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MINISTRY OF ENVIRONMENT & ENERGY

Summary Report

# Advancing Sustainable Mobility in Greece

## Supporting SUMPs uptake

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At the ITF, the overall project was managed by Marion Lagadic. Malithi Fernando led the workstream on SUMPs and co-ordinated the analysis for this report. Elisabeth Windisch and Orla McCarthy provided oversight. David Prater managed the editorial process. The main authors of this report were, in alphabetical order, Malithi Fernando (ITF), Josephine Macharia (ITF), Anastasia Nikolaidou (external consultant), Joshua Paternina Blanco (ITF), and Alexandros Sdoukopoulos (external consultant).

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# Abbreviations and acronyms

| | |
|---|---|
| DG REFORM | European Commission Directorate-General for Structural Reform Support |
| ELSTAT | Hellenic Statistical Authority |
| GIS | Geographic information system |
| ICTs | Information and communication technologies |
| MoIT | Hellenic Ministry of Infrastructure and Transport |
| MoEE | Hellenic Ministry of the Environment and Energy |
| MSIS | Measure-Specific Indicator System |
| OASA | Transport for Athens |
| OECD | Organisation for Economic Co-operation and Development |
| PM | Particulate matter |
| OSETh | Transport Authority of Thessaloniki |
| OSIS | Objective-Specific Indicator System |
| SUMI | Sustainable Urban Mobility Indicator |
| SUMP | Sustainable Urban Mobility Plan |
| TEN-T | Trans-European Transport Network |

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# Executive summary

## Key messages

### Local authorities face challenges in developing sustainable urban mobility plans

Local authorities recognise the importance of Sustainable Urban Mobility Plans (SUMPs) but face numerous (albeit varying) challenges related to planning, implementation and monitoring.

### National support is vital

National governments can play a key role in supporting sustainable urban mobility through legislation, and financial and technical resources for local authorities. The SUMPs support tools developed as part of this project offer such technical resources.

### Quantifying progress remains difficult

Monitoring and evaluating progress towards sustainable urban mobility objectives is particularly challenging. The monitoring tool developed in this project suggests rigorous, scalable indicators and outlines potential future improvements.

## Main findings

Sustainable urban mobility is a major European Union priority for the transport sector. SUMPs play a significant role in decarbonisation and seek to fulfil residents' mobility needs in an inclusive and sustainable manner. SUMPs also help improve urban environments by reducing congestion as well as noise and air pollution.

The European Commission has issued policy documents and guidance to encourage EU member states to adopt policies to promote SUMPs. In line with the EU principle of subsidiarity, urban mobility is managed locally in each member state. The Commission's official SUMP guidelines are not legally binding and may be adapted when included in national laws. SUMPs are, in turn, implemented locally. As a result, the implementation of SUMPs between and within member states remains uneven.

SUMPs have been promoted heavily in Greece: the country first developed a national SUMP law in 2019, four years before the Commission's own recommendation on national SUMP support programmes. Greece's SUMP law outlines nine mobility objectives as well as a biennial reporting requirement via a national SUMP platform. While there is significant enthusiasm for SUMPs in Greece, challenges persist for authorities seeking to develop, implement and monitor their own sustainable mobility plans.

Specifically, Greece's highly varied population density, terrain and geography, economic capacity, levels of tourism and technical capacity create difficulties in implementing SUMPs. Local authorities report resource constraints as a primary factor in effectively implementing and monitoring mobility measures. The current regulatory landscape favours a single provider for public transport, and a lack of clarity exists with respect to roles and responsibilities between authorities as well as between SUMPs and other strategies.

Given the varying challenges across different urban areas in Greece, resources to support local authorities in choosing and monitoring mobility need to be customisable to suit local circumstances. The ITF's "Sustainable Urban Mobility Measure Selection Tool for Greece", produced as part of this project, may contribute to the national SUMPs support programme by providing a resource for local authorities wishing to identify measures suitable for their urban area type that address their priority mobility objectives.

Greek local authorities also face obstacles related to monitoring and evaluation. Data collection tends to be project-specific and is not compiled for wider use. Data is also difficult to obtain from transport service providers, and national

datasets sometimes require lengthy procedures to gain access. Travel behaviour data is also collected sporadically depending on available funding. Like many others worldwide, local authorities in Greece struggle to collect data to monitor freight activity but recognise the need to do so. The monitoring framework proposed in this project, and the ITF's "Sustainable Urban Mobility Monitoring and Evaluation Tool for Greece", suggest indicators for tracking progress on mobility objectives and individual measures, prioritising simpler data collection methods to support the establishment of monitoring practices.

## Top recommendations

The following recommendations summarise the detailed recommendations presented in the full report, which are grouped under three main areas: managing sustainable urban mobility, managing mobility data, and understanding and monitoring urban freight activity. While primarily addressed to Greece's Ministry of Infrastructure and Transport (MoIT), they are applicable to all national governments promoting and supporting SUMPs.

### Promote a multimodal urban mobility system with adequate financial, technical and regulatory support

A balanced mix of transport modes helps create resilient transport systems that serve both residents and tourists. Local governments and national authorities should provide sufficient budget and staff allocation to institutionalise the process of public consultation on SUMPs. Successful implementation also depends on policy makers clarifying the relationship between SUMPs and other strategic land-use, climate change mitigation, and transport planning policies and processes.

### Prioritise a co-ordinated data collection and management strategy to understand transport demand, infrastructure, and service performance

To inform effective policy implementation and evaluation, local authorities will need to establish and maintain databases independent of individual projects and invest in internal capacities to conduct spatial analysis. Access to data from national bodies should be streamlined to allow for timely reporting. National-level guidance on household travel surveys can establish a co-ordinated approach to gathering this essential data. Instituting clear, reasonable data reporting requirements should allow for the adequate planning and monitoring of transport services. Overall, to reduce the resource burden, data collection procedures and indicators for monitoring should be standardised where possible.

### Understand and monitor urban freight activity by increasing co-operation with freight stakeholders

To understand freight activity, authorities need to collaborate with stakeholders who generate or have relevant data, including freight carriers, receivers, driving training centres and research institutions. Partnership agreements on data sharing with private stakeholders should specify data use, sharing conditions, and format specifications. Furthermore, all data requests (including surveys) should have a legal basis and pertain to public policy objectives.

# Supporting the development of a national platform for Sustainable Urban Mobility Plans in Greece

Sustainable urban mobility constitutes one of the European Union's key priorities in the transport sector. The topic entered the public debate in the early 2000s. In the decades since, the European Commission has issued several policy documents and guidance (EC, n.d.) to encourage its member states to adopt policies to promote sustainable urban mobility. In 2013, the European Commission released a communication, "Together towards competitive and resource-efficient urban mobility" (EC, 2013) and published guidelines for developing and implementing sustainable urban mobility plans (SUMPs) to provide local authorities with practical recommendations for implementing urban mobility strategies (Rupprecht Consult, 2013). The second edition of the European SUMP Guidelines was published in 2019 (Rupprecht Consult, 2019).

Since their introduction in 2013, SUMPs have been a cornerstone of the EU's urban mobility vision. In line with the EU principle of subsidiarity – which serves to regulate the exercise of the Union's non-exclusive powers – urban mobility is managed locally, and no EU regulations or directives directly influence it. The official SUMP guidelines are not legally binding. As a result, the implementation of SUMPs between and within member states remains uneven. Among cities that do have a SUMP, the scope and ambition varies significantly.

Overcoming differences among European cities, requires strengthening governance and ownership at the national level through state-specific SUMP legislation and a support framework to align SUMPs, considering local circumstances. As the European Commission proposed in its recommendation on "National Support Programmes for Sustainable Urban Mobility Planning" in 2023, national legislation is one of the most crucial factors for developing sustainable mobility policies in cities (EC, 2023). To this end, each member state should establish a national SUMP support programme to encourage and help municipalities to develop and implement SUMPs. Through these national programmes, local authorities can share good practices, receive the necessary support from nationally vetted resources at each step of the SUMP process, secure funding for their plans' implementation, and learn how to monitor the impact of SUMPs in their local area. National governments can also more easily evaluate progress towards mobility objectives with an aligned SUMP process among their local authorities.

Greece preceded this recommendation with the development of its own national SUMP law in 2019 (updated in 2021). Prior to this, a funding programme for SUMPs via the Green Fund (managed by the Ministry of Environment and Energy) was established in 2016 and a training programme for local authorities was developed in 2017 in collaboration with the Joint Assistance to Support Projects in European Regions (JASPERS). Greece's Ministry of Infrastructure and Transport (MoIT) also established a Sustainable Urban Mobility unit within the ministry in 2017.

## About this project

The EU-funded project, "Recharge and Refuel: Clean, Smart and Fair Urban Mobility", implemented in collaboration with the European Commission's Directorate-General for Structural Reform Support (DG REFORM), provides technical assistance to the MoIT as it establishes a national SUMP support programme. More specifically, the project outputs include:

- The "Sustainable Urban Mobility Measure Selection Tool for Greece", an Excel-based educational and decision-support tool designed to aid local authorities in choosing appropriate transport policy measures that fit their specific urban contexts and that help them meet their desired objectives.
- The "Sustainable Urban Mobility Monitoring and Evaluation Tool for Greece", an Excel-based tool designed to help local authorities calculate the indicator values necessary to monitor their SUMPs using the proposed framework developed by the ITF. The framework, which consists of two indicator systems, was developed to support the MoIT in defining standardised monitoring practices for urban mobility.

- A detailed report (ITF, 2024) offering a review of existing EU SUMP policies, guidelines, and resources to demonstrate the unique contribution of this project among these resources. It details the state of SUMP development in Greece, informed by a comprehensive survey of Greek local authorities as well as 13 online and in-person consultations with a range of local authorities, the MoIT, researchers, consultants, and private and third-party stakeholders. Informed by these inputs and desk research, the report provides an overview of the urban and transport context of Greece and discusses the challenges faced by local authorities in charge of managing urban mobility and related data needs. The report also provides guidance on using the two accompanying tools to aid in choosing appropriate policy measures and an appropriate approach to the monitoring and evaluation of progress towards mobility objectives as well as the effectiveness of individual mobility measures.

The fourth output is this report, which summarises the detailed report and provides an abbreviated version of:

- the analysis of the Greek SUMP law, the state of advancement of SUMPs in Greece and challenges to managing sustainable mobility, with recommendations
- the analysis of challenges related to data management, monitoring and evaluation, with recommendations
- advice on defining the most appropriate mobility measures for different area types in Greece with the help of an accompanying mobility measures selection tool
- a proposed monitoring and evaluation framework to track progress towards sustainable mobility objectives and evaluate individual measures, with the help of an accompanying monitoring and evaluation tool.

Readers interested in learning more are encouraged to read relevant sections of the more detailed report to ensure they have a complete understanding of the findings of the study and of the specificities of the Greek context. Throughout this summary, readers will find relevant sections of the detailed report signposted to ease navigation.

While this project was undertaken to support the development of a Greek National SUMP Platform, the outputs are designed to be adapted by audiences wishing to improve SUMP development and monitoring in their own localities.

# How has Greece implemented sustainable urban mobility plans?

Triggered by the growing interest in sustainable urban mobility issues, several cities in Greece initiated the development of SUMPs in 2014 (EC, 2022a). At that time, there was no national legal framework in place to mandate and guide local authorities to develop and implement SUMPs. These plans were produced voluntarily; many relied on the Eltis SUMP guidelines, though not all phases, steps and activities were necessarily followed (EC, 2022a). Law 4599/2019 (and specifically Article 22) was introduced a few years later to set up a uniform method of developing and implementing SUMPs throughout Greece (EC, 2022a). While this first SUMP-related legislation was not very detailed, it set the basis for standardising some procedures regarding the elaboration, examination and monitoring of SUMPs (FEK 40/A/04-03-2019). To further establish a consistent and concrete national path for SUMPs in Greek cities, Law 4784/2021 (Articles 1 to 14) was introduced two years later, in 2021 (EC, 2022a).

The following section briefly introduces the Greek SUMP Law. For a more detailed analysis, refer to section "The Greek SUMP Law (Law 4784/2021)" in the detailed report.

During this project, the Greek SUMP law was compared to the SUMP laws of France, Italy and Lithuania to understand the differences and similarities. The comparison is detailed in the section "Comparing the Greek SUMP Law with other European countries' laws" of the detailed report.

The concluding sections describe challenges to implementing SUMPs and recommend appropriate ways to approach the management of sustainable urban mobility. They considerably abbreviate the challenges explored in the chapter "The urban and transport context in Greece" of the detailed report, which also provides a thorough description of the Greek urban and transport context which may be helpful to understand the challenges and recommendations.

## The Greek SUMP Law (Law 4784/2021)

Law 4784/2021 adopts the widely accepted definition of SUMPs as outlined in the Eltis guidelines. It identifies nine primary objectives that local authorities should meet through their SUMPs (Eltis, 2022; FEK 40/A/16-03-2021):

- the enhancement of public transport
- the promotion of non-motorised modes such as cycling, walking and micromobility
- the ensuring of accessibility and security, especially for people with disabilities
- the promotion of road safety
- the reduction of car use
- the development of effective parking management strategies
- the promotion of electromobility and alternative fuels
- the improvement of city logistics
- the utilisation of new technologies to support multimodal and intermodal transport as well as further improve the use of existing road infrastructure.

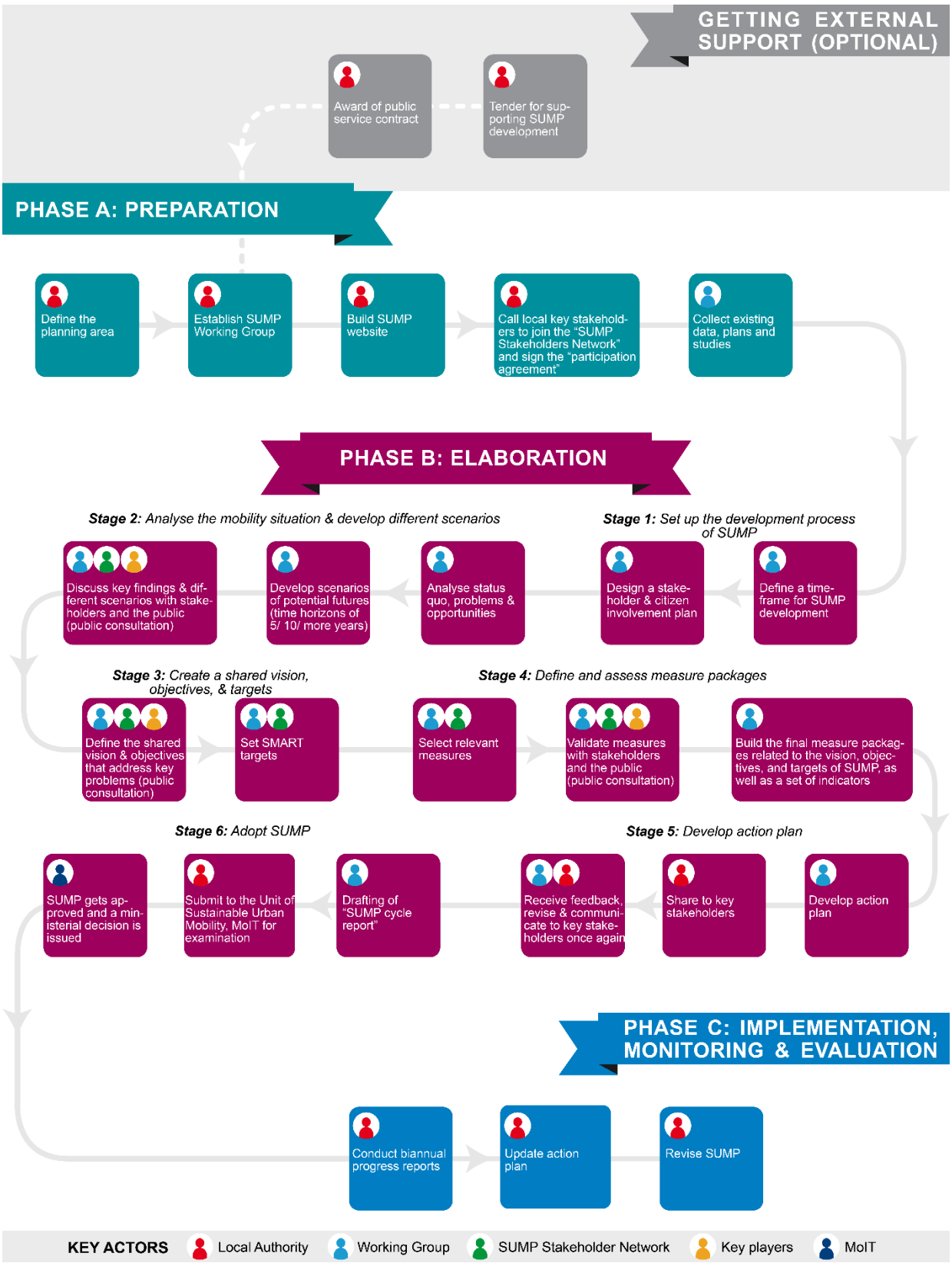
SUMPs in Greece should have a medium-to-long-term horizon of at least ten years and can be developed by municipalities, regions or associations between regions and municipalities. Municipal SUMPs focus on promoting sustainable mobility in urban areas, while regional SUMPs analyse the impact of major transport infrastructures and aim to better connect them. Mandatory SUMP development applies to Greece's 13 regions, specific municipalities under public transport authorities, and other municipalities with populations over 30 000 (in total, 120 municipalities).

Law 4784/2021 outlines the actors, responsibilities and sequence of activities for SUMP development, applicable to all local authorities regardless of their characteristics. Main actors include:

- the Working Group, a task force for developing SUMPs that comprises local authority staff and consultants, supplemented by public transport and port authorities where relevant
- the SUMP Stakeholder Network, an advisory board comprising various local stakeholders in line with legal requirements (FEK 40/A/16-03-2021)
- key players, including citizens and interested parties, who participate through online tools and public consultation meetings
- the MoIT, which reviews the SUMP cycle report and issues a ministerial decision confirming compliance with legal requirements.

The Eltis SUMP cycle and its twelve steps are adapted to the Greek context through a number of related activities organised into three phases (Figure 1) (FEK 40/A/16-03-2021). The Preparation phase lays the groundwork for SUMP development. Next, the Elaboration phase is composed of six stages including analysing the current mobility situation, defining objectives, choosing measures, developing an action plan and adopting the SUMP (FEK 40/A/16-03-2021). Finally, following the completion of SUMP development, the third phase focuses on implementing, monitoring and evaluating the plan (FEK 40/A/16-03-2021).

Figure 1. The process of SUMP development in Greece according to Law 4784/2021



## The SUMP development status quo in Greece

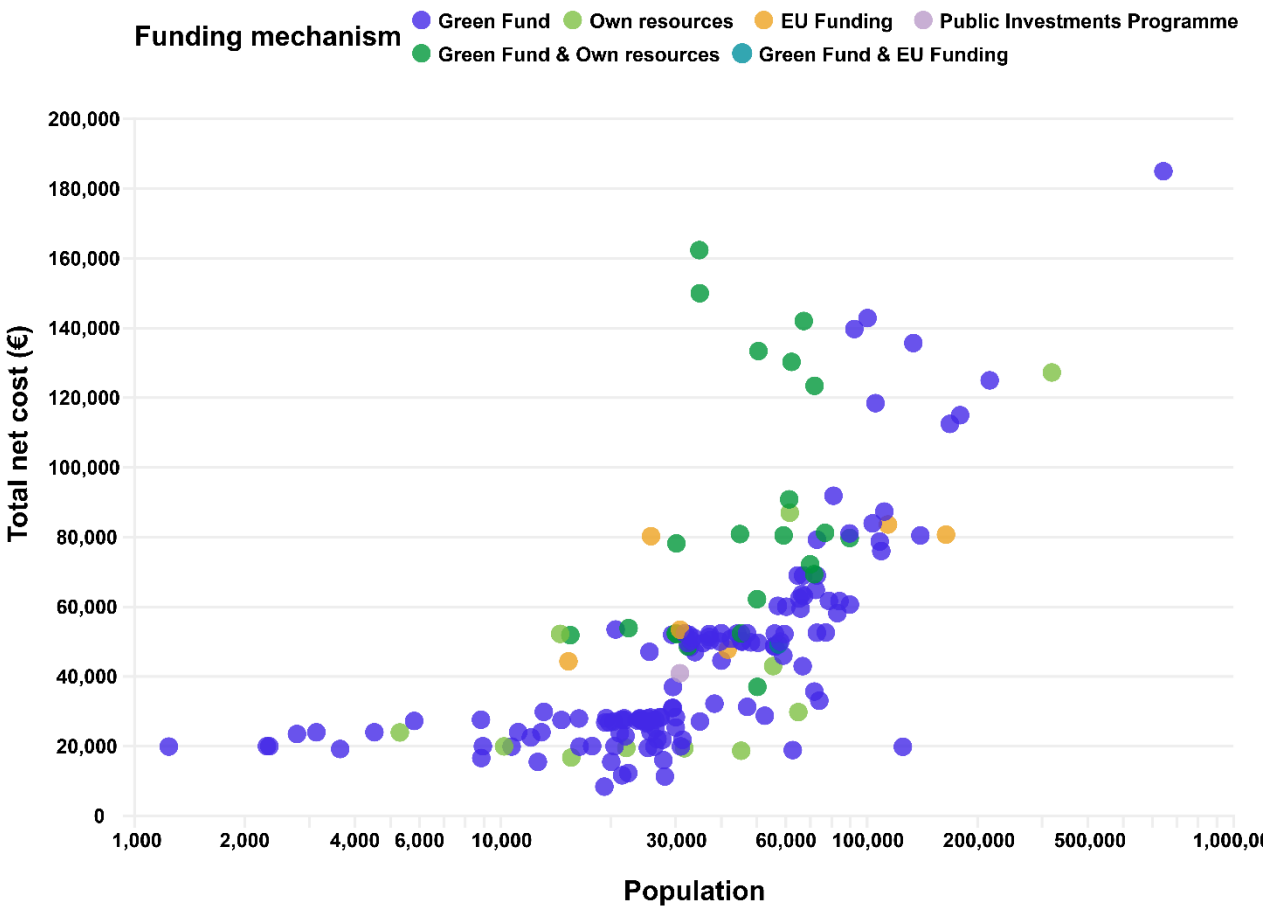
Since its introduction by the European Commission's "Urban Mobility Package" (EC, 2013), SUMPs have been highly promoted in Greece, with numerous local authorities engaged in the process. Data collected from government portals (Ministry of Digital Governance, 2024a, 2024b) and a comprehensive local authority survey conducted jointly by the MoIT and the ITF shed light on the state of advancement of SUMPs in Greece by mid-2023.

There is enthusiasm for SUMPs at the municipal level. By mid-2023, 173 local authorities had initiated the SUMP process; one in four began development voluntarily before any national legal framework was established, while the majority of SUMPs started being developed after the introduction of Laws 4599/2019 and 4784/2021. However, at the time of this study, none of the 13 regions had initiated the SUMP process, despite it being mandated. During project consultations, there was also uncertainty among regions regarding their responsibilities under the SUMP Law. Three regions were expected to enter the preparation phase by the end of 2023. However, according to official government portals (Ministry of Digital Governance, 2024a; 2024b), no official assignments had been made to external experts for regional SUMPs as of April 2024.

For additional details on the survey findings, refer to section "The SUMP development state of advancement" of the detailed report. Main findings include:

- *Issues addressed*: Municipalities aim to improve accessibility to essential services, enhance road safety and reduce traffic congestion. Unique challenges faced by different types of municipalities – including mountainous terrain, sparse population, high-tourism levels and dense population – influence their SUMP priorities.
- *Reference documents*: Development of SUMPs in Greece relies heavily on current and previous legislation (Laws 4784/2021 and 4599/2019) and the Eltis Guidelines. Most SUMPs integrate with other plans such as urban land-use plans, sustainable energy and climate action plans, and traffic/mobility studies.
- *Technical departments*: The larger municipalities and regions have greater technical capacity. Regions have technical departments located in their capitals that make executive decisions on regional matters.
- *External resources*: Nearly all local authorities depend on consultants and/or experts from universities to play a crucial role in SUMP development due to the lack of personnel or expertise in sustainable mobility. Collaboration with other local authorities, like regional partnerships, aids municipalities lacking technical departments.
- *Choosing mobility measures*: Public opinion and official SUMP guidelines heavily influence decision-making in developing the action plan and selecting mobility measures. Most common measures include improving street space for active and micromobility, urban realm enhancements, pedestrianisation and regulatory measures related to parking or road access. Economic measures are relatively less common, and measures requiring changes to current regulations are generally excluded from Greek SUMPs.
- *Funding*: The Green Fund (managed by the Ministry of Environment and Energy) is the leading funder of SUMPs in Greece. See Figure 2 for a breakdown of funding sources. The total net cost of developing SUMPs generally is around EUR 20 000 for municipalities of up to around 10 000 inhabitants, after which it increases with population.

Figure 2. Relationship between the total net cost for developing a SUMP, municipalities' population and the funding mechanism




Notes: Figure based on data collected in April 2023 from the government portals "Diavgeia" and "Prometheus", which provide open access to all administrative acts, decisions, and contracts made by the public bodies in Greece.

Sources: MoDG (2024a, 2024b).

## What sustainable mobility challenges do local authorities face?

Feedback from stakeholder consultations across all types of municipalities, regions, and national and freight stakeholders highlighted common challenges that manifest in the Greek context, exacerbated by local circumstances (such as population distribution, economic constraints, tourism and geographical features), established norms with respect to public perception and regulation, and a lack of clarity regarding roles and responsibilities. This section focuses on issues related to regulation, roles and responsibilities. For further details and information on the other types of challenges, refer to the chapter "The urban and transport context in Greece" of the detailed report.

The regulatory context in which public transport is provided creates a significant barrier to managing sustainable mobility. The Joint Bus Receipt Funds (known by their Greek acronym, KTELs), are private companies that have exclusive rights to provide urban and interurban bus services in most areas of Greece. They have maintained a oligopoly over the provision of urban and inter-urban public transport services in most of the country, due to regulations that assign these operators the sole right to provide services in a closed market. As a result, many local authorities report contentious relationships with KTELs, from the planning process to performance monitoring and data sharing. Local authorities feel that they do not have access to information related to travel patterns and do not

have much power to intervene on public transport planning. Given the advantage KTELs have had in the market for decades, transitioning to open tenders for these services continues to be a challenge, despite changes in regulation.

The SUMP development process can be an opportunity for national authorities to work with local authorities to explore opportunities to revise regulatory frameworks within the context of the broader urban policy environment, addressing multiple objectives at once. Some sector-specific regulations can be revisited with this in mind. This is particularly relevant in the Greek context as it pertains to the regulation of new and shared modes which may not be permitted within the current regulations.

SUMP development calls for co-operative relationships between different levels of public authorities and service providers in order to address mobility challenges while achieving other environmental and economic objectives. Currently, however, there is a lack of clarity regarding the distribution of roles and responsibilities, which stems from two main issues:

1. devolution of responsibilities to local governments that may be limited in terms of staff resources
2. the strategic role of SUMPs, particularly in relation to other decision-making processes related to transport and land use planning.

While there is no hierarchical relationship between regions and municipalities in Greece, regions have a role to play in the delivery of services and in ensuring intra-regional co-operation. In this context, and with the devolution of responsibilities to municipalities in recent reforms, there are challenges with respect to the allocation of roles and responsibilities between regions and municipalities, exacerbated by a lack of technical and staff resources. These are summarised in Table 1.

Table 1. Summary of challenges related to roles and responsibilities impacting sustainable urban transport provision in Greece

| | |
|---|---|
| Lack of clarity between responsibilities of municipalities versus regions | Local authorities are sometimes uncertain of the allocation of roles and responsibilities between regions and municipalities, particularly regarding jurisdiction over the planning and provision of public transport and over roads.<br>Allocation of roles and responsibilities can be made more complex by travel patterns, which are not confined to administrative boundaries. All existing SUMPs have been prepared at the municipal level; however, all regions are also expected to develop their own SUMPs, albeit with a focus on major transport hubs and their connections to the rest of the region. |
| Roles and responsibilities when managing public transport | While regions and municipalities have jurisdiction over interurban and urban services, respectively, there are areas of overlap. For example, for some smaller municipalities without dedicated public transport, the interurban service functions as de facto local services. Any resulting issues then need to be managed by regions that can work with KTEL operators to define services where the KTELs are open to such co-operation, but this is limited by the availability of staff capacity at the regional level to take on these additional monitoring tasks. |
| Roles and responsibilities when managing road infrastructure | Where national and regional roads pass through a municipality, the process to implement measures on roads outside their jurisdiction can be long and bureaucratic for municipal authorities. Recent amendments to the Road Traffic Code (Article 60, Law 5003/2022) are expected to simplify the process and significantly reduce the time needed. |
| Mismatch between travel patterns and SUMP boundaries | Some larger municipalities suggested that the study area for SUMPs should be dictated by the functional urban areas to better account for the actual travel behaviour of urban residents (e.g. metropolitan areas). Currently, co-ordination between neighbouring municipalities is supposed to be carried out through SUMP working groups, but the lack of staffing resources makes this challenging.<br>A framework with several SUMPs in the same metropolitan area leads to duplication of efforts and some redundancies between them. |
| Role of SUMPs versus other municipal planning policies | A clearer understanding of the relationship between SUMPs and other municipal planning policies and procedures can help clarify roles and responsibilities within authorities. Although municipalities have the autonomy to integrate their planning policies with their SUMPs (either as measures to be implemented or as strategies for consideration in the preparation phase, based on feedback received during consultation), it is not necessarily apparent how this is to be approached and which plans have priority.<br>Data that can be relevant for SUMP elaboration is not necessarily found in one single municipal department, so it can be harder to designate ownership over the collection and maintenance of the data necessary to both implement and evaluate measures. |

Source: This table is a summary of the analysis presented in the section "What challenges do local authorities face concerning sustainable mobility?" in the detailed report (ITF, 2024). It is based on feedback from a local authority survey and consultations.

## Recommendations for sustainable urban mobility management

The following recommendations address the barriers to successful implementation of SUMPs and related transport policy measures voiced by local authorities. These are developed further in the detailed report, in the section "What challenges do local authorities face concerning sustainable mobility?".

Importantly, without appropriate budget resources and staff capacity, these barriers cannot be addressed. Particularly at the local level, limitations in technical staff and limited budget resources for contracting consultants mean that developing, implementing and monitoring SUMPs will be very challenging. Even in contexts where regional authorities can fulfil some of these roles, the involvement of local authorities will be necessary to make sure approaches are context-relevant.

### Promote a balanced mix of transport modes to ensure the development of resilient transport systems that serve both residents and tourists

Car-centric planning and a strong prevalence of car use has led to capacity constraints (including parking issues), congestion and associated negative externalities in many Greek cities. Accommodating high influxes of tourists can be particularly challenging in already constrained transport networks. Promoting a more balanced mix of modes can both improve accessibility and make the transport network more resilient during these peaks (ITF, 2023). Smaller municipalities experiencing seasonal capacity constraints require more flexible and scalable approaches to manage seasonal demand while maintaining a basic level of mobility for year-round residents. Shifting public opinion on car use will be a challenge that requires effective engagement and consultation in addition to improving alternative transport modes.

### To meet the Greek SUMP Law's minimum requirement of three public consultations, allocate the budget and staff support necessary to institutionalise the process of consultation

Importantly, the process should be accessible and should encourage clear, consistent two-way communication. As much as possible, public engagement programs should bring the practitioners to where people are (e.g. public squares, markets) to expand their reach and make citizens aware of programs. For private enterprises and operators, authorities should also make an effort to conduct targeted outreach. For such robust practices to become standard, additional resources are needed.

### Adopt a supportive regulatory framework that allows co-ordination between local, regional and national authorities, along with private entities involved in providing mobility services during the implementation of SUMP measures

While the national authority is ultimately responsible for updating regulations, local and regional authorities, as well as service providers, are well positioned to make sure that regulations are context-appropriate. As such, the process for developing and updating regulations to support the implementation of mobility measures should be collaborative and responsive, particularly with respect to innovations in the sector. Pilot programmes and "regulatory sandboxes" (to test new business models with reduced regulatory requirements) can give local authorities the autonomy to explore context-relevant solutions, working with service providers, in an environment where risks can be closely monitored. Existing regulations limit the provision of services such as demand-responsive transport and ride-sharing.

### Clarify the relationship between SUMPs and other strategic land-use and transport-planning policies and processes

To successfully implement SUMPs, their role in the overall planning framework should be made clear. Currently, the plans and studies required to implement SUMP mobility measures in the Greek context (see the section "Policies, strategies and plans beyond the SUMP Law" in the detailed report) exist independently of the SUMP process, making the mechanism for prioritising the implementation of measures unclear and potentially introducing redundancies. The MoIT envisions that pre-existing plans (e.g. environmental assessments, climate action plans, strategic transport plans, and accessibility plans) should be integrated into the development of SUMPs. If a SUMP calls for actions that require an update to a pre-existing plan, this approach still means that SUMP actions will be delayed until such an update is made; clarifying the role of the SUMP in the overall planning framework to local authorities would help to achieve the SUMP objectives and allow timely implementation.

# Addressing challenges related to data management, monitoring and evaluation

Developing and evaluating SUMPs requires leveraging a wide range of data. In the development of SUMPs, data related to the planning context as well as the main challenges and opportunities are essential for determining the appropriate measures. Monitoring and evaluation necessitate regular updates to understand if objectives are being met. This chapter outlines challenges to data collection, management and reporting faced by local authorities in Greece. While these challenges were referenced in the consultations and surveys conducted in the context of this project, similarities can be expected between local authorities in many countries and those in Greece. The problems are characteristic of authorities operating under resource constraints, lacking technical capacity, finding data collection from transport service providers difficult, and so on. Local authorities everywhere tend to struggle more with freight data, just as in Greece. The chapter concludes by presenting recommendations that (a) apply more generally to transport-related data and (b) delve deeper into freight data (given that this emerged as a challenging area for local authorities).

## The main data challenges faced by local authorities

### Spatial data collection and management

Greek local authorities currently collect spatial data and data on infrastructure in a project-specific manner, either for the development of specific plans (SUMPs, the Municipal EV Charging Plans, the Municipal Accessibility Plans, or the Municipal Energy Reduction Plans) or as part of infrastructure improvement projects. In this case, data collection is limited to a specific geographic area. All data is typically collected by consultants hired for the project. While in most cases the data is handed over to the municipality, there is difficulty processing and combining this data (collected from varying sources at various points in time) into a cohesive database; in some cases, data is handed over as printed drawings rather than digital files. Where these databases exist, they tend to be outdated due to lack of continued maintenance. The piecemeal collection of data results in uneven coverage across the built-up area of the municipality. In many cases, the city centre is the focus of transport improvements in municipalities. As a result, municipalities are more confident about the availability of data for that area rather than for the whole municipality.

The lack of maintained databases often leads to redundant data-collection efforts. Local authorities have reported spending a significant portion of their SUMP budgets on collecting basic data which may have been collected in the past but was no longer available or could no longer be located.

### Data collection on travel behaviour

Information on modal share is necessary to track shifts in behaviour and the transition to more sustainable transport modes. Household travel surveys tend to be the most accurate way to obtain data on trip characteristics (travel purpose, time, origin and destination, mode, etc.) as well as socioeconomic data, from a representative sample of the population. Other methods that leverage digital sources (e.g. location tracking via smartphones) do not provide a representative view of the population. However, household surveys can be very resource-intensive.

Currently, the approach to household surveys in Greece is fragmented and does not follow a standard surveying frequency due to funding uncertainties. Household travel surveys are usually conducted at two levels. In the context of the SUMPs, household travel surveys are carried out at the municipal level to meet the calibration needs if a traffic model is being developed. Typically, there will be no survey if there is no model. Given the cost of carrying out these surveys, there is typically no plan to update these after the SUMP. In the case of strategic planning studies, surveys are carried out in metropolitan areas such as Athens and Thessaloniki, under the supervision of OASA and OSETh (the public transport authorities in each city, respectively). For example, a household travel survey was carried out

between 2020 and 2022 in the context of the development of the Thessaloniki Metro; the previous household travel survey in the area had taken place over 20 years prior.

Notably, local authorities they felt that they lack the procedures to systematically collect data related to public transport. OSETh, for example does not currently have data on public transport demand (origin-destination), they are in the process of developing a data collection framework, working with research institution with the technical capacity for such work. However, even for these authorities with the technical capacity, data collection was considered to be a very resource-intensive task in the SUMP development process, taking up nearly half the budget and time.

## Data collection from transport service providers

In order to effectively implement policies and monitor sustainable mobility progress, local authorities need access to operational data from transport operators, including OASA and OASTh in Athens and Thessaloniki, KTELs in most other contexts for urban and interurban transport, as well as other service providers. A common challenge reported by local authorities is the lack of data on public transport and other mobility services – most notably taxi services and, increasingly, micromobility and other new mobility services. Operators are currently unwilling to share necessary data. In some contexts, KTELs provide only aggregated data (e.g. number of tickets sold), with no data on vehicle types or boarding and alighting, which would be valuable for service planning. Existing data reporting practices are negotiated on an ad hoc basis and largely depend on personal relationships between local authority staff and the operator; research institutions have also established bilateral agreements with providers. However, collecting and sharing the data necessary for planning purposes can be resource-intensive, particularly as they require regular reporting, and some operators lack the staff in place to meet these requirements.

## Data collection from national bodies

Outside of data collected by local authorities themselves, the Hellenic Statistical Authority (ELSTAT) is a valuable source of data. However, although a number of helpful datasets (e.g. vehicle registration and fuel consumption, road crashes, and demographic data) can be accessed via special requests to ELSTAT at a suitably disaggregated level, municipalities report deterrents such as long wait times, bureaucratic processes and having to pay for the data. For example, vehicle registration data is publicly available at the regional unit level by vehicle class but does not include disaggregation by powertrain – a crucial variable when monitoring fleet transitions. This extra data, while possible to obtain with registration information, requires a special request. Similarly, population data is available publicly at the municipal level but not at the city block level, which is important for population-weighted understanding of spatial accessibility. Such analysis strikes a balance, allowing comparison across contexts and providing meaningful results for evaluation, without being too computationally burdensome (ITF, 2019). Road crash data is available, but details such as whether vulnerable users were involved are not publicly available.

## Freight data collection

Obtaining data for analysing and better managing freight flows is a recently emerging practice for local authorities. Consultations with local authorities reveal that they historically perceived freight transport activities to be private-sector-led and, as such, not in need of specific policy attention to manage flows. Many public authorities, beyond Greece, struggle to manage freight activity due to a lack of in-house capacity and knowledge of how urban logistics functions (ITF, 2022b). In part due to this, there is little experience in developing data reporting or sharing mechanisms, or policies such as regulations and incentives targeting freight carriers and receivers.

Given recent changes in consumption patterns, the rise of e-commerce (which accelerated during Covid-19), and the advent of new modes of freight delivery, local authorities around the world have an increasing need to better understand and monitor freight activity (ITF, 2022b). Due to there being little policy interest in the past, however, there is a lack of systematic freight transport data collection in urban areas in Greece.

### Resource challenges within local authorities

All the aforementioned challenges are exacerbated by a lack of staff resources at the national, regional and municipal levels. During the stakeholder consultations, the national authorities flagged that they lack an internal mechanism for monitoring and evaluating the progress of implementation for SUMPs, partly because of various gaps in the data available at the local level. Many local authorities simply lack the staff resources for data collection and management, which often extends to other domains beyond transport. One local authority noted that none of their current job descriptions include anything related to data, so they often rely on consultants; for example, the municipality of Serres contracts the management of their SUMP database to a third party. However, this approach also comes with challenges, as the contractor then needs to be particularly responsive and aware of various ongoing municipal projects.

The Greek SUMP Law calls for the establishment of a National SUMP Platform that hosts open data on the implementation of SUMPs, to be updated every two years by local authorities. Despite data sharing being a requirement, there is no penalty for municipalities that do not update their data. The only exception is for Trans-European Transport Network (TEN-T) nodes, which are obligated to collect specific monitoring data under the proposed revision of the TEN-T Regulation (COM/2021/812 final). The proposed regulation specifies that member states are expected to ensure the collection of this data at the local level. Given the lack of standard mechanisms for data collection and management, as well as the understaffing of technical services, the requirement to update the SUMP platform biennially was considered unachievable by many municipalities consulted without additional resources. The upcoming TEN-T Regulation mandates that urban nodes conduct monitoring on an annual basis, which would be an even larger burden on municipalities that are not yet prepared to gather and report data. Even for those contracting out the task to a third party, those consulted considered it would still be too resource-intensive to procure the services to meet the updating requirements, based on current budgets.

## Recommendations for mobility data management

### Establish and maintain spatial databases independent of individual projects

At least for city centres, the authorities consulted believed they had spatial data from improvement projects in the area. Given the startup resources required to compile and digitise the available data, a relatively complete database for the city centre could be within the reach of municipalities mandated to develop a SUMP. Coverage should be extended to the rest of the built-up area of the municipality to ensure a clear understanding of needs of all residents – not just those accessing the city centres. Better data coverage is needed not only to inform indicators, but also to understand needs and to determine which measures to implement in the first place so that transport options can be improved across the municipality. Updates to the dataset can allow the calculation of indicators to track progress from these starting conditions.

As a first step to ensuring spatial and infrastructure data from various projects are compiled, local authorities across all technical departments should systematically include within project contracts a check-in point at the end of each project that ensures the spatial data is transferred in a standard format to facilitate the compilation of a database. Reducing the data collection burden on individual projects could lead to greater resources for elements such as public consultation or additional data improvements. Much of this data is common across plans that are required by multiple ministries.

### Develop or secure adequate long-term technical capacity

Specialised competencies such as geographic information system (GIS) data processing skills are needed to maintain spatial databases, process the data appropriately, and to calculate certain indicators. GIS skills are relevant to the preceding phases of SUMP development as well. Many technical departments lack GIS expertise or have a single staff member supporting all departments. While consultants can be engaged on an as-needed basis, continuous maintenance and updates to GIS databases will be needed to ensure an efficient monitoring process. Such requirements may need to be included in long-term consulting arrangements if a municipality is unable to manage the data compilation and updating process in-house.

### Streamline data provision from national bodies

To keep up with the pace of biennial reporting, it will be necessary to have a streamlined process in place that (a) allows local authorities to access data from national bodies in a timely manner and (b) aggregates data requests such that each municipality is not separately requesting every data set, thereby decreasing the burden on ELSTAT. The MoIT may consider working with ELSTAT to develop a procedure that provides a single point of access for all local authorities requiring data pertaining to SUMPs. This could take many forms. For example, the MoIT could create a list of specifications for the data needed by nearly all local authorities (including names of data sets, level of granularity, spatial coverage, etc.) and obtain the data themselves; the data could then be made available to the local authorities. This would require managing a significant quantity of data. Alternatively, ELSTAT could establish its own process that allows faster access to the same data, such as creating a data portal or feeding into one that is already in place. Access to certain datasets can be limited to vetted stakeholders if there are concerns about privacy. Without some simplification and acceleration of the current data request process, the burden of data collection is expected to hinder the ability of local authorities to monitor on a biennial basis.

Existing platforms should be leveraged wherever possible to reduce redundancies and enable more-efficient data sharing and data acquisition by local authorities. One such platform *is e-poleodomia*, a portal run by the Ministry of the Environment and Energy (MoEE) which provides digitised spatial plans for all municipalities (MoEE, 2023). This resource will be helpful for determining the areas of interest and defining boundaries of built-up areas or city centres as part of certain indicators. Municipalities could consider either sharing their road network data with information on speed limits, tactile paving and pavement characteristics with the MoIT and MoEE to expand the function of such a platform or contributing their data to an open platform such as OpenStreetMap. The National Access Point (NAP) is another example of an existing transport data portal which could play a role in providing better access to transport data in the future (MoIT, 2024). The datasets currently available on the NAP are not sufficient for the indicators, nor is there enough spatial coverage to include all local authorities, but the platform could be expanded to serve this role.

### Establish data reporting requirements for transport service providers

Delegated Regulation (EU) 2017/1926 (EC, 2017) on multimodal travel information services (MMTIS) requires transport authorities, mobility operators, infrastructure managers and transport on-demand mobility service providers to report data regarding their services to the NAP. This obligation currently concerns static travel and traffic data, as well as historic traffic data. To abide by this Delegated Regulation, mobility service operators that hold such data should share it to the NAP, which would allow a certain degree of monitoring.

To adequately evaluate progress towards objectives and to evaluate whether transport measures are having their desired impact, regular access to data will be vital. Data reporting agreements with transport service providers (including taxis, shared mobility, etc.) should be formalised to ensure consistency and quality in what is being shared. The requirement to report data should be incorporated into licensing agreements so that payment or license to operate is contingent on compliance with the data reporting requirements. This may require the involvement of the MoIT if it requires updated legislation. Learning from the successes of bilateral data sharing agreements in Greece between operators, on the one hand, and research groups and local authorities on the other – as shared during the stakeholder consultations – it is important to build trust and be transparent about the use of the data. Highlighting the advantages of sharing this kind of data – including how it helps authorities make better decisions, thereby helping

to ensure residents have access to these services – is important in order to get buy-in. The same applies for off-street parking garage operators, who can be reluctant to share data. Mandated data reporting should be linked to explicit public policy objectives, and authorities should explain why reporting is necessary for meeting the objectives. The purpose for which the local authority is collecting the data should be outlined clearly, publicly, and with reference to the legal basis for data collection (ITF, 2022a).

In the case of public transport, incorporating such requirements has been challenging, if not impossible, due to the current monopoly held by KTELs and a lack of staff to monitor and enforce agreements. However, under Greek Law 4974/2022 (FEK 185/A/29-09-2022), adopted in 2022, public transport services are expected to be contracted at the national level and managed at the regional level. As part of the new tender process, explicit data reporting requirements (specifying the types of data, granularity, spatial coverage, and frequency of reporting) should be included. The national government is expected to be responsible for incorporating this into the contractual obligations, and regional governments may be best placed to ensure compliance if they are managing the contracts for their regions. Data from operators may be made available through online platforms such as the NAP, which can allow for protected access to local authorities.

### Provide national-level guidance on household surveys

Given the importance of tracking modal shares as part of the SUMP and TEN-T regulations, it would be appropriate to establish a regularly administered household survey. For consistency, the design of the survey should be overseen by the MoIT with the support of research institutions. Each regional authority should then co-ordinate the survey deployment (which may include a public tender for the process), analyse the data, and share it with relevant stakeholders (e.g. municipalities and their consultants, metropolitan transport authorities). Regions have more resources than municipalities and, by administering it at this level, can capture the inter-urban trips and travel patterns from areas surrounding municipalities. Regions should also share the survey results with municipalities, allowing them to disaggregate the results beyond the metropolitan and municipal level to smaller zones (e.g. traffic zones), which they can also use to calibrate their traffic models, where relevant, or to simply understand travel behaviour at a more detailed level.

Regional and local authorities, including metropolitan transport authorities, can provide input into the stratification of the sampling frame. Geographic, demographic, or targeted behavioural stratification can be part of ensuring a representative sample of the population completes the survey. For example, an authority may target a completion rate by administrative boundary population, by income level, or by an emerging mode to better understand travel behaviour (Statistics Canada, 2022).

### Standardise data collection and indicators at the national level

For the SUMP platform to provide meaningful insights for local authorities on their mobility measures and allow benchmarking, the onus will be on the national authority to standardise data collection practices and indicators, with consideration of TEN-T indicators alongside national requirements, when they become available. This approach can also help to integrate the use of indicators in the public administration process and normalise the sharing of data amongst authorities and private entities involved in SUMP delivery. As part of this project, the ITF proposes an indicator framework to support the national government in developing a system to monitor progress of urban mobility objectives at the local level. The last chapter describes a framework to support standardised monitoring practices. The framework is accompanied by an Excel-based tool, the “Sustainable Urban Mobility Monitoring and Evaluation Tool for Greece”, which proposes a set of calculators and reporting templates to make the process more accessible and easier to implement for municipalities and regions. It may also serve as a template for a future online version to facilitate indicator reporting. The national authority also has a role to play in making the process more accessible and easier to implement, through capacity-building activities such as knowledge sharing and developing templates, or partnerships with research institutions. All expectations of the local authorities to contribute to the indicators on the SUMP platform will need to be paired with adequate resources and funding to ensure they are equipped to comply with the expectations.

## Recommendations for understanding and monitoring urban freight activity

Tracking the impact of more-sustainable freight measures will require obtaining data on freight transport demand, freight service supply, infrastructure and vehicle fleet. Freight demand data includes information on freight receivers' delivery needs, such as weekly received loads per commodity type. Freight service supply can include information on carriers' vehicle flows, for instance on operators' driving and delivery practices, including on how they deliver goods and the level of noise observed. Infrastructure information refers to data on availability of (un)loading spaces and their characteristics, as well as on-street access requirements for various vehicle types. Vehicle fleet can include data on vehicle characteristics (ITF, 2022b).

In most cases, freight-relevant data is not systematically generated or gathered by local authorities. Local authorities often lack the in-house resources needed to gather and analyse data, which can be time- or cost-intensive. More-affluent municipalities could generate data through the use of sensors and other information and communication technology applications (ICTs), but this is not a common practice in the Greek context. Even when available, ICT data (on vehicle flows, for instance) is not enough to provide a full characterisation of the sector, nor of the impact of sustainable freight policies.

Since urban freight mobility was highlighted as a challenging area for local authorities during consultations, the section titled "Recommendations to understand and monitor urban freight activity" of the detailed report delves deeper into how they can overcome challenges in collecting data in a fragmented and still private-sector-led sector. The following sections offer a summary.

### Co-operate with freight stakeholders to address data gathering challenges

To understand freight activity, authorities need to collaborate with stakeholders that generate or have relevant data. This includes data on transport demand, service supply, infrastructure availability, and freight vehicles (ITF, 2022b). Stakeholders could include freight carriers, receivers, driving training centres, and research institutions.

Because no legal requirements currently exist for stakeholders to share data with authorities, convincing carriers and receivers to share data will require authorities to demonstrate clear benefits while establishing trust. Studies with focus groups of freight carriers have shown that they are willing to share data if certain conditions are met – including understanding personal benefits, a clear data-usage framework, data security, an adequate aggregation level, and ease of data provision (Laegran et al., 2023).

Organizing regular dialogues with local chambers of commerce can facilitate discussions about data sharing benefits, conditions, and concerns. Dialogue spaces with freight stakeholders can build trust and allow authorities to highlight benefits like improved travel times and infrastructure availability, which can incentivise data sharing.

Finally, authorities will need clear partnership agreements on data sharing with private stakeholders that specify data use, sharing conditions, and format specifications (Moschovou, Vlahogianni and Rentziou, 2019). Data requests should have a legal basis and pertain to public policy objectives (ITF, 2022a).

### Use surveys to collect freight data for indicators

Given the current lack of data, monitoring and evaluation of the freight sector is not possible without the generation of new data. This project did not undertake a comprehensive review of all freight data collection methodologies and their applicability to the Greek context. Rather, to minimise the data collection burden, the freight-relevant indicators suggested in the final chapter are designed to rely primarily on data that could be collected via a biennial regional survey targeting freight carriers. Carrier surveys have been used in many European cities to obtain the types of freight data required for these indicators, though not always on a consistent basis (van den Bossche et al., 2017).

The structure of the suggested surveys is similar to that of nationally co-ordinated surveys of household passenger travel. National co-ordination of a standard methodology is recommended to minimize redundant efforts by regions; this could be achieved through a partnership with universities or a relevant research body. A core set of survey questions could be defined at the national level for consistency, with adjustments possible at the regional level. Regional authorities would need to identify a sample and maximise response rates from carriers (Sakai, Kawamura and Hyodo, 2015) with support from national and municipal registries. Partnering with local and national chambers of commerce could also increase survey response rates.

# Choosing urban transport policy measures for SUMPs

In support of the Greek national government's pursuit of sustainable urban mobility, the ITF has developed a measure-selection tool (the "Sustainable Urban Mobility Measure Selection Tool for Greece") designed to aid local authorities in choosing appropriate transport policy measures for their specific urban contexts. The tool would be of most use during the *Elaboration* phase – specifically during Stage 4, where measure packages are meant to be defined and assessed according to the Greek SUMP law (see Figure 1). It may be a useful starting point for consultants that are advising local authorities, but the primary intended users of the tool are the local authorities themselves. It is an educative resource to help local authorities (1 understand what a shortlist of suitable measures for their context might look like and (2 participate effectively in defining the measures alongside other experts. The content can also be helpful in informing scenario design or defining objectives in prior stages if the local authority wishes to understand what kind of actions may be needed to achieve a desired future scenario when prioritising objectives. The tool was developed on the basis of international good practice, tailored to the Greek context, and informed by a detailed survey and stakeholder consultations with representatives from each Cleisthenes urban area type, regions, freight stakeholders, academia, transport professionals, and the national government. The Cleisthenes administrative reform (Law 4555/2018) in Greece introduced six urban area types ranging from metropolitan areas (Type 1) to small island municipalities (Type 6).

The tool, built in Microsoft Excel, provides fact sheets for 24 mobility measures encompassing 78 sub-measures designed to address the objectives of the Greek SUMP law and other mobility guidelines. The relevance of measures or sub-measures to certain areas is based on a variation of the Cleisthenes types, which are explained below. This chapter describes the tool, how it is organised, and how it can be used. An online version of the tool could be made accessible via the national SUMP platform to facilitate centralised updates and allow easy access to authorities. The platform has been issued a ministerial decision (FEK 1735/B/19-3-2024) and will be managed by the MoIT. The data is intended to be available online for all local authorities to access.

This chapter also discusses the measures in general terms based on policy category, sector, relative cost, implementation timescale and level of national involvement. Possible sources of funding that can support implementation of the measures are included in the detailed report in the section titled "Funding the implementation of SUMP measures".

## The objectives of SUMPs and mobility measures

Local authorities develop SUMPs to meet mobility objectives, with a view to improving overall environmental, social and economic sustainability. The measure-selection tool suggests measures that help address objectives set forth in in the SUMP law and other EU policy documents and the proposal for the revised regulation on the Trans-European Transport Network (TEN-T) (COM/2021/812 final) (see Table 2).

Table 2. Mobility objectives in the Greek SUMP law and the EU Urban Mobility Framework

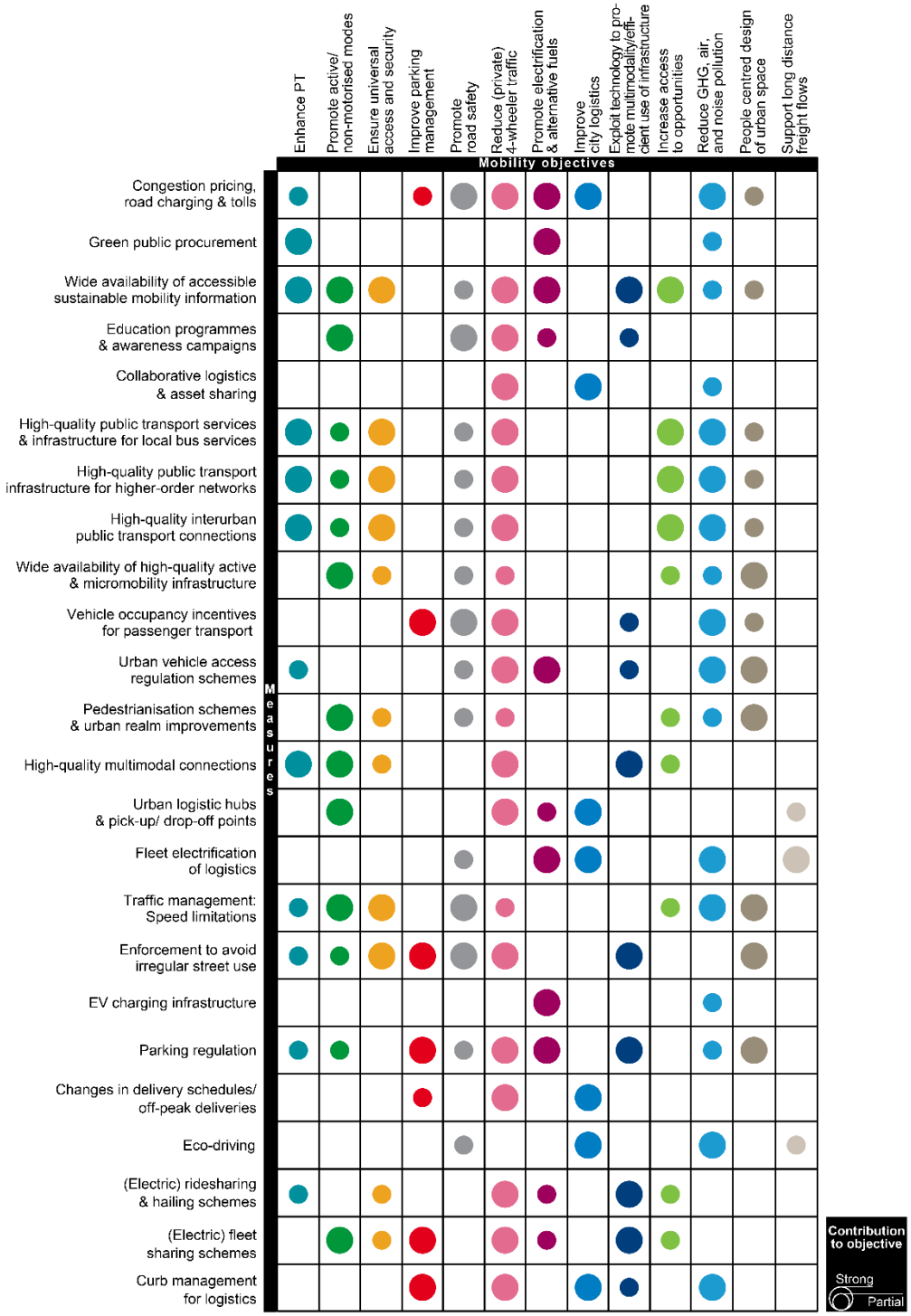
| Greek SUMP Law (4784/2021) objectives | EU Urban Mobility Framework objectives (additional to the SUMP law) |
|---|---|
| Enhance public transport | Increase access to opportunities |
| Promote active/non-motorised modes | Reduce greenhouse gases, air, and noise pollution |
| Ensure universal access and security | People-centred design of urban space |
| Promote road safety | Support long-distance freight flows |
| Reduce private four-wheeler traffic | |
| Improve parking management | |
| Promote electrification and alternative fuels | |
| Improve city logistics | |
| Exploit technology to promote multimodality/efficient use of infrastructure | |

Sources: Greek SUMP Law 4784/2021 (FEK 40/A/16-03-2021); proposal for the revised regulation on the Trans-European transport network (TEN-T) (COM/2021/812 final).

The applicability of each measure to the mobility objectives is illustrated in Figure 3. Because the objective of "reducing private car use" is central to sustainable urban mobility, it is directly addressed by 17 of the 24 measures and partially addressed by three additional measures. "Reducing greenhouse gas, air, and noise pollution" follows reducing car use as a core objective targeting transport's impact on the environment and health. Other objectives can be more specific and therefore have fewer measures impacting them, but each of the objectives is the direct target of at least one measure.

The tool demonstrates that sustainable mobility clearly needs a "package" (i.e. integrated) approach to measures in order to tackle all mobility objectives; no one measure can tackle them all. Furthermore, some measures have a strong impact on some objectives while having a secondary, or partial, impact on others. If local authorities have certain priority objectives, they can filter for measures within the tool that contribute strongly to their desired objective. By doing so, local authorities can customise the subset of measures suggested by the tool to reflect their priorities.

Figure 3. Sustainable urban mobility measures and the objectives to which they contribute

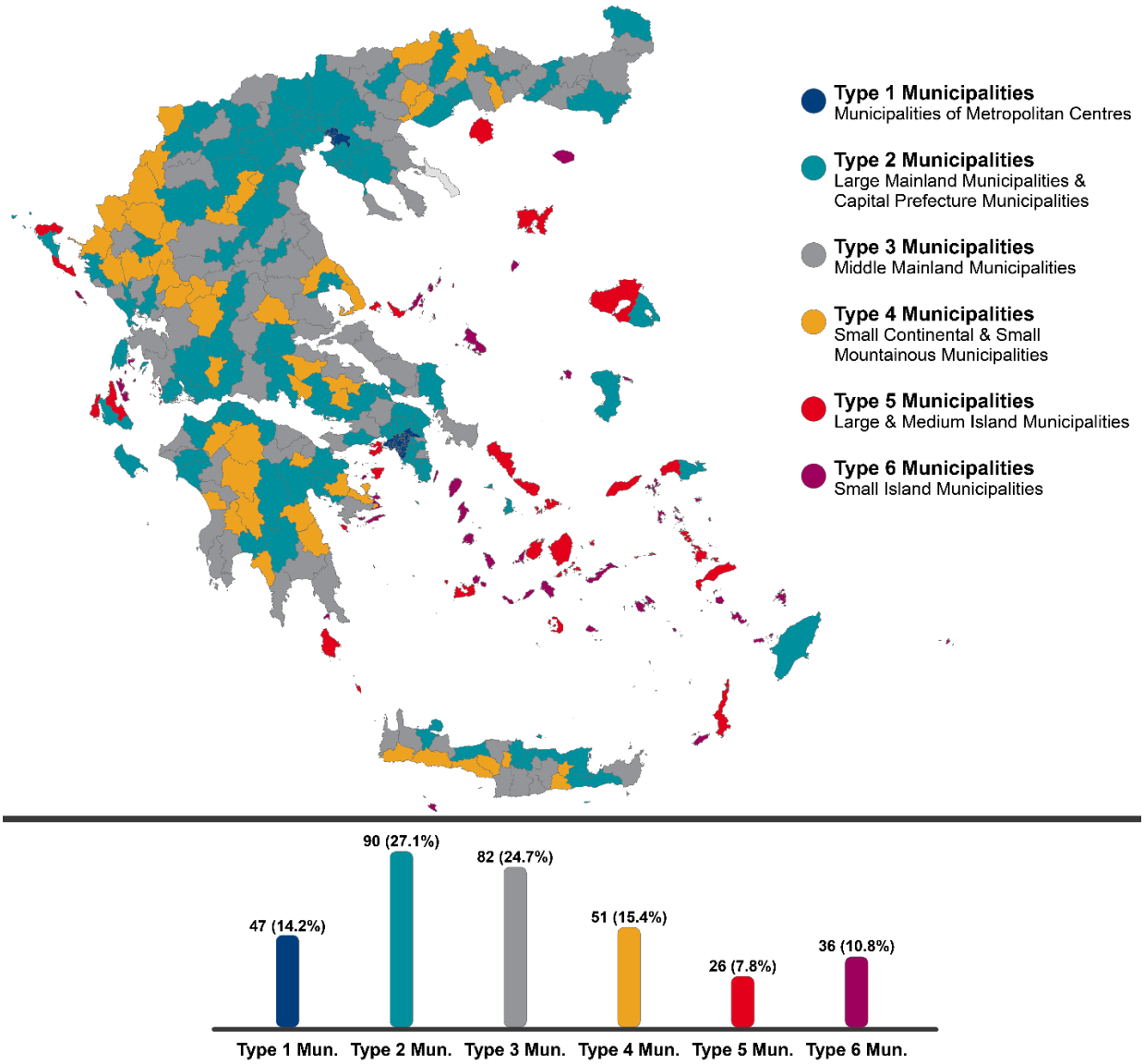


## Classification of measures by area types

The Cleisthenes administrative reform established a classification of municipalities with the aim of enhancing their internal organisation while ensuring a fair distribution of central autonomous funds (i.e. funds granted annually by the state government to the municipalities) and funds from other national or European sources (FEK 133/A/19-07-2018). Figure 4 presents a map of the Greek municipalities based on this classification. Greece's municipalities vary considerably not only in terms of population, but also in terms of their natural and built environment (KEDE and EETAA, 2022). As a result, six types of municipalities were identified (FEK 133/A/19-07-2018):

- Type 1 (Municipalities of Metropolitan Centres) includes municipalities in the metropolitan areas of Athens and Thessaloniki.
- Type 2 (Large Mainland Municipalities and Capital Prefecture Municipalities) includes (a) all mainland municipalities with more than 25 000 inhabitants and (b) all municipalities (either mainland or island) that were capital prefectures. Although Crete and Evia are the two largest islands in Greece, they are considered part of the mainland (EETAA and University of the Aegean, 2023).
- Type 3 (Middle Mainland Municipalities) includes all mainland municipalities with between 10 000 and 25 000 inhabitants.
- Type 4 (Small Continental and Small Mountainous Municipalities) includes all mainland municipalities with less than 10 000 inhabitants.
- Type 5 (Large and Medium Island Municipalities) includes all island municipalities with more than 3 500 inhabitants.
- Type 6 (Small Island Municipalities) includes all island municipalities with less than 3 500 inhabitants.

Figure 4. Greek municipalities classified by the Cleisthenes reform

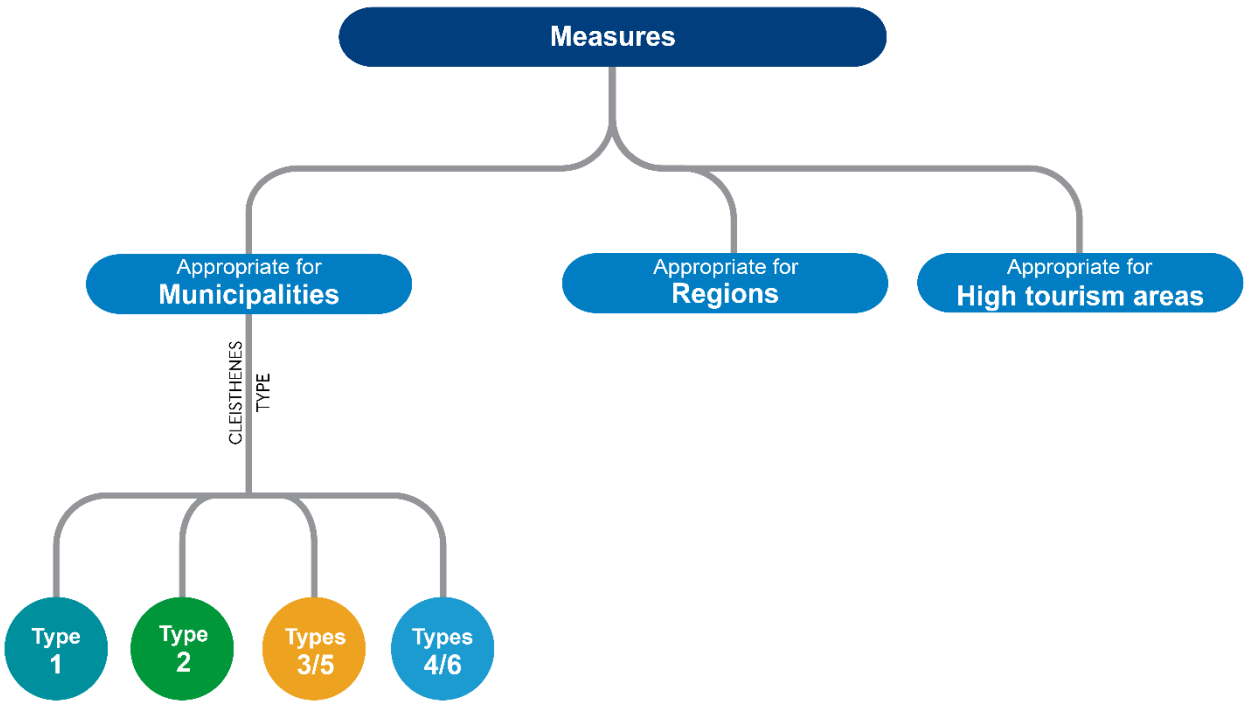



The analysis carried out in the detailed report highlights that the classification of the Greek municipalities, introduced by the Cleisthenes reform, is a solid basis. This classification effectively addresses the complexities and diversity of Greek cities, resulting in six types that group municipalities with similar characteristics and needs. Although each type of municipality is unique, some are more closely connected, encountering similar challenges and seeking common solutions, especially when it comes to mobility. The analysis of SUMP development by municipality type, presented in the second chapter of the detailed report, further supports this finding.

To help local authorities choose the most appropriate measures for their area, the tool introduces a slight modification to the existing Cleisthenes classification. Measures are classified as being relevant for regions and/or for municipalities of Type 1, Type 2, Types 3 and 5, and Types 4 and 6; there is also an additional category, denoting whether measures are more relevant in high-tourism municipalities (regardless of type) or not (Figure 5). Tourism is a key driver of the Greek economy, impacting both island and mainland areas. The tourism seasonality ratio in municipalities (i.e. the ratio of the number of tourists in the peak month versus the monthly average), which ranges from 1.2 to 2.8 (Hellenic Statistical Authority, 2022), complicates mobility planning and management. For example, the high volume of tourists and seasonal demand pose challenges for service and infrastructure planning. Mobility

services face rapid scaling up and down of services and significant capacity constraints. Seasonal capacity constraints require flexible approaches to manage demand while ensuring basic mobility for residents. This can be challenging when private operators prioritise more-lucrative tourist services over those serving residents.

Figure 5. Measure classification system based on area types




Measures that are appropriate for regions are typically applied at the regional level. This includes measures such as inter-urban public transport, where responsibility for decision-making and application lie mainly with the regional authorities. Other measures, such as local public transport, may also require support from regions with respect to decision making, funding etc., while their application rests at the municipal level; in these cases, measures are not classified as a regional measure. Many measures are relevant for certain types of municipalities as well as regions; for example, multimodal connectivity should be co-ordinated between both municipal and regional authorities throughout each region.

Measures appropriate for the municipal level are first classified according to their Cleisthenes type. Types 3 and 5 are grouped together, as are Types 4 and 6. This is because Types 3 and 5 share similar demographic and environmental characteristics, and both have medium technical capacity for managing mobility. They also deal with fewer congestion-related mobility issues and have lower density than Types 1 and 2. Similarly, Types 4 and 6 have comparable population and built environment characteristics, face the most significant accessibility challenges due to their remoteness/low population density, and have very limited capacity to address even basic mobility-related issues. Given that Type 4 and 6 municipalities are not required by law to develop SUMPs and are typically rural settlements, regions that encompass many Type 4 and 6 municipalities may consider supporting the implementation of such measures through their regional SUMPs.

The tool also includes a binary classifier related to tourism which applies horizontally for all urban area types. Some measures are especially relevant for high-tourism municipalities, regardless of their size. For example, curb management for urban logistics is important in Type 1 and Type 2 municipalities to manage the use of (un)loading bays efficiently. It may not be relevant for smaller municipalities, unless they are areas dealing with a high influx of tourism. During high season, it may be prudent to apply curb management measures, especially in congested historic city centres. Measures for which there is likely no differentiation needed according to level of tourism are not classified as relevant for high-tourism areas.

In addition to tourism, island geography impacts mobility conditions and, therefore, the way in which mobility measures should be applied. The analysis presented in the second chapter of the detailed report demonstrates that, municipalities of all types attract tourism flows, and island municipalities are found in Types 2, 5 and 6. Tourism flows influence the choice of measures as well as when or how they are applied, as explained in the curb management example. Island geography does not play a significant role in the selection of appropriate measures, and all the measures are relevant for islands; however, applying certain measures in island settings introduces particularities or challenges that need to be addressed. For example, multimodal connectivity on islands (and coastal municipalities) should consider connections to ports very strongly if ports represent the main access point for the island.

## What are the transport policy measures?

The tool contains 24 policy measures. Some are more straightforward and display a limited diversity in application; this is the case for traffic management using speed limits, for instance. Others involve several actors and could take several different forms, such as fostering urban logistics hubs. Where measures encompass multiple possible interventions, they have been split into sub-measures, adding up to a total of 78. Measures can address only the passenger sector, the freight sector, or both and are classified based on the policy category, relative cost, implementation timescale and level of national involvement. Summarised in Figure 6, the measures are grouped into five categories that refer to the way policies support more desirable behaviour, such as those that improve sustainability, safety or well-being:

1. Economic measures involve financial incentives or disincentives to choose more-desirable transport choices (e.g. congestion pricing, road charging and tolls). Disincentives, especially, can be more controversial to implement, though they are typically highly effective. When implementing economic measures, authorities must take into account distributional impacts and ensure that economic burdens do not fall unfairly on certain groups.
2. Regulatory measures restrict or impose limits on less-desirable actions by law (e.g. parking regulations, urban vehicle access regulations). Regulatory measures can also be controversial as they can curtail behaviours that are currently commonplace. They may also be paired with economic measures, by imposing fines or charges on behaviour that is not congruent with the regulation (e.g. diesel vehicles entering a low-emission zone may be required to pay). Regulatory measures need to be paired with enforcement for them to be effective.
3. Education and awareness measures improve public knowledge of desirable transport choices or increase confidence in them (e.g. enhancing sustainability information and accessibility). Implementation of most mobility measures should be paired with education and awareness measures to inform the public about how they might be affected and how to comply. Education and awareness alone is not an effective way to encourage more-sustainable mode choices; adequate services and infrastructure must also be in place.
4. Infrastructure measures involve construction or conversion of infrastructure for a purpose that improves conditions for desirable transport behaviours (e.g. increasing and improving active and micromobility street space and related infrastructure). Converting infrastructure dedicated to less-sustainable modes and allocating it to more sustainable ones can be an efficient way of incentivising mode shift.
5. ICT/Innovation/R&D measures are typically dependent on new technologies and try to leverage or develop them to support more desirable transport choices or improve services/operations (e.g. collaborative logistics and asset-sharing in urban freight). This category of measures includes vehicle technology improvements that have a direct impact on sustainability, safety, etc. It also includes digital tools that, for example, encourage more-efficient use of existing vehicles.

The tool also offers a qualitative indication of the relative cost, implementation timescale, and level of national involvement to provide a quick snapshot of the challenges to implementation. However, these classifications should be considered extremely high-level and significantly variable depending on exactly how a measure is applied. There are numerous actions local authorities can take depending on their individual characteristics, needs and resources. The full measure fact sheet, included in the tool, provides a thorough understanding of elements to consider.

# The Excel tool: Sustainable Urban Mobility Measure Selection Tool for Greece

The accompanying Excel-based tool, the "Sustainable Urban Mobility Measure Selection Tool for Greece", to aid local authorities in selecting appropriate transport policy measures based on their specific urban contexts during their SUMP development process. It allows users to filter based on desired criteria to determine a short list of possibly appropriate measures for their urban area type, that address their mobility objectives.

The classification of measures by urban area types attempts to identify possible solutions to common mobility challenges typical of an urban area type. However, it is essential to note that each municipality has unique circumstances and constraints, and no classification can thoroughly address the complexities and diversity between Greek municipalities. The tool presents various alternative mobility measures, but how they are ultimately implemented will need to be customised by local authorities. Classification of a measure as relevant for a type of urban area does not mean it would be applicable to all municipalities of that type.

No one measure addresses all mobility objectives, nor are all measures appropriate in all circumstances. The tool demonstrates that a package approach is needed for sustainable mobility policies. Local authorities are encouraged to use this tool after a thorough needs assessment that informs their priority areas and helps identify the suitability of certain measures over others. This tool is meant to be educational, not prescriptive. It is not a substitute for in-depth analysis of unique local circumstances.

## Overview of the tool

When opening the tool, the user is first presented with a "Home" sheet which provides an introduction and describes the sheets contained in the tool as well as a brief project description. If also includes the urban area classification that is used to classify the relevance of measures for certain urban areas.

The "Measures" sheet lists all measures and sub-measures (and their codes) and includes links to their fact sheets.

The "Overview_Measures" sheet summarises all the characteristics of the measures and sub-measures based on their relevance for a specific urban area type, measure category, relative cost, implementation timescale, level of national involvement, and its applicability to certain mobility objectives. The "Measure_Selection_Filter" sheet allows users to filter the full list of measures based on the same criteria.

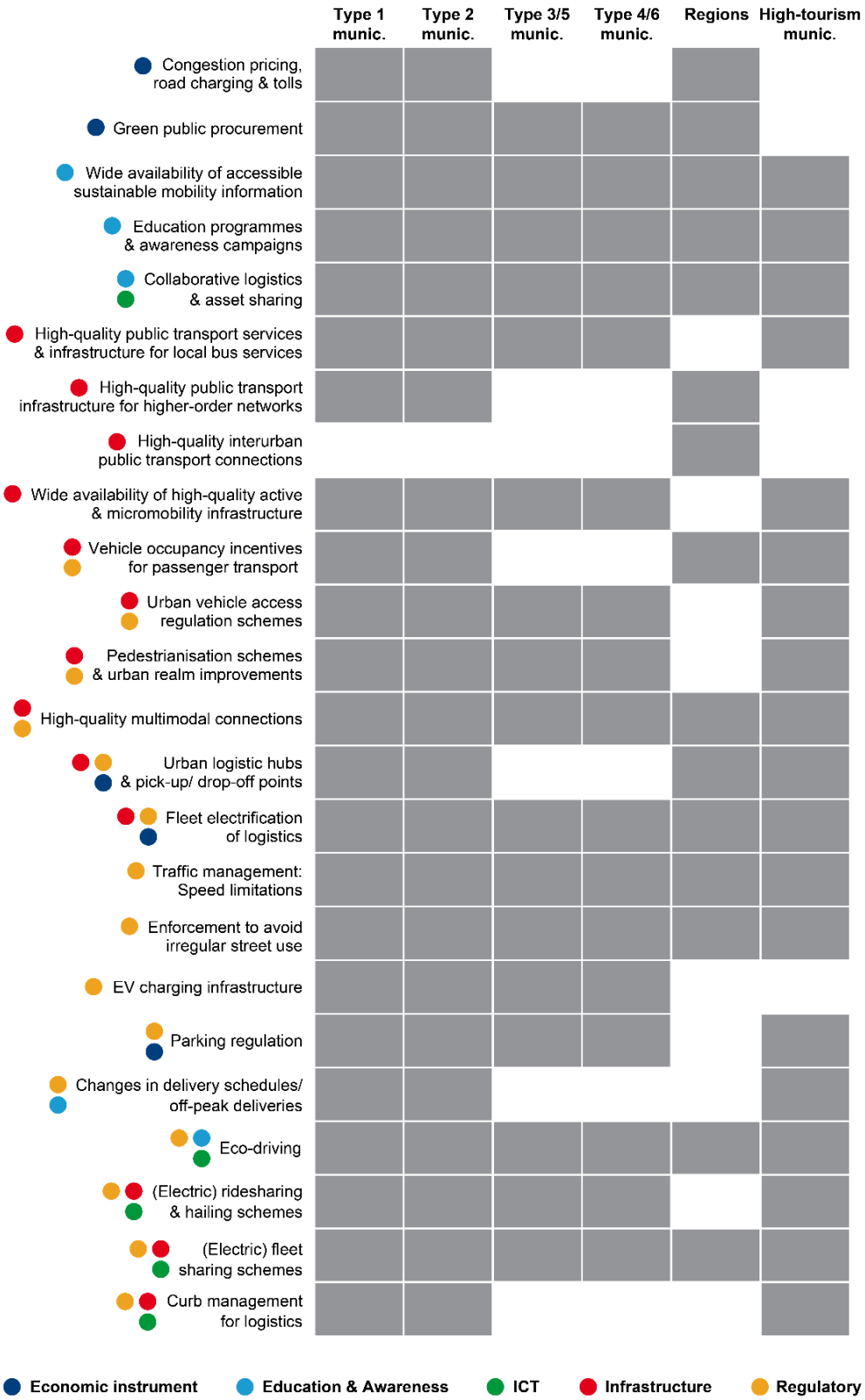
The following sheets labelled by three-letter measure codes contain the fact sheets for each measure. Each fact sheet includes a reader's guide at the top indicating the applicability of sub-measures by urban area type. This is followed by a summary description of the measure and its sub-measures and a non-exhaustive overview of the types of costs that may be incurred and will need to be planned for during implementation, operation and beyond, as well as how the local authority could fund the measure. This is followed by an evaluation of non-financial challenges to implementation. The summary concludes with potential direct or indirect impacts and a list of complementary measures that may be relevant to implement together or at least consider for greater impact.

The second section of each fact sheet describes the measure in greater detail. Sample costs are drawn from case studies of past projects, where available. An implementation-timescale rating qualitatively reflects the length of the implementation process due to such factors as the involvement of stakeholders, regulatory requirements, and technical difficulty. The level of national involvement is also qualitatively determined to indicate where national support will be imperative for a measure's success. Local authorities will need to keep in mind that local conditions and market factors will influence the actual costs and timelines and should only think of these as indicative guidelines.

**Access the Sustainable Urban Mobility Measure Selection Tool for Greece**

Download the tool via the ITF website: https://www.itf-oecd.org/repository/advancing-sustainable-mobility-greece-supporting-sumps-uptake

Figure 6. Sustainable urban mobility measures included in the measure selection tool and their relevance to different urban area types and measure categories



# How can local and national governments evaluate progress towards sustainable mobility?

The Greek SUMP Law 4784/2021 (FEK 40/A/16-03-2021) establishes the importance of monitoring Sustainable Urban Mobility Plans (SUMPs) at the onset. According to the law, following the Preparation (Phase 1) and Elaboration (Phase 2) of the SUMP, monitoring and evaluation makes up the third and final phase of the SUMP development process. Local authorities that are obliged to create SUMPs must also submit biennial progress reports, with updates to the indicators included in their SUMPs. These results are to be submitted and made accessible via a national SUMP platform, which is under development and managed by the MoIT. The data is intended to be available online for all local authorities to access.

The MoIT's main goal in including the monitoring and evaluation mandate is to establish a culture of data-driven policymaking, evaluation and continuous improvement at the local level. At the national level, a standardised indicator system will allow for benchmarking and comparisons between the progress of individual authorities to identify where support is needed. The mandate to monitor is not yet tied to funding for SUMP measures due to the complex nature of funding streams, as multiple ministries may often be involved. Nor are there explicit consequences for failing to report.

In addition to the biennial reporting requirements of the SUMPs, according to the amended proposal for the TEN-T regulation (COM/2022/384 final), municipalities that make up urban nodes of the TEN-T network will also have annual reporting requirements. The indicators will be a revised set of Sustainable Urban Mobility Indicators (SUMI). The final indicators and methodology are not yet available but will be published in an Implementing Act which is to be adopted following the publication of the revised TEN-T regulation (EC, n.d.).

The ITF, in the context of the EU-funded project "Recharge and Refuel: Clean, smart and fair urban mobility", has developed a monitoring framework consisting of two indicator systems to support the MoIT in developing standardised monitoring practices. Indicators are single numerical values calculated using a combination of data sources that can be used to evaluate progress towards a certain objective or target. The framework considers the SUMI used in the EU's first set of SUMP guidelines (Rupprecht Consult et al., 2020), examples from current Greek SUMPs, indicators that are prevalent in related literature, and the priority areas that (according to the European Commission) are expected to be reflected in the TEN-T reporting requirements. These include indicators on congestion, greenhouse gases and pollution, road safety, modal share and access to mobility services (EC, n.d.). It is informed by the local authority survey and online consultations the ITF carried out for the project, as well as a series of in-person consultations with a range of authorities from different urban area types and the MoIT, with a focus on monitoring and evaluation. These consultations were especially useful in understanding the roles different bodies may play, the feasibility challenges, and the priorities of local authorities. Local authorities themselves have expressed a desire to have a standardised framework in place at the national level for SUMPs so that a base set of indicators can be used for all SUMPs.

Of the two indicator systems, one monitors progress towards mobility objectives (the Objective-Specific Indicator System, OSIS) and the other measures the impact of individual transport measures (the Measure-Specific Indicator System, MSIS). For ease of use and to ensure the efficient use of resources, the two systems use as many common indicators as possible. The systems are presented in the rest of this chapter and in the accompanying Excel-based tool (the "Sustainable Urban Mobility Monitoring and Evaluation Tool for Greece"), which includes fact sheets on each indicator as well as templates to automate their calculation and reporting. In the long term, the reporting of indicators is expected to be done online via the national SUMP platform to facilitate centralised updates and allow easy access to authorities. The platform has been issued a ministerial decision (FEK 1735/B/19-3-2024) and will be managed by the MoIT. This chapter introduces proposals for the monitoring and evaluation framework and describes the two indicator systems that make up the framework. It concludes with an overview of the accompanying tool.

The corresponding chapter (of the same name) in the detailed report discusses the monitoring and evaluation framework in more detail. Readers from the Greek context – and those who wish to understand in depth how to set targets, divide roles and responsibilities, and adjust the calculation of indicators shared between OSIS and MSIS – would benefit from referring to that version of this chapter.

## Developing a realistic and robust monitoring and evaluation framework

The indicators included in the OSIS and MSIS prioritise simplicity in terms of data collection and calculation, while still providing insights to track progress and allow all responsible parties to establish a monitoring practice. Ideally, an indicator system would have as few indicators as possible, the indicators would be as robust as possible, and the data required to collect the indicators would be as simple as possible. It is difficult to optimise across all three areas, as the robustness provided by a few indicators typically entails more resource-intensive data collection. Within the proposed framework, the data requirements are as simplified as possible, leveraging existing practices where feasible and suggesting new methods where needed. The result is a higher number of indicators to ensure robustness. The higher the number of indicators monitored, the more complete a picture one has of the performance of the mobility system. To minimise the burden on resource-constrained authorities, the OSIS and MSIS identify indicators that provide the highest value while simplifying data collection. Once the initial system is in place and adequate resources are dedicated to monitoring, the indicators can be made more robust. This may include more frequent collection of data, expansion of the types of data collected, and the calculation of more detailed indicators. Suggestions for this progression are included in the "Further Considerations" section which concludes each fact sheet.

The surveys and consultations revealed that the most significant barrier to monitoring and evaluation is a lack of staff resources. While the monitoring framework endeavours to reduce this burden as much as possible, a minimum level of data collection, processing, calculation and regular updating of databases will be required. Concerns regarding staff resource needs are particularly high in the case of local authorities. Establishing baseline datasets is a prerequisite to implementing these monitoring systems; this is a resource-intensive first step for local authorities. Local authorities have also expressed the need for dedicated training in monitoring and evaluation to introduce the methodologies and fully understand their responsibilities. A more thorough discussion of current approaches and challenges with respect to data collection, as well as recommendations, are included in subsequent sections.

For the most efficient use of resources, indicators should be co-ordinated across plans that require the monitoring of similar efforts in the transport domain. Local authorities expressed concern over the duplicate use of resources to develop plans, collect data, and report different indicators where there is overlap in the ultimate objective. Ideally, the indicators used for SUMPs should be applicable for related plans as well. Additional co-ordination and buy-in would be beneficial from the ministries involved in topics related to urban issues and sustainability.

### Monitoring progress towards objectives: The Objective-Specific Indicator System

The Objective-Specific Indicator System (OSIS) allows the tracking of progress towards 13 mobility objectives as outlined by the SUMP Law and by EU guidelines, including the TEN-T regulations aiming to support the MoIT in assessing how sustainable mobility is promoted across municipalities and regions. Understanding the performance of local authorities across the country can help the MoIT prioritise investments and dedicate resources according to need. Municipalities and regions can use the indicators they calculate to understand their own local progress towards the objectives. In the case of some indicators, greater co-operation is expected between municipalities and regions.

This indicator system is intended to support local authorities that are required to have a SUMP (i.e. regions, and municipalities of primarily Type 1 and 2 with a few exceptions). These municipalities are likely to have technical capacities that are sufficient for data collection and processing, and indicator calculation on a biennial basis. Smaller municipalities that have opted to develop SUMPs can use the indicator system as a guide; however, based on the conclusions of the stakeholder consultations, they may not be able to calculate all the indicators due to lack of

capacity. If a complete national picture of SUMP performance is desired, including at the level of smaller municipalities, the national government will need to consider how these authorities may be supported in their reporting efforts. See subsequent sections for recommendations regarding challenges related to data collection, data processing, and indicator calculation.

## Monitoring the impact of measures: The Measure-Specific Indicator System

In the Measure-Specific Indicator System (MSIS), each indicator allows for the evaluation of a specific transport measure to ensure that it is having the desired impact. Any local authority that is putting in place measures should also try to understand whether they are working. The indicators in this system apply to the local authorities implementing the measure (regardless of type) and will support their monitoring efforts. The frequency of indicator calculation may be higher than the biennial objective-specific indicators, depending on the indicator and the authorities' capacity. Many of the objective-specific indicators are also reflected in this list, but it includes additional indicators to ensure at least one indicator is provided for each measure suggested in the SUMP Measure Selection Tool for Greece developed in the context of this same project. The MSIS provides a selection of indicators that authorities can prioritise based on the measures they implement.

## Setting targets that reflect priorities and local conditions

While indicators allow comparison and benchmarking between local authorities at the national level, they are most useful when compared with a baseline value and a target value to measure progress towards an objective by setting a quantitative goal. As a first step, the baseline values for indicators should be calculated to document the starting point of the local authority. This could be completed as part of the SUMP elaboration process. The 13 mobility objectives define the direction of change and are qualitative. The target can be defined as the final indicator value the local authority wishes to reach (i.e. one that would demonstrate success). The goal is to lower or increase the indicator value in order to reach that target.

In most cases, local authorities should lead target-setting as part of the SUMP process. The local context and priorities will determine the target values set by the authority. Local-authority-led target setting not only accounts for unique constraints, but also reflects the municipal priorities. A municipality that wishes to emphasise active modes due to their analysis of needs will necessarily set more ambitious targets for indicators in this policy area, and implement more related measures, than one that identifies fleet electrification as a significant priority.

The national government may consider setting some targets for indicators it deems vital, or to align with EU targets. For example, in the case of road safety, the National Road Safety Strategic Plan 2021-2030 sets a target of a 50% reduction in road fatalities and a 50% reduction in serious injuries, in line with the Valetta Declaration (2017), for the decade 2021-2030 (Ministry of Infrastructure and Transport, 2022).

In a minority of cases, literature values can serve as appropriate targets where multiple studies have shown what the optimal value would be. The target on-street parking demand-to-supply ratio is an example. Numerous studies demonstrate that the ideal ratio is 0.85 to prevent excessive circulating while looking for parking (which causes excess greenhouse gas emissions, air pollutants and other externalities) while maintaining an adequate supply. The goal is for local authorities to reach this optimum.

While setting appropriate targets can internalise the priorities of a local authority, comparing targets and current indicator values helps the authority track progress. Identifying where certain areas are falling short can signal a need to prioritise investment in these areas. Similarly, at the national level, trends demonstrating that progress towards a certain objective is lagging may indicate a need to prioritise it through technical or financial support in the future.

## The Objective-Specific Indicator System

The Objective-Specific Indicator System (OSIS) comprises 32 indicators. Of these, five indicators are broken down into two to four sub-indicators, for a total of 40 indicators/sub-indicators. The OSIS lists between one and six indicators for each of the nine objectives as defined by the SUMP law and the four objectives derived from EU guidelines. Some of these indicators are also used to monitor the progress of individual measures and are therefore included in the MSIS. Table 3 lists all indicators and sub-indicators and specifies whether they belong to the OSIS, the MSIS, or both.

The indicators can pertain to multiple objectives. In the Excel tool ("Sustainable Urban Mobility Monitoring and Evaluation Tool for Greece") each indicator is organised according to the objective to which it is most directly suited; the secondary objectives are listed in the fact sheets. Each fact sheet also specifies whether indicators should be considered alongside others to have a holistic idea of progress towards an objective. The intent is to optimise and provide as few indicators as possible while providing adequate insight into progress toward mobility objectives.

The indicator fact sheets in the tool provide all details. In the detailed report, the sections titled “Indicators to monitor Greek SUMP Law objectives” and “Indicators to monitor additional EU mobility objectives” provide a brief overview of the indicators suggested for each objective.

Table 3. Proposed indicators used in the Objective-Specific and Measure-Specific Indicator Systems

| ID | Indicator | Objective-specific | Measure-specific |
|---|---|---|---|
| $i_1$ | Bicycle network density | ✓ | ✓ |
| $i_2$ | Share of road network length corresponding to streets with adequate pavement width, traffic-calmed or pedestrianised streets | ✓ | ✓ |
| $i_{3a}$ | Share of active and non-motorised modes in modal split | ✓ | |
| $i_{3b}$ | Share of public transport in modal split | ✓ | |
| $i_{3c}$ | Share of private cars in modal split | ✓ | |
| $i_{3d}$ | Share of shared mobility services in modal split | ✓ | ✓ |
| $i_4$ | Share of mid-block crossings and intersection corners with installed curb ramps | ✓ | ✓ |
| $i_5$ | Share of road network length with installed guidance path tactile paving surface | ✓ | ✓ |
| $i_6$ | Share of signalised pedestrian crossings with audible signals | ✓ | ✓ |
| $i_{7a}$ | Share of public transport stops with accessible information | | ✓ |
| $i_{7b}$ | Share of public transport stations with accessible information | | ✓ |
| $i_8$ | Annual number of road fatalities per 100 000 inhabitants | ✓ | |
| $i_9$ | Annual number of serious injuries per 100 000 inhabitants | ✓ | |
| $i_{10}$ | Share of vulnerable road users in road fatalities | ✓ | ✓ |
| $i_{11}$ | Share of road network length with a speed limit of 30km/h or lower | | ✓ |
| $i_{12}$ | Annual number of traffic violations per 100 000 inhabitants | | ✓ |
| $i_{13}$ | Annual number of parking violations per 100 000 inhabitants | | ✓ |
| $i_{14a}$ | Population-weighted average network distance to the nearest local bus public transport stop | ✓ | ✓ |
| $i_{14b}$ | Population-weighted average network distance to the nearest higher-order public transport stop or station | ✓ | ✓ |
| $i_{15}$ | Average frequency of local buses and higher-order public transport lines providing access to interurban stations | ✓ | ✓ |
| $i_{16a}$ | Boardings per capita on local bus public transport services | ✓ | ✓ |
| $i_{16b}$ | Boardings per capita on higher-order services | ✓ | ✓ |
| $i_{16c}$ | Boardings per capita on interurban services | ✓ | ✓ |
| $i_{17}$ | On-time performance | | ✓ |

| ID | Indicator | Objective-specific | Measure-specific |
|---|---|---|---|
| $i_{18}$ | Share of public transport stations serving as multimodal hubs | | ✓ |
| $i_{19}$ | Car ownership per 1 000 inhabitants | ✓ | ✓ |
| $i_{20}$ | Share of road network length corresponding to streets covered by urban vehicle access regulation schemes | | ✓ |
| $i_{21}$ | Travel time index | | ✓ |
| $i_{22}$ | Number of public EV charging points installed per 100 000 inhabitants | ✓ | ✓ |
| $i_{23}$ | Share of local authority fleet annual mileage completed by clean vehicles | ✓ | ✓ |
| $i_{24a}$ | Share of clean vehicles in the urban public transport fleet | ✓ | ✓ |
| $i_{24b}$ | Share of clean vehicles in the inter-urban public transport fleet | ✓ | ✓ |
| $i_{25}$ | Share of clean vehicles in the taxi fleet | ✓ | |
| $i_{26}$ | Share of clean vehicles in urban logistics fleet | ✓ | ✓ |
| $i_{27}$ | Share of logistic spaces with charging infrastructure availability | ✓ | ✓ |
| $i_{28}$ | Average wait times and average in-vehicle travel times of on-demand transport | | ✓ |
| $i_{29}$ | Passenger trips per in-service hour of on-demand transport | | ✓ |
| $i_{30}$ | On-street parking demand-to-supply ratio | ✓ | ✓ |
| $i_{31}$ | Off-street parking demand-to-supply ratio | ✓ | ✓ |
| $i_{32}$ | Share of last-mile deliveries and pick-ups served in (un)loading bays | ✓ | ✓ |
| $i_{33}$ | (Un)loading bays infrastructure gap | ✓ | ✓ |
| $i_{34}$ | Share of truck drivers who have received eco-driving training | ✓ | ✓ |
| $i_{35}$ | Share of trucks equipped with in-vehicle tools to measure vehicle driving efficiencies | | ✓ |
| $i_{36}$ | Share of freight receivers willing to receive deliveries and pickups during off-peak hours | | ✓ |
| $i_{37}$ | Share of freight deliveries and pickups taking place during off-peak hours | | ✓ |
| $i_{38}$ | Share of freight carriers that have signed a private agreement for asset sharing and collaboration | | ✓ |
| $i_{39a}$ | Private car occupancy rate | ✓ | ✓ |
| $i_{39b}$ | Taxi occupancy rate | ✓ | ✓ |
| $i_{40}$ | Number of shared micromobility devices per 100 000 inhabitants | ✓ | ✓ |
| $i_{41}$ | Number of car-sharing vehicles per 100 000 inhabitants | ✓ | ✓ |
| $i_{42}$ | Population-weighted average network distance to nearest amenities for everyday needs | ✓ | |
| $i_{43}$ | Perceived quality of public spaces | ✓ | ✓ |
| $i_{44}$ | Annual number of participants in education programmes and awareness campaign-related events to promote sustainable urban mobility | | ✓ |
| $i_{45}$ | Number of days per year on which the daily average concentration of $PM_{10}$ exceeds 50 µg/m³ | ✓ | |
| $i_{46}$ | Annual greenhouse gas emissions per capita | ✓ | |
| $i_{47}$ | Share of deliveries and pickups using a transhipment hub or consolidation centre | ✓ | ✓ |

Note: EV = electric vehicle. PM10 = particulate matter (PM) with a diameter of 10 microns or less.

### Roles and responsibilities of each level of government

Reporting on the Objective-Specific Indicators starts with the local authority. Municipalities are responsible for calculating nearly 70% of indicators and sub-indicators, while the regions are best placed to carry out the monitoring for 30% of the indicators and sub-indicators. For metropolitan areas (i.e. Type 1 municipalities), certain indicators should be calculated for the whole metropolitan area rather than at the individual municipality level. In this case, since there is no administrative body yet at the metropolitan level, the region is likely best suited to support and calculate the indicator using data from across the metropolitan area.

Municipal indicators and underlying input values should be shared with the encompassing region and reported to the national government to allow comparisons and aggregations at higher administrative levels. Regional governments should similarly report indicators and input values to the national government where they are responsible. The accompanying Excel tool provides a sample reporting template and additional tools; in future, it is expected that this will be available as an online form on the national SUMP platform.

The national government can track the overall progress of municipalities. Regions can aggregate data from the municipalities within their boundaries. Both national and regional authorities will be able to compute summary statistics in order to monitor overall progress towards indicators and as well as performance at the municipal level. The information can be used to better distribute resources and develop peer learning arrangements to allow municipalities to learn from each other and gain the support they need to achieve their objectives. Though municipalities and regions do not have a hierarchical relationship, collaborating through the sharing of indicators and input data will help regions support their municipalities as well.

The national government has the additional role of enabling data collection efforts that are currently hindered due to lack of resources, bureaucratic processes to access detailed data, and a lack of regulation with respect to formal data reporting agreements, as well as supporting household and freight survey efforts, as discussed previously. The regions, as discussed, may play a role in enforcing or managing data reporting agreements. In the case of indicators that rely on survey data, the national government would be expected to establish a core set of questions which can then be administered locally by local authorities with additional questions as they see fit.

To ensure indicator comparisons compare “like with like”, the national government must also establish certain definitions at the national level. In most cases, this means defining the spatial area of interest of some indicators (i.e. the city centre, built up area or entire municipality). In the few cases where multiple calculation methods are possible, this means defining which of the methods should be adopted when reporting indicator values.

More details regarding the roles and responsibilities specific to each indicator are available in the fact sheets.

## The Measure-Specific Indicator System

The Measure-Specific Indicator System (MSIS) comprises 41 indicators – between one and three indicators for each of the measures included in the SUMP Measure Selection Tool for Greece. Some of the indicators are split into subindicators bringing the total to 47 indicators/subindicators associated with MSIS. About 85% of the indicators and sub-indicators are also used in the Objective-Specific Indicator System (see Table 3). Any time a measure is put in place, indicators should be used to track progress towards a target from the starting point/baseline. The intent is to optimise and provide as few indicators as possible while providing adequate insight into the progress of mobility measures. Each of the indicator fact sheets included in the Excel tool provides details. The following sections discuss the main points that are tackled in these.

The MSIS is flexible and can be adapted to the needs and capacities of municipalities. Unlike the OSIS, which is primarily concerned with comparisons between local authorities, the MSIS is under the complete discretion of local authorities. While there are common indicators between the OSIS and the MSIS, the indicators may be calculated differently if a local authority wishes. When calculating indicators to monitor the impact of measures, municipalities should strive for the most robust version of the indicator they can calculate. This may mean addressing a larger area of interest than the objective-specific version, using a more detailed calculation method, or even disaggregating the

indicator to provide more detailed information (as is suggested for "further consideration" in the fact sheets). In order to allow comparisons across authorities in the case of the OSIS, the national government must standardise the areas of interest covered by the indicator (city centre, built-up area, entire municipality, etc.) and, where appropriate, the method of calculation. Typically, this would be determined by the lowest-capacity municipalities that they wish to include in the country-wide comparisons.

In addition, the frequency of measure-specific indicator calculation may be higher than for the biennial objective-specific indicators. Some indicators could be calculated annually or even more frequently, depending on the indicator and the authorities' capacity. For example, changes to public transport services can be implemented more quickly, and the impacts may be more immediate, than large regulatory change or infrastructure schemes.

The indicator fact sheets in the tools provide all details. The section "Indicators to monitor measures" of the detailed report provides a brief overview of the indicators suggested for each measure.

## The Excel tool: Sustainable Urban Mobility Monitoring and Evaluation Tool for Greece

The accompanying Excel-based tool, the "Sustainable Urban Mobility Monitoring and Evaluation Tool for Greece", provides local authorities and the national government with an overview of the monitoring and evaluation framework and a description of the two indicator systems (the OSIS and MSIS) which comprise the framework. Local authorities can use the tool to help define indicators for their SUMPs that either support monitoring of progress towards objectives and/or measures. They can learn about them through the fact sheets, then use the provided calculators to calculate the indicator, automatically generate a reporting summary (either at the municipal or regional level) and, lastly, use the progress tracker to understand how intermediate indicator values are performing relative to the baseline and target. The tool can be used as a standalone resource, but users would benefit from the background presented in this chapter.

In the long term, the reporting of indicators is expected to be done online through the national SUMP portal. Until then, local authorities can use an Excel-based template to aid reporting, such as the one included in the tool. It is advised that a new copy be saved for each reporting year rather than overwriting a previous year.

### Overview of the tool

Upon opening the tool, the user is first presented with a "Home" sheet which provides an introduction and describes the sheets contained in the tool as well as a brief project description.

The "All Indicators" sheet lists all the indicators (along with their IDs) that are part of the framework and specifies whether they are relevant to the OSIS or the MSIS or both.

The "Objective-specific" sheet lists the subset of indicators that are part of the OSIS. In addition to name and ID, for each indicator the sheet includes the primary monitored objective and monitored sustainability pillar (environment, society or economy). Details such as the unit, scale, information on the goal or target, and responsible body are also included. The last column provides a link to the fact sheet of the indicator.

The "Measure-specific" sheet lists the subset of indicators that are part of the MSIS. In addition to name and ID, for each indicator the sheet specifies the relevant measure. Again, details such as the unit, scale, information on the goal or target, and responsible authority are also included, and the last column provides a link to the fact sheet of the indicator.

The fact sheets are denoted by an indicator ID and the initials "FS". The first section of each fact sheet repeats the information provided in the "Objective-specific" and "Measure-specific" sheets, as well as details on the area of interest and monitoring frequency, when calculating the indicator for each indicator system. It also includes details on the required software. Next, a series of links provides quick access to the contents of the fact sheet in case a user wishes jump to a specific section. The sections that follow include a description of the indicator including the rationale

for including it, the input data required, the formula for calculation, and a discussion of elements such as the area of interest that the indicator should cover and complementary indicators that may be best evaluated in conjunction. The following sections are on goals and targets and how to set them, the roles and responsibilities of the various parties contributing to data collection and calculating the indicator, how to collect the data, how to process the data and calculate the indicator and associated challenges and, lastly, further considerations for local authorities wishing to improve their monitoring and evaluation practices.

The next group of sheets are the indicator calculators, denoted by the indicator ID and the initials "CL". Each of these sheets allows the local authority to select their name and the reporting year, as well as specify the area of interest. On the left, a section directs users to specify input values which align with the formula provided in the fact sheet. On the right, the indicator value is automatically calculated. The sheets contain dummy values simply to demonstrate how to use the tool; they should not be used as default values and are not based on real-life conditions.

Two reporting summaries (RS) are provided in the sheets "Municipality RS" and "Region RS". It is coded to automatically populate all the indicator values, input data, and further specifications made by the user in each calculator sheet. The only user input required is to select the local authority's name and reporting year. The two summaries are limited to the indicators that municipalities and regions, respectively, provide. Similar templates might be available online on the national SUMP platform so local authorities can submit the values to the MoIT to fulfil the monitoring obligations under the SUMP law biennially as well as share data between the two levels of local authorities.

The last sheet is an optional internal resource for local authorities. For each indicator, they can specify a baseline value and a target value to be reached by a target year. By filling in values for the interim years, they can monitor their overall progress towards the target.

**Access the Sustainable Urban Mobility Monitoring and Evaluation Tool for Greece**

Download the tool via the ITF website: https://www.itf-oecd.org/repository/advancing-sustainable-mobility-greece-supporting-sumps-uptake

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# Advancing Sustainable Mobility in Greece

## Supporting SUMPs uptake

This project supports Greece in developing a sustainable transport sector and cleaner mobility. Specifically, it aims to accelerate the uptake of electric vehicles and the adoption of Sustainable Urban Mobility Plans (SUMPs).

By 2030, at least 100 European cities should be climate neutral. This project will help Greece to accomplish this objective, as set out in the European Commission's Sustainable and Smart Mobility Strategy. It supports the Greek government in advancing the uptake of SUMPs: the national government wishes to support local authorities in defining sustainable urban mobility measures that reflect their geographical and socio-economic characteristics. The ITF implemented a benchmarking exercise and stakeholder consultations to create two decision-making tools that will help local authorities to select the SUMP measures best suited for them, and help them evaluate the effects of their SUMPs. Background research and recommendations are presented in the reports, while the tools are available in an Excel format. The official project title is "Recharge and Refuel: Clean, Smart and Fair Urban Mobility".

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