2 Planning and governance for accessible cities

This chapter proposes some actions cities may undertake to improve planning and governance arrangements to build accessible cities. It argues that fostering urban accessibility requires a holistic planning approach, a sound institutional framework, reliable sources of funding, enhanced governmental capacity (staff) and strong community engagement. The chapter starts with an exploration of how cities organise their planning framework for accessibility. It then continues with a discussion on the different governance arrangements needed to promote and support urban accessibility policies. The discussion focuses on how cities adapt their institutional framework to improve transport planning and ensure they have access to potential sources of funding to implement those plans. The chapter highlights the need for improving governments' need for qualified staff and access to reliable data. It concludes with a discussion on how community engagement can be better pursued to enhanced urban accessibility.

Key messages

Enhancing urban accessibility faces a number of barriers linked to the level of socio-economic development and capacity of the public sector in each country and city. The COVID-19 pandemic may be both a triggering force for urban accessibility but also a barrier as recovery measures, such as a wider use of private cars, may undermine efforts to promote accessible cities. The challenge for countries and cities is to remain on track in pursuing compactness, inclusiveness, sustainability and accessibility while designing policies to "build back better" after the current pandemic.

Key takeaways for national and subnational policymakers are:

- Enhancing accessibility requires a holistic planning approach that links social, economic and environmental aspects to ensure that planning of the city's movement and traffic contributes to building accessible and attractive cities.
- A way to promote urban accessibility through the planning framework is by building "transit-oriented communities" (TOCs). TOCs intend to maximise access to transit as a key organising principle and acknowledge mobility as an integral part of the urban fabric. TOCs require designing and planning high-density, mixed-use, human-scale development around frequent transit stops and stations.
- Promoting accessibility is a way of contributing to environmental goals as it can reduce the need for mobility or make mobility more efficient and thus reduce emissions. Reducing travel demand by improving accessibility, facilitating the use of high-occupancy mobility and encouraging active mobility (walking and cycling) can help reduce CO_2 emissions from urban transport.
- Planning for accessibility requires cross-cutting policies and co-ordination across policy areas and levels of government to reduce transaction costs. For that purpose, having one agency (normally at the metropolitan level) that facilitates the planning and implementation of transport strategy is a way to advance accessibility goals and improve technical and financial capacities.
- The success of any transport and accessibility strategy depends on how intergovernmental relations are structured. There should be a coherent allocation of responsibilities across levels of government based on multiyear strategic planning.
- Countries and cities need to explore different sources of funding for transport strategies that promote accessibility. Some alternatives include:
    - Devolving or granting more financial powers to cities, which could allow them to manage their own growth.
    - Developing land value capture mechanisms to fund further developments.
    - Creating public partnerships for funding transport investments.
    - Involving the private sector in funding public transport infrastructure.
    - Adopting a medium-term budget framework for transport investment.
- Cities need to improve their capacity for accessibility through investing in a highly skilled workforce and developing the capacity for data collection and *ex post* assessment to build expertise.
- Promoting dialogue with and engagement of citizens and a wider set of stakeholders is a way to harness the knowledge of citizens. Involving all levels of government, customers and industry in discussing critical transport problems and together finding innovative solutions is a way to foster a high level of collaboration and decision-making.

Planning for accessibility in cities

The barriers to enhancing accessibility

Changing the urban transport model and promoting accessibility faces some barriers or resistance in all cities. Researchers argue that there is a sparsity of knowledge about accessibility and a disconnect between policymaking and accessibility outcomes; thus, research mainly analyses topics such as land use, housing and transport dissociated from one another (Duranton and Guerra, 2016[1]).

Despite large investments in public transport infrastructure and services in many cities, cars remain the dominant urban transport mode. Although the economic, social and environmental case for promoting public transit over the use of private cars is strong, industry sectors, such as the car industry, construction and real estate, which are still highly dependent on the traditional urbanisation model and are proving resistant to change (Rode et al., 2014[2]). For instance, the Prague metropolitan area in the Czech Republic continues to pursue a car-friendly approach and is ranked 26th (out of 30) in the European Green City Index in the transport category. In contrast to the high level of public transport use within the city of Prague, cross-border commuters rely predominantly on cars. The lack of mobility options to connect the city and the metropolitan region through public transport has led to an increase in car ownership and traffic in recent years (Lukeš, Kotek and Růžička, 2014[3]). In Spain, the total number of trips during a weekday in the Madrid region is 12.9 million of which approximately 70% are made by mechanised modes (private vehicle and public transport) and 30% by walking (Velasco, 2016[4]). These data show that the use of the private car is still the main means of transport in the metropolitan zone. However, a large percentage of citizens prefer walking. In some areas outside the city of Madrid, the use of the car may reach 50% as transport coverage is not extensive.

COVID-19 is undermining the efforts to reduce car use. Countries are issuing measures to reactivate the economy after the pandemic. However, in some cases, they go in reverse to previous policies such as reducing the use of private cars in favour of public transport. For example, auto sales in China plummeted 45% in March 2020 from a year earlier. The auto industry makes up 10% of the country's gross domestic product (GDP) and most auto plants have restarted and supply chains are being restored. Hence, national and regional governments decided to extend subsidies for new energy vehicles (electric vehicles and plug-in hybrids) by two years.[1] According to this measure, owners of new energy vehicles will receive at least CNY 10 000 (approximately USD 1 400) in tax breaks per vehicle. The programme was supposed to expire at the end of 2020 but the government seeks to boost economic recovery by supporting demand. Beijing is considering issuing 100 000 more license plates for new energy vehicles alone. Local authorities expect that this measure will represent more than CNY 20 billion (approximately USD 2.9 billion) in auto sales. The city of Guangzhou plans to issue more than 10 000 license plates a month. Nine cities have adopted separate subsidies for vehicle purchase. In Guangzhou, home to several domestic and foreign auto plants, authorities have allocated CNY 450 million (approximately USD 67 million) for the programme.[2]

Urban areas with a low density and car-oriented legacy face high costs to switch to high-density public transit-oriented areas. Urban infrastructure may not be adequate to support high levels of density and public transport would need to be upgraded to provide better services to a larger number of passengers. In Vancouver, the transport authority has given priority to upgrading the existent infrastructure to improve the efficiency of the transport network in the context of a growing number of passengers. In Mexico City, the Strategic Mobility Plan 2019 aims at improving the existing infrastructure and services to reduce commuting time, improve safety and make freight transport more efficient. Moreover, higher-income households in cities in developing countries still prefer to own a car and have a lifestyle in the suburbs due to a lack of viable transport options and this is also regarded as a way to maintain their status and safety. In some cities with a Soviet past, citizens opted to use private transport as soon as there was a change in the political regime and despite having a relatively extensive public transport network. In Almaty, Kazakhstan, for instance, the number of private vehicles increased from 200 500 in 2001 to 460 000 in

2011 (OECD, 2017[5]). For many residents, owning a car represents a new status and local authorities planned for car-oriented infrastructure. The problem is that the public transport system characterised by an extensive network of buses, trolleybuses and trams was neglected. Expanding and modernising Almaty's transport system is proving a considerable logistical, planning, administrative and financial challenge for local authorities with the result that Almaty's transport network is now old, unsafe, inadequate and a source of pollution.

The lack of active mobility options (e.g. cycling) may be a hindrance for promoting accessibility. In several cities, environmentally friendly mobility options are still largely underdeveloped and thus the levels of cycling are rather low (i.e. Bucharest, Prague, Rome, Tallinn). Cycling is still not part of people's culture in many European cities. Only in Amsterdam, Copenhagen and Groningen does cycling reach more than 50% of the modal share but in the large majority of cities, it represents no more than 10% (EC/UN-Habitat, 2016[6]). In Mexico City, the cycling infrastructure, which has seen progress over the last years, is still scarce, disconnected from the transport network and concentrated in central areas which limits the potential for bicycle use for short and medium distances (SEMOVI, 2019[7]). In other cases, cities need to improve the infrastructure to incentivise walking. In the city of Surrey, Metro Vancouver, sidewalks are missing in many areas with single-family homes.

Cities also face institutional and process barriers to switch the urban transport paradigm (Rode et al., 2014[2]). For instance, a silo approach to urban development still prevails in many cities, disconnecting transport, housing, land use and environmental policies from one another. Cities' master plans are composed of different sections: utilities, healthcare, transport, housing, etc. However, there is no cross-cutting analysis of the main urban priorities of cities and how each sector is expected to help achieve them. Accessibility planning is a cross-sectoral domain and requires local authorities to change their traditional approach to planning. Cities may require planning not by sector but by broader objectives such as equality, inclusiveness, accessibility, safety, etc.

In cities in developing countries, there is a lack of professional personnel specialised in urban transport and planning in general. This is an obstacle to the formation and development of a transport strategy, in line with housing policies, for instance, and the adoption of effective management tools for urban transport. Moreover, promoting accessibility requires working with the existing urban form and flows of the city; the problem is that it is not always possible to change the existing urban form.

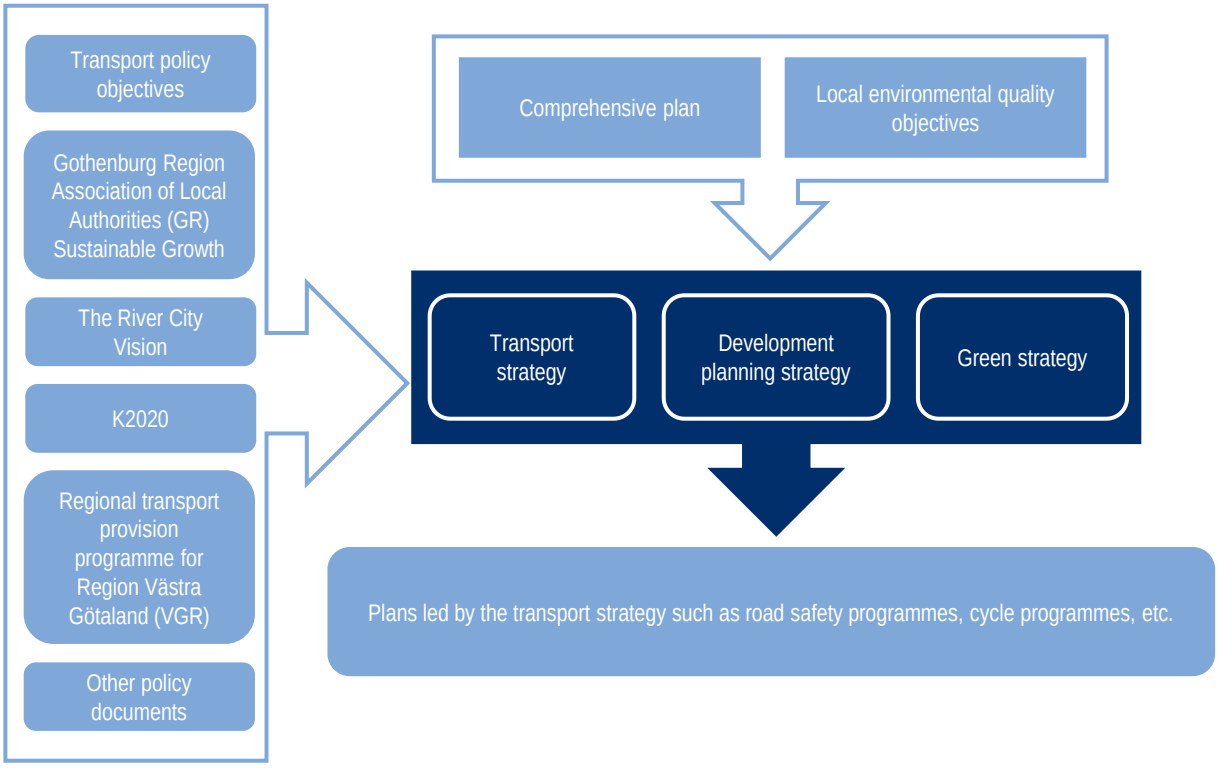
Fragmented governance and the lack of co-ordination mechanisms between national and local governments for urban development and accessibility are two very common barriers, mostly in cities in developing countries (Trejo Nieto, Niño Amezquita and Vasquez, 2018[8]). For example, in Latin American cities, it is common to find political-administrative fragmentation and policy implementation resides with individual autonomous local authorities. This represents an obstacle for urban planning and accessibility planning. This fragmentation constrains not only planning but also the joint investment in urban transport infrastructure. There are no mechanisms for local governments to invest together in critical infrastructure. Mexico's reform to guidelines for the operation of metropolitan funds is a promising initiative to overcome the fragmented nature of metropolitan areas to support their joint investment in urban infrastructure such as urban transport.[3]

Accessibility requires a holistic planning approach

Enhancing accessibility requires a holistic planning approach that links social, economic and environmental aspects. The aim is to ensure that planning of the city's movement and traffic contributes to building accessible and attractive cities (City of Malmö, 2016[9]; Gil Solá, Vilhelmson and Larsson, 2018[10]). The reason is that if citizens are going to have access to services distributed in a geographic area, then several contexts must systematically be adapted to different requirements. For instance, trips must run smoothly for people with different needs (i.e. the elderly, children, handicapped people, etc). This implies that accessibility planning involves trade-offs between interests, groups of citizens and planning departments.

By taking a holistic approach to planning, cities can use the movement of people and public transport to achieve bigger objectives such as sustainability, equity, inclusiveness and growth. A city consists of many different components and one of the most important ones is people and how they move within, to and from the city. For the city of Gothenburg, Sweden, transport is a means of achieving a functioning and attractive city (City of Gothenburg, 2014[11]). The transport strategy, therefore, needs to be developed in an integrated process with a development planning strategy and environmental strategy. Altogether, these documents constitute an important part of a city's land use with the aim of specifying the objectives and strategies of the comprehensive plan (Figure 2.1).

Figure 2.1. **Gothenburg's** transport strategy within the planning framework



Source: Elaborated based on City of Gothenburg (2014[11]), *Gothenburg 2035 - Transport Strategy for a Close-Knit City*, https://goteborg.se/wps/wcm/connect/6c603463-f0b8-4fc9-9cd4-c1e934b41969/Trafikstrategi_eng_140821_web.pdf?MOD=AJPERES (accessed on 16 July 2019).

While the transport strategy should recognise the geographical, economic and social challenges of a city, it should also seek to preserve resources, such as land. However, city planning authorities need to consider that there is no universal rule or attribution of how land should be used. Cities will continue growing and choices have to be made of where that growth should take place. Planners need to balance the trade-offs of resource preservation and protection of natural resources based on the local context and development objectives of the city.

Transport planning should be target-led rather than prediction-based (City of Gothenburg, 2014[11]). In other words, there should be realistic targets to achieve based on the local needs and the specific socio-economic context. The transport strategy should avoid forecasts as they are not useful for measuring progress. In Australia, for example, the New South Wales (NSW) transport strategy from 2016 sets a vision for the next 40 years on how transport can help build a productive economy, liveable communities and sustainable society (Box 2.1).

In Metro Vancouver, Canada, the transport authority, TransLink, issues a 10-year investment plan that outlines the strategic initiatives, transportation programmes and services it plans to deliver over the period. These include: level of services to be provided; major capital projects and key initiatives, estimated expenditures, estimated revenues and estimated borrowing. These plans set the annual transportation investments and actions and are in line with the Regional Transportation Strategy.

Box 2.1. Transport strategies support regional development goals

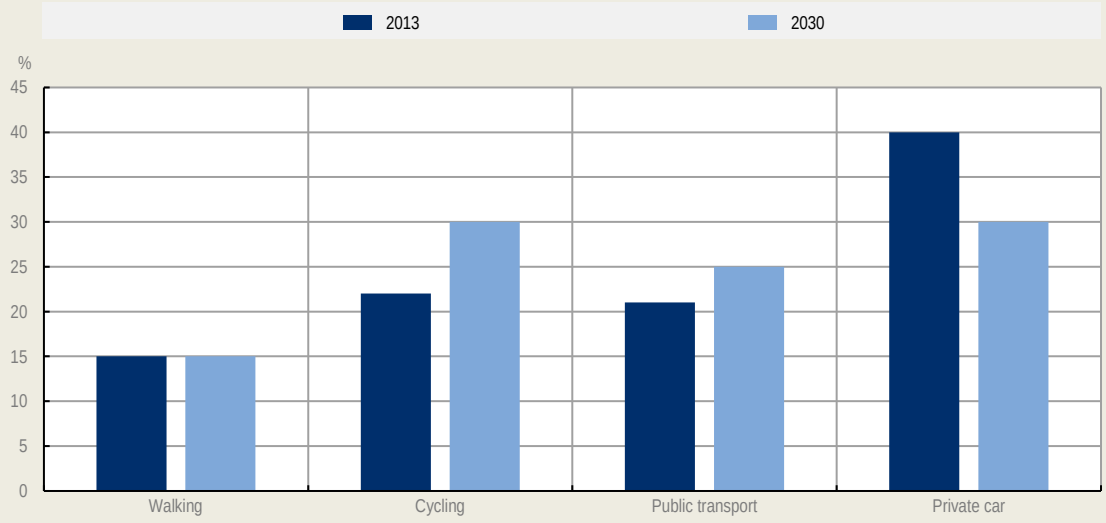
Malmö's accessibility vision

The city of Malmö, Sweden, has adopted its Sustainable Urban Mobility Plan to create a more accessible city. It sets how the traffic system and urban environments can contribute to creating an accessible city for a greater number of people. It takes the view that better accessibility and increased sustainable mobility give more people access to more qualitative urban environments contributing to the development of the city. Its vision is:

> *Walking, cycling and public transport are the first choice for all who work, live or visit in Malmö. These travel choices, together with efficient and environmentally friendly freight and car traffic, are the basis of the transport system in our dense, sustainable city – a transport system designed for the city, and for its people.*

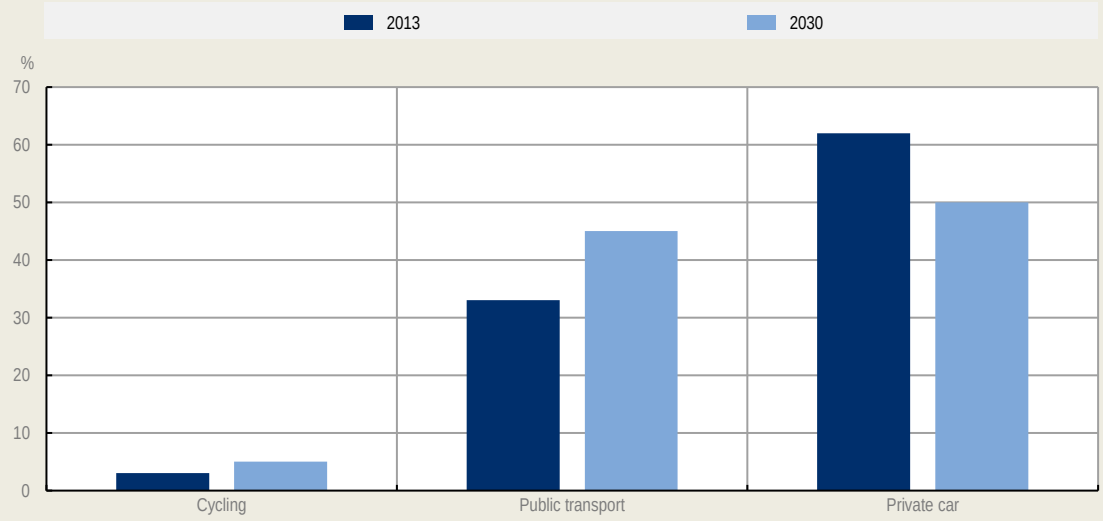
The plans acknowledges that the major change to create a more balanced modal split in a growing city is to increase the share of cycling and public transport over car traffic. This increases the opportunities for a more socially, environmentally and economically sustainable city. The objectives for 2030 are shown in the figure below:

Figure 2.2. **Malmö's objectives for inhabitants'** trips



The city does not seek to increase commuting but to make commuting more economically, socially and environmentally sustainable. The city's objectives for 2030 are:

Figure 2.3. Malmö's objectives for commuting to the city



Sydney's Future Transport Strategy 2056

The New South Wales (NSW) Future Transport Strategy 2056 is a suite of strategies and plans for transport developed by the regional government in co-ordination with the Greater Sydney Commission. This document sets the 40-year vision, directions and outcomes framework for customer mobility in NSW, which is expected to guide transport investment over the long term and be delivered through a series of supporting plans. The strategy acknowledges transport as an enabler of economic and social activity and a contributor to long-term economic, social and environmental outcomes. The vision builds on six outcomes: customer-focused, successful places, a strong economy, safety and performance, accessible services and sustainability. Each of these outcomes was set to guide investment, policy and reform and service provision. The strategy envisions Greater Sydney, a metropolis of 3 cities, as a place where people can access jobs, education and services within 30 minutes by public or active (walking and cycling) transport.

Source: City of Malmö (2016[9]), *Sustainable Urban Mobility Plan: Creating a More Sustainable Malmö*, https://malmo.se/download/18.16ac037b154961d0287384d/1491301288704/Sustainable+urban+mobility+plan%28TROMP%29_ENG.pdf (accessed on 16 July 2019); NSW Government (2018[12]), *Future Transport Strategy 2056*, https://future.transport.nsw.gov.au/sites/default/files/media/documents/2018/Future_Transport_2056_Strategy.pdf.

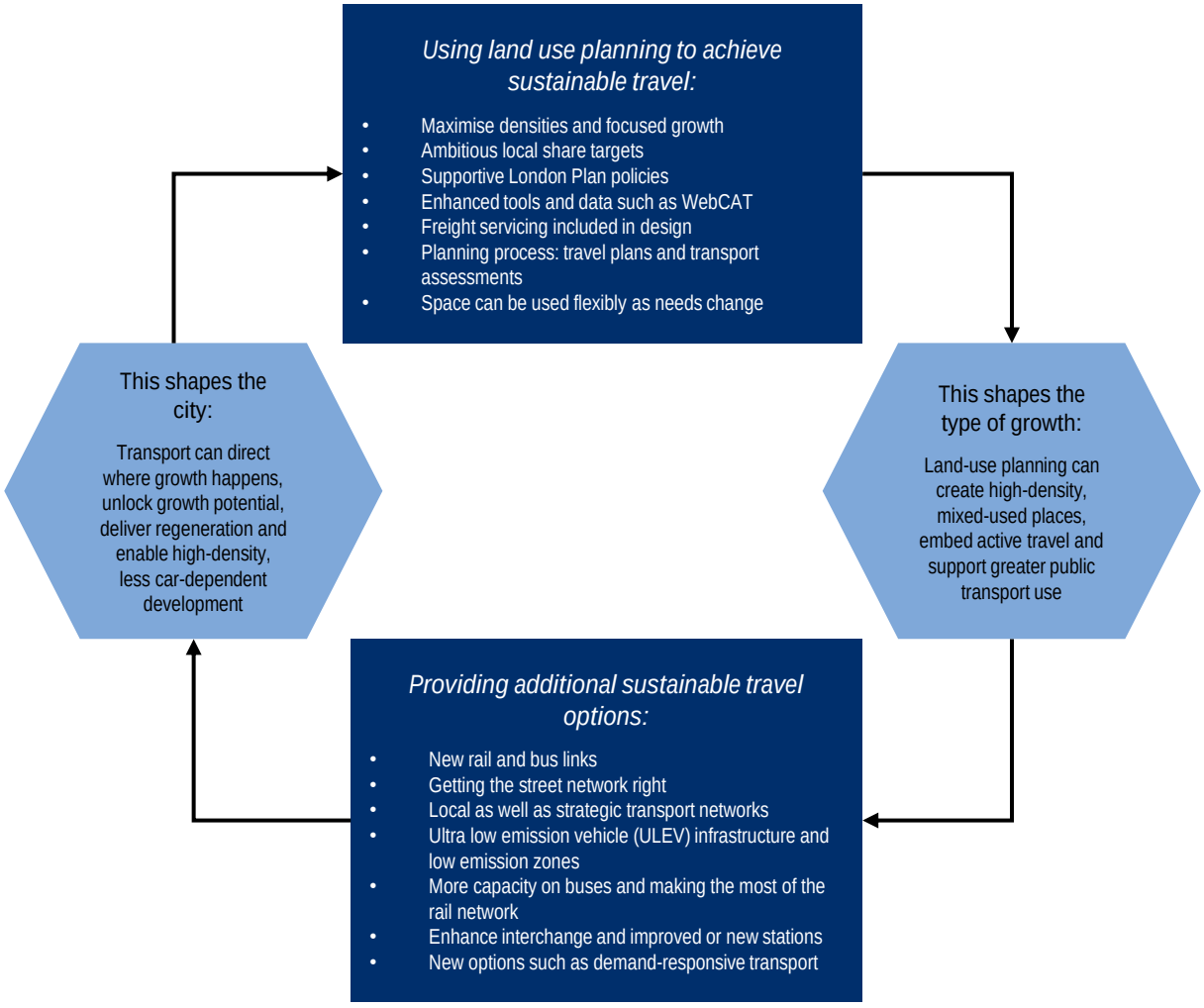
The planning process requires clear policies at all levels of government with a specific target for mode share and enhanced environmental standards. The experience of London, United Kingdom (UK), and Vancouver suggests that securing funding for transport from increased land values and working with stakeholders and communities in and outside the city is essential for delivering sustainable growth. Some of the aspects that would contribute to getting the planning process right, according to the experience of London (Greater London Authority, 2018[13]), are:

- The development of mechanisms for co-ordinating planning and investment along transport growth corridors.
- The development of opportunity area planning frameworks[4] with ambitious mode shares for walking, cycling and public transport. This requires maximising the investment in transport infrastructure.

- The use of public sector funding for smaller-scale transport schemes that could contribute to unlocking housing construction and job creation, and leverage funding from other sources for transport.
- The inclusion of sustainable growth principles in the assessment of transport development proposals and requirements.
- Ensure that the transport plans for the transport authority encourage efficient and sustainable travel.

Figure 2.4 shows London's strategy to foster "good growth". It reveals that the city's strategy to enhance and increase public transport is based on land use planning. Transport services and infrastructure also shape the city by enabling high-density development and liveable neighbourhoods where people want to live and work.

Figure 2.4. London's cycle of "good growth"



Source: Based on Greater London Authority (2018[13]), *Mayor's Transport Strategy*, http://www.london.gov.uk (accessed on 15 July 2019).

How the planning framework can foster accessibility

In general, countries have a hierarchical system of urban development plans. They provide guidelines for regional and local planning and set priorities for investment based on national goals.

The national planning framework sets guidelines and goals

At the national level, countries have a spatial development policy that contains planning guidelines and outlines the general vision for spatial development. Their purpose is to ensure integrated territorial development, prevent space-social segregation in urban development and, in some cases, set the development planning priorities for their main metropolitan areas.

Some countries have a complex, hierarchical system or urban development plans. In these cases, regional and local development plans and urban strategies should be co-ordinated with national development priorities. National legislation may include provision for the development of transport and related infrastructure and, in several instances, they are built based on inputs from regional and local levels of government. Their provisions tend to be mandatory and should be included in greater detail in the spatial development plans of lower levels of government. The complexity of the national planning framework depends on the country's administrative culture. For example, in Romania, three instruments shape regional development and transport policies at the national level and they are all expected to have their equivalent at the regional level. In principle, this is a good practice as it ensures coherence in the planning approach, priorities for investment and practices, problems may emerge when subnational governments lack the capacity to produce and implement highly detailed plans (Box 2.2). In the Czech Republic, the 2015 Spatial Development Policy (SDP) is at the top of the planning hierarchy framework, contains planning guidelines and delimits development areas as well as the main transport and infrastructure corridors. The SDP does not outline a general vision for spatial development but establishes planning priorities for, among other issues, sustainable development, corridors and areas for transport infrastructure.

Box 2.2. **Romania's transport planning framework**

In Romania, there are three planning instruments that affect directly or indirectly transport planning in the country:

- **National Spatial Plan** (Law 363, 2006) – transport section. It provides an outline of the main transport sectors that need investment in order to improve the national transport network: motorways, transport networks and other infrastructure projects. It states that the central, county and local public administration authorities have to co-operate to ensure the enforcement of the provisions contained in the plan.
- **Transport General Master Plan**. It was approved in 2016 and represents the general development framework for transportation infrastructure, financing sources and strategy for project implementation. It sets the strategic objectives and the main transport corridors in line with the trans-European strategic objectives for transport infrastructure. It contains a detailed description of envisaged projects for construction. The approval of the plan also represents a conditionality for obtaining funds from the European Union (EU).
- **National Territorial Development Strategy 2035**. Its aim is to ensure a strategic planning integrated framework to guide the national territorial development process. Its mission is to ensure a polycentric development and balance between the need for development and the competitive advantages of the national territory in the European and global contexts.

Source: Ministry of Regional Development and Public Administration of Romania.

Subnational governments operationalise national transport priorities

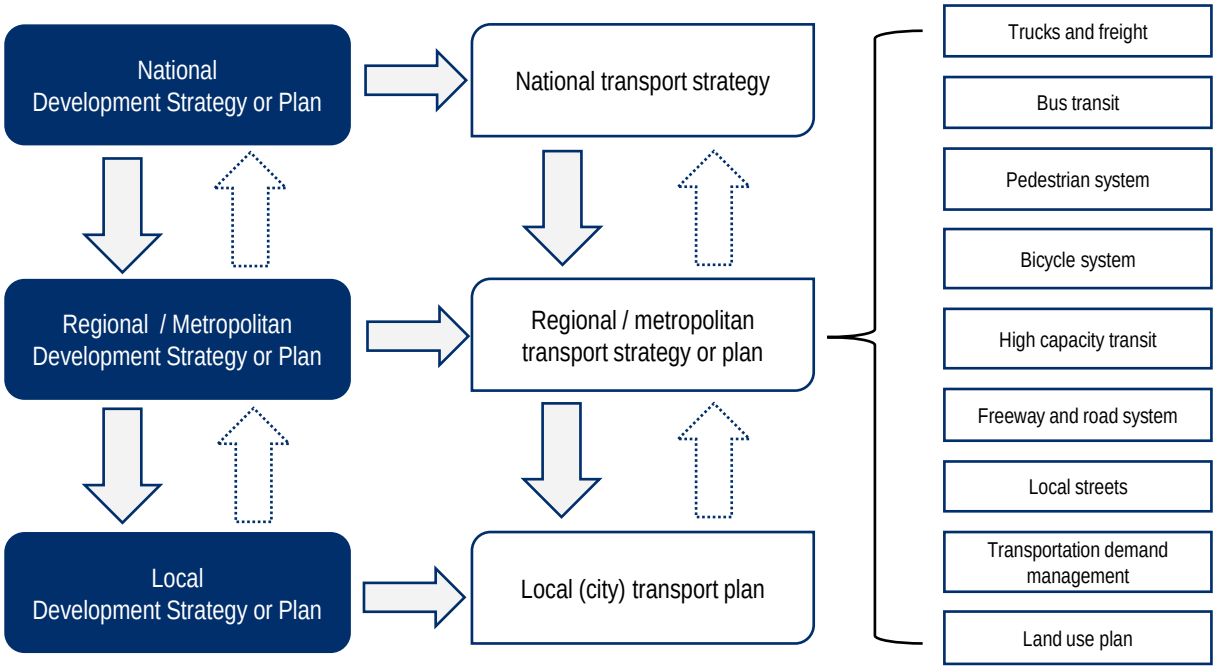
Subnational levels of government have a critical role to play in planning. In particular, municipal planning has the potential to help manage change and growth in the long term. Municipalities have a wider responsibility to promote economic growth, social well-being and environmental sustainability for their communities in a context of constant change. Managing change in housing demand and how the municipality will respond to future public transport needs are issues that require planning at the local level. The reason is because priorities differ from one municipality to another (and sometimes from one neighbourhood to another) depending on things like natural resource dependency, rate of population increase, etc. A critical point of municipal planning is carrying it out together with citizens and a wide range of stakeholders from the private and social sectors.

A transport strategy is needed to make the most of urbanisation. Cities are growing in terms of residents and economic activity. To manage that growth the transport strategy is key. It can help to reduce the climate impact of the transport sector by giving people more and better travel options, disincentivising the use of private cars. It can also contribute to strengthening the economic competitiveness of a city by offering a vibrant urban life and good business conditions. One of the key advantages of the transport strategy is that it can help cities to set priorities to achieve urban development objectives. The transport strategy states the city's overall focus for planning and decisions on investments and other measures not only in the area of transport but also on other urban-related areas.

Most cities and metropolitan areas, if not all, have a strategy to improve public transport services. The transport strategy is the guiding document for how the transport system of a city is to be developed in order to achieve the mobility and accessibility objectives in the medium and long terms. It states a city's or region's overall focus for planning and decisions on investments on transport. It elaborates the transport elements of the regional development strategy, the comprehensive development plans and other strategic documents (Figure 2.5). It provides guidance to cities and municipalities for achieving and accommodating growth as it supports other urban development areas such as housing, the environment, etc. It may include a provision on, or be the basis for, more specific, concrete documents such as plans on the bus, bicycle, pedestrian systems and land use which are needed to achieve the objectives of the transport strategy. All these elements may be elaborated at the regional but also at the local level depending on the country's governance arrangements. The transport strategy sets the goals that the city wants to achieve regarding well-being, urban environment and urban structure. Generally, these documents should be guided in future planning and budgeting at administrations responsible for urban development and sustainable transport. They are addressed to politicians, officials and planners at all levels of government as well as to inhabitants and private sector parties. Transport strategies differ in their level of sophistication and above all how they are linked to land use and socio-economic development policies.

To promote accessibility, cities require a new approach to transport investment and development. Traditionally, cities adopt a transit-oriented development (TOD) approach to achieve sustainable development. TOD is considered an effective way of concentrating growth on brownfield sites (i.e. areas already developed) while generating and attracting ridership to shift mode shares towards public transport. TODs are site-specific projects in close proximity to rapid transit stations. Benefits of TOD include: agglomeration effects boosting a city's competitiveness (doubling job density increases economic productivity by 5%-10%); making cities more liveable; increasing real estate value; cities capturing part of the increase in real estate value to finance additional transit investments (e.g. in Hong Kong, the People's Republic of China [China hereafter], land value capture brought in approximately HKD 140 billion (USD 18 billion) between 1980 and 2005 and unlocked land for 600 000 public housing units); enhancing job opportunities and services for residents; reducing emissions; and helping to enhance resilience to disasters (Salat and Ollivier, 2017[14]).[5] However, TOD cannot be implemented in the same way in all places. The specific characteristics of every place and project need to be assessed to determine the viability of the project (Box 2.3).

Figure 2.5. Relationship between regional growth strategies and transport planning across levels of government



From transit-oriented development to transit-oriented communities

Box 2.3. Assessing the three values (3V) of transit-oriented development

Since TOD cannot be implemented uniformly across an entire city due to varying densities, the World Bank has developed a framework for guiding TOD plans by simultaneously assessing the "three values" (3V) of transit stations and surrounding areas:

- The **node value** – which refers to the importance of a station in the public transit network based on passenger traffic, connections with other transport modes and centrality within the network.
- The **place value** – which assesses the quality and attractiveness of the area around the station. It includes factors such as the diversity of land use, the availability of essential services, the proportion of amenities that can be accessed by active mobility, pedestrian accessibility and the size of urban blocks around stations.
- The **market potential value** – which refers to the unrealised market value of station areas. It looks at the major variables that influence the demand for land (i.e. current and future number of jobs in the vicinity of the station) as well as the supply (i.e. amount of developable land).

Source: Salat, S. and G. Ollivier (2017[14]), *Transforming the Urban Space through Transit-Oriented Development: The 3V Approach*, https://openknowledge.worldbank.org/handle/10986/26405 (accessed on 10 September 2019).

However, some metropolitan areas such as Vancouver prefer to focus on transit-oriented communities (TOCs) which refer to places that, by design, allow people to drive less and walk, cycle and take public transport more often. It promotes higher-density, mixed-use, human-scale development around frequent transit stops and stations. The main difference with TODs is that TOCs are places that take access to and support for transit into account when planning and designing at a neighbourhood, corridor, municipal or regional scale. This is a planning concept that includes land use planning and community development policies that intend to maximise access to transit as a key to organising principle and acknowledge mobility as an integral part of the urban fabric. By connecting communities, destinations and amenities through improved access to transit, TOCs promote walkable and bikeable communities that accommodate healthier and active lifestyles, improve access to jobs and economic opportunities, and reduce greenhouse gas (GHG) emissions. TOCs may be an approach other OECD cities may be interested in exploring to improve accessibility. In fact, TOCs is a planning approach that is in line with the OECD Principles on Urban Policy, which suggest the need to adapt policy action to the place where people live and work. This can be done by adapting development strategies and public service delivery to the diversity of urban scales, ranging from neighbourhoods all the way to megacities and megaregions (OECD, 2019[15]).

One potential problem, however, is that TOCs can also create equity challenges. Indeed, TOCs can disproportionately favour individuals and families who are able to pay the extra premium to live in valuable real estate proximate to rapid transit. Subsequently, lower-income households have limited locational choices and they often get pushed further away from better-served transit areas, resulting in less equitable transit access for the less affluent (Ngo, 2012[16]). This could be attenuated, at least in part, by providing transport options for all members of the community and reducing households transport costs through less driving and potentially lower automobile ownership rates.

The regional development/growth strategy sets investment priorities

Accessibility requires planning at the regional and local levels. Regions or metropolitan areas normally have a development/growth strategy and a transport strategy in line with national development goals. The regional development/growth strategy is a guiding document for the development of new local residential and employment growth targets and updates local comprehensive plans. In general, regions and metro areas use the regional development or regional growth strategy to: i) determine investment priorities; ii) promote infill and redevelopment within urban areas to create more compact, walkable and transit-friendly communities; and iii) set the long-term development vision for regional growth and a clear pathway for ensuring that growth benefits every member of the community. The goals are generally linked to the city's vision and sustainable development goals and act as support for all city planning and urban development. In the Czech Republic, Prague's 2016 Strategic Plan determines the primary direction for development in the medium and long term (10-15 years) and sets out the city's social and economic objectives and priorities. It offers diagnoses of the major challenges facing the city and the critical areas for action and investment across a wide range of policy areas – from education to transportation and land use planning. In Krakow, Poland, the local development strategy highlights the investment priorities in transport investment in accordance with local needs, the national development priorities stated in the Strategy for Responsible Development (SRD) and EU directives (Krakow City, 2017[17]).

In the Canadian Metro Vancouver Regional District for instance, the regional growth strategy operates in co-ordination with the Regional Transportation Strategy. Together, these two documents serve as the underpinning for the definition of 10-year investment plans as well as the municipal transportation and economic development plans (Box 2.4).

Some cities and metro regions lack a regional growth or development strategy although it is legally possible for them to have one. The lack of a strategy makes it difficult to co-ordinate economic, land use, transport, housing and environment policies at the regional level as urban and regional planning are limited to the boundaries of the municipalities. This is the case of the Spanish Madrid region (*Comunidad Autónoma de*

Madrid, CAM) which lacks a formal regional development strategy, with each municipality conducting its own planning individually without a co-ordinated vision. The regional authority (CAM) ensures that each of the 179 municipalities in the region follows the legal process but there is little discussion on their regional implications.

Box 2.4. **Metro Vancouver's Regional Growth Strategy**

Metro Vancouver 2040: Shaping Our Future is the Regional Growth Strategy (RGS), a high-level land use plan which contains the region's goals, actions and strategies. It focuses on land use policies to guide development – mostly around Frequent Transit Development Areas (FTDA) – and to support the efficient provision of transport, regional infrastructure and community services, as well as to protect air quality and reduce GHG emissions. The RGS is one plan among a suite of interconnected management plans developed around Metro Vancouver's Sustainability Framework, for instance, Metro Vancouver's Integrated Air Quality and Greenhouse Gas Management Plan; TransLink's Regional Transportation Strategy; and the Regional Transportation Investment Vision by the Mayors' Council on Regional Transportation. The RGS and the Regional Transportation Strategy are mutually reinforcing.

Source: Mayors'Council on Regional Transportation (2017[18]), *Regional Transportation Investments - A Vision for Metro Vancouver*, https://tenyearvision.translink.ca/downloads/10%20Year%20Vision%20for%20Metro%20Vancouver (accessed on 29 March 2018).

Regions may also have specific transport-related plans aimed at co-ordinating transport investment and planning among their constituent municipalities. For instance, the Madrid region has a Strategic Sustainable Mobility Plan (SSMP) that co-ordinates the transport efforts of the different municipalities and presents the vision of what public transport should be in the medium term. In turn, each of the region's municipalities has a Sustainable Urban Mobility Plan (PMUS), a strategic plan designed to meet the mobility needs of people and businesses in cities and their surrounding areas. The PMUS aim to ensure the quality of the environment, urban competitiveness, safety and universal access to transport. They serve as an instrument to co-ordinate the different departments within the local administration and guide infrastructure development. They define priorities, actions, future scenarios, as well as the necessary conditions for implementation.

The organisation of regional planning may be as complex as the governance structure and the level of decentralisation in each country. There is no rule or best practice on how many plans, to what level of detail nor what functions regions should have regarding transport. Most of the time, the problem lies in the capacity of the regions to implement those plans. It may be argued that the main purpose of the regional/metropolitan plans for growth and transport is to co-ordinate investment across the different municipalities within the region/metropolitan area. However, that also depends on the governance arrangements of every country. For instance, Prague, Czech Republic, has the status of a region and is surrounded by another region, the Central Bohemian Region. Prague's transport plans and land use plans are mandatory for the municipalities within the city of Prague and for some in the Central Bohemian Region. The rest of the municipalities must have their own plans co-ordinated by the authority of the Central Bohemian Region. In contrast, in the Metro Vancouver Regional District, the regional growth strategy and transport plans apply to all municipalities in the region even though every municipality is responsible for its own transport plan.

Municipal planning operationalises national and regional plans

Municipalities in metropolitan areas typically have to develop their own development and transport plans even if there is a general plan for the metropolitan area. In most countries, national and provincial laws

require municipalities to develop one or more plans for the city's social, economic and physical future. These plans must set a general vision for the city and be in line with the regional development strategies, which in turn are co-ordinated with national priorities. Cites could have a comprehensive transport strategy in addition to that of the regional or municipal level. In the Stockholm City Plan, for instance, the goals of the city plan show how local authorities envision and intend to pursue greater accessibility in the city but, perhaps more importantly, for what purpose.

Box 2.5. **Stockholm's planning goals**

The overarching city planning goal of Stockholm, Sweden, is to be a city for everyone, with dense and cohesive urban environments in which buildings and green spaces work together, enabling the creation of good living environments. This generic goal is supported by four specific goals:

- ***A growing city*** – attracting people, companies and visitors from across the world. A rapid rate of urban development is to guarantee homes and public services for everyone. Good accessibility is to give people and companies everything they need to develop and grow.
- ***A cohesive city*** – where moving between different areas and visiting new places comes naturally. People with different backgrounds must be able to encounter each other as they go about their daily lives and the city's many urban settings, with all of its different features, must be accessible to all of the city's residents.
- ***Good public spaces*** – the city is to have many, diverse neighbourhoods with strong identities and flourishing local centres. Every part of the city must offer a good environment in which to live, with good access to the benefits of urban living and well-designed, safe public spaces encouraging participation and engagement in local community life.
- ***A climate-smart resilient city*** – in which efficient land use and transport efficient layout foster greater accessibility, a lower climate impact and limited consumption of resources. The structure of the city and its technical systems must be highly functional and resilient, enabling the city to cope with climate change and other stress factors.

Source: City of Stockholm (n.d.[19]), *Stockholm City Plan*, https://vaxer.stockholm/globalassets/tema/oversiktplan-ny_light/english_stockholm_city_plan.pdf (accessed on 12 July 2019).

In Canada, the province of British Columbia requires the municipalities that form the Metropolitan Vancouver Regional District to develop their own official community plans (OCPs). The OCP is a long-term future community planning vision describing the kind of community into which the city wishes to evolve. It constitutes a guiding document for the city council (the legislative body of the municipal government) in future decision-making, ranging from short- to long-term investments, programming and land use changes and provides a broad framework for managing change, including policies to address related needs for amenities, services and infrastructure. OCPs must be in line with the RGS and, in general, specify how they will contribute to the achievement of RGS goals. OCPs are at the top of the hierarchy of land use plans and normally include more specific area and neighbourhood plans. If there is a conflict between the OCP and the area plan, the area plan takes precedence over the citywide policies. Local councils are not obliged to strictly implement the policies of OCPs – the plans may be amended from time to time – but the important requirement is that every amendment must go through a public consultation process that has to include a formal public hearing.

The city of Madrid has a comprehensive planning framework for mobility. Its overarching plan, the Sustainable Urban Mobility Plan (*Plan de Movilidad Urbana Sostenible*, PMUS) of the city of Madrid, is the management tool to structure mobility policies. It allows for greater coherence in the implementation of the

different municipal plans that have an impact on transport (Table 2.1). Every municipality in the Madrid region (*Comunidad Autónoma de Madrid*, CAM) has a PMUS and they follow different goals. For instance, Madrid pursues sustainability, universal accessibility, competitiveness and safety, while the municipality of Alcobendas, one of the most industrial areas in the region, aims to improve environmental conditions, reducing commuting times and improving public transport and the urban environment.

Table 2.1. Madrid municipal plans with an impact on mobility

Municipal plans	Mobility reference
General Urban Plan of Madrid	It sets the conditions for parking spaces and transport infrastructure as well as pedestrian areas and the reorganisation of space for the circulation of vehicles and people.
Local Strategy for Air Quality of the City of Madrid	It establishes measures for traffic reduction in priority areas of the city and the promotion of public transport.
Road Safety Plan	It supports one of the pillars of the mobility model: safety.
Cycling Mobility Director Plan	It includes four programmes: infrastructure, regulation, promotion and management of the network of cycling paths network.
Action Plan on Noise Pollution	To reduce noise levels, it proposes the use of quieter vehicles, the use of public transport and reduction of speed.
Plan for the Sustainable Use of Energy and Prevention of Climate Change	Its objective is to promote low-carbon mobility through sustainable transit modes such as walking, public transit, cycling and electric vehicles.

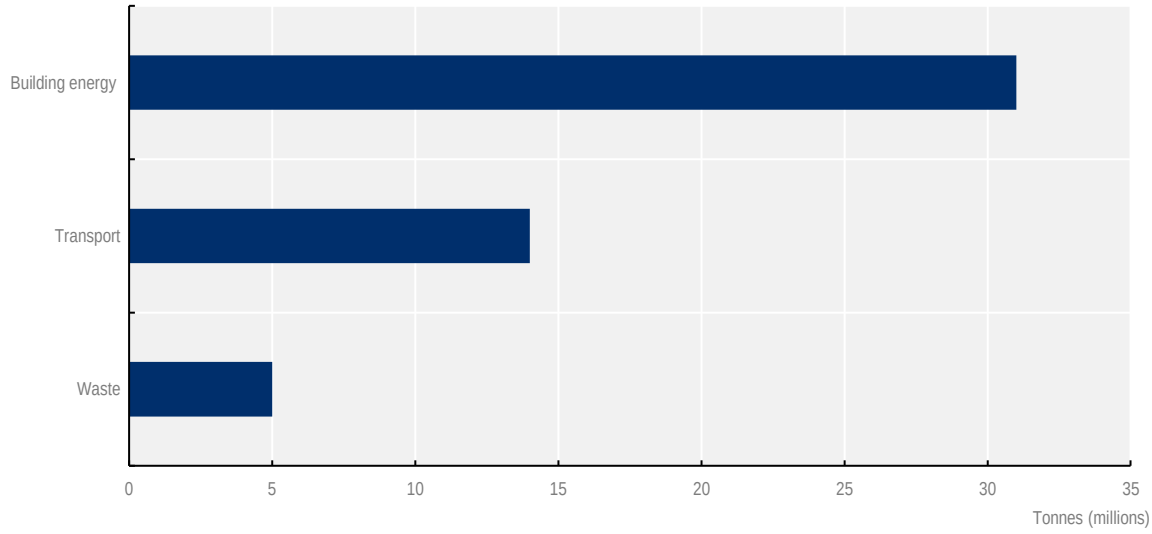
Source: Based on Municipality of Madrid (2014[20]), *Plan de movilidad Urbana Sostenible de la ciudad de Madrid*, https://www.madrid.es/UnidadesDescentralizadas/UDCMovilidadTransportes/MOVILIDAD/PMUS_Madrid_2/PMUS%20Madrid/Plan%20de%20Movilidad%20de%20Madrid%20aprobacion%20final.pdf (accessed on 17 October 2018).

Accessibility contributes to environmental strategies

Promoting accessibility is a way of contributing to environmental goals as it can reduce the need for mobility or make mobility more efficient and thus reduce emissions. According to calculations by the OECD International Transport Forum (ITF), CO_2 emissions from urban mobility will increase 26% by 2050 and demand for urban passenger transport could grow between 60%-70% in the same time, if current trends continue (ITF, 2018[21]). The increase in emissions and demand will be the result of continuous population growth, economic development and urbanisation cancelling out any CO_2 emission reductions made possible by new low and zero-carbon technologies. ITF projections indicate that total motorised mobility in cities is likely to double (+94%) between 2015 and 2050, causing a 26% increase in CO_2 emissions in urban mobility (ITF, 2018[21]). Moreover, the number of cars in cities is also expected to grow, particularly in emerging economies; in China for instance, the number of cars grew from 5.9 million in 2000 to 91.7 million in 2014. However, the number of cars per citizen in developed countries will continue to remain far above the number in emerging economies. For instance, in 2010, the United States (US) had 1 car for every 1.47 inhabitants while India had 71.4 inhabitants per car (ITF, 2018[21]).

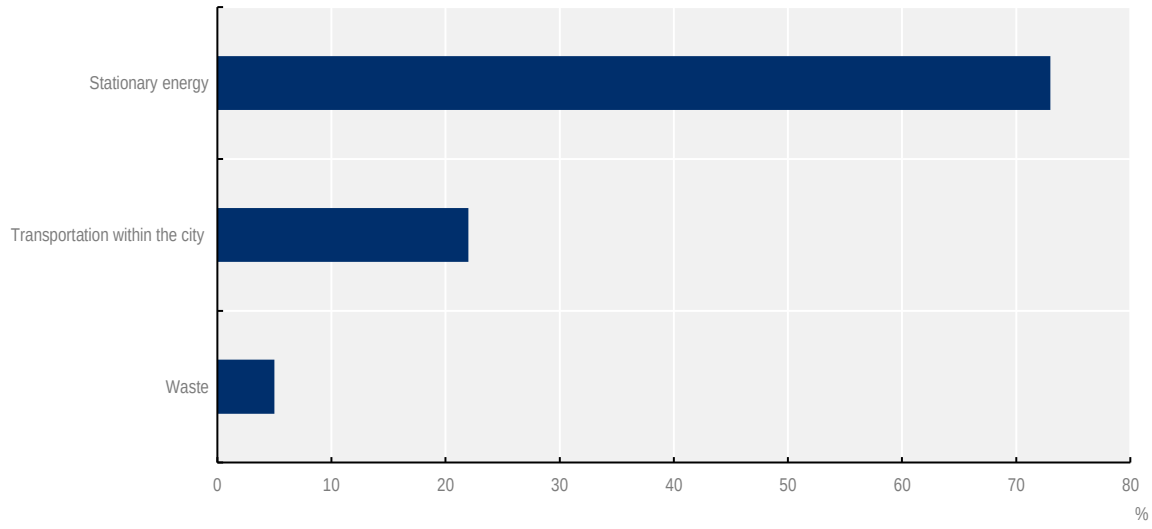
Most of the new car owners are expected to drive in urban areas. In cities like London, UK, motorised traffic is largely responsible for the emission of pollutants into the atmosphere. Currently, road transport in London is responsible for half of the main air pollutants, with cars contributing around 14% of nitrogen oxides (NO_x) and 56% of particulate matter less than 2.5 microns in diameter ($PM_{2.5}$) emissions (Greater London Authority, 2018[13]). Figure 2.6 shows that in Greater Sydney, Australia, the combined emissions from electricity and gas used in buildings, transport and waste released 50 million tonnes of GHG into the atmosphere, equal to 54% of New South Wales' emission from these sources (Greater Sydney Commission, n.d.[22]). In New York City in the US, the transport sector accounts for 22% of the city's total greenhouse gas emissions with fossil fuels burned in passenger cars contributing 14% of the citywide total (Figure 2.7) (NYC DOT, 2016[23]).

Figure 2.6. Greater Sydney GHG emissions by sector, 2015-16



Source: Greater Sydney Commission (n.d.[22]), "Sustainability", https://www.greater.sydney/metropolis-of-three-cities/sustainability (accessed on 3 September 2019).

Figure 2.7. New York City GHG emissions by sector 2014



Source: NYC DOT (2016[23]), *New York City Strategic Plan 2016*, https://www.nycdotplan.nyc/PDF/Strategic-plan-2016.pdf (accessed on 6 August 2019).

Some initiatives that cities have implemented to reduce traffic congestion and emissions have been counterproductive. For instance, the region of Attica, Greece, ranks among the bottom regions in terms of air quality across the OECD. In an effort to reduce air pollution, authorities introduced a system of alternate car traffic restrictions in Athens city centre in 1982. The system allowed only cars with license plates ending with an odd number to enter a designated zone of 23 km^2 in the city centre on odd days and those with an even number on even days. The measure led to a fast rise in car ownership as many residents in Athens bought a second car with a license plate ending in a different number. The system was subsequently revised to allow less polluting vehicles to enter the zone regardless of their license plates (OECD, 2015[24]). Since 1989, Mexico City has implemented a similar system. Depending on the last digit of the plate number cars are not allowed to circulate one day a week and one Saturday a month. However, the results in air

quality improvement have been very marginal. The main problem has been that authorities have focused on car restrictions and not on the substitution of cars by public transport and other less pollutant means of transport (Franco, 2017[25]). Governance co-ordination problems have also hampered any meaningful impact as the Metropolitan Zone of the Valle de Mexico (where Mexico City is located) is comprised of municipalities from three different states and there is no homogenous regulation of cars, no co-ordinated transport planning and no co-ordination in urban development (OECD, 2015[26]).

If urban mobility were based on shared and electric vehicles, CO_2 emissions from traffic could fall by 60% (ITF, 2018[21]). The problem is that the number of electric cars remains small and, to have any impact on reducing emissions, their use must be scaled up rapidly. To accelerate their adoption, governments are adopting a series of fiscal incentives taking advantage of the fact that electric vehicles are becoming more easily available and affordable. To that end, countries and cities are adopting "electro-mobility strategies" to make all public transport based on sustainable sources of power, mostly electricity. Cities in Latin America such as Bogotá, Colombia, have adopted an electro-mobility strategy to have electric, zero-emission vehicles for public transport by 2035. Moreover, Colombia's National Strategy for Electric and Sustainable Mobility aims to ensure that 10% of the vehicles bought in the country are electric by 2030. To promote the acquisition of electric vehicles, the strategy lists a number of fiscal incentives such as a 10% discount on Insurance for Traffic Accidents and a reduction in car tax to 1% of the commercial value of the vehicle.[6] In Mexico City, the bike-sharing programme is beginning to change the mobility culture and use of bikes is a growing contributor to CO_2 emissions reduction, although marginally considering the size of the city (Table 2.2).

Table 2.2. **Mexico City's ECOBICI programme –** Selected statistics

	2010	2011	2012	2013	2014
Journeys	841 079	2 542 963	2 737 917	6 515 328	7 952 247
Estimated CO_2 emission reduction (tonnes)	22	83	127	267	896
Estimated travel time reduction (expressed in days)	57	776	1 232	2 608	11 931

Source: OECD (2015[26]), *OECD Territorial Reviews: Valle de México, Mexico*, https://dx.doi.org/10.1787/9789264245174-en.

Another strategy to cut CO_2 emissions is to improve capacity through shared mobility. Cars operate on average 50 minutes per day with around 1.4 passengers. If car occupancy can be doubled through car sharing, today's level of mobility could be provided with less than 10% of the current number of cars, cutting CO_2 emissions by one-third without any new technology (ITF, 2018[21]). Well-planned shared mobility services can increase public transport ridership by acting as feeders.

Reducing travel demand by improving accessibility, facilitating the use of high-occupancy mobility and encouraging active mobility (walking and cycling) can help reduce CO_2 emissions from urban transport. Emissions and congestion charges on cars using urban roads have contributed to reducing local emissions by 15% and congestion by 20%-30% (ITF, 2018[21]). Thus, while improving accessibility, cities can aim to make low-carbon travel the default. In London, cycling, as a non-polluting mode of transport, is seen as part of the solution to improve air quality as it reduces emissions and noise (Transport for London, 2018[27]).

Urban planning may also contribute to CO_2 emission reduction. In Sydney, Australia, for instance, transport authorities consider that well-planned centres and cities enable a shift from private cars to public transport and active transport modes. That is why the city is working to deliver the three "30 minutes cities" (the cities that integrate Greater Sydney metropolitan area: Eastern Harbour City, Central River City and Western Parkland City). The *Greater Sydney Region Plan, A Metropolis of Three Cities* integrates land use, transport and infrastructure planning with the goal of making possible for residents to reach any destination within 30 minutes, contributing to the improvement of accessibility and sustainability (Greater Sydney Commission, n.d.[22]).

The governance of accessibility

Planning for accessibility is complex as it requires cross-cutting policies and co-ordination across policy areas and levels of government. Ensuring sustainable transport and greater accessibility across metropolitan areas and within cities requires a highly collaborative and co-ordinated process of policy and decision-making, as well as a clear division of responsibilities among actors from different policy domains. Local governments should have the administrative, legal, financial and organisational capacity to meet the goals of their strategic development plans and their transport plans or transport strategies. Infrastructure projects with deficient governance generally result in cost overruns, delays, underperformance, poor maintenance and accelerated deterioration, and expensive, underused infrastructure projects. Thus, improvements in infrastructure management and governance arrangements could lead to substantial savings and enhanced infrastructure productivity. For example, improvements in multiyear planning for infrastructure investment are essential to reinforce the governance of investment. In New Zealand, all subnational governments are required to adopt plans that layout spending and investment intentions for the coming ten years. Involving actors form the public, private and voluntary sectors in planning at different stages of public investment can lead to savings, better decisions and greater support for projects. For instance, in Germany, the decision to build a new runway at Frankfurt Airport was accompanied by a mediation process initiated by the state government of Hesse with the goal of reconciling concerns about noise and other environmental impacts with the economic case for the new runway. The process was initiated prior to the decision and included extensive consultations with proponents and opponents. A regional forum contributed to dialogue among stakeholders until the planning process was completed and the construction started (Allain-Dupré, Hulbert and Vincent, 2017[28]).

The institutional framework

Achieving accessibility requires co-operation and networks across municipalities

Promoting accessibility in metropolitan areas and regions requires the joint action of the different municipalities in the jurisdiction. Among the 668 metropolitan areas in 33 OECD countries where they have been defined, nearly 30% include 50 or more local governments in their boundaries and about 15% even contain 100 or more local governments.[7] Indeed, one feature of urbanisation is the administrative fragmentation in metropolitan areas. As cities expand, their population, built-up area and socio-economic flows spread across multiple jurisdictions. This fragmentation complicates public service delivery, in particular transport services as, in many cases, the core city is the one that carries the responsibility of providing the service for its residents and those of other municipalities. In other instances, the transport service terminates at the geographical border of the city, forcing users to make several changes to reach their final destination. To address this situation, some countries have opted for merging municipalities (e.g. Denmark) or for allowing existing municipalities to collaborate for one or more purposes, within a more or less institutionalised framework. One way of co-ordinating work across municipalities within the same jurisdiction is to establish metropolitan governance bodies. More than two-thirds of OECD metropolitan areas already have a metropolitan governance body. They are "…bodies aiming at organising responsibilities among public authorities in metropolitan areas…" (OECD, 2015, p. 17[24]). These bodies work mainly on regional development (80%), spatial planning (over 60%) and transport (over 70%) but their legal status, composition, power, budget and staff as well as their impact on policy design varies from country to country (OECD, 2015[24]).

The increase in the number of municipalities in a functional metropolitan area implies the rise in the number of municipal authorities and actors dealing with transport policy. Co-ordination among municipal authorities avoids inconsistencies in the design of routes and complexity in the ticketing system (OECD, 2015[24]). Co-operation must not only include other municipalities but also businesses and civil society, this is particularly important if it is considered that many of the cities' challenges must be faced with joint

measures stretching over municipalities and competencies. For instance, for the implementation of its transport strategy, the city of Malmö has established interfaces with the regional public transport authority, the Swedish Transport Administration, the project HMSkåne for sustainable mobility and neighbouring municipalities to co-ordinate transport investments (City of Malmö, 2016[9]). In Germany, the Rhein-Main Verkehrsverbund (RMV) is the transport authority covering the metropolitan area of Frankfurt and beyond, in an area that covers approximately five million inhabitants. The RMV brings together 3 levels of government, 11 municipalities, 15 districts and the Länder of Hesse (OECD, 2015[24]). In Canada's Vancouver metropolitan area, regional transport requires co-ordinated and collaborative efforts from many stakeholders including the transport authority TransLink, Metro Vancouver[8] and the different municipalities, provincial and federal governments, the private sector, community organisations and residents. TransLink co-ordinates efforts to establish partnerships and promotes and supports reciprocal commitments to deliver policy measures, land use changes and investments needed to get the best performance out of the system. Actors form partnerships to align land use and transport planning to ensure that homes, workplaces and industrial areas are arranged in such a way that people and goods do not have to travel long distances. The partnerships work to ensure that road and transit investments are made according to the land use priorities, i.e. investments along corridors where transport connections are in place.

Transport is a policy domain that can greatly contribute to regional integration by connecting different cities and form a regional transport network, contributing to its functional integration. The Metropolitan Region of Rotterdam-The Hague (*Metropoolregio Rotterdam Den Haag*, MRDH), due to its large focus on transport, is an example of this case. Although the MRDH is not a single metropolitan area, its creation is expected to help it become one. Transport investments within the MRDH area have stimulated greater functional integration (OECD, 2016[29]). The provision of public transport is helping to bring the region closer together by not only a better provision of transport but by integrating the management and provision of public transport services into one single body for the entire region (Box 2.6).

Box 2.6. Transport as a metropolitan integration facilitator – The case of the Metropolitan Region of Rotterdam-The Hague (MRDH)

The MRDH was created in 2015 following the abolition of the eight Dutch city-regions. Rotterdam and The Hague were each at the centre of a separate city-region, which further comprised each city's surrounding municipalities. Currently, the 23 smaller neighbouring municipalities that formed the 2 city-regions form the MRDH.

The work of the MRDH is organised into two pillars: transport and economic development. The legal framework for co-operation (top-down for transport and bottom-up for economic development) is based on two parts of the same law: the Joint Regulation Act. The MRDH body created two governing committees within the MRDH joint regulation, one directing the formally transferred responsibility from the central government for public transport and one directing the voluntary inter-municipal co-operation for economic development. The largest share of the budget is dedicated to transport: EUR 480 million annually compared to approximately EUR 5.5 million for economic development. Over 96% of the transport budget is transferred from the central government. The economic development activities are funded by a EUR 2.45 contribution per inhabitant of each member municipality. The MRDH employs 85 full-time employees in its transport pillar and 15 in its economic development pillar.

One important advantage of the MRDH is its authority over a wide range of issues on mobility policy. The MRDH retained the competencies on all matters of planning and management of public transport, except railways, such as new investments, maintenance and network development. They also manage highways, traffic management, bicycle lanes, park and ride facilities and traffic safety. This permits building a more effective policy overall. Another advantage of the MRDH transport authority is that it

was created before the whole area becomes highly functionally integrated. Thus, the MRDH can anticipate the mobility needs that will be generated by future metropolitan growth. Since commuting flows across the whole area are still concentrated in the two former city-regions, the MRDH has the potential to develop a mobility strategy and a transport network that can accompany more effectively the population and employment dynamics.

Source: OECD (2016[29]), *OECD Territorial Reviews: The Metropolitan Region of Rotterdam-The Hague, Netherlands*, https://dx.doi.org/10.1787/9789264249387-en.

Co-ordination across municipalities for transport planning and investment is essential to link the core city and the periphery or across suburbs. The problem is that, as the OECD points out (2015[24]), in many metropolitan areas, the transport system has not kept pace with the evolving expansion of the built-up area. It remains mostly organised in a radial structure with the main city at the core. This complicates increasing suburb-to-suburb traffic. Moreover, this situation means that most of the transport investment takes place in the core city, which is used by commuters travelling from the suburbs to work in the main city. This creates a gap between who pays for investment and those who directly benefit from using the transport network. In France, access to public transport within the cities that comprise the metropolitan area of Aix-Marseille is good; however, public transport between the urban centres of the metropolitan area is rather underdeveloped: 77% of the population living in peri-urban areas (outside the city of Marseille) has no access to public transport and only 10% of travel between Aix and Marseille is with public transport (OECD, 2015[24]). In the metropolitan area of Mexico City, for instance, the provision of transport services follows an administrative logic rather than a dynamic logic based on traffic flows (OECD, 2015[26]). In Chicago, US, approximately 36% of the population works outside the city of Chicago and 46% of workers in the city of Chicago live in the suburbs. The problem is that the division of the public transport system into an urban part (Chicago Transit Authority, CTA) and suburban part (Pace and Metra) means that CTA bus services end at the city limits where Pace services begin. Moreover, none of Metra's downtown commuter rail connects directly to the CTA rail network (OECD, 2015[24]).

Fostering accessibility requires a cross-sectoral approach and that requires inter-departmental co-operation and collaboration. A key issue is how city administrations are handling the narrow sectoral planning practices (i.e. park and landscape planners, housing planners, economic development, social services, etc). In some instances, when it comes to comprehensive planning, planners from these departments are not always invited to take part in the planning process from the start. Integrating land use, transport and environmental policies may be hindered by how responsibilities are divided not only across levels of government but also across departments within the local administration. In other cases, the number of organisations and professionals involved in substantial negotiation may compromise reaching policy decisions. A lack of a common vision may be a source of tension, which could be reflected in the different operational definitions of accessibility across the administration. For some departments, making buildings, buses and public spaces accessible for people with different physical and cognitive abilities is the priority. However, there is also a broader view that considers accessibility in terms of how people could get around in the region and have access to opportunities (goods and services), which is important for their daily lives (Gil Solá, Vilhelmson and Larsson, 2018[10]).

According to the OECD, to design and plan transport policies that increase the accessibility of urban residents to economic, social and cultural opportunities, improve multi-modality and encourage new forms of clean urban mobility, it is essential to set incentives, regulations and co-ordination mechanisms to manage trade-offs and encourage policy coherence among ministries/public agencies and across levels of government (OECD, 2019[15]).

Adopting joint working arrangements may help to produce more integrated policies for accessibility. In Copenhagen, Denmark, for example, the preparation of the transport and environment plan involved an

equal number of resources and staffing from both departments. This led to a greater sense of joint ownership and collaboration between the two departments: transport and environment. Similarly, in Peterborough, UK, the transport and planning departments joined forces for the drafting of the city centre master plan. There was equal involvement in the process and equal interest in finding policies to fulfil planning and transport goals (Stead and Geerlings, 2005[30]).

The role of a metropolitan transport authority

One agency in the institutional framework that facilitates implementation of the transport strategy is a metropolitan-wide transport authority. The creation of transport authorities responsible for the organisation and provision of transport services in multiple jurisdictions in a metropolitan area is increasingly common. The creation of this kind of body requires clear buy-in from all levels of government as well as private operators (OECD, 2015[24]). According to World Bank research, the key essential elements for ensuring the sustainability and suitability of a lead transport institution are:

- *Public value*: it must contribute to advance societal good.
- *Internal capacity*: it must have the technical and financial capacities to perform its tasks.
- *External and political support*: it should have support from the highest political levels to ensure resources are made available to build organisational capacity (Kumar and Agarwal, 2013[31]).

Another feature that supports the proper operation of metropolitan transport authorities is a clear definition of responsibilities to avoid overlap with other institutions. For example, in Metro Vancouver, the metropolitan transport authority has responsibility for regional transit and commuting options and shares with the municipalities the responsibility for the major road network and regional cycling. Examples of bodies with similar responsibilities are: Transport for London (TfL), the *Consorcio Regional de Transportes de Madrid* (CRTM), the South Coast British Columbia Transport Authority (TransLink), the Regional Organiser of Prague Integrated Transport (ROPID) and the *Île de France Mobilités*. These organisations usually bring together all local governments located in the metropolitan area. These authorities manage a wide range of transport such as metro, bus, trams, suburban trains, ferries and others. It is worth noting that some transport authorities also have responsibility for the maintenance of infrastructures such as pavements, bridges, tunnels, streets and motorways. In other cases, they manage taxes or charges directly. The mere existence of a transport authority, however, does not in itself guarantee better policy co-ordination. The reason is that metropolitan areas continue to evolve, even once well-functioning governance structures may eventually need to be adapted. For example, in the Prague metropolitan area, the transport authority ROPID does not cover the entire metropolitan area, more and more inhabitants from other municipalities in the Bohemia Region commute to Prague for work and the lack of transport options leads to an increase in the use of private cars.

There is no common blueprint that defines the responsibilities of a transport authority (Box 2.7). Some transport authorities are direct providers of transport services (e.g. TfL and TransLink), while others co-ordinate the work of different service providers (CRTM, *Île-de-France Mobilités*, ROPID and RMV). However, some typical responsibilities of transport authorities emerge:

- Planning the transport system by ensuring the provision of the services across the metropolitan area and discouraging the use of private vehicles.
- Managing the operation or co-ordinating the operation of transport services.
- Defining investment projects on mobile and fix infrastructure.
- Co-ordinating the planning of transport service provision across municipalities in the metropolitan area.
- Ensuring intermodality to facilitate the movement of people and goods and make the most of the existing infrastructure.

- Setting fees and tariffs for transport services across the metropolitan area.
- Planning and managing the network of roads and traffic lights.
- Contributing to the achievement of regional development objectives (i.e. housing, environmental, economic) through transport provision.

Box 2.7. Examples of public transport authorities

- **Île-de-France Mobilités** (ex-STIF) is the transport authority for the Île-de-France region. It is in charge of organising and financing the existing transport network in the region as well as the renovation of the rolling stock. It co-ordinates a network of metro, trams, trains–RER and buses. It is jointly supervised by the region of Île-de-France, the departments that make up the region and the city of Paris. It manages a budget of EUR 10 billion for the functioning of the transport in the entire region. The agency assumes a broad range of public transport planning responsibilities that include defining general operational and service-level targets, setting fares and negotiating performance-based contracts with public service providers such as the *Régie autonome des transports parisiens* (RATP). *Île-de-France Mobilités* also develops an Urban Mobility Plan (*Plan de déplacements urbains*, PDU) that includes land use and transport plans to guide all lower levels of government. The programme of actions included in the PDU is subject to approval from regional, general and municipal councils, transport users, experts and environmental associations. Revenue from a dedicated transport tax (*versement transport*) levied on employers and based on payrolls has enabled the agency to extend and maintain the public transport network and non-motorised transport facilities.
- **Transport for London** (TfL) is an integrated body responsible for London's transport system. Its role is to implement the Mayor's Transport Strategy and manage the provision of transport services in the capital city. TfL manages buses, the London Underground, the Docklands Light Railway, the London Overground and London Trams. It is also responsible for managing the London River Services, running Victoria Coach Station and the congestion charge scheme. The body also has responsibility for a network of main roads, all of London's 6 000 traffic lights and regulates taxis and private car share.
- **South Coast British Columbia Transport Authority** (TransLink) is a statutory authority responsible for the regional transportation network of Metro Vancouver, British Columbia, Canada. TransLink's purpose is to move people and goods. It is responsible for planning, managing and operating the regional transportation system that supports Metro Vancouver's Regional Growth Strategy, air quality and GHG reduction objectives and the economic development of the region. It manages the bus system throughout the region, the Sky Train rapid transit, SeaBus passenger ferries, West Coast Express commuter rail, and HandyDART for passengers who are unable to use conventional transit. Its vision is to make Metro Vancouver a better place to live by building on transportation excellence. The mission is to connect the region and enhance its liveability by providing a sustainable transportation network, embraced by communities and people.
- **Regional Organiser of Prague Integrated Transport** (*Regionální organizátor Pražké integrované dopravy*, ROPID) is the municipal contributory organisation owned by the city of Prague responsible for the operation of the Prague Integrated Transport. Its basic tasks include organising and designing transport, co-ordinating the operations of multiple providers, setting quality standards, discussing traffic solutions and their funding with subsidy providers and transport operators, negotiating contracts and supervising operators' performance, organising financial flows of revenues and subsidies within the PID system, setting tariffs and fares within the PID system and checking and marketing the system. It co-ordinates the activities of

22 operators that provide public transport service in the Prague metropolitan area. The biggest transport operator is the Prague Public Transit Company (DPP), owned by the city of Prague, which operates the metro, trams and most bus lines. ROPID also conducts transport quality monitoring (punctuality, cleanliness, information), passenger counting (on stops and in vehicles), and conducts passenger surveys (travel behaviour).

- **Consorcio Regional de Transportes de Madrid** (CRTM) is the public transport authority of the Madrid region (CAM). It is an autonomous and technical agency in charge of co-ordinating public transport policies across municipalities and different providers. It assumes the integrated management of collective public transport in the CAM (metro, light rail, public bus operators, private bus operators) but not for individual transport modes such as taxis, school transport or shared-bicycles; competency for these transport modes reside in the city councils. The CRTM is in charge of: i) planning public transport infrastructure; ii) establishing an integrated fare system for the whole public transport network; iii) developing a management policy and a stable and clear finance framework for the public transport system; iv) planning services and defining the co-ordinated operational programmes for all transport modes; v) auditing the integration of public transport with new urban planning; among others.
- **Department of Transportation New York City** (DOT) is in charge of providing safe, efficient and environmentally responsible movement of people and goods and maintains and enhances the transportation infrastructure including bridges, tunnels, streets, sidewalks and highways. DOT manages an annual operating budget of USD 900 million and a 5-year USD 10.1 billion capital programme.
- **Rhein-Main Transport Association** (RMV) is the single authority over public transport in the metropolitan area of Frankfurt. It brings together 3 levels of government; 11 municipalities, 15 districts and the Länder of Hesse. It defines metropolitan transport policy and is in charge of planning, investment decisions, price setting and co-ordinating 153 public and private operators (subway, bus, suburban railway and trains). It integrates regional and local transport under uniform and needs-based rules for the entire metropolitan area: one timetable, one price, one ticket. RMV covers its costs at 57% with the remainder coming from federal regionalisation funds passed through the state budget and form municipalities via state financial equalisation.

Source: For Île-de-France Mobilités: Île-de-France Mobilités (n.d.[32]), *Le réseau*, https://www.iledefrance-mobilites.fr/le-reseau/; For TfL: ORR (n.d.[33]), *Who We Work With – Governments*, https://orr.gov.uk/about-orr/who-we-work-with/government/transport-for-london; For TransLink: Metro Vancouver Regional District (2011[34]), *Regional Growth Strategy - Metro Vancouver 2040: Shaping Our Future*, http://www.metrovancouver.org/services/regional-planning/PlanningPublications/RGSAdoptedbyGVRDBoard.pdf (accessed on 5 April 2018), TransLink (2013[35]), *Regional Transportation Strategy: Strategic Framework*, https://www.translink.ca/-/media/Documents/plans_and_projects/regional_transportation_strategy/rts_strategic_framework_07_31_2013.pdf (accessed on 29 March 2018) and TransLink (n.d.[36]), *Learn More About Us*, https://www.translink.ca/About-Us.aspx; For ROPID: ROPID (2018[37]), *Prague Integrated Transport and ROPID*, ROPID, Prague and ROPID (n.d.[38]), *We Introduce ROPID*, http://stary.ropid.cz/info/we-introduce-ropid_s219x902.html; For CRTM: García Pastor, A. (2015[39]), "Integration of the public transport system in Madrid region", https://www.slideshare.net/EMBARQNetwork/integration-of-the-public-transport-system-in-madrid-region (accessed on 1 October 2018) and CRTM (n.d.[40]), *Conócenos*, https://www.crtm.es/conocenos.aspx; For DOT: DOT (n.d.[41]), *About*, https://www1.nyc.gov/html/dot/html/about/about.shtml; For RMV: OECD (2015[24]), *Governing the City*, https://doi.org/10.1787/9789264226500-en (accessed on 9 August 2017).

Transport authorities co-ordinate their planning work with that of bodies in charge of spatial planning to ensure coherent metropolitan plans. In metropolitan Vancouver, for instance, TransLink and the Metro Vancouver Regional District (planning authority) co-ordinate their work to ensure coherence in the definition and implementation of the Regional Growth Strategy. In Chicago, two different agencies are responsible for transport and spatial planning. The Chicago Metropolitan Agency for Planning (CMAP) develops a comprehensive regional plan integrating transport and land use for seven counties, whereas the Regional Transportation Authority (RTA) co-ordinates the three public transport service boards (Chicago Transit Authority [CTA], Metra and Pace) (OECD, 2015[24]). However, co-ordinating transport and spatial planning at the regional level is not always the norm. In Madrid, Spain, the lack of a regional development strategy hinders that co-ordination. The transport authority has to co-ordinate with each one of the municipalities of the region to ensure investments correspond to local needs.

In many cities, such as Frankfurt, London, Madrid, Paris and Prague, the transport authority helped introduce a harmonised fare structure. A harmonised fare structure is a basic element in ensuring easy and affordable use of public transport. Nevertheless, other metropolitan areas still operate fragmented fare systems. For example, in Marseille, France, ten public transport authorities operating in the larger metropolitan area, including six transport organising authorities (*autorités organisatrices des transports*, AOT) that cover each of the six existing municipal authorities. Despite progress in terms of sharing information on investment plans and pricing systems, public transport fares are yet to be harmonised (OECD, 2015[24]). Korea introduced a fare collection system at a quasi-national scale through the single mobility and smart payment card throughout the country called T-money. This system allows users to ride most public transport systems in the country with a single pass and benefit from discounts when they transfer from one mode to another, encouraging public transport use and multi-modality (OECD, 2017[42]).

Box 2.8. **Korea's single mobility pass**

In 2004, the city of Seoul launched a revolutionary fare payment method called the T-money card. The Korea Smart Card Corporation (KSCC) (owned 34.4% by the city of Seoul, 31.85% by LG CNS and 15.73% by Credit Card Union) developed and operated the system. The T-money card can be used on buses and/or subways in different metropolitan cities and locations across Korea, including Busan, Daegu, Daejeon, Gyeonggi, Gwangju, Incheon, Sejong, Seoul and other provinces. There are now 11 transport card companies (including KSCC) operating in different cities and provinces through direct service contracts with subnational authorities. Beyond these conventional pre-paid services, ten commercial banks nationwide also topped their own credit or debit cards with a public transport card function, with deferred payment.

By using this pass (either a card, phone or T-money enabled device), travellers can obtain discounts and save themselves avoid having to purchase single-journey tickets for every ride. Discounts can be effective on rides with transfers from one bus to another, one subway line to another, or from bus to subway or vice versa. Transfer discounts are applicable for up to 4 times a day, within a transfer time limit of 30 minutes (up to 1 hour from 9pm to 7am the next day). The user simply needs to tap his device on the sensors as he/she gets off the bus or exits the subway. Many taxis also accept payment via T-money.

In 2014, the Ministry of Land, Infrastructure and Transport expanded the service to integrate the public transport fare collection system throughout most of the country. The new pass is accepted in all buses, subways, taxis, trains, intercity buses, express buses, tollgates and even major retailers. The pass costs about KRW 3 500 (approximately USD 3) and can be purchased and recharged at subway stations, bank ATMs, convenience stores and kiosks located adjacent to bus stops. This enables seamless journeys both in terms of intermodal and inter-regional transport, allowing for new levels of user convenience that are rarely achieved in other countries.

Source: OECD (2017[42]), *Urban Transport Governance and Inclusive Development in Korea*, https://dx.doi.org/10.1787/9789264272637-en.

Accessibility requires co-ordination across levels of government to reduce transaction costs

The success of any transport and accessibility strategy also depends on how intergovernmental relations are structured. The reason is that local authorities are not always the financier of transport infrastructure or services as other actors are normally involved such as national or regional authorities as well as private sector companies or individual concessionaries. Co-operation and co-ordination are two key elements of these relations as they facilitate the exchange of information, planning, effective and efficient use of financial resources, and avoidance of duplication of programmes and projects. In the UK for instance, local transport plans have a 5-year time horizon, while regional spatial strategies have a spatial vision for a 20-year time horizon and the national government has a 10-year transport investment plan. This therefore requires co-ordination, negotiation and sometimes trade-offs.

The allocation of responsibilities across levels of government requires coherent multi-modal, multiyear strategic planning that is not always easy to implement in metropolitan areas (OECD, 2015[24]). Setting up a clear division of responsibilities for expenditure across levels of government could go a long way in improving co-ordination and reducing transaction costs in service delivery such as transport and the construction of infrastructure. Generally, national or central government is involved in overall policy, setting standards and auditing; state/regional governments have an oversight function; and local governments are in charge of the provision of infrastructure and services. However, designing a clear-cut allocation of competencies across levels of government is a highly complex process. The interdependency of many services and policy areas require the intervention of all levels of government. In addition, the assignment of government responsibilities is not always appropriate, either because of overlaps in responsibilities or because some policy domains are not specifically assigned to any level of government and require co-operation.

In Korea, for example, building the different types of roads that integrate the road network requires the participation of different levels of government and specialised institutions. The Ministry of Land, Infrastructure and Transport (MOLIT) is the main authority in charge but it may delegate responsibilities to the Korea Expressway Corporation (for the construction, maintenance and management of national expressways), while subnational governments are responsible for provincial, metropolitan and local roads as well as national highways that go through the cities (Table 2.3 and OECD (2016[43])).

Other areas such as road safety may require the intervention of an even wider set of actors. MOLIT co-ordinated the road safety planning framework by collecting inputs from other ministries and subnational levels of government to prepare the Five-year Transportation Safety Master Plan that covers all modes of transport. The master plan should be reflected in the Provincial and Local Transportation Safety Master Plans, prepared every five years and implemented through yearly action plans. However, the responsibility for road safety is still highly fragmented as there are other actors engaged in one or more activities. For example, in broad terms: engineering is addressed by MOLIT, supported by its affiliated organisation, the Korea Transportation Safety Authority (KoTSA); enforcement by the National Police Agency, supported by its affiliated organisation, the KoROAD; and education by the Ministry of Education. Each of these axes also involves other stakeholders from different ministries and agencies, other levels of government and civil society organisations (OECD, 2016[43]).

Table 2.3. Governance of road infrastructure in Korea

Authorities in charge of the different types of roads in Korea

Type of road	Authority in charge	Design	Budget allocated for:		
			Construction	Land use	Maintenance and management
National expressways	MOLIT	National	National 50% Korea Expressway 50%	National	Korea Expressway Corporation
National highways					
Outside cities	MOLIT		National	National	National
Inside cities	Mayors		Local	Local	Local
National bypass	MOLIT		National	National	National
Provincial roads					
Provincial roads supported by the national government	Governor (TL3 region) or mayor (if inside a city)	National (executed by local)	National (executed by local)	Local	Local
Provincial roads	Governor (TL3 region) or mayor (if inside a city)		Local	Local	Local
Metropolitan roads or city/gun/gu roads	Mayor or head of gun		Local	Local	Local

Source: OECD (2016[43]), *Road Infrastructure, Inclusive Development and Traffic Safety in Korea*, https://dx.doi.org/10.1787/9789264255517-en.

Financing accessibility

Cities need to explore other potential sources of funding for transport

For cities to deliver their transport strategies and promote accessibility that improves quality of life, health and social integration, it is essential to explore additional sources of income. Appropriate additional income sources depend on the specific context of each country or city and their political-administrative system. Diversification to external sources of financing is needed to invest in infrastructure. OECD studies show that such diversification, through private funding, public-private partnerships (PPPs) or funding through financial markets via inter-municipal borrowing remains very limited at the subnational levels of government (Allain-Dupré, Hulbert and Vincent, 2017[28]). Part of the reason is the complexity of using PPPs and the extensive legal and technical capacities required, which most subnational governments do not possess. However, devolution or decentralisation processes, the adoption of land value capture mechanisms, the creation of partnerships and the participation of the private sector in transport are four areas that could be explored.

Box 2.9. How subnational governments are funded

Generally, subnational governments are funded by five main sources of revenues: tax revenue, grants and subsidies, user charges and fees, property income and other revenues. The level of each of these items depends on the level of fiscal autonomy every city has and on the political organisation of a country (federation vs. unitary states). Subnational governments in Romania, for instance, are still dependent on central government transfers, which constitute the bulk of their revenue (81.9%), while tax revenues are still limited (10.8%).[9]

According to the World Observatory on Subnational Government Finance and Investment, grants and subsidies are the primary source of revenue in the great majority of countries around the world. There are, however, great variations across countries in terms of share of GDP and share of total subnational revenue. Taxes account for 32.7% of subnational revenue and 3.3% of GDP. Moreover, subnational government tax revenues account for 14.9% of public tax revenue.

According to the OECD Principles on Urban Policy, there are several ways by which countries and cities could harness adequate funding for the implementation of urban projects, infrastructure and services, such as:

- Promoting a diversified, balanced and sustainable basket of resources.
- Using economic instruments such as taxes or fees to catalyse revenues.
- Providing subnational governments with sufficient leeway to adjust and manage their revenue.
- Mobilising innovative financing tools: borrowing, land value capture mechanisms and infrastructure funds.
- Leveraging private sector funding when appropriate.

Source: OECD/UCLG (2019[44]), "2019 Report World Observatory on Subnational Government Finance and Investment: Key findings", http://www.sng-wofi.org/publications/2019_SNG-WOFI_REPORT_Key_Findings.pdf (accessed on 28 August 2019); OECD (2019[15]), *OECD Principles on Urban Policy*, http://www.oecd.org/cfe/ (accessed on 16 March 2020).

Devolution or decentralisation

Local governments generally control relatively little of the tax raised within their boundaries. Funding is therefore heavily reliant on national government grants. Devolving or granting more financial powers to cities could allow them to manage their own growth. Moreover, granting cities more revenue-raising powers can promote accountability, fairness and economic efficiency. For example, it has been suggested that to increase tax autonomy for local governments in the US would be to increase their reliance on local income taxes rather than on property tax and for states to reduce or eliminate some of the restrictions currently imposed on local property taxes (Reschovsky, 2019[45]). In London, the Mayor's Transport Strategy promotes devolving more financial powers to London and other UK cities to allow them more control over their own growth. It proposes to seek additional taxes, financial powers or other similar mechanisms such as Vehicle Excise Duty in London to create a fairer way of funding the delivery of transport schemes and better capture and conserve the benefits they create (Greater London Authority, 2018[13]). The fiscal dimension of decentralisation is very often the weakest or missing link. One of the most common challenges is the misalignment between responsibilities allocated to subnational governments and the resources available to them (OECD, 2019[46]).

Land value capture mechanisms

Land value capture is considered a strong financial tool for transport funding (Medda, 2012[47]; OECD, 2015[26]). The basic premise is that by establishing a close relationship between land development planning and transport accessibility, cities can create and increase economic, social and environmental urban value. It allows public transport authorities to extract part of the land value benefits that public transport (or other infrastructure investments) provide in order to fund further developments. There are at least two channels for capturing the land value uplift. The first one is through the selling or leasing of development rights around the transit assets; the other is through taxation-based schemes that target users, nearby landowners and other beneficiaries (Olajide and Arcé, 2017[48]). Betterment tax, accessibility increment contribution (AIC) and joint development are three land value capture mechanisms that can be implemented in combination according to the urban context (Medda, 2012[47]). Based on residents' willingness to pay for accessibility and a less congested and polluted city, policymakers can then correctly allocate the incentive for the transport investment and, at the same time, define an equitable and transparent land value capture mechanism (Medda, 2012[47]).

Table 2.4. Examples of land value capture (LVC) mechanisms in practice

LVC mechanism	Definition	Examples
Betterment tax	This is a tax on the land value-added by public investment and is directed towards the beneficiaries of increased accessibility, of reduced congestion and pollution, and of lower transport costs.	Both Hong Kong (China) and Singapore have financed their transport infrastructure and services (i.e. metro systems) through LVC. The betterment taxes in Hong Kong are based on full market value and in Singapore the tax is about 50% of full market value. The Singapore government decided to leave some of the windfall benefits to the private sector to incentivise urban development. It leases, with different restrictions, the land around stations to the MRT Corporation.
Accessibility increment contribution (AIC)	This refers to the fiscal incentive instruments that earmark future revenues (fiscal contribution for accessibility increment) to finance current expenditure. The basic idea is that public improvement expenditures induce growth in urban areas characterised for low accessibility.	Private sector development of specific hubs of the public transport network can be conducted through AIC. Large stations with high levels of footfall represent a clear opportunity for commercial and business property development. In Brazil, Belo Horizonte and Porto Allegre transfer stations of their respective Bus Rapid Transit (BRT) systems have been developed under AIC.
Joint development (financialisation)	In a joint development project, to finance and maximise the profitability of transport investment and the increase of accessibility, the local government encourages property development (residential and/or commercial) close to stations. It includes air rights development, ground-lease arrangements, connection-fee programmes and other incentives to promote real estate development.	In the US, several joint development projects are found within transit-oriented development (TOD), pedestrian-friendly and public transport supportive development or redevelopment where private sector intervention has represented a feasible solution for new financial resources. In Denmark, TOD, a fully integrated transport planning approach, has been used for the development of the new town Ørestad. The new transport system and improved accessibility have been financed on the basis of commercial rate borrowing.

Source: Elaborated based on Medda, F. (2012[47]), "Land value capture finance for transport accessibility: A review", http://dx.doi.org/10.1016/j.jtrangeo.2012.07.013.

Creation of public partnerships for funding transport investment

The experience of Metro Vancouver suggests that finding the right mix of funding sources in the short and long terms requires the creation of partnerships between the federal, provincial and local government level. In Metro Vancouver, partnerships are created to fund major capital initiatives that connect the region, support the economy and create sustainable communities. These types of projects are considered generational as they produce local, regional, provincial and national benefits in the longer term. Their funding is ensured by all levels of government. Since local communities also benefit from major capital investments as they generate higher land values, bring incremental tax revenue and support city-building objectives, they are responsible for ensuring that formal partnerships are in place. The Mayors' Council,[10] TransLink and host municipalities develop partnership agreements for ten-year investments plans. Any municipal financial contribution is intended to cost-share for a specific project providing both regional and local impact. Contributions may be one-time, ongoing or property contributions towards direct construction costs. Local financial contributions may take the form of in-kind contributions (Mayors' Council on Regional Transportation, 2017[18]). TransLink contributions to project investments are defined in the agreements and may include: project investment commitments (capital, operating and phasing), planning and process commitments, transportation service and system integration, and funding, etc.

Private sector participation in urban transport financing

The public sector can fund public transport infrastructure by providing the resources from general funds or taxation. In this case, the capital is not expected to be recovered. Transport infrastructure can also be financed by the private sector and, in this case, the capital is expected to be recovered (Rodrigue, 2020[49]). Given the extent of investment needs and the constraints in public finances, cities need to mobilise private investment. Governments have a key role in mobilising private investment in transport infrastructure by establishing reform agendas that deliver "investment-grade policies". Chile, for instance, has been successful in mobilising private finance in the development of its infrastructure. The country adopted and refined the concessions model for delivering infrastructure, a major factor that facilitated building its extensive motorway network. Since 1992, Chile has procured 82 projects worth USD 19 billion and built and rehabilitated 2 500 km of motorways using the concession mechanism (OECD, 2017[50]). "An integrated framework with clear and stable climate and transport policies, sound investment policies, and targeted and innovative tools is essential to overcome barriers to private sector investments in sustainable transport" (OECD, n.d., p. 6[51]). The OECD Green Investment Policy Framework provides a non-prescriptive list of policies, tools and instruments available to policymakers to scale up private investment toward sustainable transport infrastructure.

Table 2.5. OECD Green Investment Policy Framework

Action	Elements/tools
1. Strategic goal setting and policy alignment	• Adopting long-term targets and clear policy goals, and integrating sustainable transport goals within infrastructure plans. • Adopting a co-benefits approach. • Mainstreaming the use of multi-criteria cost-benefit analyses to assess the full environmental, social and economic costs and benefits of transport infrastructure. • Integrating land use and transport planning.
2. Enabling policies and incentives	• Promote sound investment principles and open and competitive access to sustainable transport infrastructure. • Adopt adequate pricing mechanism to address market and government failures (carbons prices, fuel and vehicle taxes, reform of fossil fuel subsidies, congestion charges, parking levies). • Complement carbon pricing schemes with supply-side regulations and policies (i.e. zoning policies and land use planning); public procurement programmes; and standard-setting (i.e. building codes and design standards).

Action	Elements/tools
3. Transitional financial policies and instruments	• PPPs allow risk-sharing but they must offer sufficient value for money compared to traditional public procurement. • Land value capture tools to obtain revenues from the indirect and proximity benefits generated by transport infrastructure such as an increase in real estate value to help fund transport projects. • Loans, grants and loan guarantees are traditional financial tools used to leverage private investment in large-scale infrastructure projects. • Green bonds which have the potential to attract institutional investors such as pension funds and insurance companies, by tapping into the debt capital markets currently underexploited for sustainable transport investment. • Short-run subsidies to provide transitional support to sustainable transport options and technologies.
4. Harness resources and build capacity	• Effective transport planning may ensure proper project implementation, foster innovation and harness resources in support of sustainable transport goals. • Investor capacity gaps may need to be addressed which may be due to lack of data or expertise. • Climate risk assessment is needed to mainstream climate resilience in transport planning.
5. Promote green business and consumer behaviour	• Information, education, public awareness campaigns and business outreach programmes can help reduce information barriers, promote changes in corporate and consumer behaviour, encouraging the use of transport. • Individuals and private actors need reliable information on which to base their travel and investment decisions.

Source: Adapted from OECD (n.d.[51]), *Mobilising Private Investment in Sustainable Transport Infrastructure*, https://www.oecd.org/env/cc/financing-transport-brochure.pdf (accessed on 27 August 2019).

Cities need to consider adopting a medium-term budget framework for transport investment

A medium-term budget framework[11] may help cities promote more efficient use of resources by creating stable and predictable conditions to plans their investment expenditures. A medium-term budget framework has the potential to facilitate multiyear planning, spend resources as needed and identify and exploit efficiency-related savings. Official spending authorisations would still remain annual but a medium-term budget framework can enable transport authorities, as well as any other government ministry or agency, to make clearer commitments in their budget allocations. Transport authorities would be in a better position to plan their investment projects and activities. According to the International Monetary Fund (IMF), the efficiency of infrastructure investment can be increased by providing budget actors with more time to design projects, negotiate contracts, identify risks and manage synergies (Harris et al., 2013[52]). A multiyear planning horizon would allow governments to relax some of the limits or constraints on transport agencies, limits or constraints that can otherwise encourage inefficient use of resources.

Sources of revenue for transport funding are limited and costs are increasing

Cities are more frequently experiencing problems to finance transport investment. Some cities and regional governments have adopted efficiency programmes to reduce operating costs. However, the costs of commuting are still growing. In New South Wales (Australia), the level of taxpayer funding for transport has increased on average 4.5% per annum since 2012 and it is expected to reach AUD 5.7 billion per year by 2026 (AUD 2 billion above 2018's level) (NSW Government, 2018[12]).[12]

Transport investment is generally funded through a combination of fares, dedicated taxes and subsidies by municipal or higher levels of government. The lack of reliable and adequate sources of funding is undermining cities' capacities to plan for long-term transport investment projects. Nowadays, public transport infrastructure financing faces several challenges such as: i) the lack of sufficient funding for maintaining and improving the transport network; ii) divergence of purpose as transport initiatives should be designed to promote productivity gains (accessibility, capacity and performance) but many projects are

politically driven; and iii) the misalignment between the time horizon of the infrastructure project (normally long-term) and the time horizon of the financing (normally short-term) (Rodrigue, 2020[49]).

Governments also tend to use PPPs to finance investment in transport and infrastructure. Research suggests that private investment may lead to efficiency gains and increased consumer welfare if appropriate organisational, institutional and regulatory conditions are met (Makovšek, 2019[53]). Most private investment flows into road infrastructure projects where there is no evidence of improved value for money. PPPs in sectors with little to no competition like road and rail services may have difficulty in ensuring value for money due to failures in risk pricing that are typical in the PPP model. The ITF has found that private investment cannot close the infrastructure gap as a PPP is a financing vehicle (to borrow money) and an investment gap is a funding problem. A financing solution cannot resolve a funding problem. Thus, if the government cannot afford to finance a project through the use of public funds, it will not be able to afford it as a PPP (Makovšek, 2019[53]). To improve the potential of PPPs in financing investments in transport, the ITF recommends four lines of action:

- Pursue private infrastructure investment on the basis of efficiency.
- Collect and analyse the data necessary to determine when PPPs lead to greater efficiency.
- Upgrade accounting standards to offset any bias in favour of PPPs.
- Learn how to improve PPPs in general and when to replace them with alternative models (Makovšek, 2019[53]).

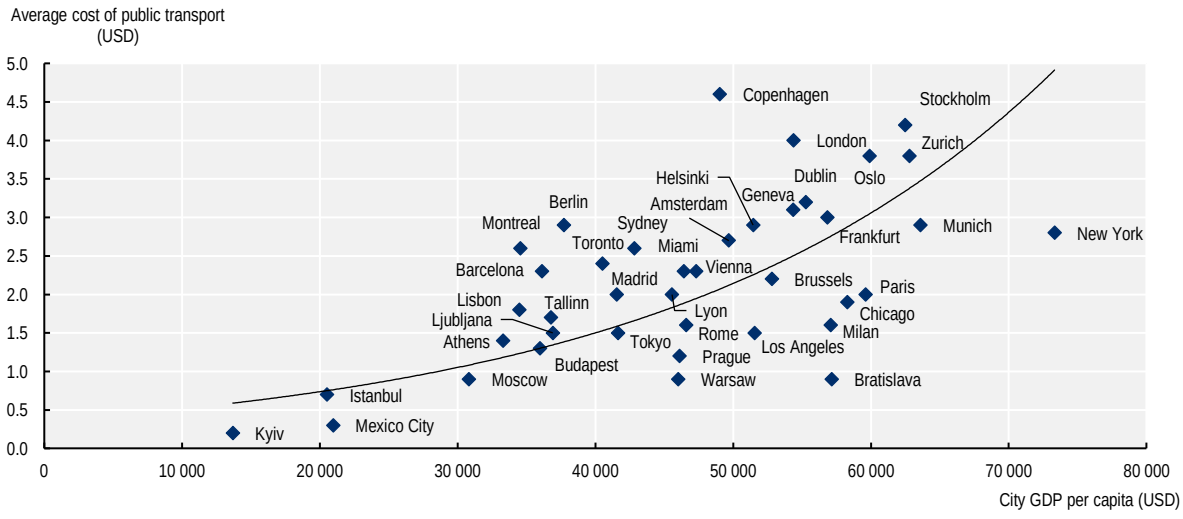
The lack of proper funding and the financial vulnerability of strategic organisations working in the transport sector prevent investment in maintenance and expansion of the transport network. In Romania, for instance, limited financial resources and poor management have prevented the modernisation of the country's rail infrastructure. Moreover, Romania's state-owned enterprises (SOEs) play a key role in the transport sector and are responsible for building and maintaining rail and road infrastructure and delivering services. However, SOEs are large, inefficient and financially vulnerable according to the IMF (2015[54]). Efficiency and profitability of many SOEs have been weak and have been unable to generate resources for urgently needed investment. In the Chicago Tri-State Metro-Region in the US, the Regional Transportation Authority (RTA), which serves 6 counties and 88% of the population in the metropolitan region, dedicates most of its funding to operations (USD 2 billion annually) rather than on maintenance or capital investment as operating costs have increased 4.5% annually. Moreover, half of RTA's operating costs are financed by fares and other system-related revenues such as advertising and concessions, with the remainder supplied by an RTA sales tax applied based on proximity to Chicago and Cook County, a real estate transfer tax in the city of Chicago, and state matching funds and contributions. Capital funds come from federal and state sources (OECD, 2012[55]). In Metro Vancouver, TransLink has taxation authority (fuel tax portion, levies, project toll charges, property tax, motor vehicle charges and small fees) and one-third of its revenues come from transit fares (Government of British Columbia, 1998[56]), which are used to fund transport investment plans. The Canadian federal government contributes 40% of the funding. Funding the 10-Year Transport Vision requires CAD 7 billion[13] to cover major infrastructure investment and increases in bus services.

Financing public transport is a balancing game between citizens' desire for low fares and costs of operation and investment. Figure 2.8 shows a positive correlation between public transport fares and per capita GDP in cities around the OECD. In many cases, cities offer low fares, discounts and exemptions to make it affordable to specific population groups (e.g. the elderly, students, the unemployed). This means that city administrations have to dedicate large sums of public money in public transport subsidies. High subsidies result in less available funds for maintenance, inspections, infrastructure upgrading and replacement of rolling stock. For instance, the city of Kyiv, Ukraine, has spent about 6% of its total budget on operating subsidies over the last 5 years (OECD, 2018[57]).

The transfers that cities receive from national governments may also vary depending on the level of the economic strength of every city, which determines the availability of resources for transport investment. In

Madrid, funding for public transport in the metropolitan region comes from a combination of contributions and subsidies that are co-ordinated through an investment programme managed by the metropolitan transport authority (*Consorcio Regional de Transportes de Madrid*, CRTM). The financial needs of the transport system consist on a compensation per service supplied paid by the CRTM to the different operators and it is funded by public contributions from all levels of government (central, regional and municipal) and from users. In France, the cost of transport in Île-de-France is about EUR 10 billion per year, of which 28% comes from tickets and travel cards sales and 72% is financed by employers, local governments and other revenues.[14] In Chile's capital Santiago, the operating costs of the mobility network *Transantiago* increased by 64% between 2009 and 2018 and fares by 70% over the same period. In 2019, the *Transantiago* system was changed to *Red Metropolitana de Movilidad* (RED) which is 50% financed by fares and 50% by the state.[15] In Warsaw, Poland, funding particular transport infrastructure projects require a mixture of local, national and European funds. It uses city budgets, bank loans – including loans from the European Investment Bank (EIB) – and EU funds (mainly the Cohesion Fund). Romania's modernisation of its railway network depends on EU funds (Box 2.10). Malmö's Sustainable Urban Mobility Plan in Sweden also foresees that for the implementation of some of its actions and processes, external funding can be applied for from the state, the region and the EU (City of Malmö, 2016[9]).

Figure 2.8. Comparison of public transport fares and city GDP per capita



Source: OECD (2018[57]), *Maintaining the Momentum of Decentralisation in Ukraine*, https://dx.doi.org/10.1787/9789264301436-en.

Box 2.10. Financing public transport projects via external sources: Warsaw and Romania

Warsaw metro line 2

In 2015, the city of Warsaw, Poland, announced plans to extend line 2 of the city's metro system. In 2017, the EU approved the allocation of EUR 432 million through the Cohesion Fund. The extension will connect the city's east and west areas. The European resources will cover the construction of the six new metro stations: three on the line's northeast segment (Trocka, Targówek and Szwedzka) and three on the western section (Księcia Janusza, Młynów and Płocka). The funds will also cover the construction of a technical terminal and the procurement of 13 trains and the preparation works of the project.

In 2016, the EIB announced financing for EUR 896 million out of the EUR 1.8 billion necessary for metro line 2. The general project includes the construction of 16.4 km of line and 14 stations, the building of a depot and the procurement of 59 trains of which 22 will replace the existing rolling stock on line 1 and the remaining 37 will be in service on line 2. With the 6.5 km extension, line 2 will measure 13.5 km and works are expected to be completed at the end of 2019.

Romania railway network

Romania uses EU funds for financing train programmes (85%) and only a minimal part comes from the state budget (15%). Between 2007 and 2013, EU funding -European Regional Development Fund (ERDF) + Cohesion Fund + Trans-European Transport Network (TEN-T)- of Romania's railway reached EUR 1.9 billion. This financing was fully allocated to sections of a major rail route: the north branch (Constanta-Braşov-Curtici) of the former TEN-T Priority Project 22. Recently, EU funds, through the TENT-T initiative, have been used to rehabilitate 89.5 km of double-track railway line that connects communities in the central and western regions connecting the municipalities of Sighişoara and Coşlariu in the Transylvania region. This section of the railway is part of a line that connects the city of Braşov located in the central region to the Hungarian border crossing the western region. The total investment for the project "Rehabilitation of the Railway Line Braşov – Simeria at Section Sighişoara – Coşlariu – Phase II" was EUR 3.9 million, with the Cohesion Fund contributing EUR 2.4 million. It is expected that trains running on this renovated section are now able to operate at speeds of 120 to 160 km/h, thus cutting the travel time between the two cities by half. There are plans to rehabilitate train stations located in capital cities as a priority, then those of touristic importance according to the standards set by the EU.

Source: For Warsaw: Luica, P. (2017[58]), "Warsaw makes progress on public transport development", https://www.railwaypro.com/wp/warsaw-makes-progress-public-transport-development/ (accessed on 9 August 2019); For Romania: Thomas, M. (2015[59]), *Romania's General Transport Master Plan and Rail System - In-Depth Analysis*, http://www.europarl.europa.eu/RegData/etudes/IDAN/2015/540376/IPOL_IDA(2015)540376_EN.pdf (accessed on 13 August 2018) and EC (n.d.[60]), "Rail line connects communities in Romania's Centru and Vest regions", http://ec.europa.eu/regional_policy/en/projects/romania/rail-line-connects-communities-in-romanias-centru-and-vest-regions.

Improving and expanding public transport can be challenging due to uncertain long-term financial stability. In order to provide a sustainable and competitive public transport network, constant investments in infrastructure and operation are required and, in most cases, subsidies are necessary to maintain quality and affordability (Aguilar Jaber and Glocker, 2015[61]). In some cities, transport is heavily subsidised under the argument that high subsidies are needed to provide services at affordable prices, as it happens in Mexico City (Table 2.6). In Warsaw, Poland, the public transport system is financed 33% from ticket selling and the rest from the municipal budget (Florczak, 2012[62]). The problem is that subsidies are sometimes established without adequate analysis of costs structures and affordability of tariffs.

Table 2.6. Fares and calculated operating costs of a trip on public transport in Mexico City, 2015

	Price per trip (MXN)	Calculated cost per trip (MXN)
Metro	5.00	11.50
RTP ordinary bus service	2.00	7.50
RTP Ecobus service	5.00	12.00

Source: OECD (2015[26]), *OECD Territorial Reviews: Valle de México, Mexico*, https://dx.doi.org/10.1787/9789264245174-en.

Moreover, in some countries (i.e. Chile, Colombia, Mexico and Poland), the heavy dependence of cities on national fund transfers and the limited tax autonomy of subnational governments limits resources to finance infrastructure. Some cities have developed a greater capacity to generate local funds but have difficulties obtaining the national government's approval to use certain sources of revenue. In Denmark, cities cannot use revenues from congestion charges as they are considered new taxes (Aguilar Jaber and Glocker, 2015[61]). In New South Wales (NSW), Australia, the Independent Pricing and Regulatory Tribunal (IPART) regulates the public transport fares, which limits the amount fares can be increased within a year. The problem for funding is that the government does not always increase the fares to the amount allowed by IPART. According to the NSW government, Sydney public transport fares are relatively low compared to those in London and Munich which are more than double those in Sydney (NSW Government, 2018[12]).

In the Madrid region (CAM), Spain, like in many other regions in the world, the financial sustainability of the transport system seems to be a challenge as over 57% of the income comes from subsidies and only about 43% from user fees (Table 2.7). The regional government is by far the main contributor to the system with 44% of the total spending followed by the city of Madrid and the central state administration. The city councils of the CAM with urban transport services also contribute to the financing but to a much lesser extent.

Table 2.7. Financing of the transport system in the Madrid region

Public subsidies	2016 (EUR millions)	Percentage
Central administration	126.7	5.70
Madrid region (CAM)	980.1	44.11
Madrid City	149.1	6.71
Other cities	14.1	0.63
Total	1 270.0	57.16
Revenues from fees	952	42.84
Total	2 222	100

Source: Velasco, A. (2016[4]), *Integration of the Public Transport System in Madrid Region*, Consorcio Regional de Transportes de Madrid, Madrid.

Cities need to ensure co-ordination of investment that comes from different sources (national funds, regional funds, local revenues) and the link between those investment decisions and accessibility strategies. For this purpose, cities need to adopt mechanisms to link national grants to local project implementation according to urban accessibility objectives to avoid a high share of funds being spent on one particular item such as urban roads.

Transport is a priority sector across subnational governments in OECD countries

Transport and economic affairs are the largest sectors of subnational investment in the OECD accounting for almost 40% of the total subnational investment. Under this heading are transport, communications, economic development, energy, construction, etc. Transport systems, facilities and public transport account for around 75% of investment and comprise the construction of roads (highways, local roads, bicycle paths, etc.), railways, water transport, air transport and airports, and even cable cars or funiculars, etc. (OECD, 2018[63]). This level of investment varies across countries from around 50% in Australia, Estonia and Ireland, to less than 20% in Denmark, Latvia, Slovenia and Sweden (Figure 2.9).

At a global level, education, social protection, general public services (mainly administration) and health are the primary areas of subnational government (SNG) spending as a share of GDP and share of SNG expenditure. SNG spending on economic affairs (industry, energy, mining, agriculture and construction) and transportation (roads, public transport, etc.) account for 1.3% of GDP and 13.9% of subnational spending (Table 2.8). Data do not show the difference between the share of economic affairs and transportation but, based on the information from OECD countries, it may be assumed that the largest share is investment in transport. These shares vary between federal (2.8% of GDP and 14.1% of subnational spending) and unitary countries (1.0% of GDP and 13.9% of subnational spending) (OECD/UCLG, 2019[44]).

Table 2.8. Examples of areas of subnational government spending

Areas	Percentage of GDP	Percentage of SNG expenditure
Education	2.6	23.6
Social protection	1.8	12.4
General public services	1.7	18.5
Health	1.5	10.7
Economic affairs and transport	1.3	13.9
Housing and community amenities	0.6	8.0
Recreation, culture and religion	0.5	5.6
Environmental protection	0.3	5.0
Public order and safety and defence	0.3	..

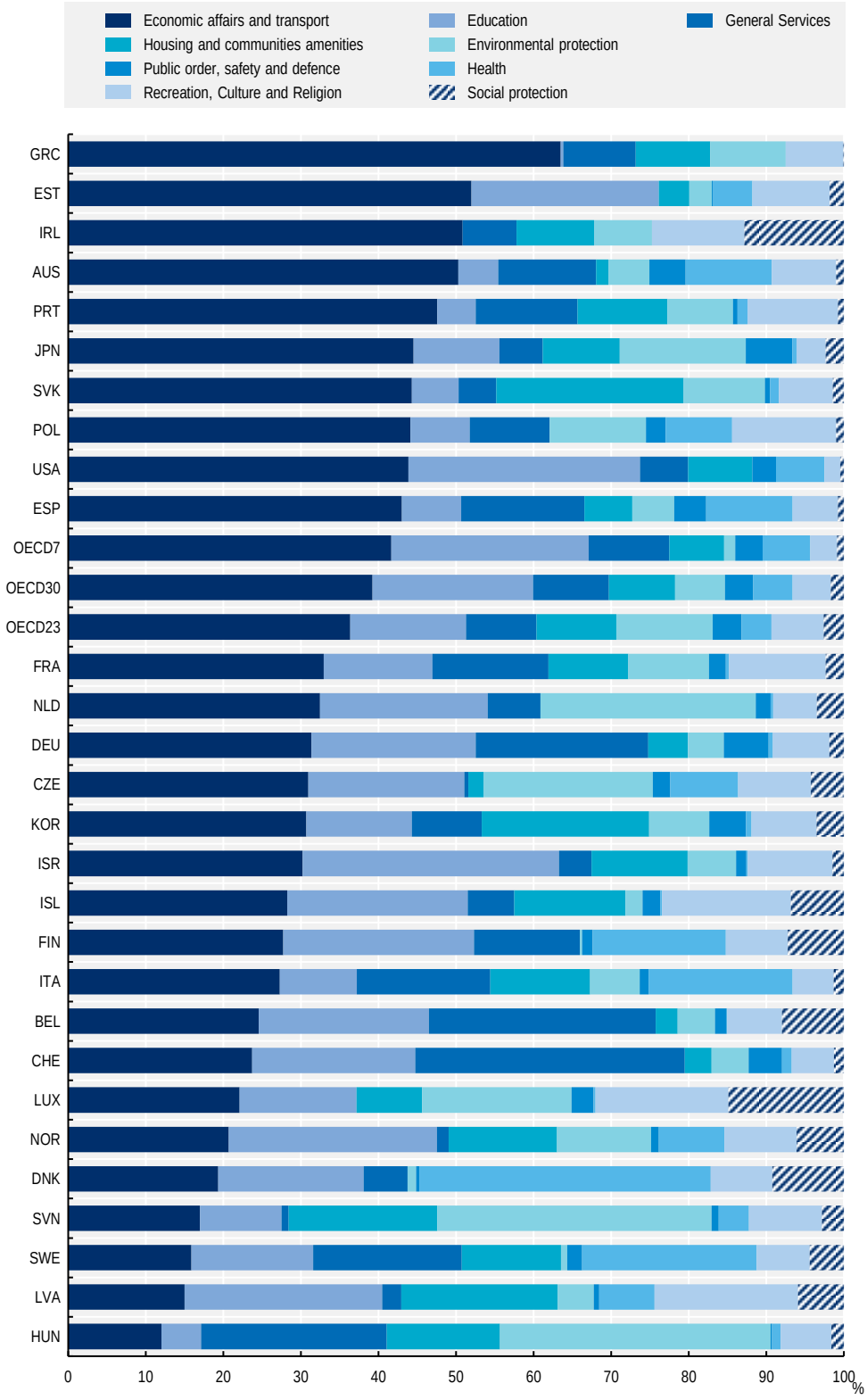
Note: Data are available for 67 countries. .. : no available data.
Source: Elaborated based on OECD/UCLG (2019[44]), "2019 Report World Observatory on Subnational Government Finance and Investment: Key findings", http://www.sng-wofi.org/publications/2019_SNG-WOFI_REPORT_Key_Findings.pdf (accessed on 28 August 2019).

Funding transport investment requires fostering metropolitan co-ordination

One of the first elements to boost cities' investment capacity is to motivate metropolitan co-ordination and co-operation for planning and investment. Co-ordination is particularly relevant in metropolitan areas where there is no metropolitan government but a fragmented administration. Requiring a collaborative long-term planning process for transport project fund eligibility can act as a powerful catalyst for metropolitan-wide concertation (OECD, 2015, p. 35[24]). A lack of co-operation can inhibit investment in fragmented metropolitan areas. For instance, Warsaw's Public Transport Authority (ZTM) provides public transport only within the administrative border of the city but, through bilateral agreements, it is able to extend the service to the metropolitan area despite a lack of metropolitan-wide regulations. Warsaw's strategic documents, such as the transport policy, are not applicable to the 31 communities outside the city area and ZTM cannot invest in those areas due to the lack of metropolitan regulations, despite intermodality and integration requiring investments. Poland's Public Transport Law of 2011 does not recognise the metropolitan area and there are no provisions for financing joint projects nor setting new sources of income. According to the law, only 5 out of 72 municipalities in Warsaw metropolitan area are required to design their own local transport plan. Without co-operation many entities may overlap their jurisdictions (Florczak, 2012[62]).

The US offer an example where metropolitan planning organisations (MPOs) were explicitly created for planning and programming federal transport funds (Box 2.11). The goal was to ensure that existing and future expenditures for transport investment projects were based on a continuing, co-operative and comprehensive planning process. In Île-de-France, local governments and employers, members of *Île-de-France Mobilités*, are responsible for the financing of transport investment through a series of contributions that vary according to the zone in which the municipalities are located. Similarly, financing transport in London requires a combination of different sources of which contributions from the London boroughs and the private sector are necessary. London has the problem of financing transport operating costs in an environment where the population is growing and government grants are falling but still, the city needs to provide an efficient, reliable and affordable service. The delivery of its transport strategy requires the close collaboration of government, national rail, London's boroughs and the private sector.

Figure 2.9. Breakdown of SNG investment by economic function as a share of total SNG investment, 2016



Note: OECD7 refers to federal countries and OECD23 to unitary countries.
Source: OECD (2018[63]), *OECD Regions and Cities at a Glance 2018*, https://dx.doi.org/10.1787/reg_cit_glance-2018-en.

Box 2.11. Supporting metropolitan-wide transport funding

MPOs in the United States

In the US, urban areas of more than 50 000 residents are required to have an MPO to qualify for federal transport funding. In 2013, there were 342 MPOs in the country. The reasons for their creation was to facilitate adaptation to local conditions in order to best allocate federal transport funding. To access federal funding, MPOs need to develop long-range transportation plans with planning horizons of at least 20 years. The plans must be based on demographic, travel and employment trends for their regions and propose a series of transport improvements to meet projected needs. The plans must be elaborated based on a realistic assessment of the available funding over the planning period to avoid transport project to exceed identified revenues. Moreover, every decision must be evaluated against a set of alternatives to ensure that the most cost-effective solutions are chosen. The long-term plans are then translated into rolling five-year transport improvement programmes containing all projects to be funded in the metropolitan area over the next five years, identifying the sources of funding allocated to each.

Funding of public transport in Île-de-France

Public transport in Île-de-France is largely funded by local governments (*communes*) and companies which are members of Île-de-France Mobilités (72%). The transport payment is a tax paid by companies and public or private bodies with more than 11 employees. It is the main resource of Île-de-France Mobilités. This tax is collected by the bodies responsible for collecting social security contributions and then transferred to Île-de-France Mobilités.

Public contributions are mandatory expenses for local authorities that are members of Île-de-France Mobilités. The different rates of deduction for the employers of the communes concerned vary according to the zones:

- 2.95% for zone 1, that includes Paris and Hauts-de-Seine municipalities.
- 2.12% for the municipalities of Seine-Saint-Denis and Val-de-Marne.
- 2.01% for the communes of the Paris urban unit not included in zones 1 and 2.
- 1.6% for Essonne, Seine-et-Marne, Val d'Oise and Yvelines.

Income

Most of the investment income comes from self-financing, proceeds of fines, the loan and balance of the Agency for the Financing of Transport Infrastructures of France grant (*Agence pour le financement des infrastructures de transport de France,* AFITF) under the financing part of the rolling stock in the Paris region. The proceeds of police fines relating to road traffic is an important resource in that it comes directly the investment section of Île-de-France Mobilités. In fact, under Article R. 4414-1 of the general code of local authorities, half of the fines for the region are paid to Île-de-France Mobilités.

Since 2012, Île-de-France Mobilités has been obliged to borrow to finance its investments, its own resources not being sufficient to absorb the dynamics of the different investment projects.

Expenditure

Since 2007, Île-de-France Mobilités has embarked on an ambitious multiyear investment policy which concerns both infrastructure, investments in quality of service (accessibility, passenger information, security, etc.), acquisition and the renovation of rolling stock. Directly or indirectly, Île-de-France Mobilités finances 100% of buses, trains-RER, metros and trams; 66% of direct investment expenditure is allocated to the financing of rolling stock (rail and bus). Infrastructure expansion investments are

mainly financed under state-region plan contracts or region-department specific contracts. Intermodality investments are financed by a subsidy from Île-de-France Mobilités and the participation of project owners. Since 2015, the acquisitions of new trains are all entirely subsidised by Île-de-France Mobilités.

Funding public transport in London

Delivering London's transport strategy requires an average capital investment of GBP 3.3 billion a year until 2041. This equates to around 0.9% of London's gross value added (GVA) or 1.2% of GDP per annum. Transport in London is funded through a mix of sources which include:

- Business rate retention (BRR) under mayoral control, which replace existing direct government grants for operations and new capital investment.
- Transport for London (TfL) "prudential borrowing" against future revenue.
- Revenue from fares and other "user pays" sources such as congestion charging.
- Non-fare sources such as advertising and property.
- Contributions from the London boroughs and the private sector, such as developer funding for associated transport investments.
- Other specific grants.

For specific projects, such as the Elizabeth line project, all funds are ring-fenced specifically (i.e. specific levies such as business rate supplements [BRS] and the community infrastructure levy [CIL]). TfL's operating expenditure, including capital renewals, rely mainly on fares and BRR funding sources.

The Transport Strategy foresees that capital grants and prudential borrowing, which funded capital investments in the past, are likely to be scaled down. The strategy considers that additional borrowing will only be an option where the capital spends results in an increase in future revenues that can service the operating and financing costs.

Moreover, future capital spending is expected to be used to deliver the aims of the Healthy Streets Approach highlighted in the Transport Strategy. However, since these types of schemes are generally much cheaper to deliver than large infrastructure schemes, they cannot provide the revenue required to sustain further borrowing. Thus, additional sustainable funding sources and project-specific grants are needed to deliver the Transport Strategy alongside contributions from the boroughs and the private sector.

Source: OECD (2015[24]), *Governing the City*, https://doi.org/10.1787/9789264226500-en (accessed on 9 August 2017).; Île-de-France Mobilités (n.d.[64]), *Le financement des transports publics*, www.iledefrance-mobilites.fr/le-financement-des-transports-publics/ (accessed 17 June 2020); Greater London Authority (2018[13]), *Mayor's Transport Strategy*, http://www.london.gov.uk (accessed on 15 July 2019).

Funding transport requires a focus on spending efficiency

The continuous increase in operational costs and the limited sources of revenue lead cities to adopt a focus on spending efficiency. Costs for maintenance, the expansion of public transport networks and the implementation of safety measures are constantly growing. In New South Wales, Australia, operating costs for public transport grew at 3.4% on average between 2016 and 2018, against an average growth of 1.8% in the period June 2011-June 2016 (NSW Government, 2018[12]). Cities are looking into new technologies to use vehicles that are more environmentally friendly and financially sustainable. This is because fuel is not just a pollutant but also represents a significant percentage of the cost of public transport services.

Construction to improve the public transport network also adds to rising costs. In New South Wales, since 2012, public transport capital investment has grown 13% each year on average. In recent years, a total of

AUD 32 billion[16] has been invested in the network and an additional AUD 50 billion are planned for the next 10 years (NSW Government, 2018[12]).

To recover more of what cities spend in public transport, cities may need to consider introducing commercial approaches to asset ownership including a greater level of scrutiny over funding, performance and efficiency targets and cost constraints. Cities may also need to ensure that all capital investment decisions are based on opportunities to deliver commercial returns on new assets beyond their core transport uses. The inclusion of targets in planning, operation and maintenance contracts will also help to pursue more spending efficiency.

Governmental capacity

To be able to implement their public transport plans and achieve their accessibility objectives, cities should ensure they have the capacity and capability to do so. There are two aspects of governmental capacity in this respect: human capital and data collection for *ex post* assessments.

Cities require highly qualified staff to foster urban accessibility

Attracting and investing in a talented and dedicated workforce in the administration and transport authority is essential to achieve excellence in all aspects of operations. To be effective, cities should ensure that they have the necessary staffing levels and that employees are equipped with the tools and resources necessary to get their jobs done. For this, cities and transport agencies in particular, need to invest in strategic public employment policies that include recruitment, staff development and retention, comprehensive employee training, employee diversity and equal opportunities, work safety and training for managers to manage staff.

The lack of sufficient human capacity and capability at the interior of the local administration may hinder the effectiveness of cities' investment programmes. In many countries, SNGs lack the capacity for managing investment projects. In Romania, for instance, in the municipalities of the central and western regions, the local public workforce does not always have the necessary skills and competencies to conduct strategic planning and manage investment projects. Public employees with skills in strategic planning, project management, the culture of setting partnership, innovation, etc. are needed to increase the know-how of the local administrations. There are capacity-building programmes to support local authorities in public procurement and planning. Lack of data could also be one of the reasons for inefficient planning. For instance, in Sibiu, Romania, concession contracts are granted to private bus operators. The problem is that they do not share data and information on their operations with the municipal government (at least not in a systematic way).

Promoting accessibility requires local cross-disciplinary workforces. Local authorities now recruit fewer staff with specialist technical training for a specific job. People are more trained on the job and move around within the local administration to gain experience in different departments. Research suggests that people with cross-disciplinary experience are often better equipped to deal with the issues of integrating land use, transport and environmental policy as these areas increasingly require an inter-disciplinary perspective (Stead and Geerlings, 2005[30]).

Not all cities include capacity-building measures in their development of transport strategies. This could be a missed opportunity for many cities to clarify and reflect on their staffing needs and plan their workforce strategically. This is particularly important in a moment when city authorities and transport agencies in particular look for ways to increase efficiency in their operations. There is the risk of seeing the workforce as a cost and not as an asset. Without careful planning, cities and transport authorities could be in a situation of dedicating large amounts of time and resources to reskill the workforce, so the actual gains of the efficiency efforts could be minimal.

The New York City (NYC) Department of Transportation (DOT) has a clear strategy for ensuring the capacity for delivering its transport plans. It acknowledges that without staff with the right skills, it may not be able to manage the transport network in an efficient and effective manner. There are three aspects that should be highlighted from this strategy (Box 2.12). First, it considers comprehensive training as a key part of its employees' career development and therefore promotes movements across the different units of the department. Second, it fosters diversity in the workforce by looking to recruit people from different backgrounds and from different parts of the city and, by doing so, the DOT's workforce reflects the society it serves. Finally, it looks into the future by targeting recruitment of future members of staff with the skills and competencies the DOT requires. The experience of the NYC DOT highlights the importance of workforce planning to ensure the capacity and capability of the workforce. Other examples include the transport strategy of the New South Wales (NSW) government which highlights the need to improve the skills and capabilities of the workforce to build collaborative partnerships with customers, community and the private sector (NSW Government, 2018[12]). The experience of the national government of Canada shows that workforce planning has the potential to facilitate the workforce renewal even in times of fiscal restraint through re-purposing/re-deployment of existing staff, and focused recruitment and talent acquisition, even at a reduced level (Huerta Melchor, 2013[65]).

Box 2.12. NYC Department of Transportation – Diversity and rotational programmes

The NYC DOT has nearly 5 000 employees, of which 50% work in the field. As part of its efforts to enhance efficiency and effectiveness in its operations, the DOT has embarked in a programme to prepare the next generation of leaders to ensure that the agency can continue to be effective as veteran DOT staff retire. To replace retiring staff, the agency recruits new members of staff from all parts of the city so that they reflect and understand the diversity of NYC. Currently, the DOT provides training programmes to help employees close gaps in their knowledge which could range from software training to supervisor competencies.

Since 2017, the DOT pilots a rotational programme in which selected DOT employees can do work exchanges with other DOT units and divisions, gaining experience in planning, outreach, design, data analysis and other fields. To ensure diversity in its workforce, the DOT is expanding its outreach efforts to groups underrepresented in the agency. Moreover, the DOT is creating an "ambassador programme" for outreach and recruitment to schools, colleges and universities. For this purpose, the DOT's Recruitment Coordinator works closely with the operating divisions to identify current employees who are recent graduates to expand the pool of individuals who can represent the agency at career fairs and other on-campus recruitment opportunities.

Source: NYC DOT (2016[23]), *New York City Strategic Plan 2016*, https://www.nycdotplan.nyc/PDF/Strategic-plan-2016.pdf (accessed on 6 August 2019).

Developing capacity for data collection and ex post *assessment*

Developing the ability to exploit the power of data is a key factor in improving accessibility and developing long-term transport plans. The provision of accurate, timely and comprehensive data on people's mobility needs can enable city leaders, planners and even citizens and businesses to make decisions that better meet these needs. For instance, the lack of updated data on mobility patterns was one of the key drawbacks of the Transantiago project in Chile, the upgrade of the capital city's public transport system that started in 2007 (see Chapter 1). Centralising information collected by agencies in charge of different modes of transport in each jurisdiction of a metropolitan area is essential for data management. All information can then be used on a metropolitan-wide platform. Data collected by different agencies should

be opened up to other agencies, citizens and businesses, and be made easy to aggregate to gain greater insight into city life (BSI, 2015[66]) and in particular transport. The benefits of such an integrated approach are tangible and can be substantial. Data collection should take advantage of future fare integration initiatives to collect information on whole origin-destination travel, rather than trip segments only. Solid models based on long-term population and employment trends could be developed and used to decide on the projects that the transport and accessibility strategies should include. The importance of this data collection and modelling exercise is that it can also guide resource allocation (OECD, 2015[26]).

Box 2.13. Smart traffic management in Stockholm

In Stockholm, Sweden, the KTH Royal Institute of Technology uses streaming analytics technology to gather real-time information from global positioning system (GPS) devices in nearly 1 500 taxi cabs in the city and there are plans to expand it to collect data from delivery trucks, traffic sensors, transit systems, pollution monitors and weather information systems. The data is processed providing real-time information on traffic flow, travel times and the best commuting options.

The city of Stockholm and IBM have been working together to monitor traffic flow during peak hours. The congestion management system has reduced traffic in Stockholm by 20%, average travel times by 50%, emissions by 10% and the proportion of green tax-exempt vehicles has risen to 9%.

Source: BSI (2015[66]), *Smart Cities Overview - Guide*, http://shop.bsigroup.com/upload/Shop/Download/PAS/30313208-PD8100-2015.pdf (accessed on 4 September 2019).

Detailed documentation for conducting *ex post* assessment of projects is needed to build expertise in policy and project implementation. This can help to improve insight into the impact of chosen strategies and indicate any adjustments needed. Cities also develop clear indicators for measuring progress as some transport strategies are evaluated on an annual basis. Annual reports like the ones required by Mexico City's Mobility Law or Malmö's Sustainable Urban Mobility Plan are a useful instrument to follow up the strategies, plans, programmes and actions. Planning, monitoring and *ex post* assessments are tools that should help authorities identify how far transport policies and projects are promoting accessibility and contributing to economic development and well-being. Indicators and assessment methodologies should aim to measure the impact of transport policies on economic development, well-being and accessibility. They should also – ideally – be integrated into a circular fashion where evaluation informs improvements to existing policy and strategy (OECD, 2017[67]). The city of Malmö, for example, has developed a series of indicators as part of its Accessibility Index to support decisions in planning and in weighing different investments and actions (Box 2.14).

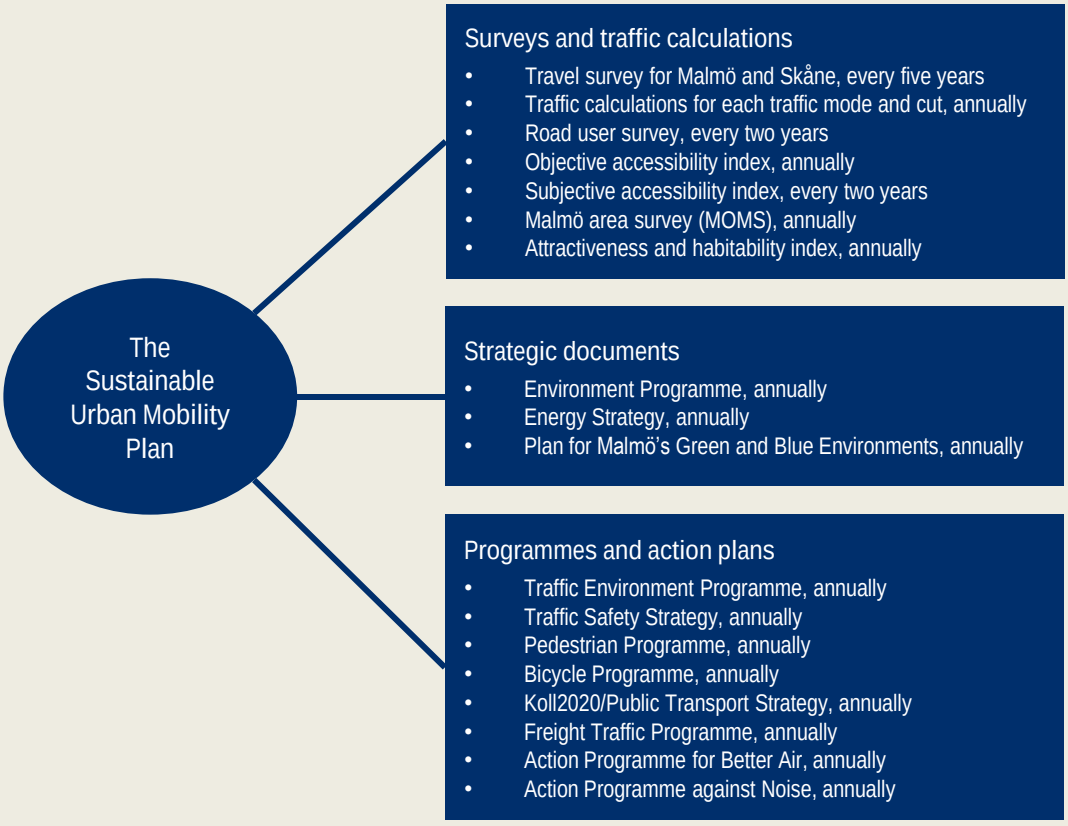
Box 2.14. Malmö's Accessibility Index criteria

The Accessibility Index developed by the transport authorities of the city of Malmö, Sweden, constitutes a support for follow up of how accessibility in the transport system develops over time. The criteria included for sustainable accessibility are:

- Travel time by walking to ten destinations.
- Travel time by cycling to ten destinations.
- Travel time ratio bicycle/car to ten destinations.
- Travel time ratio public transport/car to the city centre, nearest commercial area/shopping mall and nearest public transport mode.
- Distance to the nearest bus stop (with good headway).
- Distance to nearest major public transport node.
- Distance to nearest car sharing facility.
- Range of travel opportunities, i.e. access to several sustainable transport modes with good accessibility (freedom of choice).

To follow up on the Sustainable Urban Mobility Plan, Figure 2.10 depicts the documentation and data required for the Accessibility Index:

Figure 2.10. **Malmo's documents for a follow**-up strategy



Source: City of Malmö (2016[9]), *Sustainable Urban Mobility Plan: Creating a More Sustainable Malmö*, https://malmo.se/download/18.16ac037b154961d0287384d/1491301288704/Sustainable+urban+mobility+plan%28TROMP%29_ENG.pdf (accessed on 16 July 2019).

Community engagement

Cities and transport authorities view public engagement and customer service as a core component of their transport and accessibility strategies. Major transport projects are increasingly developed in partnership with the local community. Engaging in meaningful dialogue with businesses and inhabitants is one of the elements of the policymaking process and implementation of the transport strategies. According to the OECD Principles on Urban Policy, engaging stakeholders in the design and implementation of urban-related policies, it is essential to involve all segments of society, in particular the most vulnerable residents (i.e. women, the elderly, youth, disabled people and migrants), and to harness innovative mechanisms to engage the private sector (OECD, 2019[15]). Cities need to harness the knowledge of citizens by providing win-win opportunities to gain their active participation in city transformation (BSI, 2015[66]). This can help city leaders to co-ordinate the activities of citizens around common goals. One aspect that government officials need to manage carefully is that of a situation when a transport project generates costs or disruption for the local population. For example, the project proposal for a third runway at London's Heathrow Airport has been long opposed by local residents who already face high levels of noise and pollution and any further expansion will likely exacerbate this.[17] This opposition is despite the economic benefits the capacity expansion of the airport would mean to the national and local economy.

The extent and type of outreach cities and their transport authorities do vary but there is a clear recognition across cities of the importance of community engagement. For example, the NYC DOT organises or participates in hundreds of public meetings a year from workshops to community board presentations. The DOT normally responds to over 30 000 inquiries from elected officials, community boards and the public every year (NYC DOT, 2016[23]). A challenge for political and transport authorities is how to balance or treat the different needs of different social groups when designing transport projects. Citizens have different needs, preferences and opportunities to access various activities depending on several factors such as the stage in life, gender, income and perceptions on what is valuable. A key lesson from the experience of the NYC DOT is that, although community engagement cannot generate consensus, it can help generate more effective projects and programmes that reflect local knowledge and perspectives.

Box 2.15. NYC Department of Transportation – Vision Zero Outreach

Community engagement is included in every aspect or step of the Vision Zero initiative. The Vision Zero Action Plan is the city's foundation for ending traffic deaths and injuries in the streets. In 2014, the DOT partnered with the NY Police Department, Taxi and Limousine Commission (TLC) and elected officials from across the city to hold over 25 Vision Zero town hall meetings and workshops where members of the public were invited to identify safety priorities in their communities. Residents submitted over 10 000 comments on key safety issues through an interactive Vision Zero map on the DOT's website. This feedback informed the DOT's Borough Pedestrian Safety Action Plans, which identifies priority intersections and streets for safety improvements.

Once the DOT developed specific safety actions to address citizens' safety concerns, these plans are in turn shared with local stakeholders, including community boards, civic and advocacy groups, and elected officials. In 2015, the DOT developed 60 Vision Zero projects, all of them developed in partnership with the community.

Source: NYC DOT (2016[23]), *New York City Strategic Plan 2016*, https://www.nycdotplan.nyc/PDF/Strategic-plan-2016.pdf (accessed on 6 August 2019).

Cities are exploring new ways of problem-solving that fit within their vision-led approach to planning. For instance, a key feature in the approach to planning of the government of New South Wales (NSW), Australia, is co-design to foster a high level of collaboration and decision-making. This requires that from the first stages of planning, the NSW government engages all levels of government, customers and industry in discussing critical transport problems and together find innovative solutions (NSW Government, 2018[12]). For that, the Future Transport team visited over 60 regional and metropolitan locations to talk to the community, industry and local councils and directly seek their input. The NSW government and the transport authority led a Future Transport campaign that produced over 10 000 website reactions to the strategy and plans, 2 000 comments and more than 500 submissions. The local government also used social media to engage with young people. This strategy emphasises the importance of involving people in the conversation who use or are affected by the transport network.

There are still local governments that are reluctant to promote community participation in decision-making. Veselý and Vacek (2013[68]) argue, for instance, that most Czech municipalities still distrust participatory processes as they are afraid of civic protests. But it is precisely the lack of participation and information that leads to social dissatisfaction. Unlike other cities in the country, Prague has a strong community engagement tradition for planning. Updating the Strategic Plan for the City of Prague was conducted through a participatory process that included professionals and the public. In-depth interviews, workshops, working groups and consultations were organised to develop a common vision and set the development priorities of the city. Prague's Strategic Plan fosters sustainable urban development through the promotion of creativity, citizens' participation in urban life, enhancing social cohesion and the revitalisation of public spaces. One example is the reconstruction in 2015 of Vinohradská Street where citizens got involved in preparatory works and the improvement of the urban design concept prepared by Prague's Planning Institute (IPR) (OECD, 2018[69]).

In Canada's Metro Vancouver, community engagement is considered a fundamental civic goal to create an engaged city to address issues of common importance, solve shared problems and create positive social change. Community engagement is a way for authorities to obtain people's feedback on refined content and to listen to people's concerns and aspirations on a number of social, economic and urban development related issues. For that purpose, local authorities organise open houses, talk surveys,[18] focus groups, workshops and public hearings. In the City of Vancouver, community engagement processes are defined and communicated from the early stages and the public is welcome to suggest changes to the process in which they are participating. The local authorities ensure that the process has adequate resources (financial and trained staff). Everyone potentially interested in or impacted by an initiative has an opportunity to become involved in the process, although the local government tries to ensure diversity and representation of underrepresented groups. The process has a balance of proactive and reactive techniques to ensure that input is representative and to involve everyone who wants to be. That is why citizens are welcome to address questions to the government directly to planners and submit proposals at their own initiative. The engagement process involves a communication strategy in which media is used regularly to provide general information (which could be available in different languages). The government tries to ensure that the process is as transparent as possible dealing with conflict and imbalances of knowledge in order to maximise participation. There is normally a process of feedback in which local authorities report to participants what they have got from the consultation process and try to reach a decision. This is important because the process addresses both agreements regarding the validity of the facts and understanding of varied opinions and values regarding the outcomes.[19] In the city of Richmond (a municipality within Metro Vancouver), the local government updated its 1999 Official Community Plan in 2009 through extensive participation of residents, business owners, stakeholders (e.g. Richmond School Board, Vancouver International Airport (YVR), Port Metro Vancouver, Metro Vancouver, Urban Development Institute), community groups and the city's advisory committees. The process involved 3 major rounds of community consultation with over 30 public open houses over the 2.5-year period, citywide surveys and online discussion fora. Box 2.16 highlights some of the lessons learnt on community engagement over years of experience that could inform other cities in their consultation processes.

Box 2.16. Lessons learnt on community engagement in Metro Vancouver

To make the most of community engagement in local policymaking, the experience of Metro Vancouver suggests that:

- Authorities should be clear on whether they want to inform or gather input as it is important that citizens are clear from the outset about the objectives of the exercise, as a way to manage expectations.
- Having a good plan determines who can take part and for what reason.
- Once authorities receive feedback from people, when sought after, it is necessary to share it with the community as a whole. Reporting back on what was heard and how it was heard is of the utmost importance to maintain credibility as normally people want to know their feedback was used.
- Government has to take the initiative. To promote citizen participation, local governments need to go to the people, as the latter would never or very seldom approach the government with their ideas or feedback.
- The messages should be simple as people should not feel overwhelmed.
- The use of information and communication technologies (ICTs) is facilitating the interaction between citizens and government, but consultations on line should be quick (2-3 minutes) and short (4 questions maximum).

Source: Interviews with officials in Metro Vancouver.

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Notes

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[2] Idem.

[3] For further information, see *Lineamientos para la Operación del Fondo Metropolitano para el ejercicio fiscal 2019*, https://dof.gob.mx/nota_detalle.php?codigo=5551141&fecha=26/02/2019.

[4] Opportunity Area Planning Framework (OAPF) refers to the strategic spatial plans for opportunity areas identified as those that can accommodate large-scale development to provide substantial number of new

jobs and houses with a mixed and intense use of land, assisted by good public transport accessibility (Greater London Authority, 2018[13]).

[5] For further information, see https://www.worldbank.org/en/topic/transport/publication/transforming-the-urban-space-through-transit-oriented-development-the-3v-approach.

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[7] For further information see: OECD (2020), *Metropolitan Areas [database]*, https://doi.org/10.1787/data-00531-en (accessed 15 June 2020).

[8] Metro Vancouver is a partnership of 21 municipalities, 1 electoral area and 1 Treaty First Nation that collaboratively plans for and delivers regional-scale services, http://www.metrovancouver.org/.

[9] For further information, see www.oecd.org/regional/regional-policy/profile-Romania.pdf.

[10] In Vancouver metropolitan area, the Mayors' Council is composed of representatives from each of the 21 municipalities within the transportation service region, as well as electoral area "A" and the Tsawwassen First Nation, and collectively represent the viewpoints and interests of the citizens of the region. For further information, see https://www.translink.ca/About-Us/Governance-and-Board/Mayors-Council.aspx.

[11] A medium-term budget framework (MTBF) refers to the "institutional arrangements in the budget process governing the requirement to present certain medium-term financial information at specific times, procedures for making multiyear forecasts and plans for revenue and expenditure, and obligations to set numerical expenditure limits beyond the annual budget horizon", www.elibrary.imf.org/view/IMF071/20033-9781475531091/20033-9781475531091/ch04.xml?lang=en&redirect=true.

[12] AUD 2 billion equals approximately USD 1.4 billion.

[13] CAD 7 billion equals approximately USD 5.2 billion.

[14] For further information, see Île-de-France Mobilités, www.iledefrance-mobilites.fr/le-financement-des-transports-publics/.

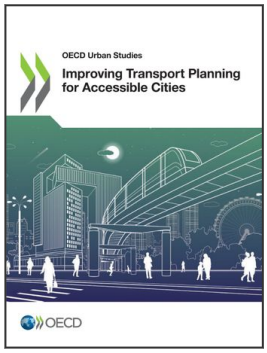
[15] Presentation given by Chile's Ambassador, Felipe Morandé, to the International Transport Forum on 5 September 2019.

[16] AUD 32 billion equals approximately USD 22.7 billion.

[17] For further information, see London Assembly, https://www.london.gov.uk/press-releases/assembly/no-third-runway-at-heathrow.

[18] A survey conducted using digital technologies in which the participant listens to the questions and uses a tablet to answer them.

[19] For further information, see City of Vancouver, https://vancouver.ca/your-government/how-we-do-community-engagement.aspx#spectrum.



From:

Improving Transport Planning for Accessible Cities

Access the complete publication at:
https://doi.org/10.1787/fcb2eae0-en

Please cite this chapter as:

OECD (2020), "Planning and governance for accessible cities", in *Improving Transport Planning for Accessible Cities*, OECD Publishing, Paris.

DOI: https://doi.org/10.1787/7eb57337-en

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