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EU SUPPORT FOR PROMOTING SUSTAINABLE URBAN MOBILITY IN TURKISH CITIES

HANDBOOK FOR GREEN FINANCING MODELS FOR MUNICIPAL INFRASTRUCTURE AND VEHICLE FLEETS

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List of Acronyms

AFD	Agence Française de Développement
AMB	Metropolitan Area of Barcelona
BOOT	Build-Own-Operate-Transfer
BOT	Build-Operate-Transfer
BRT	Bus Rapid Transit
CBA	Cost-Benefit Analysis
CEF	Connecting Europe Facility
CIL	Community Infrastructure Levies
DBFOM	Design, Build, Finance, Operate and Maintain
EBRD	European Bank for Reconstruction and Development
EEEF	European Energy Efficiency Fund
EFSD+	European Fund for Sustainable Development Plus
EFSI	European Fund for Strategic Investments
EIAH	European Investment Advisory Hub
EIB	European Investment Bank
EU	European Union
GAM	Growth Accelerator Model
GCF	Green Climate Fund
GPS	Global Positioning System
HGV	Heavy Goods Vehicles
IFIs	International Financial Institutions
İLBANK	İller Bankası
IPA	Instrument for Pre-accession Assistance
KPIs	Key Performance Indicators
LSTF	Local Transport Sustainability Fund
M&E	Monitoring and Evaluation
MoEUCC	Ministry of Environment, Urbanisation and Climate Change
MoTF	Ministry of Treasury and Finance
MoTI	Ministry of Transport and Infrastructure

NSUMCC	National Sustainable Urban Mobility Coordination Centre
PPP	Public-Private Partnership
PTO	Public Transport Operator
RATP	Régie Autonome des Transports Parisiens
SDLT	Stamp Duty Land Tax
SNCF	Société Nationale des Chemins de Fer Français
SUMP	Sustainable Urban Mobility Planning
TEN-T	Trans-European Transport Network
TIF	Tax Increment Financing
TOD	Transit-Oriented Development
TOR	Terms of Reference
UK	United Kingdom
US	United States
WPL	Workplace Parking Levy

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1. Introduction

1.1 Background and Urgency

In Türkiye's two-tiered public administration, municipalities are part of local governments organised according to a provincial system under three major structures as metropolitan, city and district municipalities. Of 81 provinces of the country, the 30 most populous have been assigned status as metropolitan municipalities, whose geographical jurisdictions cover their entire provinces. The remaining 51 provinces have central provincial municipalities and district municipalities with distinct perimeters each serving their urban centres. On the other hand, municipal services (including water, roads and other infrastructure) in the rural areas of municipal perimeters are provided by special provincial administrations that are branches of central government. Accordingly, large-ticket urban transport investments concentrate in the densely populated metropolitan municipalities whereas investments of a more limited scope are found in the less densely populated city and district municipalities.

As of the end of 2024, the populations of 24 metropolitan municipalities stood over 1 million, thus creating the need for major urban transport investments. These require significant capital expenditure with high upfront cost inlays and limited payback profiles discouraging private sector involvement in urban mobility. This puts municipal budgets heavily dependent on central government transfers under financial constraints widening the investment gap in urban mobility.

Today, mobility-related predominant funding and financing in Turkish cities is allocated to motorised individual transport. In addition, municipalities' heavy reliance on central government transfers restricts their ability to plan and implement sustainable mobility projects with financial autonomy. The expanding geographical responsibilities of metropolitan municipalities effective from 2014 have not been accompanied by revenue increases at a commensurate level, thus placing significant strain on public finances. As administrative boundaries extend, the costs associated with infrastructure development, public transport services, and mobility investments increase substantially. This growing financial burden further limits the fiscal capacity of large municipalities to allocate sufficient resources for sustainable urban mobility initiatives, exacerbating existing funding constraints and reducing their ability to implement long-term investment strategies effectively.

The distribution of national and municipal budgets for public transport and non-motorised transportation modes such as cycling and walking infrastructure, is therefore insufficient. Low cost-recovery and required high upfront investments hamper the improvement of public transport. While budget allocations exist, budget planning frameworks often do not integrate

long-term sustainability considerations, making it difficult to ensure continuous investment in sustainable transport infrastructure. Furthermore, limited access to financing and regulatory constraints prevent local governments from securing sufficient long-term financing, especially for projects requiring high initial capital investments such as public transport expansion and active mobility infrastructure.

Private sector participation in sustainable mobility investments remains limited due to slow return on investment and regulatory uncertainties. Unlike in other infrastructure sectors, public-private partnerships (PPPs) in sustainable urban transport remain underdeveloped, as revenue unpredictability and a lack of structured financial incentives discourage private investors. While the public sector often has a limited capacity of financing, private investors often are reluctant to invest in sustainable transport and mobility projects, as they consider the provision of urban mobility a public service and thus do not expect high financial returns (European Commission, 2014; Shergold & Parkhurst, 2016). An analysis carried out in the SUMPs-Up project indicates that financing SUMP development and measure implementation is a major barrier to the uptake of the SUMP concept across Europe (Chinellato et al., 2017).

For the transition to sustainable urban mobility in Turkish cities, a greater share of mobility-related budget needs to be allocated to public transport and active mobility infrastructure. In addition, wider-spread usage of innovative funding mechanisms for medium and longer-term repayment of initial expenses, beyond using public budgets and classic debt financing, is needed to enlarge financing possibilities for the municipalities of Türkiye.

Municipalities need to seek smart funding and financing options beyond the use of public budget and 'classic' debt financing. Financing means to mobilise financial resources to cover upfront investments for the construction of infrastructure, the procurement of vehicles and resources, or the provision of services. Sources of financing are public budgets or forms of debt financing from development financing institutions, private banks and investors. Funding, on the other hand, relates to structuring financial resources to (re-)pay the upfront and ongoing expenditures over the lifecycle. The combination of funding and financing sources will vary widely from city to city and from project to project. Municipalities need to develop financing models and ensure reliable funding streams to attract private sector investments. Covering the long-term funding needs of a sustainable urban transport system comprises a well-balanced combination of user charges, local taxes, transfer payments and subsidies.

Still, the transition towards a sustainable urban mobility system that is universally accessible and meets the basic mobility needs of all users requires a readjustment of the financial environment: the greatest share of direct financing from household budgets and implicit subsidies still go into motorised individual transport. One main reason for the slow uptake of sustainable transport options is that the true costs, including air and noise pollution, uneven use of road space, congestion, and other social costs of individual car trips are not reflected in prices and, on the individual level, the use of a car is not related to out-of-pocket costs – unlike the purchase of public transport tickets. The introduction of push & pull approaches, that aim at pricing private car use while re-investing revenues into more sustainable alternatives is one puzzle piece of a more sustainable urban mobility system.

1.2 Objective and Reading Guide of This Handbook

In order to help overcome Türkiye's municipal financing constraints, reliance on its own budget spending backed by central government funding, and limited private sector participation, this Handbook structures the different funding and financing options for sustainable urban mobility actions. It informs public authorities, urban mobility practitioners, and policymakers about funding and financing options that facilitate the transformation of urban mobility systems towards sustainability. By doing so, this Handbook connects the worlds of policy and finance. It aims at compiling publicly accessible – though dispersed – knowledge to make it more easily accessible, including cities' experiences, outcomes of research projects and information provided by key stakeholders such as the European Investment Bank. This guidance is based on the European *Topic guide on Funding and Financing of Sustainable Urban Mobility Measures*, funded under the EU's Horizon 2020 Research and Innovation program – and adapted to the Turkish context. While it cannot explore all options in detail, it may serve as a source of inspiration for municipalities to devise sustainable financing actions and the identification of funding sources.

This Handbook is not intended to function independently; it should be read alongside the accompanying Handbook "Handbook for Origination and Commercialisation of Sustainable Urban Mobility Project Portfolio for Green Financing": a more practical document, where the reader is presented with the key steps needed to arrange for funding and financing of sustainable urban mobility measures in Türkiye.

2. The 8 SUMP Principles in the Context of Funding and Financing

2.1 Plan for Sustainable Mobility in the Functional Urban Area

A functional urban area consists of a city and its commuting zone. Functional urban areas therefore consist of a densely inhabited city and a less densely populated commuting zone whose labour market is highly integrated with the city. While this largely holds true for many city municipalities in Türkiye (*see chapter 1*), the planning and service responsibilities of metropolitan municipalities typically extend beyond a strictly defined functional area. Planning for a functional urban area requires cost-sharing and compensation mechanisms between the individual municipalities in the proximity. Since local public transport services usually do not operate on a cost-recovery basis effectively and are financed through a combination of user fees, public subsidies, and other sources, the provision of an integrated, coherent tariff policy and seamless transport services requires cost-sharing and compensation agreements. Integration might be facilitated through the existence or creation of a metropolitan public transport authority.

Urban areas profit from investments in region-wide public transport and bike corridors due to reduced private car commuting, congestion and parking pressure. Hence, municipalities should financially contribute to the provision of bike infrastructure and park-and-ride facilities at stations in the functional area. On the other hand, municipalities in the hinterland benefit from increasing land and property values when connected to public transport infrastructures – specifically under transit- oriented development schemes. A fair allocation of financial contributions among municipalities to the mobility system is key for sustainable mobility in the functional area.

Finally, demand management instruments are powerful measures that combine disincentives for the use of private cars and produce revenues that can be reinvested into high-quality mobility alternatives. However, the introduction of parking management in one municipality or district may increase parking pressure in neighbouring areas; or inter-municipal competition to attract customers may lead to a 'race to the bottom' on parking fees. To avoid problem shifting, pricing measures need to be coordinated among the municipalities within the functional area.

2.2 Cooperate Across Institutional Boundaries

Financing schemes for sustainable urban mobility solutions will blend different sources of investment capital, ranging from local-level revenues to national programs, bilateral initiatives, to European instruments.

While pricing measures on transport generate income for public budgets and thus affect the financial administration, available support programs and instruments are rooted in a broad range of policy areas – including environmental, climate, economic, industry, research, or regional development – and involve authorities from policy areas beyond transport.

Integration of environmental policy, transport planning and fiscal policy: concerns about GHG emissions and air pollution, or adaptation to climate change can provide legal justifications for pricing private car use. Beyond push and pull approaches that not only generate environmental benefits but also provide financial revenues for implementing sustainable mobility measures (see Chapter 4.1.2 on pricing measures), actors such as environmental ministries or climate funds can provide financial support for low carbon urban mobility measures.

Integration of spatial and transport planning: Public investments in public transportation services and infrastructure can increase adjacent land values, thus generating a profit for private landowners. The resultant increases in land value (which otherwise benefit private landowners cost-free) may be 'captured' by converting them into public revenue through various mechanisms. Vice versa, new residential development could place extra burdens on the existing infrastructure and resources in the local area, such as an increased volume of traffic and congestion. Capturing added value from public investments requires cooperation among mobility and land use planning as well as taxation authorities (see Chapter 4.3 on value capture instruments).

2.3 Involve Citizens And Relevant Stakeholders

A SUMP focuses on meeting the mobility needs of the people. Many pricing measures such as the introduction of parking fees or road charging, however, commonly are perceived as another burden placed on commuters and urban dwellers. Public stakeholder participation in urban planning in Türkiye is often weak, with limited citizen involvement in decision-making. Thus, it is important to increase acceptance of these measures, inter alia by lining out how these measures contribute to the provision of high-quality travel alternatives and the agreed vision of future urban mobility.

In addition to strengthening public participation in urban mobility decision-making, private companies are often well-equipped to improve the quality and efficiency of infrastructure projects. Public-Private Partnerships (PPPs) are forms of cooperation between public authorities and businesses to deliver a public infrastructure project and service under a long-term contract. PPP arrangements are mechanisms for cost- and risk-sharing among those partners. Properly prepared and managed PPP projects can significantly reduce immediate costs for the public sector.

2.4 Assess Current And Future Performance

Taxes, fees and charges should be arranged in such a way that they steer demand for transport and mobility. Financial mechanisms such as congestion charges, parking policies and toll roads are financial instruments that aim at discouraging private car use. At the same time, these mechanisms constitute sources of public revenue. If these mechanisms successfully discourage the use of cars, city revenues may decrease over time. In addition, costs and proceeds for other modes such as collective transport and shared mobility may vary due to increasing demand. While at present some Turkish cities have in place limited parking fees or tolled motorways, congestion pricing and road usage fees are not yet widely applied. When applying more demand management measures, cities should anticipate potential revenue decreasing impacts of these and prepare for turnover variation of involved institutions.

2.5 Define a Long-Term Vision and a Clear Implementation Plan

Financing relates to ensuring that the financial resources or mechanisms are in place to cover the project costs as they occur. Infrastructure may incur heavy upfront investment expenditure, while the provision of services requires long-term financing for personnel costs, energy use or the replacement and maintenance of vehicles. Therefore, implementation plans will have to rely on different financial sources that cover both non-recurring upfront costs and recurring costs.

2.6 Develop All Transport Modes in an Integrated Manner

While a significant share of public spending currently goes to individual private car use, sustainable urban mobility financing aims at making alternatives more viable and attractive. The urban mobility transition requires a shift of focus from individual motorised transport to public transport and active modes. The aim is to optimise the integration of mobility options rather than favouring a specific solution.

2.7 Arrange for Monitoring and Evaluation

To ensure that green financing mechanisms are not only implemented but also effective in achieving sustainable urban mobility goals, a robust Monitoring and Evaluation (M&E) framework must be established.

A structured M&E system must operate at two levels:

1. Project-Level Monitoring: Each funded project should include a project-specific M&E plan embedded from the design stage. This plan must specify:

    - Key Performance Indicators (KPIs) for service quality, cost-efficiency, and sustainability impact
    - Baseline data and targets for environmental, social, and financial outcomes

- Reporting frequency and responsible units within the municipality
- Clear mechanisms for course correction, such as adaptive financial planning or project restructuring

2. Financial Mechanism Monitoring: In parallel to project-level monitoring, a structured Monitoring and Evaluation (M&E) framework is needed to assess the effectiveness of the financing mechanisms themselves. This includes tracking the use of financial instruments such as grants, concessional loans, or green bonds; analysing fund absorption and disbursement patterns; and evaluating the sustainability and long-term impact of the financed projects.

In line with Action 5 of Chapter 6.1 of the White Policy Paper, the National Sustainable Urban Mobility Coordination Centre (NSUMCC), in close coordination with İlbank, will be responsible for designing and overseeing a standardised reporting and assessment protocol. Key performance indicators may include:

- Fund absorption rates
- Repayment records
- Leverage of private capital
- Share of projects that remain sustainable post-implementation

Periodic evaluations, such as annual reviews and end-of-project assessments, will be institutionalised. Findings from these evaluations will directly inform future funding allocations, policy refinements, and support priorities.

To support this process, a Digital Monitoring Dashboard–linked to the national urban mobility data platform–is envisaged to offer real-time insights, enable benchmarking across municipalities, and support data-driven decision-making at national and local levels.

The overall framework should include feedback loops and learning mechanisms to ensure adaptive management of both projects and financial tools.

Municipalities must be supported in building their M&E capacities. This includes:

- Technical training on data collection and analysis
- Standardised templates for reporting
- Dedicated M&E personnel at city level

To complement this, Chapter 10 of the First Financial Handbook highlights the importance of transparent, performance-based financing. In particular, municipalities should adopt:

- Output-based indicators to link funding disbursements with concrete mobility improvements
- Multilevel feedback loops for adaptive management and policy refinement
- Independent audits and evaluations to ensure financial accountability and integrity of results
- Public disclosure of results to foster citizen trust and stakeholder engagement

Moreover, the Handbook encourages municipalities to align their M&E frameworks with national climate targets and the European Commission's Urban Mobility Indicators (UMIs), thereby increasing credibility and access to international financing instruments.

These measures will ensure transparency, strengthen public trust, and enhance the long-term success of green financing tools.

For more detailed information, please refer to the Handbook for Origination and Commercialisation of Sustainable Urban Mobility Project Portfolio for Green Financing and White Policy Paper.

2.8 Assure Quality

High quality of services will attract commuters to public transport and sharing systems. Continuous monitoring of service levels and the perceived quality of public transport services, in combination with contracts that comprise incentives for over-compliance and deductions for underperformance can enhance the quality of transport services.

3. Sustainable Urban Mobility Planning Steps for SUMP Funding and Financing

This financial handbook relates to the 3rd phase of the European SUMP cycle, as depicted in figure 1 below. In particular, this involves the following activities:

- Activity 8.2: Estimate costs and identify funding sources
- Activity 9.1: Develop financial plans and agree cost sharing

The comparison of costs and benefits in step 7 of the SUMP cycle has informed the selection of measures and measure packages, taking into account their likely overall economic performance including wider social, health and environmental impacts (see box on project appraisal and cost-benefit analysis below). Preparing the implementation of selected measures (step 10) requires assessing investment needs and potential project revenues, identifying funding sources and financing options (Activity 8.2), and formulating detailed financing plans with a cost-sharing agreement.

The purpose of Activity 8.2 is to determine and compare the performance of different measures and investment options and to rule out those measures that are not financially viable. It will also assess project-related revenues and their financial contribution to the transition of the urban mobility system. Activity 9.1 comprises a more detailed assessment of investment needs, revenues, financing and funding sources for selected measures and measure packages. Municipalities should determine investment, maintenance and service provision costs, potential changes in revenue streams, identify financial contributors and develop a funding and financing scheme for all measures/actions. Based on your organisation's conventions, a detailed financial scheme will be developed as part of the SUMP or within a separate process.

Other Key Principles for Funding and Financing Within the Sump Cycle

In addition to the essential steps outlined above, the following principles should be observed when arranging for funding and financing within the SUMP cycle:

- Integration: financial planning is not a standalone activity, but rather a process that supports and informs every stage of the SUMP cycle.
- Adaptability: be aware of the need for flexible financial strategies that evolve with the project's progress and external conditions.
- Stakeholder engagement: be aware of the importance of involving diverse stakeholders to secure funding and align financial strategies with local priorities.
- Transparency: advocate for clear communication about funding sources, cost-sharing arrangements, and expected outcomes to build trust and accountability.



Figure 1. The SUMP Cycle

Project Appraisal and Cost-Benefit Analysis (CBA)

Project appraisal is usually supported by decision support tools such as cost-benefit analysis (CBA) or multi-criteria analysis (MCA). These can be used to assess (ex-ante and/or ex-post) the potential or observed value added of different policy options and to assist decision-makers in selecting appropriate policies. CBA is a tool to improve project design, including options analysis, and in this respect its use upstream during the project cycle is recommended.

Typically, CBAs only assess project related direct costs and revenues, but they can be expanded to also cover indirect costs and benefits, given these can be expressed in monetary terms. CBAs are sometimes complemented with a multi-criteria analysis (MCA) to allow appraisal of criteria that are not monetised.

While one of the main advantages of CBAs is transparency and the ease in communicating the results through measurable and comparable output indicators, care must be taken selecting the assessment criteria and parameters. Since conducting a CBA can be a time-, resource- and data-intensive task, wider social, environmental and economic impacts, along with less tangible effects such as comfort, quality of life or aesthetics, are frequently excluded from the assessment – even though they might form central pillars of a SUMP. Moreover, the monetisation of non-monetary effects is difficult and can be controversial.

The following steps need to be considered when carrying out a project appraisal:

- Identify the objectives of the project and the criteria against which it will be assessed. Clearly define the boundary of the analysis, and its perspective (e.g. the functional area) and the period over which costs and benefits are analysed
- Identify alternatives and/or business as usual or do nothing/minimum scenarios.
- Identify and quantify the effect of each scenario/project on the criteria. Some impacts might have been identified that are not quantifiable and/or difficult to measure. In a conventional CBA, these impacts are often excluded.
- Apply monetisation factors: The monetisation of non-monetary effects is difficult and current approaches – such as monetisation of costs of fatal accidents – are controversial. As this is an elaborate process, often guideline values are used (e.g. a standard value for the costs of one tonne of local particulate matter emitted).
- Apply local discounting rates. Future costs and benefits are discounted to their present value, allowing comparison of costs or benefits that occur at different times.
- Calculate the various output values, such as Net Present Value (NPV), Benefit to Cost Ratio (BCR) and Internal Rate of Return (IRR).
- Perform a sensitivity analysis on those variables deemed to be uncertain (e.g., investment cost, projected revenue streams, project lifetime, contentious monetisation factors).

The CIVITAS Urban Mobility Tool Inventory provides tools that support project appraisal, including the conversion of relevant effects into monetary units. For example, the uemi/solutions Impact assessment methodology for urban transport innovations is an easy to apply tool for small scale measures, which includes CBA elements.

* All tools can be accessed at the CIVITAS Urban Mobility Tool Inventory Website: https://civitas.eu/tool-inventory

Common Challenges Related to Financing Sustainable Mobility Measures

Sustainable mobility funding and financing refers to mechanisms to mobilise, govern and distribute financial resources for public transport and non-motorised modes, and steer demand for transport (known as mobility management). They build on the principles of environmental and financial sustainability, meaning they should also provide value for taxpayers' money and have the ability to bridge funding shortfalls and/or to create new funding streams. Local authorities may face a number of challenges when considering the implementation of sustainable urban transport and mobility projects (e.g. JRC 2018):

(1) Lack Of Capacities:

- Lack of awareness of alternative finance options: Local authorities usually rely on public funds and are ambivalent towards financing tools such as municipal and green bonds (see Chapter 7)
- Multitude of public funds from different European sources: There is a range of public funding mechanisms on the EU level, as outlined in chapter 6.
- Lack of legal and technical expertise and capacities for the preparation of applications and securing financing. Specialised support can be obtained from e.g. consultants, İLBANK, or in some cases commercial banks. However, local authorities require basic awareness of the relevant steps required to secure finance from different sources.

To address these challenges, municipalities must adopt a comprehensive capacity-building strategy, supported at the national level and aligned with best practices outlined in the White Policy Paper and the Second Financial Handbook. Recommended solutions include:

- **Creation of dedicated financing and mobility units within municipalities.** These should be tasked with coordinating mobility-related investments, preparing project pipelines, and ensuring alignment with national priorities and funding eligibility requirements.

- **Structured training programmes and long-term learning pathways** in partnership with the NSUMCC, İLBANK, and international institutions such as the EIB, EBRD, and AFD. These should cover sustainable transport economics, green finance instruments, project structuring, procurement, and ESG compliance.

- **Development and deployment of standardised tools,** such as model business cases, eligibility checklists, procurement templates, monitoring dashboards, and cost-benefit calculators. These tools should be accessible in local language and tailored to the Turkish institutional context.

- **Inter-municipal knowledge-sharing and mentoring platforms.** Cities with advanced experience (e.g., İzmir, Konya) can act as mentors to smaller or less experienced municipalities through twinning arrangements or communities of practice.

- **Enhanced technical assistance for project origination.** Based on the recommendations of the Second Financial Handbook, municipalities should be supported in moving from political wish-lists to analytically grounded and prioritised project pipelines. This includes training on project screening, sustainability criteria, financial feasibility, and commercialisation strategies.

- **Creation of data management frameworks including mobility observatories or integrated urban mobility databases.** These systems should be interoperable with national monitoring platforms and should help municipalities track KPIs, monitor financial flows, and comply with EU-level reporting standards.

- **Use of pilot projects and demonstration schemes to build internal capacity and gain experience with innovative financing.** For example, launching a small-scale PPP for an e-bike sharing system can serve as a learning lab before implementing larger transit-oriented development (TOD) projects.

These measures should be embedded in a broader strategy of institutional reform, which includes revising job descriptions, establishing mobility-specific roles within municipal budgets, and improving career development for municipal staff. Strengthening capacity is essential not only for improving access to funding but also for ensuring that funded projects achieve their intended social, economic, and environmental goals. It is the foundation for a long-term, resilient, and financially sustainable urban mobility system.

(2) Political and Institutional Barriers:

- Political resistance against local revenue sources such as parking management or road fees, which make use of private cars less attractive (see Chapter 4.1.2).
- Lack of legal entitlement to raise mobility related charges and taxes.

To address these, the following measures are recommended:

- **Institutional clarity and mandate definition.** Clearly define roles and responsibilities between local, metropolitan, and national entities, and establish legal mechanisms for cross-institutional coordination in urban mobility planning.

- **Bipartisan urban mobility strategies.** Develop long-term urban mobility strategies that remain resilient to political cycles by embedding them in legal instruments and national strategies.

- **Strengthen local autonomy.** Increase municipalities' discretion over urban mobility investments and revenue collection, particularly in relation to user charges and local taxation.

- **Policy coherence mechanisms.** Establish inter-ministerial working groups and joint action frameworks to ensure that transport, climate, health, and urban development policies are aligned.

(3) Lack of Financial Resources and Bankable Projects:

- Own contributions: Most public funding schemes prescribe that recipients contribute a share of the budget on their own. Tight municipal budgets often limit cities' ability to apply for funding. Thus, setting up a project might require a mix of funding and financing mechanisms (Chapter 6 and 7).
- Ensuring the bankability of projects to ensure the willingness of private investors, central government, or European funds to finance a project.

To overcome these challenges some recommendation are:

- **Technical support for project preparation.** Expand access to project preparation facilities and advisory hubs (e.g., İLBANK support desks, EU-funded facilities) that can help prepare financially viable and environmentally sustainable projects.
- **Municipal project pipelines.** Encourage cities to maintain updated and prioritised project pipelines that align with national climate and mobility targets, with financial pre-feasibility screening.
- **Structured project appraisal and standardised templates.** Use cost-benefit analysis (CBA) and multi-criteria analysis (MCA) to justify investment decisions and improve investor confidence.
- **Access to climate and green finance.** Support municipalities in structuring applications to access EU, EBRD, EIB, and GCF funds.

(4) Lack of Coordination Between Municipalities and Other Institutions:

- The central government, primarily through the Ministry of Environment, Urbanisation and Climate Change, İlbank, and the Ministry of Transport and Infrastructure, plays a role in funding urban mobility infrastructure. However, national funding decisions predominantly favor large-scale, independent transport projects, while municipalities lack clear financial support frameworks for sustainable solutions. Without an overarching coordination mechanism aligning national priorities with local realities, investments in sustainable urban mobility remain fragmented.
- Within municipalities, department-based budget processes result in fragmented financial responsibilities, often leading to inefficient resource allocation and missed investment opportunities. Funding for urban mobility is typically divided among transport, infrastructure, environment, and urban planning departments, each with separate priorities. This lack of financial coordination makes it difficult to develop holistic mobility strategies that optimise both capital and operational expenditures. Due to a reliance on project-based budgeting, municipalities struggle to secure continuous funding for long-term sustainable mobility initiatives.
- A critical limitation is the municipalities' restricted ability to generate own sourced revenue streams. Most local governments rely heavily on central government transfers, municipal taxes, and external loans, limiting their capacity to implement independent

financial strategies for sustainable mobility. The lack of fiscal autonomy constrains their ability to access innovative financing mechanisms.

Solutions include:

- **Metropolitan mobility coordination bodies.** Set up or strengthen existing inter-municipal transport authorities to manage regional projects and shared services.
- **Joint infrastructure planning.** Promote formal agreements and financing mechanisms that enable municipalities to jointly plan and co-finance shared mobility infrastructure.
- **Data-sharing protocols and digital integration.** Develop common standards and platforms for data sharing on traffic, land use, and environmental indicators to support integrated planning.
- **Shared performance targets.** Encourage the adoption of common KPIs and reporting systems across jurisdictions to track progress and support joint funding applications.

For more detailed information, please refer to the Handbook for Origination and Commercialisation of Sustainable Urban Mobility Project Portfolio for Green Financing and White Policy Paper.

4. Funding and Financing Options for Sustainable Urban Mobility

The development and implementation of innovative projects and high-quality services may entail extra upfront costs, for example for the adaptation of infrastructure assets or the procurement of new technologies that have not yet reached cost parity with conventional solutions. Regarding tight public budgets, cities may employ innovative funding and financing options and seek private sector engagement to reduce direct costs and risks. Identifying revenue sources, which can be used to fund sustainable transport measures, forms an important component of an SUMP.

Funding sources for urban mobility comprise project-generated revenues, local taxation and transfer payments from central government or international and supranational sources including the EU. The combination of funding and financing sources will vary widely from city to city and from project to project. While financial allocations from the municipal budget are the most important source of income, cities may introduce transport-related fees and charges to increase their local tax base. Many cities receive transfer payments for the provision of public transport services from the national level. National and international funding (see Chapters 5 and 6) and lending instruments (see Chapter 7) are common for the realisation of larger-scale projects, along with Public-Private Partnerships (PPPs, see Chapter 8).

Which funding options can be used critically depends on the national legislative environment and the legal power of municipalities to raise their own source revenues. This report can inspire the search for potential funding and financing sources. Still, whether a specific instrument can be used in your municipality needs to be assessed on a case-by-case base.

The following sections provide an overview of funding and financing options for sustainable urban transport measures.

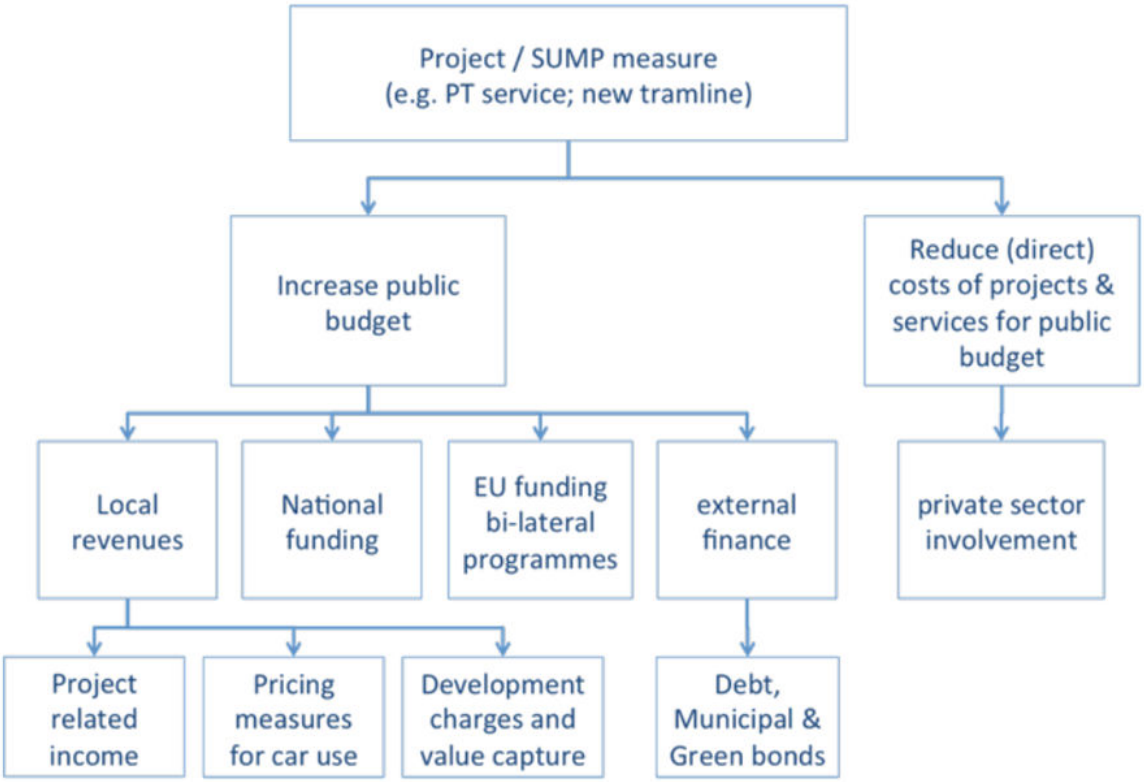


Figure 2. Overview of Funding and Financing Instruments

4.1 Local Revenue Streams

General city budgets and transfer payments from the national level usually are the main financing sources for urban mobility systems. Still, depending on the country's legal system and the constitutional competencies of local administrations, municipalities may exploit additional sources for financing the urban mobility system. This section outlines local revenue streams that are (or: can be) linked to sustainable urban mobility.

4.1.1 Project-Related Income

Project-generated income is public transport user fares or other revenue sources such as the lease of advertising space in vehicles or at bus stops. They cover a share of the operating costs of a transport solution, for example, a tramway or a BRT route. Project-generated income will only be available after the start of the service, during the operation stage. Hence, using expected future revenues for upfront construction costs requires additional financing arrangements or private sector involvements (see Chapter 8) for leveraging investments. Anticipated incomes from the operation can be used for capital borrowing or as a means to attract external investors via the issuance of bonds (see Chapter 7) or serve as the basis for value capture mechanisms (see Chapter 4.3)

There is a trade-off between cost coverage on the one hand and social concerns and attractiveness on the other hand: Since the provision of public transport is considered a general interest, fares will normally not cover all operation costs. Ticket prices need to respond to social concerns by keeping the general fare level low and by allowing reduced fares for low-income populations or pupils. To be effective, ticket prices should be lower than variable costs of private car use (besides fuel costs, these can be parking fees or road charges, see Chapter 4.1.2) to make public transport the more attractive alternative.

Public and private transport operators as service providers (see Chapter 8.1) will have to be compensated from the general public budget or from ring-fenced incomes from other sources such as parking management, road charges, and value-capture mechanisms as exemplified in the following.

4.1.2 Pricing Measures for Individual Car Use

Pricing measures are mechanisms that directly charge motorists for the use of an infrastructure asset such as a parking space or a road. Existing taxes and fees levied on private car use – such as fuel taxes, vehicle taxes or registration fees – neither reflect the social and environmental costs nor do they achieve a shift towards more sustainable mobility options. Moreover, these financial streams normally go into the national general budget and cities do not profit directly.

Adopting the user-pays or polluter-pays principle is a key component of a sustainable urban mobility system. The rationale behind pricing measures is to charge private car users for at least a substantial share of the external costs they generate. Local level pricing measures aim at changing travel habits, at managing transport demand. Price signals link car use to directly discernible out-of-pocket costs and thus may encourage the use of more sustainable transport options. They also generate revenues that might be ring-fenced for enhancing public transport and active modes in so-called push & pull approaches.

The EU's Position on External Costs of Road Use

The EU encourages Member States "to use taxation and infrastructure charging in the most effective and fair manner in order to promote the 'user pays' and 'polluter pays' principles, as enshrined in the treaties.

This framework contributes to the internalisation of external costs related to road transport, such as those generated by the use of infrastructure or its environmental and social impacts. With the internalisation of costs, the EU also wants to encourage a more efficient use of transport infrastructures currently affected by congestion, thus reducing time wasted due to bottlenecks.

Road charging can also be a useful instrument to generate new sources of revenue to help develop Europe's vital infrastructure, as well as cleaner, more energy-efficient modes of transport." https://ec.europa.eu/transport/modes/road/road_charging_en

Transport demand managing measures that aim at discouraging private car usage through pricing mechanisms usually meet political resistance. Public acceptance of pricing measures tends to be low, as they are often perceived to be socially unacceptable, to deter customers, and to add another burden on motorists who already pay a lot of taxes.

This implies that push measures should be presented in a way to minimise public opposition to 'make the unpopular popular' (de Groot & Schuitema, 2012). Taking into account the local context and specificities, it can be important to allow sufficient time for users to adapt their behaviour, for example through trial periods with free public transport to better acquaint the erstwhile car user with public transport. Setting up a trial period may be a means to gain approval from the population (Gu et al., 2018). In many cases, acceptance tends to rise during the operation of a pricing scheme. For instance, despite initial strong disapproval, the congestion charge in Stockholm was supported by the majority of voters in a referendum, following a seven-month full-scale trial period. In Milan, the extension of the existing charging scheme was supported by 79% of the voters in 2012. Also, studies showed the importance of clearly stating that revenues will be re-invested into the mobility system, including high-quality public transport but also the maintenance of roads. The provision of viable public transport alternatives before the introduction of charging schemes, also during off-peak hours, is also commonly considered a success factor.

When estimating future revenues it is important to keep in mind that the primary objective of pricing measures is to reduce private car use. That means that, if successful, the measure will undermine its income-generating base in the mid-term.

Road Pricing and Congestion Charges

Road pricing was introduced as a charge on the use of a specific infrastructure asset such as a motorway, a bridge or a tunnel, often in the framework of a concession agreement with a private operator (see the section on public private partnerships, Ch.8). More recently, road pricing was extended to city areas and road networks, and new schemes were introduced, including cordon and zone pricing, or distance and time based charging systems. Road pricing aims at reducing traffic loads and congestion and at making cities more livable. Road pricing schemes can have a strong influence on reducing the volume of traffic and on encouraging people to switch to other modes of transport (e.g. Rye 2016; Sammer 2016). There are different ways to implement such systems:

- As toll roads, where a fee is paid for the right to use a specific asset such as a highway or a bridge;
- As zonal schemes where vehicles travelling inside a specific bounded area are charged; as cordon schemes, where vehicles must pay for entering the city centre; or
- As distance-based schemes, where car drivers pay per km travelled. Distance-based schemes require the use of car positioning systems and thus are technically demanding and may interfere with personal data protection (Gu et al. 2018).

Dynamic road charges that are higher during peak hours, or a link to emission standards (or potentially to vehicle weight or size) may also affect mobility behaviour and the composition of the car fleet. The City of Milan, for example, exempts electric vehicles, hybrids, motorcycles and vehicles emitting less than 100g CO2/km from fees to enter its Urban Road Toll and Low Emission Zone Area C.

Costs of implementing and operating a charging system vary according to technologies employed: fully automated systems with number plate recognition or GPS monitoring demand higher upfront investments than the regulation via the sale of license stickers, while the latter require higher staff costs for sale, control and enforcement. Still, due to the often lack of legal power of municipalities to introduce such charges, to political resistance, high upfront investments and concerns about privacy (linked to automatic number plate recognition), only a few cities in the EU have implemented road charging systems, including London, Durham, Stockholm, Gothenburg, Milan, or Valletta.

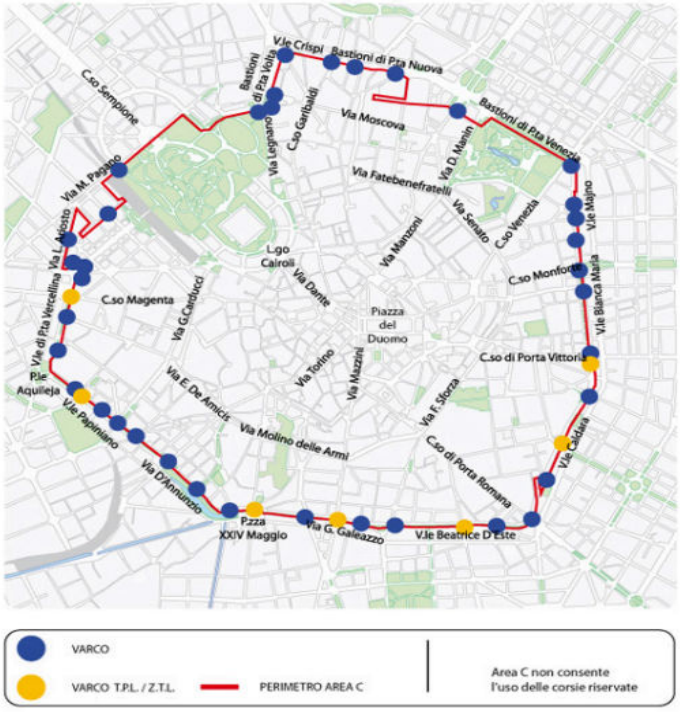
Increasing Acceptance of Pricing Measures

- Inform the public well in advance about the objective of the charging system, its intended impacts, and how revenues will be used.
- Communicate the measure in a positive way: as a way to ease pressure on the city's mobility system and to make other mobility options more attractive.
- Stress the role of the charging system as component of an encompassing mobility strategy.
- Provide adequate mobility alternatives use before introducing charging schemes
- Conduct a trial period to allow road users to accustom to the new system, to test alternative travel options, and to experience potential benefits of the scheme.
- Consider concerns about equity and fairness, e.g. exemptions for vehicles used by people with reduced mobility

City Example: Milan's Area C

The City of Milan introduced a congestion charge system "Area C" on January 16, 2012. The area subject to the congestion charge is called Cerchia dei Bastioni, a Limited Traffic Zone of 8.2 km2, equivalent to 4.5% of the whole territory of the Municipality of Milan. The access is limited from Monday to Friday from 7.30 am to 7:30 pm. Cars entering Area C are detected by a system of 43 electronic gates (of which 7 are reserved for public transport vehicles), equipped with automatic number plate recognition technology.

The entrance ticket costs €5. Residents have 40 accesses per year free and pay €2 from 41st access onward. Electric vehicles, scooters and motorcycles, public transport vehicles, taxis, emergency vehicles, police, fire brigades, vehicles with disabled people on board are exempted from the fee. Vehicles with Euro 0 (petrol), Euro 1, 2, 3, 4 (diesel) and vehicles longer than 7 meters are not allowed to enter Area C. The entry of non-electric freight vehicles is not permitted from 8am to 10pm.



Area C was introduced following a public referendum in which 79% of voters demanded an upgrade of the existing 'Ecopass' scheme, which was introduced in 2008 as an attempt to reduce exceeding PM10 levels. In March 2013, the Municipal Board has confirmed AREA C as a permanent and strategic measure.

The installation of Area C led to a reduction in daily vehicles entrance from 132,000 entrances in 2012 to 82,000 in 2018 and traffic congestion was reduced by 37,7%. The speed of public transport was increased and the number of public transport users went up by 12% on surface and by 17% for underground public transport. Road accidents went down by 26% and air quality increased (total PM10 -18%; Exhaust PM10 -10%; Ammonia -42%; Nitrogen Oxides -18%; Carbon Dioxide -35%).

During the year 2018, Area C generated revenues of approx. €33 million, 65% of which have been reinvested for the strengthening of public transport, 22% for development of sustainable mobility projects and infrastructures, and 16% of the incomes have been used for the operating costs of the system.

Heavy Goods Vehicles Charging Schemes

Most European countries have implemented some form of nationwide truck charging scheme, where all hauliers pay for using public roads, either by time or distance. Whilst most heavy goods vehicle charging systems are distance-based and managed at the national level, roads within individual cities could also be included into the system. Participating cities would then receive their fair share of the proceeds, which they could spend on maintaining their local road network and on investing in more sustainable transportation and mobility schemes.

City Example: Brussels HGV Charging Scheme

In 2016, the Belgian regions Brussels, Wallonia, and Flanders introduced a distance-base road charging system for heavy goods vehicles (HGV) on motorways and some major secondary roads. Brussels has tightened the nationwide system by applying the tolls to all roads within the city zone and by demanding higher charges compared to roads outside of the capital. The amount of the toll also depends on the emission standard: Trucks with a Euro 5 engine must pay a higher fee than those with a Euro 6 engine.

In addition to the revenue, the system enables Brussels and the two other regions to obtain more specific data on HGV traffic on their road network. These data will be used to inform mobility policy and adjust the toll system to better suit regional and local transportation objectives. The regions have the right to adapt the toll road network and the rates twice a year.

Parking Management

Parking management is another powerful lever to influence car travel and the modal split of commuters and visitors. Since the 1990s parking policies have increasingly been used as a tool to manage car traffic in and around urban areas in Europe (e.g. Shoup 2005; Website push&pull). Parking management normally is a task at the city level, giving local authorities a high degree of autonomy. Usually, a municipal parking policy has four main aims (Mingardo et al., 2015):

- To contribute to better accessibility and mobility in the urban area;
- To contribute to a better quality of life in the city (mainly a better air quality and quality of the living environment);
- To support the local economy;
- To raise municipal revenue. Parking measures often focus on regulating visitor parking. Adequate provisions for residents such as reasonably priced annual permits in combination with reduced parking pressure may increase the acceptability of parking management schemes.

The availability of cheap or unmanaged parking space can make investments in high quality public transport ineffective, most of all when car parking in the city centre is cheaper than travelling by bus or tramway. Parking charges should therefore at least outweigh the cost of using public transport for two people's return tickets.

The following research project provides more evidence and practical examples on parking management:

- CIVITAS Park4SUMP: https://park4sump.eu/

4.2 Employers Contributions

Some authorities introduced dedicated taxes on public and private employers, which are used for expanding, maintaining, and/or operating the public transport systems. Examples are Vienna's Dienstgeberabgabe, Nottingham's Workplace Parking Levy, or the Versement Transport in Île-de France. While revenues are reinvested into public transport in all cases, the specific tax base differs:

- A percentage of the wages paid in Île-de-France,
- The number of workplace parking spaces in Nottingham, or
- A fixed amount per employee in Vienna, where employers pay 2€ per employee per week, with exemptions for elderly employees, employees with mental and physical handicaps, part-time employees, public authorities, etc.

A challenging characteristic of employer contribution schemes is the separation of the tax base from the users of the public transport system. In order to be applicable, it is therefore crucial that the benefits and costs are embedded in strong alliances involving all relevant stakeholders.

City Example: Workplace Parking Levy Scheme in Nottingham (UK)

A Workplace Parking Levy (WPL) is a specific parking management approach. It is a charge on employers based on the number of parking spaces they provide for their employees. The introduction of a WPL usually aims at raising funds for transport and mobility improvements and at discouraging commuting by car.

Introducing WPLs may require adapting parking ordinances that define minimum off-street parking requirements for buildings. Controlled parking management measures in the local area may be required to avoid displacement of off-street to on-street parking.

In Nottingham, a levy on large employer's parking at workplaces was introduced in 2012. Employers that provide 11 or more workplace parking bays are liable to pay a charge for each of those places. Importantly, employers, rather than employees, are responsible for paying any WPL charge, although employers can choose to pass the cost of the WPL to their employees. A salary sacrifice agreement allows an employee to sacrifice part of their salary in return for a tax-exempt benefit, in this case, workplace parking.

The WPL is an annual charge, set in line with inflation. A retail price index is used to calculate yearly increases in the levy, which currently is £415 per year and parking place (2019). In the first three years of operation, the workplace parking levy raised £25.3 million of revenue, all of which has funded improvements in the city's transport infrastructure, including the extension of the tram network and the procurement of electric buses.

City Example: Versement Transport in Île-De-France

Île-de-France Mobilités is the regional mobility authority in the Île-de-France region which comprises the City of Paris and the seven other départments of the region. It is tasked inter alia with organising the public transport network, determining service quality, contracting PT operators, monitoring network investments, developing urban mobility plans and ensuring the financial balance of the operational expenditure.

Therefore, Île-de-France Mobilités benefits from a specific tax, the Versement Transport. This tax is levied on the employers both private and public as soon as they employ at least 11 employees. The tax is calculated as a percentage of the wages. The maximal rates are fixed by a national law and île-de-France Mobilités decides which rate to apply (as a matter of fact maximal rates are always applied).

The Versement Transport is collected by the organisation in charge of the collection of social taxes on behalf of île-de-France Mobilités. Tax income is used to finance the operators (RATP, SNCF and private bus companies) within the framework of operational contracts and. It also finances part of Île-de-France Mobilités investment costs, such as rolling stock renewal. The tax contributed, in 2017, to 42% of the financial resources that covers total operation costs and part of Île-de-France Mobilités investment costs.

4.3 Value Capture Instruments

Public capital expenditures for infrastructure and transportation services are a precondition for urban development, and specifically for transit-oriented development (TOD) which aims at enhancing public transport accessibility of new settlements. These investments contribute to increasing values of land and real estate in proximity to transport access points, and thus generate additional benefits for private property owners.

On the other hand, new residential developments produce more road traffic and greater demand for public transport services. Local authorities are faced with a situation in which the development puts increased pressure on the infrastructure they provide while being unable to profit from the added value that they have created through granting planning permissions.

In recent years, cities in Europe and elsewhere have introduced a variety of instruments to capture at least a part of the additional value from key beneficiaries of a project, including property owners and land developers. The rationale that those who benefit from the development and/or the provision of infrastructure and public services should make some financial contribute is a broadly accepted and powerful narrative. Value capture mechanisms are a means of linking increasing land and property values with the delivery of public transport services.

Municipalities in Türkiye could leverage estimated future tax revenues that would arise from planning and zoning changes, in order to enable transport-related investments. Value capture could be implemented through specific financial and regulatory tools such as developer exactions or impact fees. The approaches differ according to the stage of the project cycle from which the income is available and according to the parties that are financially burdened.

Stamp Duty Land Tax

Stamp duty land tax (SDLT), as introduced in England and Northern Ireland in 2003, is one such method of capturing increases in land values. Owners of properties above a certain value pay it when the property is purchased. The tax can be applied in areas that specifically benefit from public transport services. The main argument for the tax is that the availability of high quality transport services increases the value of land and that these benefits for landowners are partly captured through the SDLT (Sintropher, 2015).

While SDLT increases the municipality's general budget, its revenues can be used to re-finance the development of public transport or other measures towards more sustainable urban development (Transport for London, 2017, p. 39). Charging zones with differentiated tax rates can be defined in terms of proximity to public transport stations, either using a distance metric or an isochrone, for example, a defined walking time (Transport for London, 2017, p. 39). A similar tax for housing whose value is above a certain value was introduced in Türkiye with an amendment in Property Tax Law in 2019, to be collected on a yearly basis. However, this tax is administered by central government and municipalities don't have direct access to this revenue source.

Mobility Taxes

The Metropolitan Area of Barcelona (AMB) raises a metropolitan tax which inter alia is used for enhancing connectivity, mobility and functionality of the Metropolitan Area. The tax is levied on the value of real estate and it is calculated based on its cadastral value. Revenues are invested in the public transport system (increasing territorial and time coverage and frequency, integrated fares systems, subsidising ticket prices, etc.). AMB estimates revenue from the metropolitan tax of € 123 million in 2019[1]. Revenues are recurring and can be invested both in the construction of infrastructure assets and in the operation and maintenance of the public transport system.

Voluntary Capture

Increasing private property value could also be captured voluntarily, through direct contributions to the funding of that investment. Voluntary capture is based on an agreement between developers or property owners and a local authority, where the developers or property owners offer a voluntary contribution towards the costs of a public infrastructure project. Voluntary contributions tend to be offered when the developer or property owner calculates that the benefits they will receive from the provision of public infrastructure outweigh the cost of investing in it. Since voluntary capture normally is a one off payment, revenues will be used for the construction of infrastructure, not for covering the long-term operation of services.

Developer exactions are of a comparable nature. As they require the developer to either build the infrastructure directly or pay for infrastructure improvements carried out by public authorities, these exactions are paid one-off in kind or in cash. For instance, developers may be required to build bike lanes in neighborhoods connecting to transit exchange points. In cases where there is a need to pay for expansion or additional capacity of infrastructure, an impact fee could be levied on the developers. (GFDRR, 2020)

[1] https://www.metropoliabierta.com/el-pulso-de-la-ciudad/movilidad/confirmado-transporte-sera-mas-barato-barcelona_11008_102.html

Development Charges, Planning Obligations and Community Infrastructure Levies

Granting planning permissions for a new development typically increases the value of the affected land. The added value is commonly absorbed through landowners and developers. England and Wales introduced planning obligations and community infrastructure levies (CIL). These instruments are upfront charges on granted planning permission and generate revenues for dealing with side-specific and community-wide externalities of new developments:

- Planning Obligations aim at mitigating parts of the site-specific impact of a development, either through a fixed levy or via direct negotiation between the developer(s) and the public authority. Planning obligations can also restrict or define conditions for the way in which the land is used, through prescribing the nature of development (for example, affordable housing), compensations for loss or damage created by a development (for example, loss of open space), or mitigating a development's impact (for example, through increased public transport provision, cycle paths or pedestrian crossings).

- CIL: While planning obligations are intended to make an individual project acceptable in planning terms (Everett & Smith, 2016), CIL focuses on the wider area and a broader development context. Revenues from CIL are used for public transport, roads, schools, or health facilities, for example. As such, CIL and planning obligations can be implemented complementary. Where CILs are in force, planning obligations are intended to be "scaled back to those matters that are directly related to a specific site" (CIL Review Team, 2015). It is a fixed charge for the development of new floor space. The charging rates are determined on a case-by-case scenario, depending inter alia on the size, the intended use, or the location. Charges are defined in advance so that revenues can be calculated prior to the execution of the works during the planning process. The corresponding charge is invoiced at the starting date of the development, following a communication sent by the local authority. A deadline for the payment of the levy is established on the invoice.

- The value increase share related to zoning changes in Türkiye was introduced with an amendment in Zoning Law in 2020 and aims to benefit the public budget from this land rent. As payments are made to local branches of the Ministry of Environment, Urbanisation and Climate Change (MoEUCC), there is no direct contribution to municipal budgets. In terms of funding transport investments, the decree exempts public investments on publicly-owned land, therefore potentially excluding value increases from this type of intervention.

City Example: Planning Contributions and Community Infrastructure Levy in Birmingham (UK)

Birmingham City Council's SUMP Document (Birmingham Connected) was developed to support the delivery of policies set out in the Birmingham Development Plan. Planning contributions are a mechanism to secure funding as a result of development. There are two funding mechanisms combined in Birmingham:

- Planning obligations under Section 106 of the Town and Country Planning Act 1990 (as amended) (S106) are negotiated as a result of planning permissions and will seek funds to mitigate or compensate for development (e.g. introduce a sustainable travel plan for a new city centre office development, or a new pedestrian crossing adjacent to a new school). Each agreement is a legal contract and spending is ring-fenced for the purpose within the agreement and is time bound.

- Community Infrastructure Levy (CIL) is a charge across certain types of development in certain areas (dependent on viability). 80% of funds are spent on strategic infrastructure to deliver the Development Plan, 15% is passed to neighbourhoods in which development takes place. and the remaining 5% is for management and administration.

S106 funds have contributed significant amounts to the Birmingham Cycle Revolution, resurfacing towpaths for off road cycling, creation of new cycle lanes, or cycle friendly road crossings. Planning Contributions is a useful and well-established tool. However, it can be difficult to generate enough money to complete significant infrastructure projects as the funds are ring-fenced for specific projects, in particular areas.

CIL is earmarked (as part of a wider funding package) for the redevelopment of Perry Barr train station to increase capacity in time for the Commonwealth Games, but also once the Games are over, to provide additional capacity of the new housing created post Games. CIL is much more flexible and can generate large funds relatively quickly. However, setting up a CIL is costly and can take over 12 months. It takes time to change CIL rates (i.e. to reflect market conditions), so it is possible that maximum amounts may not be secured.

Both S106 and CIL require an understanding of development viability. Specialists may be needed to conduct viability assessments for individual planning applications to maximise S106 contributions, and specialist support is needed to develop a CIL charging schedule.

More information: http://www.birmingham.gov.uk/cil

Development charges and value capture are one-off and non-recurring levies. They can be used for financing transport infrastructure in newly developed areas – but will not be suitable for maintaining, operating and retrofitting existing services and assets. Development charges have been criticised for encouraging urban sprawl since they facilitate the development of peripheral areas. On the other hand, development charges can also form part of transit-oriented development approaches that foster public transport in the hinterland of core municipalities.

This requires close collaboration among municipalities in the functional area and among spatial and mobility planning departments.

Tax Increment Financing

Tax Increment Financing (TIF) is a financing mechanism to enable public sector infrastructure investment in a dedicated urban renewal district through locally generated additional revenues. It was created in California to rehabilitate urban areas (Haider & Donaldson, 2016). The mechanism behind TIF is that the public sector borrows money to finance projects such as infrastructure development. Debt repayments are then covered from ring-fencing expected future additional tax revenues (e.g. real estate taxes) that would not occur if the project was not implemented.

TIF operates by defining a catchment area of properties benefitting from the development of the assets. While the actual level of property tax is expected to increase with the uplift of land values resulting from the development, property taxes received by the local taxation authority are frozen at the level previous to the development for a fixed term, e.g. 25 years. In this period, the difference between the increased property taxes and the frozen level is transferred to a TIF authority and used to pay off the debt taken out to build the infrastructure. Cities may apply tax increment financing to develop public and non-motorised transport in certain areas. However, evaluation has shown that car-free areas significantly increase well-being of the inhabitants, leading to premium property values.

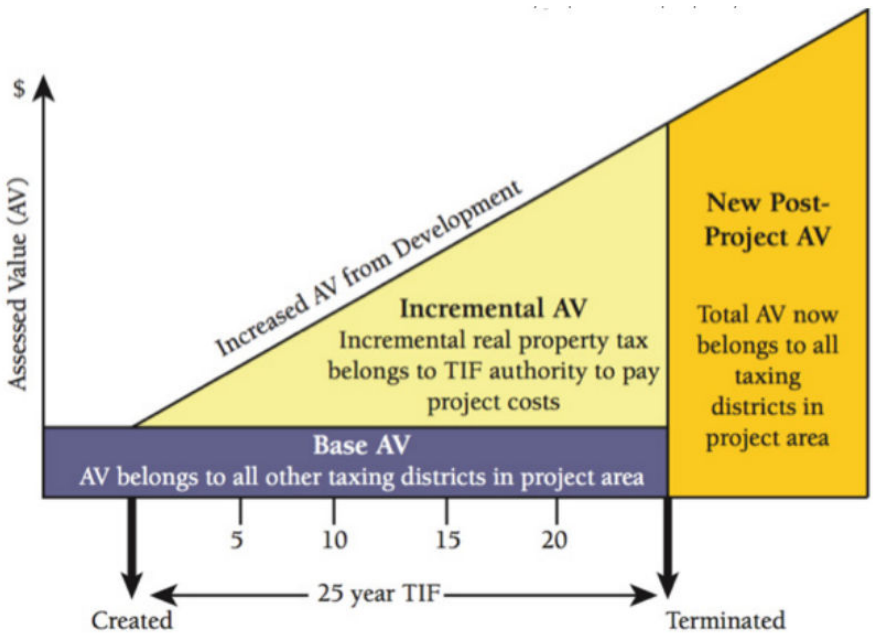


Figure 3. Working principle of TIFs (Haider and Donaldson 2016)

Although the establishment of TIF zones may be a viable option in areas of high demand, its success is contingent on property values increasing sufficiently to allow increased tax revenues to fund the investment for desired public goods. Otherwise, investments may need to be cross-subsidised by the municipality. This mechanism also requires a legal basis for ring-fencing tax revenues and the creation of tax-backed liabilities which are not elaborated under legislation in Türkiye.

City Example: Edinburgh St James Growth Accelerator Model

Tax Increment Financing (TIF) is being piloted in Scotland as a way to re-finance infrastructure projects that unlock the development of a specific urban area. The Scottish Futures Trust has issued a set of guidance documents on Tax Increment Financing:
https://www.scottishfuturestrust.org.uk/publications/tag/tif

The Growth Accelerator Model (GAM) is a variant on the established TIF model that has been piloted in Edinburgh, Scotland. It consist of a set of working arrangements between the City of Edinburgh Council, the Scottish Government and the St James Quarter of Edinburgh.

The total cost of the assets being delivered via the Edinburgh GAM is £61 million. The main element is a complete redevelopment of the Picardy Place junction that will improve traffic flows as well as delivering enhanced pedestrian routes; segregated cycle ways; and improved public spaces. The works will also make provision for the safeguarded tram extension and for a new tram/bus interchange to reduce motor vehicle traffic in the city centre. The £61 million is also being used to deliver an energy centre and improvement works to several surrounding roads. The assets delivered by the Edinburgh GAM are facilitating the Edinburgh St James development, a £850m regeneration of Edinburgh's East End delivering new retail and leisure space, hotels, and homes that will support hundreds of new jobs and attract significant additional visitors to Edinburgh's city centre.

The fundamental principle of GAM is the same as that of TIF: money is borrowed to invest in assets that will drive growth, the proceeds of which are used to amortise the debt. Subject to meeting targets, the Council will receive annual payments from the Scottish Government to repay the borrowing.

However, GAM has some distinctive elements. Firstly, the money received by the Council from the Scottish Government is not based solely on increased tax revenues being generated, but also upon the Council meeting non-financial targets around employment and training opportunities. Secondly, the private sector has an on-going financial involvement, with the private developer benefiting from the growth assets also making payments to the Council to enable repayment of the borrowing as well as sharing any super-profits with the public sector. The payments to the Council from the Scottish Government and the private developer will be reduced if the cost of delivering the assets is reduced, incentivising the developer to work to bring down costs.

4.4 Local Option Sales Taxes

Several cities and counties in the United States have introduced Local Option Sales Taxes (LOST) to fund transportation projects. These counties levy a surcharge on sales taxes for a limited period of time (e.g. 1% over 10 years). Revenues are used locally and earmarked to fund transport improvements, which are pre-defined in a project list. Local Options Sales Taxes have to pass a public referendum and are often administered by a designated transportation authority that oversees the use of the income. Whether municipalities in the EU are legally allowed to levy these forms of taxes needs to be determined on a member state level.

Various Examples from Cities of Türkiye

İzmir

İzmir Metropolitan Municipality has played a pioneering role in combining sustainable transport policy with structured financing. The development of Konak and Karşıyaka tram lines, procurement of electric buses, and the roll-out of the BISIM bike-sharing system were supported through a blend of international loans, municipal contributions, and national contributions via İLBANK. In parallel, İzmir has prepared both a Sustainable Urban Mobility Plan (SUMP) and a Sustainable Energy and Climate Action Plan (SECAP), which are expected to guide future investment priorities in alignment with broader climate and mobility objectives.

İstanbul

In 2023, İstanbul Metropolitan Municipality issued Türkiye's first municipal green Eurobond, raising USD 715 million with a five-year maturity. The bond was significantly oversubscribed, demonstrating international investor confidence. Proceeds are earmarked for clean transportation initiatives, including metro line construction and the acquisition of zero-emission vehicles. The issuance represents a milestone in green municipal finance, positioning İstanbul as a key actor in sustainable infrastructure investment at the metropolitan level.

Konya

Konya Metropolitan Municipality has strategically expanded its light rail system and developed a comprehensive network of bicycle lanes as part of its broader sustainable mobility agenda. While relying on national and municipal funds, Konya has also benefited from international financing and technical cooperation to support investments aligned with low-carbon and inclusive urban transport. This combination of diverse funding sources and long-term planning reflects a structured approach to sustainable infrastructure delivery. The city's experience highlights how institutional consistency and implementation capacity can create an enabling environment for future engagement with green finance instruments, as presented in this Handbook.

Existing Constraints in Türkiye

While the mechanisms outlined above have proven effective in various international contexts, their applicability in Türkiye is limited due to the existing legal framework. In Türkiye, municipalities are constitutionally prohibited from introducing new taxes or adjusting existing tax rates independently. All revenue sources must be defined by national legislation, which restricts the ability of local administrations to diversify their income streams. Municipalities cannot impose local sales taxes or environmental levies without explicit authorisation from the central government. As a result, funding options such as local option sales taxes or emission-based surcharges, often used in other countries, are not currently feasible under the existing legal framework.

5. National Level Funding

Financial transfers from the national budget or other higher tier governments to municipalities are commonly used to subsidise the operation of public transport services. Beyond this, some national governments also provide grants and funding schemes for projects or other purposes, such as research and development or market diffusion of low-carbon technologies. Approval of grants is often linked to specific conditions, such as the assumption of own contributions from the municipal budget or from other funding sources.

Funds secured through various sources could be strategically directed toward sustainable mobility initiatives. By employing its own capital and combining it with national and international resources, İLBANK in Türkiye can offer municipalities targeted financial support for sustainable mobility, such as walking, cycling, and public transportation, under advantageous terms. The bank has a cooperative capital structure as all municipalities are shareholders and operate as a municipal finance vehicle of the state. Local currency financing is generally provided from its own capital, while foreign currency financing sourced from IFIs with a sovereign guarantee (by the Ministry of Treasury and Finance) is extended to general urban investment loans and sector-themed projects. İLBANK extends loans against the general financing budget of the borrower municipality for debt service up to 40 percent of its annual intergovernmental fiscal transfer allotment, which it is allowed to intercept.

Diverging from its traditional monolithic investment focused on the water sector, İLBANK has already been providing financial support to municipalities for their cycling path projects among its sustainable urban transport investment drive. The bank's sustainability themed IFI loan packages include an 'Urban Transport and Environment Loan' from the EIB, 'Urban Transport Program' from the Islamic Development Bank and 'Sustainable Cities Program' with the World Bank.

In addition, the Ministry of Transport and Infrastructure provides project-based support for certain rail system projects, evaluating them on an individual basis and incorporating them into the Public Investment Program. Once these projects are completed, they are transferred to the relevant municipality for operation and management. Similarly, the Ministry of Environment, Urbanisation and Climate Change extends support to selected bicycle lane projects, promoting sustainable mobility initiatives at the local level. However, these interventions are not part of a structured or systematic funding framework but rather take place through case-by-case assessments and approvals.

Example: The UK's Local Transport Sustainability Fund (LSTF)

The LSTF was set up as a funding programme for sustainable transport initiatives in England. In competitive calls, cities could apply for large (>£5m) and smaller project funding with the main aims of:

1. Supporting the local economy and facilitating economic development through the reduction of congestion, improving the reliability of journey times, or enhancing the access to employment and other services
2. Reducing carbon emissions through a shift to sustainable mobility modes. The LSTF programme ran from July 2011 to March 2015, with an extension year until March 2016. During this period, 96 projects were awarded a total of £540m funding (Sloman et al., 2018).

Domestic loans are also available to Turkish municipalities through local commercial banks apart from İLBANK sources. These are mainly borrowed on shorter term maturities, generally for up to three years, compared to long-term investment loans. These domestic bank facilities are generally used for the purchase of goods and vehicles. In some cases when commercial banks lend to municipalities, they have requested a guarantee from İLBANK; thereby securing their loans with the intercept mechanism. It should be underlined that market-share pressure from commercial lenders remains very limited with municipal loans standing at less than 2 percent of total banking sector loans due to a lack of specialisation for municipal lending from commercial banks' side and to competitive pricing coming from both İlbank's not-for-profit business model and quasi-sovereign status.

Example: The German National Electric Bus Funding Programme

The German Federal Ministry of the Environment has created a ca. 300 Million € fund to support cities and public transport operators to procure electric and plug-in electric buses. The programme (duration: 2018-2022) covers up to 80% of the additional investment costs compared to conventional diesel fuelled buses (40% for plug-in hybrid buses).

Costs for charging infrastructure and other measures necessary for the commissioning of electric buses (e.g. training courses and workshop facilities) are also eligible. In order to achieve the greatest possible impacts cities and areas where the air pollutant limits are exceeded are given preferential support.

A report on the Zero Emission Urban Bus System project (ZeEUS, 2017) identified national programs to foster the market penetration of e-buses in Germany, Italy Poland, Spain, Sweden, and the UK. Almost all EU member states (and many regions) have set up funding programs related to SUMP development (see Durlin, 2018 Chapter 3.3.3). Often, mobility related funding programs are initiated in the context of meeting greenhouse gas emission goals, the adaptation to climate change, or air quality standards and thus are managed by Ministries for the Environment.

6. European Funding and Financing Sources

The European Commission has implemented a vast number of initiatives and programs that can be used for (co-)funding and financing sustainable mobility measures. Primarily aimed at the EU's Member States, a number of these sources are also available for Türkiye. European funding programs will mostly contribute to investments (e.g. building a tram line or procuring buses), but rarely to operating costs of infrastructures and services. Türkiye is eligible for EU financial support through the Instrument for Pre-accession Assistance (IPA III 2021-2027) and also from the European Fund for Sustainable Development Plus (EFSD+). To support public and private investments in the priority areas of the EFSD+ (Green Deal, Global Gateways and Decent Jobs), the Türkiye Investment Platform was established in 2022[2].

European Funding Sources for Sustainable Urban Mobility Available for Türkiye

- The Instrument for Pre-accession Assistance (IPA-III) is a financial instrument from the EU for reforms in the enlargement countries, which aims to improve Türkiye's capacity for implementing the EU *acquis*. The aim in terms of transport, is connecting to TEN-T rail network, and developing sustainable, low-carbon, intelligent and safe transport. There are annual action plans and yearly calls for proposals – for example, the İzmir Sustainable Energy and Climate Action Plan is financed with IPA funding. IPA III 2021-27 activities (C1.1-4) include: Urban mass transit public transport; non-motorised transport infrastructure, small scale public transport services, and urban transport intermodality; smart and pilot projects; and clean and low-carbon public transport vehicles/fleets. The funds are managed by the EU Delegation in Türkiye.

- The Action Document Sustainable Urban Mobility and Reliable Transport (SUMART), financed under IPA-III, is a common programme between the EU and the AFD (French development Bank). Its aim is to encourage, improve and facilitate the efforts of Turkish municipalities in pursuing sustainable and smart urban mobility services across city jurisdictions. This will be done by blending EU grants with a loan programme by the French Development Agency (AFD), combining an EU grant financing of € 15,000,000 with loans amounting to € 200,000,000. The grant financing will be implemented by the AFD as the entrusted entity. There are multiple investment schemes within the urban mobility sector: Mass transit public transport (BRT, urban rail); Parking management; Congestion charging; Electric buses and charging networks; Bicycle and pedestrian networks; Infrastructures for enhanced public transport networks; Green and low carbon solutions for public transport; and Smart urban mobility initiatives. This includes but is not limited to, preparing feasibility and design studies.

[2] Türkiye – Avrupa Komisyonu (europa.eu)

- The European Fund for Sustainable Development Plus (EFSD+) is one of the financing tools of Global Gateway, promoting sustainable investments in the European Union's (EU) partner countries. Offering a variety of risk-sharing instruments of up to €40 billion, the EFSD+ aims to mobilise up to €135 billion of public and private financing to help partner countries achieve the Sustainable Development Goals (SDGs). The EFSD+ Guarantee is deployed via a range of eligible development finance institutions, which act as the EU's implementation partners on the ground. The European Investment Bank (EIB) is the largest implementation partner for the EFSD+ Guarantee, alongside the other Team Europe partners. The Team Europe approach is an inclusive process open to all EU Member States, their implementing organisations and financing institutions as well as international financial institutions. The Türkiye Investment Platform (TIP), established in 2022 by the EU, supports investment proposals by EU financial institutions in the areas of decarbonisation, digitalisation, access to finance, innovation, and green investments, through a wide range of budgetary guarantee mechanisms for public and private investments. More than €2.4 billion of investments are expected to be leveraged through up to €400 million in EU budget guarantees.

- The Connecting Europe Facility (CEF) is a fund for pan-European infrastructure investment in transport, energy and digital projects, which aim at greater connectivity between member states. It operates through grants, financial guarantees and project bonds. CEF investments fill the missing links in Europe's energy, transport and digital backbone. To be eligible for any CEF Transport grant contribution, projects need to be located on the TEN-T network. For third countries, a link with an EU Member State located on TEN-T needs to be shown to be eligible for funding.

- Horizon Europe is the biggest EU Research and Innovation programme and aims to achieve smart, sustainable and inclusive economic growth. H2020 is organised in seven thematic sections called "Societal Challenges", of which challenge No. 4 is on smart, green and integrated transport. Local authorities are able to partner with researchers and other stakeholders to access funding under the programme and they may also benefit from the outcomes of Horizon 2020 actions. Horizon 2020 also finances the ELENA programme (Chapter 7.1) and co-finances the CIVITAS network. CIVITAS is network of cities for cities dedicated to cleaner, better transport. https://civitas.eu/

- Climate-KIC: the European Institute of Innovation & Technology's (EIT) Climate-KIC supports initiatives aiming at decarbonising. Inter alia, the KIC supports cities on how to decarbonise urban environments, including the urban mobility sector.

Further Information: Overview of European Funding Options

A more comprehensive overview can be found on the Eltis website: http://www.eltis.org/resources/eu-funding

The Covenant of Mayors for Climate and Energy also provides a database on financing options for transforming ambitious sustainable energy and climate action plans into projects: https://www.eumayors.eu/support/funding.html

6.1 Support Instruments for the Application Process

In order to help cities and regions during the application for European project funding and to facilitate the combination of structural funds with other sources of financing, the European Commission and the European Investment Bank (EIB) have set up special support instruments to foster the take up:

- JASPERS (Joint Assistance to Support Projects in European Regions) is an initiative aimed at improving the quality of investment by providing advice for a better and smarter use of EU Funds. It is a partnership between the European Commission, the EIB and the European Bank for Reconstruction and Development. JASPERS offers support for the preparation of EU-funded projects through advisory, capacity-building activities, and the review of projects before or after submission to the Commission.

- JESSICA (Joint European Support for Sustainable Investment in City Areas) is a policy initiative of the European Commission developed jointly with the EIB and in collaboration with the Council of Europe Development Bank (CEB). The JESSICA initiative supports sustainable urban development and regeneration through financial engineering mechanisms, including the leverage of EU structural funds to unlock more investment.

- The European Investment Bank's ELENA programme provides grants for the development (although not the implementation) of programs that focus on energy efficiency in a broad sense. Eligible projects need a total investment volume above € 30 million with 4-year implementation period. Smaller projects can be supported when they are integrated into larger investment programs. Public or private entities pursuing large-scale transport and mobility measures in urban areas can apply for up to 90% coverage of technical assistance/project development costs. Eligible costs include internal staff costs, and external expertise, including feasibility and design studies, structuring of programs, business plans, legal and financial advisory, the preparation of tendering processes, or costs for bundling smaller projects into bankable packages, Having a SUMP is one criterion in the evaluation of applications.

Combining European Funds and Financing Instruments

In its Guide to combining EFSI with other EU funds, the EU Commission provides an example how different European funding and financing instruments can work together:

"Different funds can finance different parts of the project, so you can have the EFSI finance one part and structural funds finance another. For example, a project promoter could apply for structural funds to pay grants for a feasibility study for the project. In addition, structural funds could finance the part of the project that would not get a financial return to allow for its repayment and to cover the operating costs. For the part of the project which will generate revenues the promoter could apply for EIB financing backed by the EFSI guarantee. This combination makes the project "bankable" and eligible for the EIB Group to consider."

7. Debt Mechanisms and External Financing

Most of the instruments discussed so far generate cash flows only after the project or service starts its operation. Using expected future returns to re-finance upfront investments requires financial instruments that allow project generated revenues or cost savings to service the debt during the operation period.

7.1 Loans

European Investment Bank (EIB)

Loans are a classic source of investment capital for urban mobility projects. This section focuses on dedicated programs of the European Investment Bank (EIB), whose investment priorities are aligned with EU policy objectives, including climate-friendly transport, sustainable and safe mobility, and innovative solutions. The EIB is the lending arm of the EU, providing financing for projects that support EU policy objectives, such as smart and sustainable urban mobility. The EIB provides loans, guarantees, and equity financing, and evaluates the feasibility, economic viability, and potential impact of proposed projects. This assessment includes financial, technical, environmental, and social considerations to ensure that funded projects meet high standards of sustainability and contribute to EU objectives. Operates globally, but its focus is on projects within the EU and candidate countries.

The EIB provides long-term investment loans for large mobility projects over a minimum project size of € 50m. EIB loans may cover up to 50% of project costs, equivalent to a minimum €25m. To achieve the necessary threshold, smaller projects may be bundled under one framework loan. Projects can be compiled over a range of sectors, including transport, waste management, social housing, etc. EIB framework loans can also be used to provide co-financing. The EIB has a long track record of financing urban mobility investments in Türkiye, including a €70m loan for the first phase of the Eskisehir Metropolitan Municipality light rail system in 2001.

Since the EIB expects re-payment of loans and low-interest payments, and projects should contribute to EU policy objectives, investment projects have to proof their economic, financial, technical and environmental feasibility. Projects will not have to yield revenues but have to demonstrate added value, for example by reducing costs for public budgets in the mid-term. Besides providing investment capital, EIB approval of a project is considered proof of quality and helps attract other investors.

According to the 2011 Transport Lending Policy (EIB, 2011), sustainable urban public transport is fully in line with the Bank's objectives and EIB financing is not subject to any specific restriction. The EIB supports the construction, extension and rehabilitation of public transport networks, including rapid transit bus systems; the procurement of public transport vehicles; electronic ticketing, traffic management and communication systems; cycling and pedestrian networks; schemes based on the user/ polluter pay principles as well as city logistics measures aiming at improving freight distribution in urban areas.

The Cleaner Transport Facility

The Cleaner Transport Facility is a joint initiative of the European Commission and the EIB, launched in December 2016. The Facility supports investments in alternative fuelled public transport fleets and their associated infrastructure in cities and urban areas. It combines lending, funds, guarantees, advisory services.

The Transport Lending Policy also stresses that urban public transport investments shall form part of integrated urban mobility plans "aiming at providing sustainable urban transport through a combination of different transport modes and measures acting on both the supply and demand sides while being coherent with existing urban development plans. Standalone projects that are not part of an integrated urban mobility plan are unlikely to be effective in reducing congestion and environmental externalities and should not be supported."

While all investment projects are expected to demonstrate a high economic rate of return, including externalities, public transport, rail, inter-modal and waterborne transport projects are accepted with lower returns compared to road projects. The EIB's lending objectives also seek a share of at least 25% of projects to contribute to climate change mitigation or adaptation. Public transport, rail, inter-modal and waterborne transport projects generally are counted towards this indicator.

The European Fund for Strategic Investments (EFSI) is a joint initiative of the European Commission and European Investment Bank that supports strategic investments in European key areas, including transport. The Fund is a guarantee mechanism, which allows the EIB to provide financing for higher risk projects. EFSI financing is demand-driven and provides support for projects everywhere in the EU. According to the 2017 EFSI 2.0 regulation at least 40% of EFSI-financed projects should contribute to climate action in line with the Paris Agreement.

According to Article 9 of the EFSI Regulation[1], the guarantee shall be granted for EIB financing and investment operations that inter alia support smart and sustainable urban mobility projects (targeting accessibility, reduction of greenhouse gas emissions, energy consumption and accidents); projects connecting nodes to TEN-T infrastructures; sustainable urban and rural development; climate change; the expansion of the use of renewable energy; energy efficiency and energy saving; or tourism.

European Bank for Reconstruction and Development (EBRD)

International loans are also provided by the European Bank for Reconstruction and Development (EBRD). The EBRD is an international financial institution founded in 1991 to support the transition towards market economies in Central and Eastern Europe, Central Asia, and more recently, some Southern and Eastern Mediterranean countries. The EBRD offers a wide range of financial instruments and takes a flexible approach to structuring its financial products, such as loans, equity investments, and guarantees.

European Energy Efficiency Fund (EEEF)

The EEEF provides financing for energy efficiency investments, including low-carbon mobility solutions such as e-mobility, car sharing, etc. The EEEF aims to attract private investments to sustainable mobility projects.

The European Investment Advisory Hub

The European Investment Advisory Hub is a partnership between the European Investment Bank Group and the European Commission. It was established as a single point of entry for project promoters, public authorities and the private sector to advisory services and technical assistance. By offering advisory support to European project promoters, the EIAH supports the identification, preparation and development of investment projects across the EU.

European Investment Advisory Hub

Europe's gateway to investment support

In Türkiye, Law No: 4749 regulates debt obtained from foreign creditors. This includes bank loans, IFI loans, and capital markets issues. Export credit agencies (ECAs) or supplier credits require MoTF approval. This provision applies to municipalities and state-owned enterprises and is intended to allow the Treasury to better manage potential contingent liabilities related to foreign debt.

7.2 City Bonds

City bonds are debt instruments to unlock investment capital for expenditures, including transport infrastructure projects and service operation. They yield immediate capital for the issuer while repayments can be extended over a long time period of approx. 20-30 years (Kim, 2016). City governments issue municipal or city bonds, often with the intention to finance transport infrastructure or services. The issuer of a bond sets a fixed annual interest rate and a time frame for repayment and sells the bonds to creditors. Bond-holders receive a promise that the interest and the principle will be repaid on a regular schedule. Due to fixed returns and a pre-defined maturity date, bonds generally have a lower risk profile compared to equity

instruments. This makes bonds more appealing to institutional investors such as pension funds and insurance companies who are attracted to predictability, steady pay-outs and capital preservation. In many countries bond purchasers profit from tax exemptions. Revenue bonds are often used to finance major infrastructure projects. Interests will be paid from direct project related revenues such as fares and user tolls but also indirect sources such as cost savings e.g. from more energy efficient buses.

7.3 Green City Bonds

Green bonds are bonds with proceeds ring-fenced for sustainable projects. Issuers of green city bonds commit to using the capital raised for environmentally beneficial purposes, including sustainable mobility related projects. Examples are the procurement of e-buses and related infrastructure, the extension of tramways or the installation of BRT systems.

In November 2023, the Istanbul Metropolitan Municipality issued a debut green Eurobond of USD715 million with five years of maturity, also a first among Turkish municipalities. The proceeds from the green bond issuance are conditional to be used to finance eligible green projects. These mainly include clean transportation investments, such as metro line constructions or procuring fully electric or zero emission vehicles for public transportation.

City Example: The RATP green bonds programme

The French state-owned public transport operator RATP (Régie Autonome des Transports Parisiens) launched a green bonds programme in 2017. The proceeds of the Green Bond will be invested into future projects or used to refinance existing projects that comply with RATP's CSR objectives and fall into one of the following categories: energy transition and climate-change mitigation; pollution prevention; natural resource prevention; or other sustainability objectives such as noise reduction or enhanced comfort for passengers.

In a first step, RATP aimed at a € 500 million injection with a 10-years issue for financing the renewal of railway rolling stock, upgrading of a metro line, and the purchase of electric locomotives for the maintenance of RER infrastructures. With € 1.6 billion of orders, the fond was three times oversubscribed. A second green bond was issued in June 2019.

More Information: https://www.ratp.fr/en/en/la-ratp-et-les-green-bonds

The Climate Bonds Initiative - Standards for Transport Projects

The Climate Bonds Initiative has issued sector specific criteria for transport projects eligible for Certification under the Climate Bonds Standard and Certification Scheme.

The Climate Bonds Standard and Certification Scheme is a labelling scheme for bonds. Rigorous scientific criteria ensure that it is consistent with the 2 degrees Celsius warming limit in the Paris Agreement. The Scheme is used globally by bond issuers, governments, investors and the financial markets to prioritise investments which genuinely contribute to addressing climate change.

Public transport projects such as urban trams, metro systems and bike transport systems as well as vehicles propelled by fully electric engines or hydrogen fuel cells are automatically eligible. For other forms of transport, the Criteria define specific thresholds which the projects and assets will have to meet in order to be eligible.

More Information: https://www.climatebonds.net/standard/transport

8. Facilitating the Involvement of the Private Sector

PPPs are a form of procurement and contract arrangements between public authorities and the private sector. They aim at delivering public infrastructure projects and/or services under a long-term contract. PPP arrangements vary in terms of their transfer of risks and management responsibilities to the private partner, the ownership of assets (infrastructure, vehicles, etc.), revenue generation, and the distribution of investments. If properly managed, PPPs can improve efficiency along the full project cycle, including operation, and allocate risks to the party better prepared to address them.

According to the European Court of Auditors, engaging the private sector can reduce direct upfront investments and operation costs for the local authority. PPPs are also mechanisms to share risks among several partners, with risk distribution varying between different projects: "The private partner is often responsible for risks, associated with the design, construction, financing, operation and maintenance of the infrastructure, while the public partner usually takes on regulatory and political risks" (European Court of Auditors, 2018, p. 12). In a SUMP context, PPPs can be concluded for:

- The provision of services, for example, public transport or sharing services;
- The construction of transport infrastructure;
- The construction and operation of transport infrastructure.

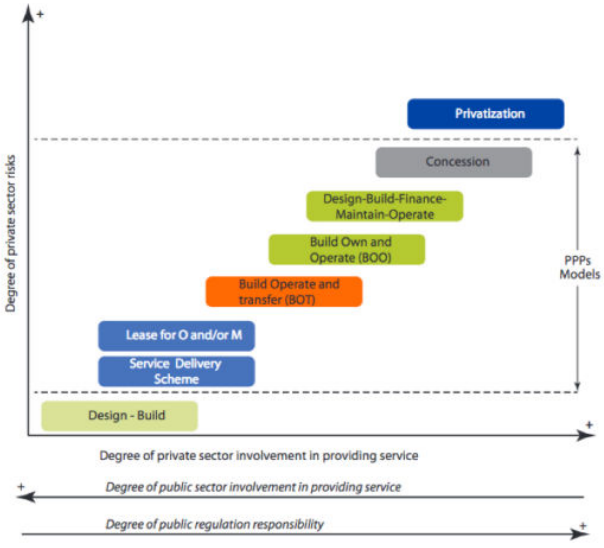


Figure 4. Types of Public-Private Partnerships (Ardila-Gomez & Ortegon-Sanchez, 2016, p. 80)

PPP and Public Governance

Private sector engagement for the provision of public services has provoked highly charged political debates. While proponents argue that contracting private operators through competitive tendering reduces construction and operating costs and increases efficiency, opponents fear that contracting and operation of services and infrastructure privatises short-term profits on the expense of service quality and working conditions. Achieving an 'optimal' degree of public sector engagement is a political decision and cannot be answered here.

Regulation (EC) No 1370/2007 on public passenger transport services (17) states that... "...competent authorities are free to establish social and qualitative criteria in order to maintain and raise quality standards for public service obligations, for instance with regard to minimal working conditions, passenger rights, the needs of persons with reduced mobility, environmental protection, the security of passengers and employees as well as collective agreement obligations and other rules and agreements concerning workplaces and social protection at the place where the service is provided. In order to ensure transparent and comparable terms of competition between operators and to avert the risk of social dumping, competent authorities should be free to impose specific social and service quality standards."

It is important to understand that PPPs do not substitute for effective governance. PPPs are often criticised for commercialising public services, including the risk of maximising short-term profits for the private sector at the expense of service quality, while socialising losses and delegating risks to the public.

Local authorities need adequate capacities to act in the public interest and to ensure the fulfilment of the private sector's obligations. PPPs thus require performance based contracts with clear quality standards and levels of services, sound performance monitoring and reporting obligations for the contractual partners. Setting up a quality management system is highly advisable. Contracts also need to define clear rules for non-compliance and failures to meet agreed standards and a mandate for enforcing mechanisms. Periodic renegotiations are essential for adapting standards and agreed levels of services and to remain responsive to changes in demand, needs and priorities. Corresponding requirements should already be specified in the tender documents.

8.1 Engaging Private Companies as Service Providers

Usually, local public transport services do not operate cost effectively and are financed through a combination of user fees, public subsidies, and other sources such as revenue from the rental of advertising space. PPP contracts for the provision of services can contribute to financing public transport projects and reduce the immediate financial burden on the municipal budget. Arrangements can take different forms, depending on the allocation of risks between public and private partners and the degree of public regulation. The most important forms are service delivery schemes and concession agreements.

Under service delivery schemes, private companies act as service providers, for example, the operation of bus lines. In the Terms of Reference (ToR), the public authority defines levels of services (e.g. km/year, routes, stops, frequencies), quality standards (e.g. GPS and intelligent transport management system equipment, on-board wifi, passenger counting, or on board information system), hours of operation, or the number and maximum age of vehicles employed. Other provisions may include the participation in an integrated fare system or the elaboration of environmental plans.

Service contracts are awarded through tendering processes. Private partners are paid for the provision of the service, often as a lump sum based on an estimation of operating costs. Under these agreements, the private actor assumes the technical risk (operation costs) while the public administration finances the gap between the revenues generated and the agreed reimbursements of the operator. Annual payments can also be determined based on performance (e.g. the number of transported passengers) with a guaranteed minimum payment. Service delivery contracts often entail bonus-malus schemes that financially reward over-fulfilment of the agreed service level or penalties for poor performance, for example in terms of punctuality, passenger satisfaction, or vehicle quality. More information on these schemes can be found in the SUMP Topic Guide on Public Procurement of Sustainable Urban Mobility Measures (European Platform on Sustainable Urban Mobility Plans, 2019).

Under concession agreements, a private company pays for the exclusive right to operate an infrastructure asset (such as a toll road or bridge) or a bus line over a defined period of time. The concession is re-financed through revenues generated, with the private operator taking over both demand/income risk and technical risk. That means that concessions are only viable for profitable projects or public transport lines unless the public authority compensates for parts of the financial shortfalls. Digitalisation has created a number of new business models which support car-free, multimodal travelling, complement public transport services, and thus may contribute to a city's SUMP vision.

Integrating Private Sharing Systems Into the Public Transport System

Car- and bike-sharing systems are increasingly operated by private companies, most often independent of municipal transport planning and thus not managed through a contract or legal agreement with the city.

To secure their contribution to a sustainable urban transport system, cities need to develop management and licensing structures. The National Association of City Transportation Officials (NACTO) has issued 'Guidelines for the Regulation and Management of Shared Active Transportation'. While the Guidelines focus on the United States, they may also serve as a reference for European cities.

Services such as bike and car-sharing systems or on-demand services can fill service gaps and enhance first- and last-mile connectivity. Mobility companies have introduced e-hailing services that facilitate ordering and/or borrowing a vehicle or a service (public transport tickets, cars, taxis, bikes and e-bikes, or any other form of transport) by using computer or smartphone. Ride pooling and taxi sharing are new, flexible mobility options that may supplement public mass transport systems, specifically in times or areas with low demand for transport. Private mobility companies can provide urban public transport services as part of service contracts. Under these agreements, the private partner receives performance-based payments for the provision of the service, be it bike-sharing or ride hailing systems. Cities can stipulate tariffs, network, quality standards and other criteria such as the location of bike-sharing stations close to public transport stops in their mass transit plans and formulate tender documents accordingly. Standards may also address negative impacts such as blocked sidewalks, poorly maintained bicycles, appropriate insurance, and safety standards for rental vehicles. More information on bike-sharing funding mechanisms can be accessed at: http://www.konsult.leeds.ac.uk/pg/59/.

Finally, municipalities or local transport operators may make use of leasing schemes, for e.g. public transport vehicles. This may be an option for vehicle fleet renewal, as upfront investment costs and to an extent maintenance costs are covered over a longer time span.

8.2 Public Private Partnerships in Infrastructure Development

Infrastructure projects are capital-intensive, with most of the costs incurred during the construction phase. Since potential revenues are not generated until after commissioning, PPPs can be a means of leveraging of private funds for transport infrastructure projects to finance upfront investments. Private sector companies are repaid either by contractual repayments or they are entitled to future user charges and fares under a long-term PPP arrangement (European Court of Auditors, 2018). After the concession contract expires, the concession holder hands over the asset to the public authority.

Typical projects that are delivered under PPP contracts include ports and airports, motorways, bridges, tunnels, and parking facilities. While PPPs are relatively common in large-scale infrastructure projects, their applicability may also be explored for smaller urban projects such as the construction and operation of tramlines.

Without a dedicated PPP framework at the municipal level, urban investments in Türkiye relied in the past on the Public Procurement Law and relevant secondary legislation for implementation. In 2023, central government authorities including the MoEUCC started work on drafting legislation for PPP projects tailored for municipal services, initially in water and waste management. Although this process has not been finalised, it could be expanded to include urban mobility investments as it contemplated several crucial clauses that could remedy the bottlenecks in this sector including; (i) a simplified approval process for small-ticket projects, (ii) inclusion of transfer of operating rights in PPP models, (iii) establishment of a central PPP unit for a one-stop approach, (iv) enabling revenue collection mechanisms through SPVs, and (v) assignment of municipal receivables to third parties.

Common arrangements for the provision of infrastructures and services are Build-Operate-Transfer (BOT), Build-Own-Operate-Transfer (BOOT) and Design, Build, Finance, Operate and Maintain (DBFOM) schemes, among others. The selection of an adequate PPP model depends on the specific properties of the project, on budgetary considerations, and on traditions, conventions and legal requirements in the respective countries.

- BOT means that a private sector company builds and operates an infrastructure asset for a defined period of time (e.g. 20 years). During this time, the private party operates and maintains the asset. The company recoups its investments from project related income (fares, tolls) and transfers the assets to the public administration after the end of the concession agreement free of charge.

- Under BOOT arrangements, the private enterprise develops and operates the project for a defined period. Other than under BOT contracts, the private company is the owner of the asset, which the public authority buys at a predefined price or market price after the expiration of the concession period.

- DBFOM is a PPP contract where the private partner is responsible for designing, building, financing, operating and maintaining an infrastructure asset. Revenues can come from concession models (user charges) or reimbursements by the public authority based on the delivered services.

In addition to an adequate legal framework, the implementation of municipal PPPs requires project prioritisation and selection. The soundness of this stage underpins successful project design to help attract the most appropriate sources of financing available. In Türkiye, for projects to be foreign financed screening and selection decision processes are carried out by different authorities over a lengthy period. These are also linked sub-processes at the pre-decisional, decisional, and implementation stages. Ultimately, any such project selection and evaluation framework must meet tests of effectiveness, efficiency, and public legitimacy, and ensure long-term asset sustainability as appropriate. Investment project prioritisation for urban mobility using systematic, evidence-based analysis would be crucial for addressing financing constraints. The viable approach is to balance technical, environmental and financial policy analysis with more political and practice-based inputs. At the local level, where municipalities develop their investment decision-making procedures, the prioritisation efforts face challenges related to diverse municipal service sectors and limited technical management capacity. A compartmentalised and department-based approach in the budgeting process is also prevalent in investment planning, resulting in many departments delivering transport and mobility interventions in incoherent way.

The success factor for structuring effective financing mechanisms under PPP hinges on the ability to capture market value that could be commercialised around municipal investments. Once the payment structure of fees or rental income is established, the financing method whose funding would be best matched in terms of maturity, instalments and markup could be structured under loan, bond issuance or other tools. Urban mobility interventions present a significant prospect in this regard as the movement of people through mass transit often provides an opportunity to deliver commercial services to those users, improving their transport experience and earning additional revenues for the project. The construction or the expansion

of transit-oriented connection centres integrating sustainable mobility modes with other urban and intercity transport could be financed under PPP.

For example, the Moncloa Transportation Exchanger in Madrid, Spain, an integrated multimodal transportation terminal equipped with commercial and office areas, was expanded and improved in 2009 under a 35-year BOT concession to cater for the increasing number of passengers. As a result, it was able to cater for 110,000 passengers in 2011, up from 44,000 in 1995. The concessionaire receives revenue from three different sources: a) for interurban bus passengers: (i) a fixed payment from metropolitan transport authority guaranteeing a minimum demand, and (ii) a sum paid by bus operators corresponding to actual demand; b) fares from long-distance transit passengers; and c) commercial revenues such as commercial and office space leases, vending, ATM spaces, and advertisement sales at the facility. Transit operators collect the user tariff as part of the ticket price paid by passengers who embark or disembark and this is then passed on to the concessionaire. Initially, the private partner assumed all financial and demand risks. The contract included a clause that established a variable concession term/duration, depending on the real yields obtained by the concessionaire. The variable term mechanism allows the concessionaire to finish the concession five years earlier in case the traffic concession is higher than expected, or five years later in case the traffic is lower than expected. Hence, the concession term would also act as a cushion for the demand risk. (Salat and Gerald, 2017)

While PPPs are often considered an effective and efficient way to realise infrastructure projects, the European Court of Auditors points to shortcomings and potential risks associated with the engagement of the private sector in the public realm: Implementing successful PPP projects requires a high degree of administrative capability and expertise, time, and negotiation skills from the sides of the local authority, well beyond expertise needed for conventional procurement processes. Moreover, the Court highlights the risk that private partners may withdraw from a project if the anticipated revenues from future concessions are reduced and the financial viability of a project is threatened. For private enterprises, the public procurement system is extremely effortful which might result in low competition and put local authorities into a weak negotiation position.

9. Overview of Funding and Financing Instruments

This overview has shown that there is a large number of funding and financing options for supporting sustainable urban mobility. Still, there is no one size fits all combination of instruments that is suitable for all projects in all countries. An adequate combination needs to be defined case-by-case, depending on factors such as the size and nature of the project, the municipality's budgetary situation, the legal competencies of cities, or the availability of funding sources from the national and European levels. One key message, however, is that funding and financing plans need to consider the entire SUMP package, also taking into account the potential impact of other planned measures. Funding and financing plans need to be coordinated with other departments, including the fiscal administration, and with surrounding municipalities.

The following figure provides an overview of the instruments which were discussed in this Topic Guide. They are structured (1) along providers of funding and financing (different tiers of government, private sector) and (2) along the project life cycle during which financial resources are available.

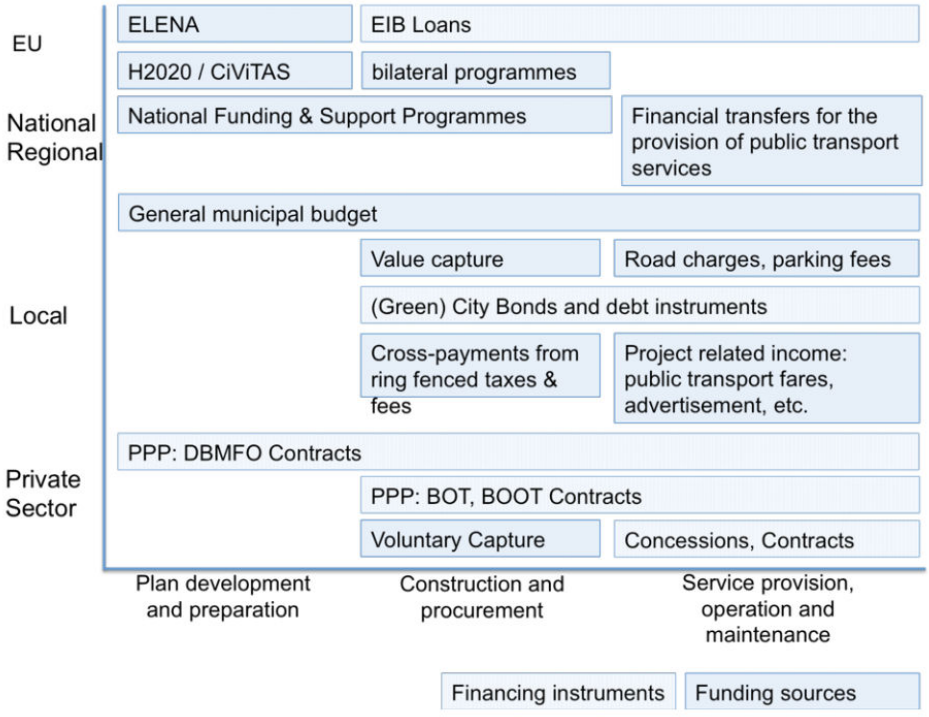


Figure 5. Overview of Financing Instruments and Sources of Funding

In Türkiye, effective implementation of these financing and funding mechanisms requires enhanced access to financial markets by municipalities, which is underpinned by a combination of an enabling institutional framework and the ability to generate sustainable revenues and promote bankable projects. A municipality's access to financing sources for its infrastructure investment is mainly defined by its creditworthiness. This is in turn driven by the quality of its revenue sources, its public finance management, and the bankability of the project to be financed. The projects intended to be commercially funded need to be prepared considering the funding costs and sources of debt repayment. Whether the repayment will come from the overall budget revenues or from the users of the services provided, the quality of the project design, including the diligence in which its expenditures are structured, is particularly important in these instances. There has been significant development in this regard over the recent years where the number of internationally rated metropolitan municipalities has increased to nine as of the end of 2024 with expected new ratings in the pipeline. There remain however significant gaps in municipal capacities to plan, prepare and implement sustainability-linked projects.

10. Conclusions: Relevance for Turkish Cities

This handbook on green finance congregates many different types of possible financing instruments and sources of funding to promote sustainable urban mobility in Turkish cities. By doing so it connects the worlds of policy and finance.

This Handbook brings together the different financial options in relation to SUMP. The Turkish legislation is still relatively diffuse and could benefit from being brought under a single framework. Moreover, resources available for mobility in Türkiye are still primarily allocated to road transportation, with sustainable forms of mobility insufficiently prioritised. Making use of innovative local sources for funding and financing, beyond local budgets, is not widespread. Therefore, Turkish municipalities could greatly benefit from becoming more familiar with the innovative options set forth in this handbook.

As sustainable urban mobility planning will play an increasingly bigger role in Türkiye, and more and more cities are implementing SUMPs, these funding and financing options will become increasingly relevant. In this process, municipalities should consider the most adequate and fitting combination of sources for their specific situation.

As discussed in the above chapters, Turkish municipalities currently benefit from a combination of domestic and international bilateral loans, multilateral financing programs, bond issuance and technical assistance grants. In addition, İLBANK issues both grants and loans for specific projects. The long-term/below market interest loans are project specific and can be integrated with other sources as well, including European and other international facilities and innovative mechanisms mentioned in this handbook. Conventional sources of municipal finance need to be complemented with innovative financing mechanisms as municipalities have limited fiscal space for their investment needs. The Municipal Law (Law No: 5393) sets the debt ceiling at 150 per cent of the previous year's revenues for metropolitan municipalities and 100 percent for all other municipalities. The debt ceiling regulations indirectly stipulate that the debt ceiling is calculated by combining the direct debt incurred by the municipality and the debt of the municipality's affiliated entities with majority ownership.

Current financing mechanisms to support sustainable urban mobility interventions are not sufficient to meet the massive financing needs of the urban agenda. Financing is constrained both by traditional impediments to municipal finance in terms of public investment management framework and macroeconomic challenges in the investment environment. There are several challenges arising in public investment management processes, especially under four

dimensions: (i) strategic investment planning; (ii) consideration of private financing on project selection; (iii) development and assessment of the project pipeline; (iv) management capacity constraints.

Thus, it is timely to discuss the applicability of public and private investment at scale through new partnerships and creative financing solutions that are relatively untested in developing countries or limited to certain sectors. Most of these solutions require legislative changes or the establishment of a new regulatory framework to be widely and consistently implemented hence under three groups as value capture, blended finance and PPP.

A variety of value capture tools has been used internationally to bridge financing gaps in urban infrastructure and services over the past few decades, yet it has untapped potential in developing countries. Value capture is a financing approach that captures a part of the windfall increases in land and property value from private owners caused by public action – whether re-zoning/densification or infrastructure investment – to defray part of the associated public investment cost. The value capture increment is monetised by accessing capital markets ex-ante to borrow against the expected future increase in property tax collection or by collecting ex post a betterment levy from property owners who benefited from public action. Value capture tools can therefore be attractive for both the private sector and the city government – for developers, who have flexibility on the timing of projects depending on market conditions; for the cities, which can use the funds raised for potential follow-on investments.

Blended finance is an approach that blends scarce public concessional funds with private-sector commercial capital to realise innovative, high impact resilient infrastructure projects. Since it was recognised in the UN 2015 Addis Ababa Action Agenda, blended finance has gained appeal to leverage scarce public funds to unlock private capital for cities in developing countries. There are various approaches, including guarantees (against default risk), insurance and other forms of credit enhancement intended to de-risk private investment in urban infrastructure, especially to tackle issues of perceived risk due to the lack of track record or to culminate in a different risk-sharing profile.

PPP is a prime route by which municipalities can meet increasing urban mobility infrastructure demands irrespective of budgetary constraints. By engaging in transparent strategic partnerships, public and private sector expertise can be brought together to develop and manage high-quality projects efficiently, rapidly, and in line with a municipality's strategic vision. Such models of cooperation, where the government authority contributes the land and or assets for redevelopment, and private entities fund the development and its construction, can help to drive the local sustainability agenda providing positive economic externalities such as job creation and climate co-benefits.

This handbook has drawn upon the topic guide 'Funding and Financing of Sustainable Urban Mobility Measures', offering a wide range of innovative funding and financing sources for sustainable urban mobility infrastructure in Türkiye's cities. These approaches could support municipal administrations in having sound financial management practices with sustainable and diversified sources of financing. In this context:

- There is a need to develop a coordinated project planning and preparation framework among municipal departments integrating potential financing options early in the process;

- Conventional sources of municipal finance can be complemented by new financing solutions to address the fiscal constraints that the municipalities face;

- Enhancing in-house financial management standard as well as building capacity to prepare viable and bankable pipelines of investment projects will be critical to stand out among cities competing for domestic and international financing;

- It is imperative to cooperate with other municipalities through networks and associations to help drive the sustainable urban finance agenda;

- Adoption of alternative finance mechanisms such as value capture instruments, congestion pricing, or dedicated local mobility levies requires legislative amendments at the central government level. Under the current constitutional and legal framework, Turkish municipalities cannot introduce independent taxation or levies unless explicitly defined in the legislation. Therefore, legal reform is a prerequisite for enabling the full range of green finance instruments discussed in this Handbook.

This Handbook does not stand on its own; it should be read alongside the accompanying Handbook "Handbook for Origination and Commercialisation of Sustainable Urban Mobility Project Portfolio for Green Financing": a more practical document, where the reader is presented with the key steps needed to arrange for funding and financing of sustainable urban mobility measures in Türkiye.

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