

Transit-Oriented Development for Sustainable Cities

Authors: Gerald Paul Ollivier, Gunes Basat

The way in which a city is structured impacts its sustainability. With rapid urbanization, cities have a short window of opportunity to shape themselves to best accommodate their current and future citizens. A central challenge for rapidly growing cities is strained transport networks, with traffic congestion and pollution representing a major constraint to continued economic growth and access to opportunities. However, as shown in the case of [Chongqing](#), a more compact urban development would result in a 40 percent reduction in GHG emissions by 2035 attributed to transport. In large and dense cities, mass transit options along key corridors, supplemented by an effective bus system and good walkability to transit, are the best way to efficiently move large numbers of people, when city plans foster concentration of population and jobs around points of high accessibility like mass transit stations.

One way to address this challenge is through Transit-oriented Development, commonly known as TOD, which is a multidisciplinary planning and design strategy to promote sustainable urban development. It supports urban development patterns with vibrant, diverse and livable communities, where people are encouraged to take public transit, walk and cycle rather than travel by car. TOD is achieved by concentrating urban densities, communities and activities within a 5-10-minute walking distance from mass rapid transit stations (both bus and rail based), developing quality urban space, enhancing universal accessibility, and providing convenient and efficient access to a diverse mix of land uses.

TOD brings together elements of land use and transport planning, urban design, real estate development and, investment and infrastructure implementation to achieve such urban development. By connecting multiple stations with high-quality and frequent public transportation, city residents can thrive without the need for a car. Investing in effective and thoughtful design of the neighborhood surrounding such stations, prioritizing pedestrians, cyclists, and other connecting transit makes neighborhoods livelier and more vibrant, enhances quality of life, and encourages economic growth. Implementing TOD also improves the performance of urban transportation assets in which cities are investing. Additionally, inclusive TOD can address concerns over gentrification by supporting affordable

housing and stimulating economic diversity in TOD areas. TOD can also integrate climate resilience and vulnerability factors in planning. By using land value capture mechanisms, the city can harness the increase in property value around stations to help offset the cost of supporting transport infrastructure.

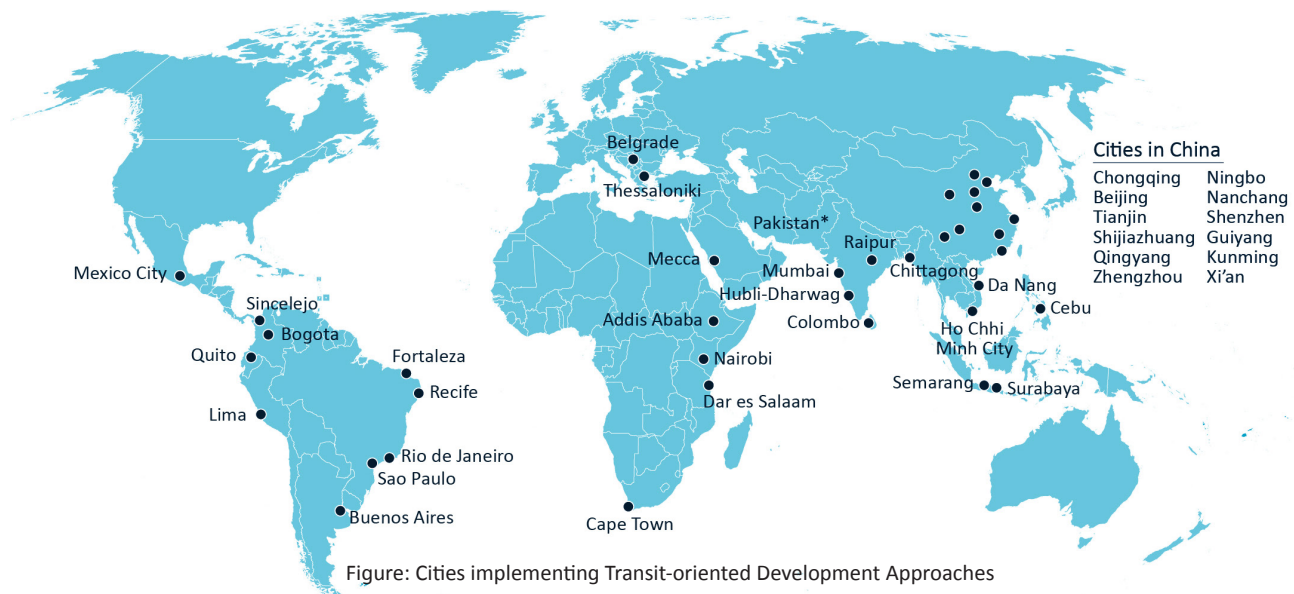
TOD can be implemented at different geographic scales, from improving local station areas to coordinating development along a corridor to implementing a metropolitan-wide strategy for integrated planning. It is a useful and customizable concept that can benefit cities as they address high demand for new urban and real estate development and the accompanying challenges of congestion. TOD is a way of improving the economic performance and urban livability of cities as they grow, as shown in Japan, Europe, USA, Singapore and China.

What have we done so far?

The concept of TOD and the need for integrated transport and land use planning have become central in conversations between city leaders and the World Bank. Beyond awareness raising, cities are looking for solutions to implement TOD. The pursuit of such solutions provides the groundwork for the activities of the World Bank [TOD Community of Practice](#).

TOD is applied in over 35 Bank activities around the world. In China and India, the World Bank has supported national-level TOD policies and urban design guidelines to complement their rapid urbanization. In India, the Sustainable Urban Transport Program (SUTP) helped to fund the Ministry of Urban Development's detailed guidance documents on TOD, and in China, the World Bank is supporting national policies and cities in applying TOD through the Global Environment Facility Sustainable Cities Integrated Approach Pilot.

The World Bank also works with cities on identifying the specific strategies and design possibilities at city-level, corridor level or station area level, with the aim to prepare for TOD implementation. Such engagements range from Surabaya, Indonesia to Dar es Salaam, Tanzania from Lima, Peru to Mumbai, India.



The success of TOD technical advisory projects generally relies on their customization to the city's context and current challenges in transport and development. Recommendations are based on the actions they can take right now, often around a new rapid transit line that is being planned or constructed. TOD is not an all or nothing proposition, and applying even some of the principles can make an improvement in a city.

Where can we go from here?

TOD will continue to be a key topic and planning concept for World Bank client countries and cities as populations grow and economies develop. To maintain and enhance economic competitiveness, it is essential that cities guide development to the most accessible areas and invest in public transport systems to connect them. It is anticipated that with enhanced knowledge resources and implementation tools, more cities can turn their vision into reality.

Several recent World Bank publications available on the [ToD Community Website](#) provide a foundation for such discussions: (i) Transforming Cities with Transit; (ii) Financing Transit-Oriented Development with Land Values; (iii) Transforming the Urban Space through Transit-Oriented Development: The 3V approach; and (iv) Regenerating Urban Land. A self-paced online course, Transit Oriented Development at a Corridor Scale, designed by the World Bank and World Resources Institute (WRI) introduces the concept through seven easy to follow modules.

The World Bank has also recently launched a [TOD knowledge resource](#) and learning platform as part of the Global Platform for Sustainable Cities (GPSC) with [IBI](#) and World Resources Institute (WRI) to fill in resource gaps and connect existing TOD literature better to known needs. It combines new tools, references and checklists to assist the implementation process through five phases: assess, enable, plan and design, finance, and implement.

Experts



Gerald Ollivier



Wanli Fang



Chyi-Yun Huang



Shigeyuki Sakaki



Valerie-Joy Santos



Felipe Targa



Joanna Masic



Aiga Stokenberga



Lincoln Lewis



Yuko Okazawa



Gunes Basat

For more information, please visit Internal WBG Link

<http://tod>