



PHOTO: JACOB FORSELL

# Transit-oriented development and sustainable urban planning

Cities are key locations for tackling questions related to sustainable production and consumption. Coordinating urban and transport planning offer significant potential for promoting more sustainable lifestyles and behaviour. Nonetheless, this is a challenging issue since it requires innovative approaches for integrating policy sectors, interest groups and planning goals.

THIS POLICY BRIEF considers how links between transport and land-use planning policies can be promoted in urban and regional development strategies. It primarily targets urban policymakers in Europe wanting to learn more about the notion of transit-oriented development (TOD) and how the concept is implemented in practical projects. The information presented in this Policy Brief is derived from a review of the concept and its application in different parts of Europe. The review was carried out as part of the JPI Urban Europe CASUAL project (more information below).

## Box 1. What is transit-oriented development (TOD)?

Transit-oriented development (TOD) is generally considered to be mixed-use development near, and/or oriented to, public transport facilities. Common TOD traits include urban compactness, pedestrian and cycle-friendly environments, public and civic spaces near stations, and stations as community hubs. Typically, a multimodal TOD neighbourhood is built around a public transport station or stop (e.g. train station, metro station, tram stop, BRT stop (Bus Rapid Transit), bus stop, or even ferry stop), surrounded by relatively high-density development with progressively lower-density development spreading outward from the centre.

TODs are generally located within a radius of 400 to 800 metres from the transit stop. This is considered to be an acceptable walking distance at the start or end of a journey by transit. In some parts of the world, the TOD approach reaches further than single locations towards a network or corridor approach, which aims at realigning entire urban regions around rail transport and away from the car. While these are the basic TOD tenets, the model has been revised to fit a variety of contexts (including low-density cities and regions).

# Main messages for TOD urban policy-making in Europe

■ Transit-oriented development (TOD) does not occur naturally. National, regional, and local governments play a major role in steering development towards public transit stations and lines – or in servicing existing housing developments with public transport. This implies that TOD is context dependent:

■ Dutch planners are, despite some difficulties, positive about the future of TOD in the Amsterdam region and view it as one of the most efficient urban and regional development policies.

■ Although implicit types of TOD can be found in urban development strategies for many decades in the larger Swedish cities, it seems that there is an increasing awareness of the need to integrate transport, housing, services and jobs within future spatial strategies particularly at the regional level.

■ Contemporary TOD projects in Vienna are expressions of a new form of planning comprising new urban policies and entrepreneurial governance.

■ Efforts to promote TOD in brownfield urban areas are important given the trend toward a return to the city and ideas of “green urbanism” can be used to increase the desirability of TOD sites. But it is also important to support the development of new centres at the edge or outside larger cities as integral parts of regional polycentric strategies. To achieve this different types of TOD can be employed in parallel: nodal TOD, regional network TOD, and urban corridor TOD (see box 1).

## TOD policies in European cities

The term transit oriented development (TOD) is rarely used in Europe, even though the concept has been intrinsic in planning practice across many countries. TOD is sometimes called by other names or included in sets of related policies and concepts. In the following we provide an introduction to TOD related urban policies in Amsterdam, Vienna and Stockholm including illustrative examples. Current planning policy in Austria, the Netherlands, and Sweden indicate support for sustainable and resilient urban and regional development, and include TOD in some way. However, recent trends in liberalization and the recent economic crisis have favoured more market-led developments. As a result, the interests of developers are generally placed ahead of strategic efforts to structure cities and regions in more environmentally sustainable ways.

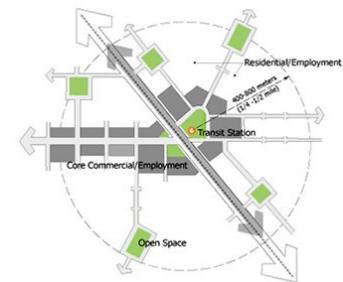
**Amsterdam** has a dense multi-modal public transport system based on metro, tram, bus, and bicycle. Its metropolitan region is an exemplar of relatively successful, albeit complex, development control which has attracted interest from planners around the world. In the post-war period, the city expanded out from its historic fan-shape. Major efforts were poured into creating urban ‘lobes’ as well as new satellite towns, which followed TOD concepts. Many new housing projects built in the 1950s, 1960s and 1970s took the form of multi-story apartment

blocks. While their scale grew over time, they remained smaller than in Vienna and Stockholm. A substantial number of townhouses (terraced houses) was built

as well during this period. Housing construction and transportation planning were strongly connected.

### Box 2. Different types of transit-oriented development

■ **Single node TOD.** This type consists of a single neighbourhood based around heavy rail stations. Its location can be urban or suburban. The development takes place in a circular pattern centered on a train station. The radius varies from 0.5 km in the US (to allow for pedestrian access) to 2-3 km in the Netherlands (where bicycle access is more common).



■ **Corridor TOD.** This type is encountered in urban areas, and is based around light rail or Bus Rapid Transit (BRT) stops (which are more frequent than heavy-rail stops). The development pattern is linear or ribbon-like along the transit line(s) because the nodes (e.g., around tram stops) are near each other. TOD corridors are applicable to existing urban areas or planned urban extensions.

■ **Multi-node TOD.** This type is similar to the single-node TOD but it reaches further than a single location to create a regional network of nodes around heavy rail stations. The nodes can be circular or semi-circular. The location of TOD nodes follows a typical “beads-in-a-string” pattern. This type of TOD aims at realigning entire urban regions around rail transport and away from the car.



The recent economic crisis has been problematic for the TOD in Amsterdam since the city finds itself with a large amount of land in its ownership which is not located in TOD zones. Before being able to develop TOD sites, the city needs to find a way of disposing of its current stock of land. While areas close to train station areas are seen as convenient work places, not all families and individuals perceive them as high-status living environments. Because bicycle use is widespread, the standard distance for non-motorized travel to train stations is much higher than in TOD zones in other countries.

In the first few post-war decades, urban planning in **Vienna** was heavily preoccupied with reconstruction of the building stock destroyed in the war. Large housing estates were also developed on vacant land south and east of the city. They were based on TOD principles in the sense that public transport was provided. At the time, Vienna was an exemplar of a top-down, corporatist form of social-democratic urban governance, based on rigid master-planning. The city expanded in a circular fashion along its historical radial structure. In the 1970s and 1980s, Vienna experienced a wave of

**Box 4. Vienna’s Seestadt Aspern, a TOD area still under development**

With the transformation of the former airfield Aspern, the city of Vienna plans to establish a new urban centre in the east of Vienna. The masterplan foresees the development of a multifunctional district with a mix of residential, office, scientific, research and educational uses. In 2028, 240 hectares of land will be developed, accommodating around 20,000 residents and a similar number of workplaces. Aspern Seestadt is expected to reduce the existing lack of jobs in the eastern part of Vienna, causing considerable commuter flows into other districts of Vienna. The development of Aspern Seestadt is accompanied by an integrated mobility strategy which seeks to transform the mobility patterns of incoming residents by prioritising walking, cycling and public transport.

The new city district will be connected to the public transport network of Vienna and the wider metropolitan region through metro, light rail and heavy rail as well as the tram and bus network. The new metro line was opened in October 2013, prior to the development of residential areas. A management group has been established with the aim of maximising the attractiveness of streets and public spaces, in which a broad choice of shops, restaurants and other services are provided. The highest densities in Aspern Seestadt are to be found around the two metro stations. Aspern Seestadt can be considered both as a single node TOD and a corridor TOD (Box 2).



Amsterdam’s Zuidas district. Photo: JKL Fotografie

urban renewal to counter urban deterioration, which was becoming visible in the cityscape of the centre, but urban renewal took a gentler form than the demolition and rebuilding works occurring elsewhere.

During the 1980s, social-democracy began to establish new forms of urban governance in line with the neo-liberal political restructuring of other European countries. Municipal socialism began to transform into municipal capitalism. In contrast with the publicly-funded TODs of the past, new urban development projects were planned as public-private partnerships. From the 1980s onwards, Vienna’s TOD focus shifted to inner city areas. Part of the shift was driven by the desire of city leaders to promote Vienna’s image as an internationally competitive city and a gateway between Eastern and Western Europe, and motivate the private sector to implement this vision. Contemporary TODs are an expression of a new form of planning comprising new urban policies and entrepreneurial governance. The

**Box 3. Amsterdam’s Zuidas district, a TOD centred on the Amsterdam South Station**

Various secondary nodes have emerged, in addition to the traditional centre, which loosely follow TOD principles. One major redevelopment node is in the south of the city located at an interchange station (Amsterdam Zuid, Amsterdam South). The success of the area (the Zuidas) has been ascribed to the availability of large amounts of office space, a concentration of prestigious law firms, the proximity to the Schiphol airport, an international allure, and excellent accessibility by car (including the necessary parking facilities). These traits are absent from the central city, which is highly accessible by train only. However, the general quality of the local urban environment, especially its public spaces, is currently rather mediocre. The area remains largely mono-functional and dominated by high-rise office buildings – similar to La Défense in Paris or Docklands in London. In order to improve the attractiveness of the area to businesses and residents, ambitious plans have been made to radically change the area by putting the railway and highway infrastructure underground. It is hoped that these plans will not only reduce the physical severance of the infrastructure but will also increase the desirability of the area by providing additional space for new housing, open space and green transport modes (cycling and walking).

The current planning vision for the area prepared by the City of Amsterdam foresees the transformation of this area into to a fully-fledged urban centre, incorporating a balanced mix of business, commerce, residential units, and public amenities. The ambition is for the area to complement the existing city centre, “both physically and emotionally” rather than a “cloned international business district”. At the same time, the area will retain certain characteristics that will set it apart from other parts of the city. A main attraction will be its spacious dwellings and offices, which the densely-built inner city cannot offer. Parking facilities will also be more generous (although this policy is in opposition to TOD tenets).



Vienna’s Seestadt Aspern. Photo: Andreas Faessler

### Box 5. Stockholm's Flemingsberg, a secondary office hub in the southern part of the region

The regional urban core of Flemingsberg (see picture on frontpage illustrating the western part of it) – almost 20 km south of the centre of Stockholm – is an interesting case from the perspective of TOD. The current plan aims to densify the area with new apartments, shopping and leisure facilities, and additional office space. More recently, two new large transport infrastructure projects have been proposed for the area: a tramline connecting Flemingsberg with the southern western suburbs of Stockholm and a high-speed rail line (the East Link Project), connecting Stockholm with Linköping and Södertälje.

It is envisaged that these transport investments will greatly increase the demand for local property development. The area is characterised by scattered multi-storey housing, a research park, a university and university hospital, a regional court and a police station. Over the last year, a planning process has been set in motion that envisions high ambitions in terms of densification, urbanity, and quality of urban design and public space for the area, particularly around the train station. If development takes place as envisaged in these plans, Flemingsberg could be considered as a prototype of a post-modern 'regional network TOD'.

approach is also in line with the deeply entrenched hierarchical structure of Vienna. The key actors involved include real estate businesses, international investors, and public opinion leaders.

**Stockholm** is arguably a leading example of coordinated rail transit and urban development. Although, the term TOD has not been used explicitly in any planning documents, TOD has been an implicit guiding concept of Stockholm's municipal development for many decades. More recently, a number of new development projects just outside the inner city have been planned and coordinated with the potential needs for public transport (e.g. Liljeholmen and to some extent also Hammarby Sjöstad). This approach has blurred partially the otherwise sharply defined borders of the inner city.

From a city-regional perspective, the Stockholm metropolitan area is still characterised by a monocentric structure, both functionally and also morphologi-

cally. However, the current plan for the metropolitan region aims to develop a more polycentric structure by promoting development in seven 'regional urban cores' located 15-40 km from the centre of Stockholm. Underlying the development of the regional urban cores will be investments in the transport system to improve inter-modal accessibility. At the same time, priority will be given to increase the density, compactness and energy-efficiency of settlements, upgrade the urban environment and add new urban functions. As such, a number of TOD elements are central to the development that will take place in these regional urban cores.

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### Resources

CASUAL: Co-creating Attractive and Sustainable Urban Areas and Lifestyles: exploring new forms of inclusive urban governance is a research project within Joint Programme Initiative (JPI) Urban Europe (www.jpi-urbaneurope.eu/casual/).

The CASUAL project explores how to promote sustainable living and consumption patterns by engaging people, as citizens and consumers, along with other urban development actors in the governance of urban areas.

To that end the project focuses on the intersections between the built environment and technical elements where individual preferences influence sustainability (e.g. choice of transport modes and related mobility patterns, housing preferences and lifestyles).

Nordregio is lead partner of the project which includes the Austrian Institute for Spatial Planning (OIR) and TU Delft – Delft University of Technology.