD because:

- The people who would work in local shops and other local businesses cannot afford to live in the local area, especially in areas where affordable housing is already scarce.
- Lower income residents are often the most likely to use the public transport at the centre of TOD, as switching to public transport reduces the cost of living. Affordable housing is therefore important from a transit agency's perspective as it supports ridership and fare revenue.

- TOD will fail to serve as a mechanism to reduce urban sprawl as the city's population in cases of the English cost of homes in the centre or dense TOD areas are significantly more expensive than homes of comparable size in sprawl areas.

Financing and risk-sharing for TOD

TOD can pay for itself in the longer term through higher net tax revenues and net benefits for the local economy.¹⁰ Nevertheless, TOD requires substantial investment in the built environment and in walking, cycling and public transport infrastructure.

In many cities, the public sector provides the transit and supporting infrastructure investment, and the private sector develops the real estate.¹¹

Potential financing mechanisms include:

- **Municipal bonds backed by future property taxes.** Read [*How to issue a Green City Bond*](#) (global in scope) or [*How to issue a Green Muni Bond*](#) (United States).
- **Government subsidy such as dedicated investment funds or tailored loan products.** Read the [*Handbook on Urban Infrastructure Finance*](#) and visit the financing tools in the GPSC's [*Transit-Oriented Development*](#) site.
- **Land value capture following TOD investment.** Read [*Financing Transit-Oriented Development with Land Values*](#) and [*Global compendium of land value capture policies*](#).

Infrastructure investment is critical but too often underfunded in or by cities pursuing TOD. TOD should centre around the type(s) of local transit network(s) that are frequent, high capacity, reliable and that connect users to the entire city. Usually, the subway, metro or light rail networks are the TOD transit backbone, though some cities focus TOD around high frequency and high capacity bus corridors (Bus Rapid Transit). Walking and cycling investments are also important. Read about how to promote and finance a shift to [walking and cycling](#), and [how to make public transit an attractive choice](#) in our related articles.

Regional public transit investment is usually outside of a city's control, but cities can work with interest groups pushing for this investment and lobby the national and regional government.



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