GUIDELINES ON SUSTAINABLE MOBILITY

LAST MILE TRANSPORTATION

ResidentFirst

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This document has been authored by
Dr. Antoine Zammit for studjurban, in collaboration with the Local Councils' Association Malta.

Published by:
Local Councils' Association
Local Government Building
Local Government Road
Marsa
Malta

T. +356 25968000 E. lca@lca.org.mt
www.lca.org.mt

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Last-mile transportation addresses the final segment of a journey, bridging the gap from a public transit stop to a person's destination. It has become vital in creating sustainable, efficient urban mobility solutions, offering environmentally friendly and accessible options such as shared bikes, e-scooters, ride-hailing services, and autonomous shuttles. By reducing the need for private cars, last-mile options alleviate urban challenges like traffic congestion, emissions, and pollution, while fostering more liveable cities.

One major advantage is its potential to decrease car reliance, as last-mile solutions make public transit more convenient by covering short distances quickly. This ease of access encourages commuters to leave their cars at home, reducing congestion and emissions. Environmentally, last-mile options often rely on renewable energy or human power, making them more sustainable than traditional car trips. E-bikes, e-scooters, and electric shuttles can significantly lower greenhouse gas emissions, aligning with climate goals and reducing the urban carbon footprint.

In addition to environmental benefits, last-mile solutions enhance accessibility. They offer a cost-effective transportation method for people without private vehicles or with limited mobility. Shared bikes, e-scooters, and similar programmes make reaching essential services, jobs, and education easier, supporting social inclusivity. Additionally, they are more affordable than taxis or ride-hailing, making them accessible across different income levels.

From a planning perspective, last-mile transportation supports strategies that promote building communities near transit hubs. This fosters walkable, bike-friendly neighbourhoods that encourage reduced car dependency and urban sprawl, creating healthier, pedestrian-friendly environments. Last-mile options align with this vision, providing convenience and flexibility that enhance integrated transit systems and support sustainable lifestyles.

In Malta, last-mile transportation holds specific advantages due to the island's dense urban layout and narrow streets, where traffic congestion and pollution are pressing issues. By improving travel between bus stops and final destinations, options like shared bikes and small electric shuttles ease road congestion, lower carbon emissions, and improve air quality. Tourism, a key sector for Malta, also benefits as last-mile options help visitors explore sustainably and independently, reducing seasonal traffic impact. For residents, last-mile solutions enhance accessibility, especially in areas with limited public transit, creating a more inclusive and connected island community. Embracing last-mile transportation aligns with Malta's environmental goals, supporting reduced car dependency, a greener urban environment, and a healthier, more connected future.

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1. The Last Mile

1.1 Introduction

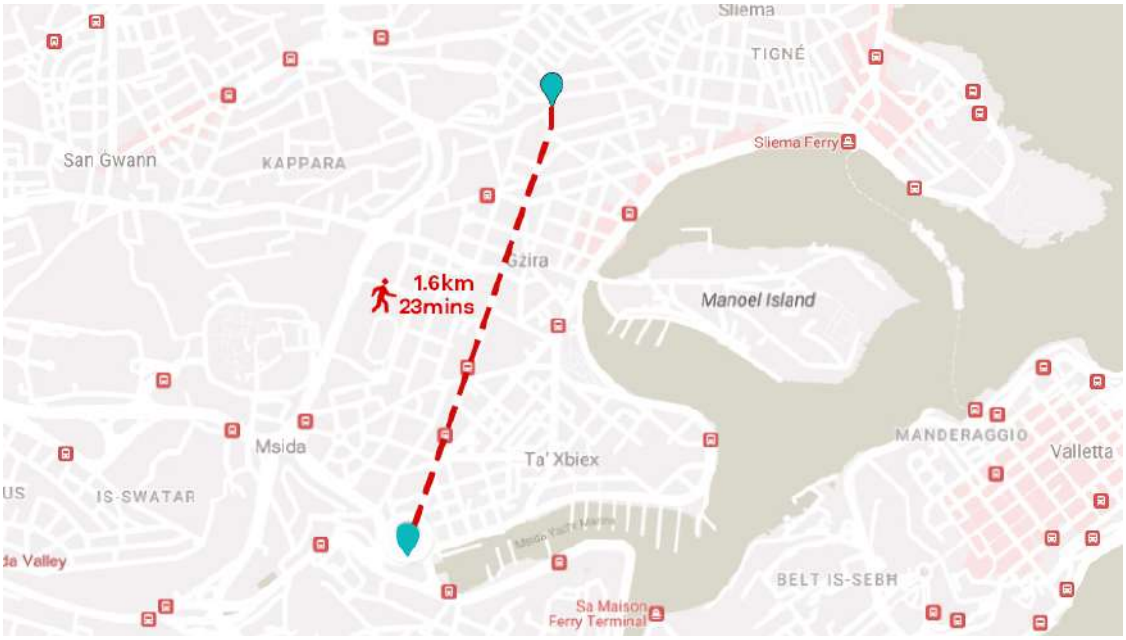
Perhaps contrary to what many would believe, the first and last mile of our travel route have a serious impact on the sustainable footprint of the overall journey. Together with walking, discusses separately in another Sustainable Mobility publication published by the Local Councils' Association (LCA) (*Walkability and Accessibility*), many transportation options are available on the market that allow for sustainable and accessible transport modes for travelling shorter distances. In this document, those modes of transport will be discussed as gap-fillers within our current transport system. The goal is to achieve sustainable mobility on the islands of Malta and Gozo, in view of addressing numerous challenges being faced and to improve the country's liveability and quality of life conditions.

The 'last mile' is a universally agreed term that refers to the movement of people and goods from an origin - usually a hub - to a final destination. The term 'first mile' can also be used, depending on the direction of movement: going out (first mile) or reaching the destination (last mile). Within a journey, the last mile has been studied to be the least sustainable stage as it comprises a relatively large percentage of cost and time. This gap opens up opportunities for shared and alternative modes of transport to be considered, such as bicycles and electric scooters, together with improved walking conditions.

Even though the last mile is mainly a conceptual distance, this concept might become more comprehensible when the distance of a mile is visualised.

The last 'mile' is equal to 1.6 km, which is also measured as, approximately:

- a 20 minutes walk at an average walking speed of 5 km/hr on a flat (or



Ilustration by Studjurban

Local Example: A mile is equivalent to the entire length of Triq D'Argens, from the Msida bus station at the bottom to the intersection with Triq l-Imrabat and Triq Rodolfu at the top. This distance can be travelled in 20 minutes on foot or 10 minutes by cycling. While the average car ride is around 7 minutes long, in heavy traffic this may easily take 15 - 20 minutes – approximately the same time as walking and potentially longer than cycling.

moderately shallow) terrain
- 10-15 minutes cycling at an average cycling speed of 15 - 20 km/hr

Even though last mile transportation is crucial to discuss as a separate subject, it must be noted that this is always part of a larger mobility strategy and it should work in tandem with a well-developed public transport system. Indeed, a good last mile transportation strategy may increase the attractiveness of travelling by public transport and encourage people to do so more often. Well-functioning public transport thus remains equally important in areas where last-mile transportation is efficient and convenient. Public transport is discussed further in another LCA document entitled ***Shared Transport***.

Similarly, although walking is naturally the most fundamental, flexible and accessible last mile transportation alternative, which should be prioritised, it is not dealt with directly in this document given that it is the subject of the LCA's prior publication ***Walkability and Accessibility***.

Local councils should propose actions designed to reach the objectives of The National Transport Strategy and Transport Master Plan and forthcoming Sustainable Urban Mobility Plan (SUMP) at a locality level, which reflects the European Union's aim to 'cut carbon emissions in transport by 60% by 2050. Local councils have a major role to play in focusing on the priority of the collective well-being of their respective locality's residents. Alternative modes of transport require highly prioritised conditions if they are to succeed as means of transport. Local councils can therefore encourage a modal shift through the eight STEPs presented in this document.

Furthermore, this publication introduces different last-mile transportation options as well as a myriad of approaches and actions to ensure that the last and first part of people's journeys occur in a sustainable way. Following the discussion of the individual STEPs, a methodology is introduced to support the local councils' planning procedures.

1.2 Commonly Used Terms

As a starting point, it is important to differentiate the following commonly used terms:

Micro mobility/Micro transit: These terms describe on-demand transport that can be used by anyone and everyone. It is also known as Flexible transit as the route varies according to who requests it and involves using smaller, lighter vehicles such as electric scooters, bicycles and skateboards, amongst others. These vehicles can either be human powered, partially human powered or non-human powered (often electric). Micromobility has introduced the opportunity of utilising personal shared transport, which is designed for short journeys, usually targeting the last mile.

Flexible Transport: Describes the occurrence when the system allows the passenger to choose the route, time and mode of travel as well as the payment method. This makes it a flexible mode of transport. Often, it operates on demand, for example, a shuttle bus that moves tourists between the airport and the hotel.

Micro mobility can be considered as a flexible mode of transport.

Intermodality: Can be described as the combination of different modes of transport in one journey. Trips or shipments are carried out by a different carrier in each of the route's stages, from origin to destination. Intermodality measures often involve public-private cooperation.

Multimodal: Can be described as the transport operation that uses several modes, using a single provider (and a single contract) through the entire trip from origin to destination.

1.4 Variations of Last Mile Transport

The Last Mile in Freight and Deliveries

Freight transport refers to the movement of consumer goods, which can be transported in different ways. In this segment, the focus will be on freight transport within the urban realm, as well as into and out of specifically designated areas. According to the Alliance for Logistics Innovation through Collaboration in Europe (ALICE), urban freight greatly contributes to traffic, emissions and noise pollution. As a result, freight transport impacts residents' quality of life in our localities.

Due to its inefficiency, the last mile of delivery can be operationally expensive. Companies need to re-evaluate their existing logistics processes and find an effective last mile strategy that meets both consumer satisfaction and business efficiency.

The Local Councils' Association, with Regional Councils, may provide a good channel for re-evaluation, such that unified and strategic solutions may be discussed with key stakeholders, including delivery companies,

Locally, Maltapost has been proactive in securing an efficient fleet to enhance its postal service

associations such as the Malta Chamber of SMEs, and important policymakers, most notably the Planning Authority (PA) and Transport Malta (TM). Together, new, efficient, and sustainable improvements in urban freight and delivery strategies may be found, which could include immediate solutions such as loading more goods and parcels into each delivery truck and replacing conventional vehicles with electric vehicles and cargo bikes, to longer-term solutions that are naturally found in a Sustainable Urban Logistics Plan (SULP, defined later in the document).

Types of Micro mobility

Different types of micro mobility are defined in the ***Preliminary Abridged Guidelines for the Regulation of the Micromobility Class*** by Transport Malta, as the following:

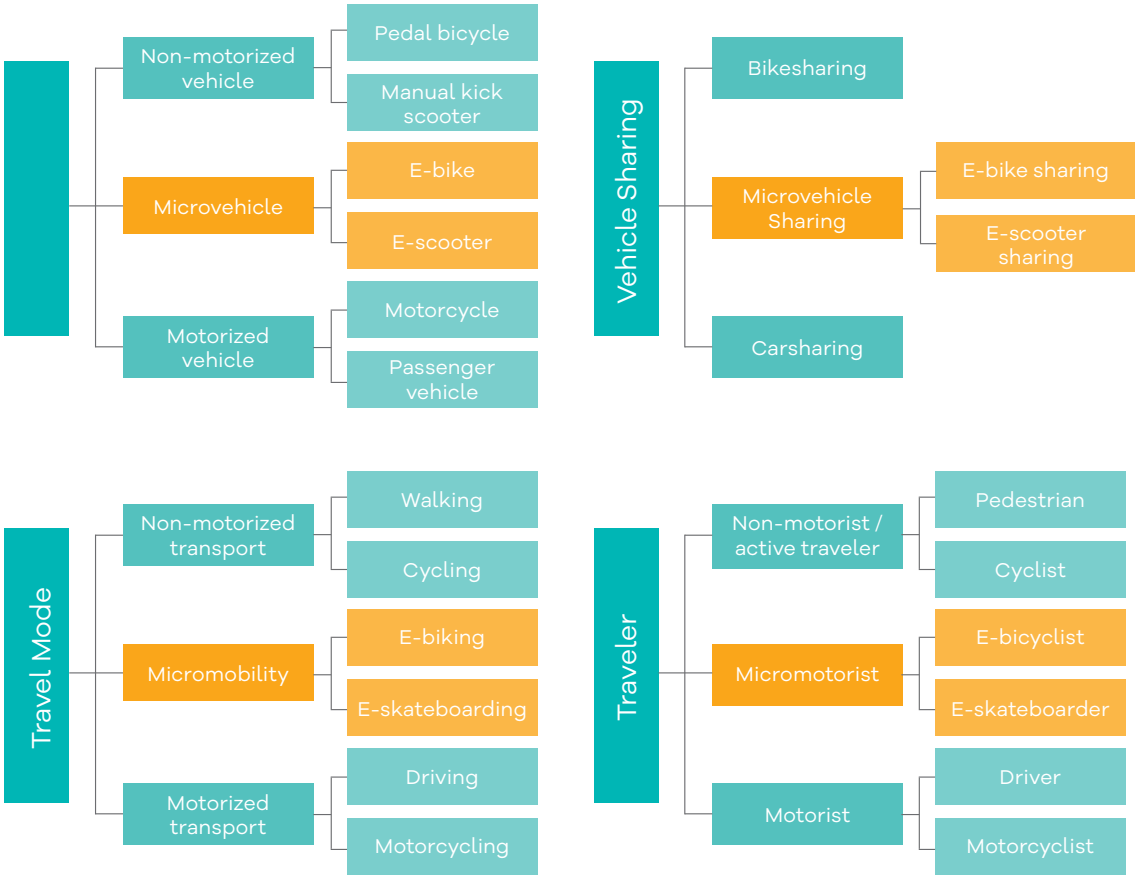
PLEVs (or Personal Light Electric Vehicles), including:

- pedelecs or e-bikes;
- e-kick scooters;
- e-skateboards;
- hoverboards; and
- monowheels.

PHPVs (or Personal Human Powered Vehicles), also known as non-motorized vehicles, such as:

- bicycles;
- skateboards; and
- kick scooters

It is useful to visualise some of the most common terms in use when dealing with passenger transport.



Ilustration by Studjurban - Map of Terminology in Passenger Transport

Types of Flexible Transport

A flexible transport system could be especially useful within rural and unserviced areas, complementing (or in some cases replacing) public transport. There are various types of flexible transport systems, which include:

Car/bike/scooter sharing

An organised collective use of one or more vehicles for a limited time, usually by hours. They often require the use of online platforms where registered members can book their trips. They are especially useful at public transport hubs or at arrival/departure terminals.

Seasonal/temporary lines (e.g. bus/train)

Temporary routes established for certain seasons, to alleviate traffic in areas with high tourist frequency that face variations in demand.

Shuttle services

A bus or a coach operated on a short or medium distance and trips taking less than an hour between two fixed points. Shuttle buses usually link transport hubs (e.g. airports, stations) and city centres or main tourist destinations.

Dial services

Transport services that operate on call instead of regular scheduled routes. They involve fixed tariffs on either fixed or flexible routes.

Autonomous vehicles (AVs)

Self-driving vehicles that can operate all day and are well-suited for short-range loops, including being in mixed traffic with other vehicles.

Carpooling

A private agreement among a group of car owners wherein they alternate using their ''car-pool-registered vehicle'' to give rides to others in the same carpool who also have such registered vehicles.

Some interesting foreign examples:

Uber in St. Petersburg, Florida USA:

Rides are being offered at half price to reach public transit stops. Research carried out by the American Physical Therapy Association (APTA) shows that people who use ride-share are in turn more likely to use mass transit.

Bummelbus in Luxembourg:

An on demand transport system that provides flexible transport services for short-distance journeys. The buses are booked by dial service. The Bummelbus complements public transport and offers door-to-door service. The main beneficiaries are children, elderly people and citizens deprived of public transport.

Seasonal bus line no. 209 in Varna, Bulgaria:

A fast tourist service connecting the city centre with tourist resorts on the Black Sea coast. It was launched in 2016 by the municipality of Varna and is mostly used by tourists and tourist sector employees.

1.4 Existing Challenges

There are currently a number of critical challenges in adopting sustainable solutions. These include:

- a separation from the public transport information service, as a result of which potential users do not receive all appropriate information that could help them plan their journeys;
- lack of knowledge regarding the availability and advantages of alternative modes of transport, from both authorities and the users themselves;
- the insufficient and/or missing legal framework for new modes of transport which complicates their implementation and operation;
- ahe exclusion of user groups, notably the elderly and disabled;
- inclusive safety of all users and pedestrians;
- the allocation of appropriate space for all the different street users within the localities; and
- equality of access for all residents.

It is important for Local Councils to promote transport policies so as to incentivise people to switch to more sustainable forms of transport, whether human powered or electrical. Further to becoming familiar with the concept of the 'last mile', an awareness of these challenges would enable Local Councils to intervene appropriately at the level of their respective locality.

1.5 The Need to Regulate Micro-Mobility

As a last-mile solution, micro-mobility has the potential of increasing the efficiency and convenience for the full trip, from door to door. However, many types of micro-mobility options are relatively new, meaning that complete legal frameworks concerning such modes still need to be introduced.

For different modes of transport to coexist peacefully and safely, it is crucial that there are clear traffic and mobility regulations to be followed by everyone. In Malta, some traffic regulations exist concerning micro-mobility, for example the regulation against e-kick scooters driving on the pavement. Nevertheless, the regulations need to be enforced and the introduction of more safeguards for various street users, especially the more vulnerable ones, must be considered.

Furthermore, if we are to rely on micro-mobility as one of our foremost last-mile options, there should be regulations ensuring that this option is available to everyone and not only to those living in the densest areas. Regulations on the spread of micro-mobility vehicles would need to be included in the initial stages of agreement between the provider of vehicles (the private company offering sustainable transport solutions) and the respective Local Council. This tool should be considered by the authorities, as a way of ensuring that all localities are catered for.

Additionally, shared transport providers should ensure that their vehicles are useful and up-to-date, so that there is a beneficial outcome from them reserving valuable space in our streets. Opting for micro-mobility transportation would essentially mean that the individual is making use of a shared mode of transportation. This has been discussed in further detail in another LCA publication entitled ***Shared Transport.***

Local Councils should actively contribute to local policies regarding new alternative modes of transport. They could do this by:

- using data from pilot projects to identify best practices;
- monitoring and evaluating the results of plans and investment decisions; and
- coordinating with authorities and potential partners.

Given that regulations and the legal framework for some new versions of micro mobility in Malta are still not defined, such local input and knowledge would be crucial to set policies that correspond to residents' needs. Local Councils can contribute to the formation of new policies by acting as the connectors between their communities, private or public mobility agencies and local authorities.

Micro-mobility-driver interfering with pedestrian walkway

2. 8 Steps Towards Sustainable Last Mile Transportation

Localities have significant responsibility in planning for sustainable transport. However, they need holistic, long-term and regional-scaled strategies as a base of departure and continuous guidance when shaping more detailed and locally based plans for their localities.

The concept of Sustainable Urban Mobility Plans (SUMPs) has been introduced in order to provide cities with an efficient tool for the development of sustainable mobility strategies. The primary goal of a SUMP is for a city's urban area to become more accessible, and for the transport used within it to be sustainable. It consists of long-term strategies with concrete action plans that are established at a governmental level. Residents should be invited to proactively participate in the development of SUMPs for them to be positively engaged in the change towards sustainable mobility.

As a subplan to the SUMP, one also typically finds the Sustainable Urban Logistics Plan (SULP) which focuses entirely on freight transport. Both SUMP and SULP for the Maltese Islands are currently being completed by the TM. Some long-term solutions for logistics could include:

- Developing dedicated roads for shipments
- Merging loads in specialised urban distribution centres, which integrate multiple modes of transport with smooth transition
- Integrating freight and passenger transport to optimise the use of space and time

Once the SUMPs and SULPs for the regions within the Maltese Islands are issued in the near future, Local councils should prepare for working in accordance with those strategies. The provisions within these plans are expected to help Local Councils assess their needs and propose relevant and specific solutions to be implemented for local development. Local Councils should be forerunners in encouraging more sustainable modes of transport in their respective localities, with a focus on improving the infrastructure for pedestrians and cyclists, increasing the provision for intermodality and framing movement strategies in view of wider environmental targets. In addition to the guidance that the SUMPs and SULPs will provide, the following eight-step action plan aims to support the Local Councils as they individually plan for the development of sustainable transport within their localities.

Ilustration by Studjurban - Adapted from TM's 2022 SUMP for the Northern and Southern Harbour

The SUMP and SULP provide the starting point for more detailed locality (or even neighbourhood) plans.

Step 1

Bring Data Together

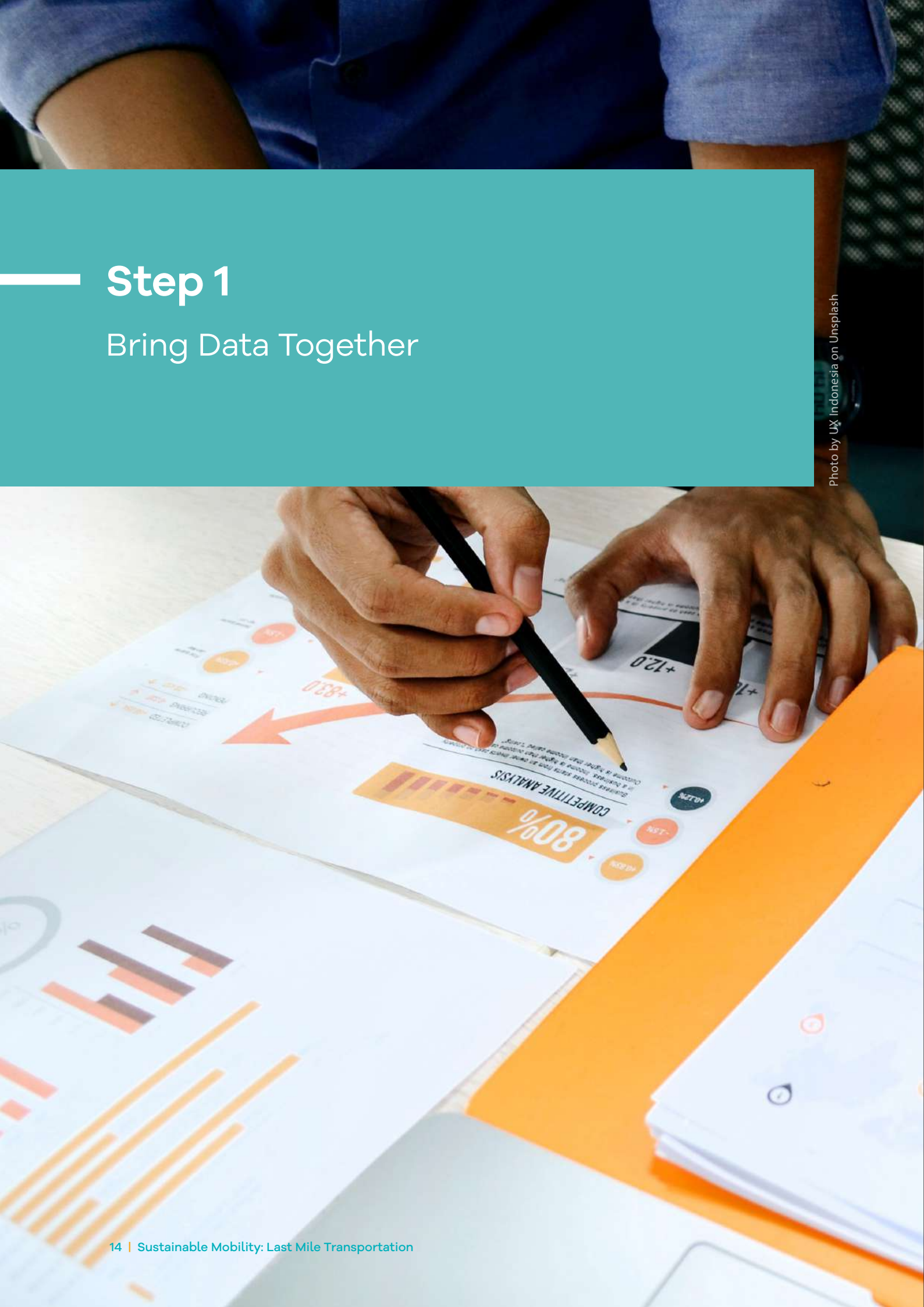


Photo by UX Indonesia on Unsplash

Data needs to be collected, updated and brought together for a proper understanding of the context in which sustainable transport is to be implemented. That is the starting point for any last mile transportation action plan.

Collecting data is vital for several reasons but essentially it supports having a correct understanding of the current mobility situation, which is an important prerequisite needed to suggest relevant solutions. In earlier documents within this series on sustainable mobility, the need for collecting data has been consantly emphasised, notably discussed in the LCA's document entitled ***Shared Transport***. When discussing last-mile transportation, collecting data is equally important. Data is needed in order to know if there is enough space for a certain amount of micro mobility vehicles to be parked within a specific area, or even to know if there is a demand for another micro mobility option.

Beyond data collection, it is absolutely necessary to subsequently bring the various data sources together for a comprehensive and accurate understanding of the reality on the ground. What the data describes is never isolated, but part of a larger and more complex system and should be viewed as such. Local Councils should demand and ensure proper data management framed within such a holistic approach. A more in-depth discussion about data collection is included in the latter Methodology section of this document.

SUMPs and SULPs are intended to be well-rounded documents that are developed through viewing all relevant mobility aspects together, resulting in far-reaching and comprehensive strategies. Bringing together data provides a strong basis for such holistic strategies to be developed at the regional level, as well as for more specific local mobility plans that are contextualised within the bigger picture.

Ilustration by Studjurban

Step 2

Improve the Infrastructure

Photo by Infrastructure Maltra

We need safe and well-connected roads as means to encourage walking, cycling and other micro-mobility options, and lessen our dependence on car usage.

A well-connected locality will encourage the use of alternative modes of transport. Among the most useful and cost-effective first and last mile strategies is providing the necessary infrastructure for pedestrians to move safely and conveniently around the locality. This will improve street network connections that make walking to transit hubs easier, more direct and more accessible. New improved pathways and strategic connections shorten travel time, making public transit a more attractive option. A positive local example is the footbridge at Blata l-Bajda that was inaugurated in mid-2020, and which addresses pedestrian and cyclist connectivity needs. For a deeper discussion on planning for pedestrians and cyclists, view the LCA's publication Walkability and Accessibility.

Furthermore, ensuring that there is a safe and connected infrastructure for cycling will not only encourage people to cycle more, but it will be beneficial for users of other modes of micro-mobility as well, such as drivers of e-kick scooters. More information on cycling and its infrastructure is provided in Step 4.

Evaluating the connectivity of your locality is the first step towards introducing alternative methods of transport as preferred last mile solutions. To evaluate the connectivity of your locality, start by asking the following questions:

- How many modes of transport are available within my locality (including, if applicable, ferries)?
- Are all transport stations well connected by continuous pavements, and are they adequate for walking?
- Are street connections for pedestrians direct, convenient and safe?
- Where are street connections interrupted by poor infrastructure (such as uneven pavements, poor lighting, barriers and street furniture)?
- Are there designated bicycle lanes? If so, are they continuously connected even at intersections?
- Are all modes of transport well known, and easily accessible, to local residents and visitors?
- Is there clear signage to transit and parking stations?
- Does the bicycle infrastructure link residential areas with primary cycling destinations such as educational institutions and public transport stations?
- Where are supplementary off-road tracks for pedestrians and cyclists located?
- Is there potential to introduce new transit routes (including ferry routes) for faster, efficient transit?


Photo by Infrastructure Malta

Step 3

Manage Parking

Photo by Anne Nygard on Unsplash

Getting more cars off our local roads will allow for more space for other modes of transport and wider walkways. It is important to manage on-street and off-street parking so that priority in street design is given to residents themselves rather than their cars.

Parking takes up valuable public space and causes congestion in our streets. Consistency between parking policy and public transport infrastructure is necessary to encourage the use of other forms of transportation. Parking is discussed in more depth within another LCA publication, Parking Projects.

Parking management must aim to reduce car dependency while increasing the use of alternative modes of transport, including walking. Car parks with connections to transport services are known as Park & Ride facilities, aimed at encouraging car users to leave their cars and transfer to other modes, such as bus or bicycle, to travel to their final destination. The park-and-ride should therefore be viewed as a part of the larger transportation network, designed to shift users between multiple means of transport. Planning for Park & Ride facilities next to public transit stops means planning for intermodality (discussed further in STEP 5). Park & Ride facilities could thus form part of mobility hubs (or intermodal hubs, see STEP 5 for further insights into this concept) and they could be a good solution for relocating parking from the most valuable urban centres (in turn given back to pedestrians) to the peripheral areas, while offering cost effective and healthier alternatives for people. For them to be successful, however, they must be well managed and supported by an efficient infrastructure that prioritises travel to and from such hubs using sustainable modes.

Parking for alternative modes of transport needs to be managed as well, essentially to promote the use of such transport modes. First and foremost, there must be enough parking spaces


Photo by Zachary Staines on Unsplash


Photo by Mika Baumeister on Unsplash

for sustainable vehicles, including micro mobility. The location of such parking spaces should be considered to support intermodality, in the same manner as Park & Ride. Having dedicated parking spaces is also crucial in order to ensure that people park vehicles in suitable places, where they do not interfere with pedestrians or other transportation modes. This was an issue with the e-kick scooters, often left parked in inappropriate places. As mentioned in the previous LCA document on Shared Transport, providers of such alternative modes should be obliged to ensure that there are available parking facilities for their provided vehicles.

At the scale of your locality, it is crucial to start planning by asking the following questions:

- Where are mass parking areas located in my locality? If there are none, could a strategic site (or sites) be identified?
- Where are the most congested streets in my locality, in terms of street parking? How does this affect other modes of mobility, especially for the more vulnerable street users?
- Are there public transport stops/ stations located next to existing mass parking areas? If not, is there potential to connect strategic parking areas with bus transit?
- Are there bike stations located next to existing parking areas? If not, is there potential to integrate such stations within strategic parking areas?
- Are there opportunities to place parking areas at the periphery and connect them to the centre by direct and convenient walking routes and/ or alternative modes of transport? Could this be part of a wider strategy wherein centres may be made more pedestrian in nature?
- What would be the key stumbling blocks with implementing such strategies and how could they be overcome?

Photo by Josh Bean on Unsplash

Step 4

Promote Cycling

Photo by Beeline Navigation on Unsplash

Cycling is a popular and affordable way to get around, but many people are concerned with their safety on the current narrow and busy roads. More residents would be willing to cycle to their last destination if there are designated cycling lanes and proper bicycle facilities.

Cycling is an efficient urban transport mode, especially for short journeys, and requires less space than cars. Bicycle infrastructure is inexpensive when compared to building more roads and motorways, and would likely not only support cycling but other forms of micro mobility as well. Costs are also paid off in a short time due to the benefits cycling has on the community, which include:

- reduction of health costs;
- reduction in household costs dedicated to cars, parking and fuel;
- reduction of working hours lost in traffic jams;
- reduction in economic dependence on non-renewable resources;
- reduction in negative impacts on the environment; and
- provision of equal access to mobility for all in the local community.

Strategies to plan attractive and safe cycling infrastructure include:

- enhanced cooperation/coordination in cycling infrastructure - notably, with Rota;
- planning and supporting cycling events;
- increased awareness and traffic education;
- development of new outreach opportunities, including appropriate means;
- use of more traffic calming measures; and
- effective enforcement of safety regulations.

Transport Malta's National Transport Strategy sums up the opportunities succinctly, when stating that: "some cycle lanes have been implemented in


Photo by Local Council Association


Photo by Local Council Association

Malta, but improvements should be made in terms of connections, integration with other transport modes and penetration in urban areas. Given that the average car commuting journey length is only 5.5km and the average journey times during the peaks of around 20 minutes, cycling, if seriously developed as a mode, could offer a faster, more environmentally-friendly alternative to the car for many commuters".

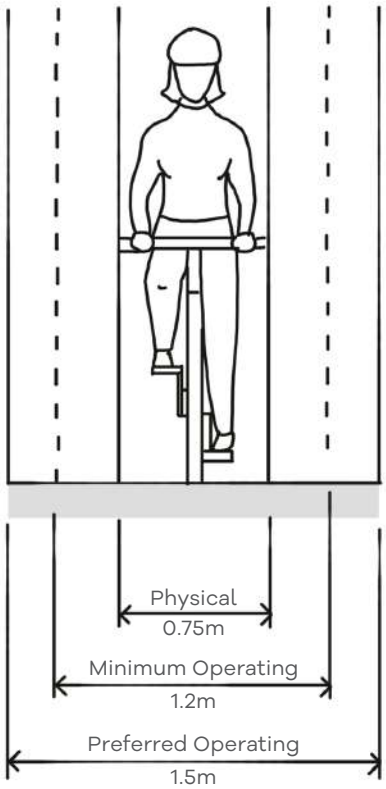
A proper balance of roads and paths that meets the needs of all users creates more liveable, social communities. In this respect, Local Councils should note some important design considerations when it comes to bicycle lanes, discussed next.

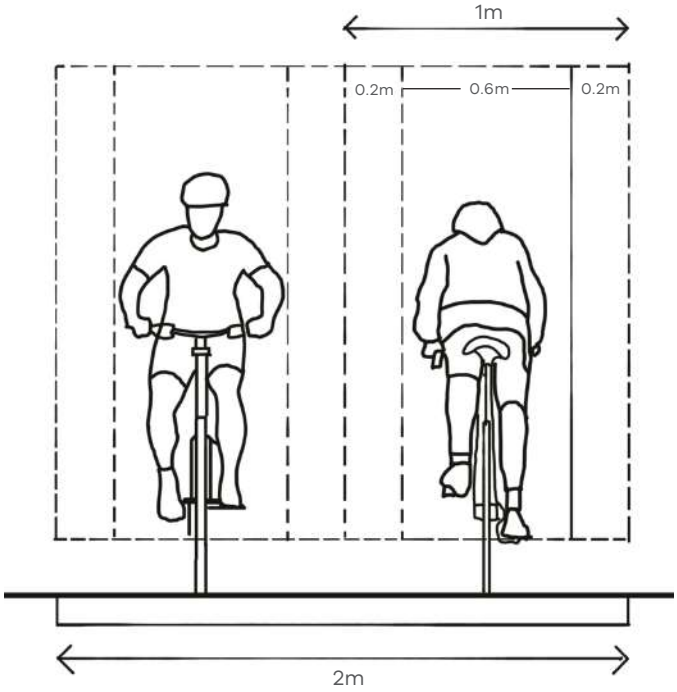
Designing good bicycle lanes

A bicycle lane is a segment of the roadway for the exclusive use of cyclists. For roadways with no curb and gutter, the minimum width of a bike lane is 1.2 m. The minimum required width for a two-way cycle track is 2 m, but a width of 3.0-3.5 m is required for high cyclist volumes.

Road treatments provide separation between bicycles and motor traffic, which increases cyclist comfort and safety, especially in fast moving traffic. The feeling of safety in turn increases ridership. Separation treatments can be:

- conventional lane markings;
- marked bicycle lanes with a buffer space separating the bicycle lane from the vehicle lane, referred to as buffered lanes; and
- a bicycle lane that is physically separated from vehicle traffic by raised medians, on-street parking, or bollards, known as a cycle track.



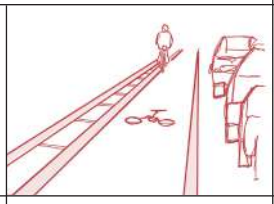
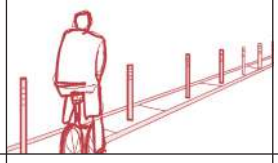
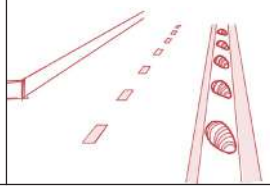


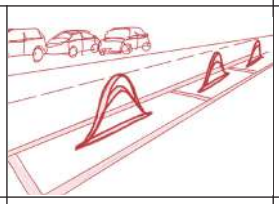
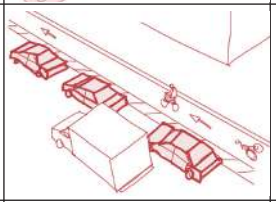
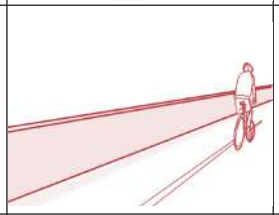
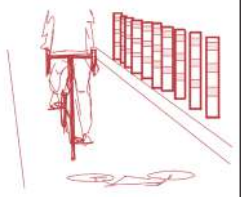
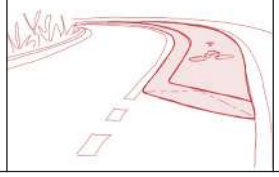
Ilustration by Studjurban

Consult the tables below when deciding on the treatment of the bike lanes for your locality:

Roadway Context		Treatment
Motor Vehicle Speed	Key Considerations	
< 20km/h	Pedestrians share the roadway	Shared Street
≤ 30km/h		
≤ 40km/h	Low pedestrian & traffic pressure	Conventional or Buffered Bicycle Lane
> 40km/h	Low pedestrian & vehicular traffic	Buffered Bicycle Lane or Cycle Track
	Busy pedestrian & vehicular traffic	Cycle Track
High-speed limited access roadways, natural corridors	Can have both high or low pedestrian volumes	Cycle Track

The following table clarifies different barrier treatments for cycle tracks, highlighting pros and cons on the basis of protection, cost, aesthetics and durability:

Barrier Type		Protection Level	Installation Costs	Aesthetics	Durability
Striped Buffer		Low	Low	Medium	Medium
Delineator Posts		Medium	Low	Low	Low
Bumps		Medium	Medium	Medium	Low

Barrier Type		Protection Level	Installation Costs	Aesthetics	Durability
Linear Barriers		Medium	Low	Medium	Medium
Parked Cars		High	Low	Low	High
Concrete Barriers		High	High	Medium	Medium
Planters		High	Medium	High	Medium
Rigid Bollards		High	High	Medium	High
Precast Curb		High	High	High	High
Raised Bikeway		High	High	High	High

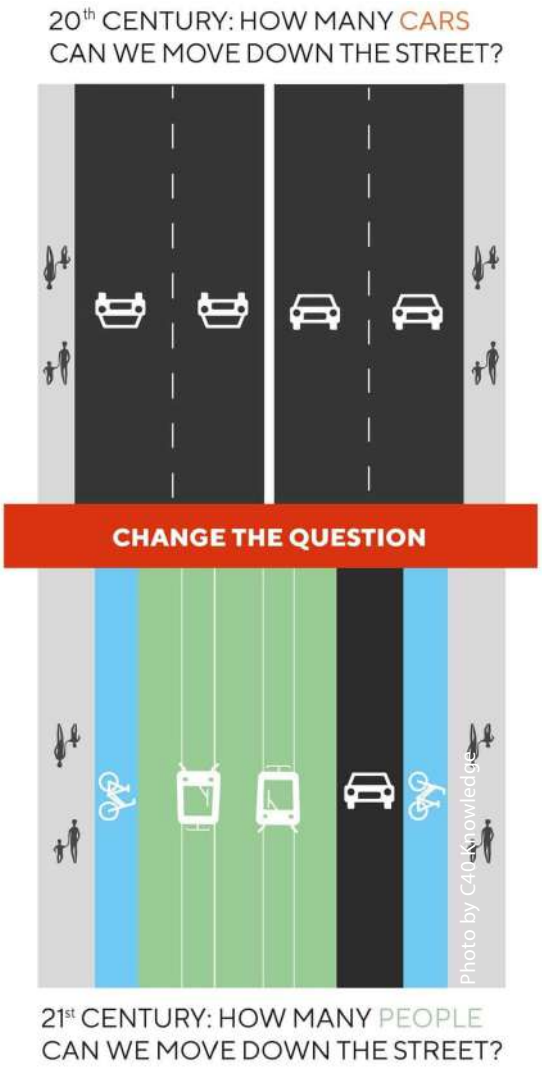
Bicycle Stations

The location of bicycle stations is key in ensuring that it could be used by the public. Consider the following recommendations when deciding on the location of such stations:

- locate stations for pedestrians and cyclists to easily find and use at any time in busy, well connected and well-lit areas;
- place stations within the pavement's furniture zone to maintain a pedestrian clear path, while also keeping utility access points unobstructed (discussed further in the LCA publication Walkability and Accessibility);
- ensure that stations are accessible by maintenance vehicles, especially in unpaved areas;
- mark stations by visible delineators, planters, or other street treatments; and
- consider bicycle sharing stations as traffic calming treatments to separate pedestrian space from moving traffic.

Consider cycling as a valuable addition to your locality's transportation needs. Examine giving priority to primary routes rather than side streets and local routes. Begin by asking the following questions:

- Are there designated cycling tracks or lanes on primary roads? Where are the missing links?
- Are the existing bike lanes continuous and well connected to town centres?
- Are there secure bicycle crossings at intersections?
- Are there biking stations in main centres or commercial areas?
- Does the cycling infrastructure link residential areas with primary cycling destinations such as educational institutions and public transport stations?
- Are the residential locations well linked?
- Is the cycling network flow interrupted by poor and/or badly maintained infrastructure (including poor lighting, barriers and street furniture)?
- Are there recreational bicycle routes? Is there potential for introducing cycling tourism?
- Can existing bicycle lanes be upgraded to actual bicycle tracks?
- Are supplementary off-road tracks included in the plan?



The change in mindset, spurred by the change in infrastructure

Case Study - Superhighways for Bikes in Denmark

27 municipalities and the The Capital Region of Denmark have joined to create a network of cycle superhighways, dedicated wide lanes that prioritise cyclists' needs. The project aims to offer a mode of transport equal to public transportation and the car, by creating direct and safe routes that will increase the number of cycling commuters.

The Office of Cycle Superhighways that facilitates the collaboration is funded by the municipalities and The Capital Region of Denmark.

Photo by Rasmus Hjortshøj on Copenhagenize

Step 5

Support Intermodality

Photo by Vitor Paladini on Unsplash

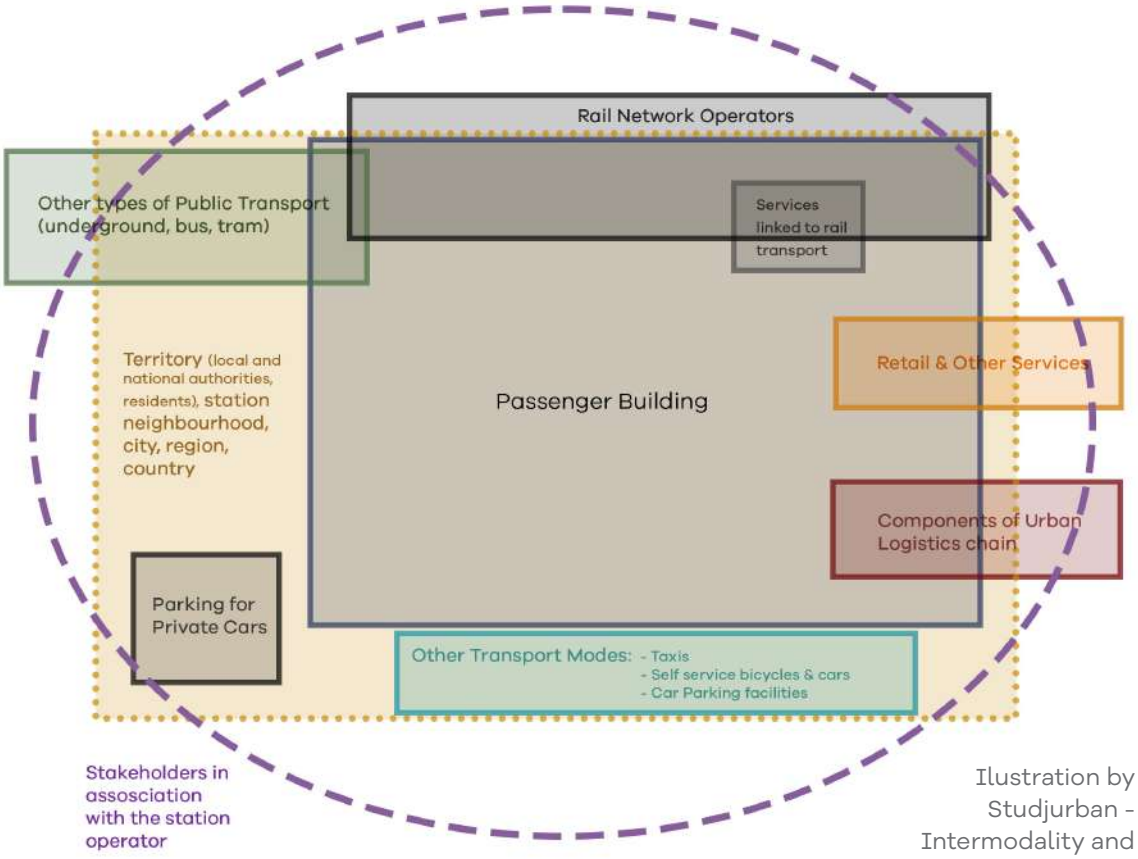
Integrated stations that make it easy to switch between different modes of transport, especially to public transit, should be established and promoted.

Intermodal hubs would:

- offer a sustainable and attractive alternative for private car users;
- add flexibility to users of public transport;
- increase the catchment area around public transport;
- increase the potential destinations available for cyclists; and
- extend recreational and touring opportunities for cyclists.

An intermodal hub can naturally originate from a high-frequency transit stop that has the potential to encompass multiple facilities. The goal of the hub is to encourage people to travel with alternative modes of transport by offering easier connectivity and better convenience when switching between different transport modes. For example, intermodality could be supported when the transit stop is located next to one, or a number of, the following facilities:

- parking for shared mobility options such as shared bicycles, shared e-kick scooters, shared cars
- bicycle parking for private bicycles
- taxi stops
- park-and-ride (discussed previously in STEP 3 Manage Parking)
- other public transport options (for instance ferry stations)
- Malta International Airport



Ilustration by Studjurban - Intermodality and multiple stakeholders

Furthermore, the hub should be accessible to all, well-connected to infrastructure for pedestrians and cyclists, and it should offer an efficient, convenient and comfortable service. Signage and on-site information on connections, transport information directed to users, possibilities of purchasing transport tickets, as well as comfortable and weather protected seating are some examples of what a hub should include.

Strategies to create and optimise an intermodal network include:

- the development of incentives and partnerships for shared mobility providers to engage in the local transport plan.
- choosing a central hub where a main station can offer multiple choices of transport.
- the inclusion of first/last-mile micro mobility connection to supplement on-demand mobility transit.
- incentivising shared transportation to enable integration of multiple modes of mobility.
- Investigating users' transport of choice for hub implementation at crucial point.

After studying the connectivity of your locality, continue by assessing the locations of public transportation:

- Are public transport stops/stations well placed in servicing the local community?
- Do public transport stations offer more than one mode of transport? Are biking stations adjacent to public transport stations (including ferry terminals)?
- Are biking stations well located in the locality? Where can new stations be potentially introduced?
- Do all transport stations offer clear information and time schedules in real time?
- Is this information available for people with visual and hearing disabilities?
- Where are the best centrally located bus stops with the potential of becoming intermodal stations? Is there enough space and infrastructure to develop a hub without interfering with the pedestrian and cycling networks?
- Can new bus stops be introduced at ferry points?

Photo by Josh Bean on Unsplash

Photo by M.R. on Unsplash

Case Study: Intermodal Hub in Clermont-Ferrand, France

Clermont-Ferrand railway station in central France is the city's most important transport hub. The city decided to improve its connections with other forms of transport in its 2011 urban mobility plan. The project was completed in January 2015.

Action Plan:

- co-ordinating better the different forms of public transport through better communication;
- creating or improving Park-and-ride (P+R) car parks;
- establishing secure bike-parking at the hubs, P+R car parks and stations of regional lines;
- providing free parking for users of public transport;
- developing integrated pricing;
- creating a Mobility Centre that provides regional transport information;
- optimising the physical links between intermodal infrastructure;
- co-ordinating the timetables of each transport mode;
- providing complete on-site multimodal travel information on display panels; and
- making this information accessible online and in the Mobility Centre.

Results:

The new hub now features direct, accessible and safe links between the local and regional public transport, a bike-sharing depot, bicycle parking and a taxi stop directly in front of the station. More specifically, the improvements consisted of:

- A redesigned pedestrian forecourt
- Screens with real-time travel information on the scheduling times and locations of trains, intercity buses, and coaches
- New signs to help locate interchanges
- An underground pedestrian passage linking platforms to surrounding streets
- A dedicated bus line and bus stops directly in front of the station
- Reducing the speed limit in the area around the station to 30 km/h
- Installing facilities for passengers with disabilities

The main challenge was co-ordinating the large numbers of organisations involved in the redevelopment of the station. The public transport authority has been responsible for the implementation of urban public transport policy, financing and service contracts.

Step 6

Exhibit and Endorse Temporary Pedestrianisation

Photo by Jan Antonin Kolar on Unsplash

Plan events of temporary pedestrianisation to encourage the use of bikes and scooters so that people can experience and test out their spaces without vehicles.

Within the Slow Streets project, spearheaded a few years ago by the LCA, temporary pedestrianisation through tactical urbanism is discussed as a possible strategy for a number of urban spaces within localities. Such small-scale projects can be cost-efficient, and provide the authorities with information and experience for future implementations of permanent large-scale pedestrianisation projects, while allowing residents to experience the urban space and experimenting with different iterations and possibilities, before deciding to implement such strategies more permanently. In that sense, temporary pedestrianisation projects are a smart investment for any locality and should not be underestimated.

Tactical Urbanism engages people to be involved in designing their streets and squares and is discussed further in LCA's previously published document Walkability and Accessibility. Local Councils should encourage residents to use their creativity and engage in co-designing streets that are attractive, safe and appreciated by their residents. The active involvement of residents increases the success of such projects in the long-term, as they effectively become co-owners of their spaces, with a heightened sense of responsibility towards ensuring pedestrian and cyclist priority, observance of laws and regulations and continued upkeep.


Photo by Tom Hill on Unsplash


Photo by Furkan Vari on Unsplash

Step 7

Explore Possible Public-Private Partnerships

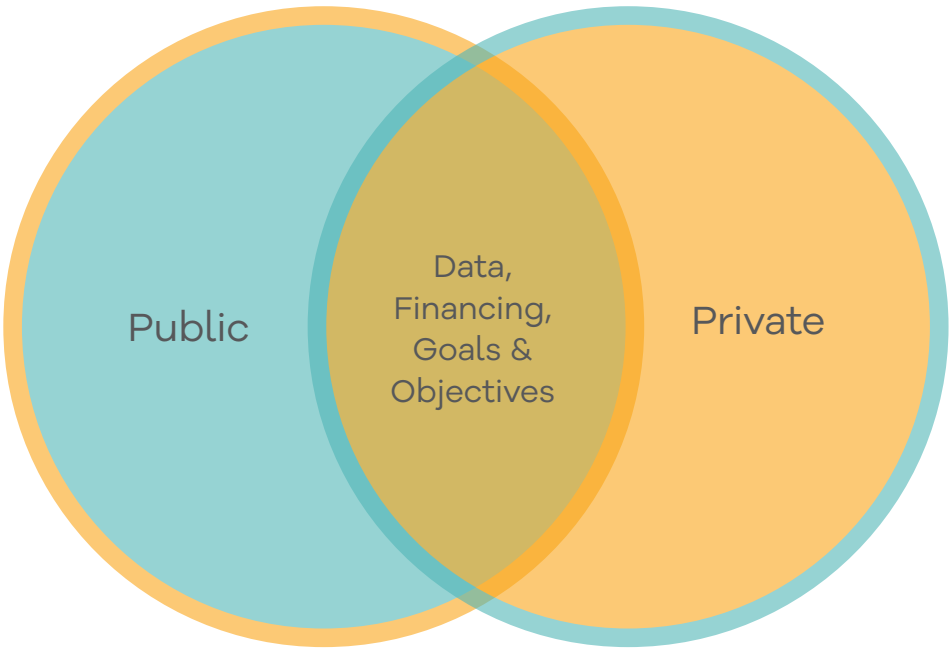
Photo by Priscilla Du Preez on Unsplash

Public-private partnerships in shared transport provide significant opportunities for private investment while also catering for residents' needs and should therefore be explored.

Public-private partnerships in shared transport increase the capacity of financing new transport related projects. The contract between the two sectors can take on different forms, depending on the circumstances and the goals of the specific project. These partnerships should also be explored and considered during the planning process, within which the private sector could be invited to engage.

Furthermore, these partnerships provide a possibility of sharing collected data between parties, which is crucial for the stakeholders from both the public and private sector. As the first STEP of this document indicates, data is indeed needed to plan our localities' future mobility.

Shared mobility partnerships can first be treated as pilot projects. Local Councils can study how they work and whether they are successful in meeting the community goals and objectives.



Ilustration by
Studjurban

Step 8

Create Awareness and Educational Campaigns

Photo by Jason Goodman on Unsplash

Educating your locality about the benefits of alternative modes of transport for their last-mile journey is the catalyst for its use and adoption.

To move away from the usage of cars as our primary means of transport and towards sustainable options, residents must shift their mindset concerning transport. In order to succeed, Local Councils should work towards creating awareness and educating residents about last mile transportation options and their advantages.

As discussed in the previous LCA document Shared Transport, there are several possible approaches to creating awareness among the residents of our localities. It could be done in various ways, from the development of workshops, organised in a bottom-up manner with the active participation of street users, to the launching of appropriate advertisements in the media. Such initiatives should be encouraged and supported, even through appropriate financial instruments.

Creating awareness is a continuous process that should always be complemented with other actions which incentivise travelling sustainably. Notably, one may single out an efficient and overall well-functioning public transport system, as well as well-studied parking management – both essential prerequisites for people to be able to choose, or even consider using, alternative modes of transport.

Photo by Jason Goodman| on Unsplash

3. REACH - a proposed methodology for effective last mile planning

The long term goal for effective last mile planning is to integrate sustainable modes of transport and micro mobility within the public transportation system. To properly intervene in any field of action, a methodology is necessary for ensuring a successful outcome. Consider implementing the following 'REACH' methodology for your locality:

RESEARCH
EDUCATE
ADVOCATE
COOPERATE
HYPOTHESISE

Research - the preparation stage

Becoming familiar with alternative modes of sustainable transport, at locality-level and beyond, is a crucial stage. This includes studying the existing legal framework and barriers, taking into account existing measures that could be implemented for the last mile, and framing the discussion within wider strategies such as the National Transport Masterplan, the National Cycling Strategy and the SUMP/SULP. Well-executed research is the best asset to be able to propose successful solutions for your Local Council. Proceed with commissioning data collection to properly assess the needs of your locality when catering for multimodal transportation options. Collect data in your locality by:

a. conducting surveys on current methods of transport for the last mile;
b. studying how visitors (including tourists, where significant) get around in your locality and inquiring how they would prefer to move around;
c. organising local meetings with residents to gather qualitative information on how they view micro mobility – ask them what they use and what solutions they would like to have in the future; and
d. actively engaging shared mobility providers in the region, coordinating data collection efforts, and working to integrate this data into the wider travel demand model and related planning tools. Particularly, a primary purpose for supporting the use of shared mobility services would be to obtain data on carpooling behaviour.

Mapping is a useful tool, especially within early research stages. Use mapping to:

a. study new potential lanes for both existing and new forms of micro mobility, concentrating on routes that connect to public transportation;
b. analyse potential hub locations for micro mobility sharing stations;
c. identify unserviced areas in the public transport system; and
d. study circulation routes and patterns of different users (i.e. routes of visitors/tourists as opposed to routes of residents).

Public engagement is important to the strategic planning process, as it is the best source to collect data, in order to develop project ideas, define performance measures, and synthesise results into plans. These findings would indicate how best to manage the investment of available transportation funds and the types of planning

interventions and implementation actions to pursue.

Educate and Advocate

Educating your locality about the benefits of alternative modes of transport for the last mile journey is the catalyst for its use and adoption. The residents of your localities also need to know what services are available to them. Consider proposing the following:

- Education programmes about using micro mobility in schools and other educational institutions within the locality.
- An education programme for private companies operating within the locality to educate their staff on micro mobility.
- Regular mobility awareness workshops and campaigns carried out with the local community.
- Production of concise and user-friendly publications that share data collected in your research phase with the public at large.
- Development of pilot projects within the locality and sharing successful outcomes therefrom.

You may also consider organising technical advisory committees to inform Councillers and administrative staff on particular mobility topics, with the active involvement of shared mobility providers.

As discussed the LCA publication ***Walkability and Accessibility,*** you should advocate for walking as a primary solution for the last mile.

Cooperate

Pilot projects and partnerships provide important cooperation opportunities to experiment with shared mobility business models and include:

- Organising awareness campaigns with active groups such as Rota (a member of the European Cyclists' Federation).
- Liaising with other authorities on mobility measures that may be implemented.
- Planning events for temporary pedestrianisation of urban areas, to encourage the use of bikes and scooters, such that people may experience and test urban spaces without vehicles.
- Inviting private entities and providers to carry out trial projects within the locality.
- Exploring the possible formation of public-private partnerships for the provision of mobility services and/or strategic projects such as intermodal hubs, Park & Ride facilities, and the like.

Hypothesise Future Needs

Our localities have developed, over the past decades, with a car-centric approach that is outdated – the future will belong to intermodal systems redesigned for shared mobility. New technological improvements are already resulting in new forms of transport. It is important to predict future needs in your locality, such as new electric charging stations (discussed further in LCA's document Electric Vehicles changeover), by monitoring projects and keeping the data collection and analysis going even after implementation. This may inform future interventions and investments related to shared mobility and, in turn, the way this may influence travel behaviour and overall performance of the multimodal system.

4. Concluding Thoughts

This document states that ensuring that people have access to sustainable last-mile transportation is crucial in light of the fact that the last mile has been proven to be the most inefficient – costly and time-consuming – part of an intermodal journey. The local starting point must be clearly defined through the collection and analysis of data for Local Councils to then be able to take correct decisions in terms of which direction should be pursued.

Shared micro-mobility is a growing mode of transportation that is key within this discussion since it is a very flexible and popular last-mile option. It is sometimes referred to as future mobility and should definitely be included in Local Councils' long-term planning processes for sustainable mobility. At the same time, well-established micro-mobility options such as cycling, together with walking, should be equally integrated and supported.
option. It is sometimes referred to as future mobility and should definitely be included in our long-term planning processes for sustainable mobility. At the same time, well-established micro-mobility such as cycling, together with walking should be equally integrated and supported.

Finally, Local Councils should seek to engage residents in this transformation process, to provide them with the opportunity to make a difference through their creativity and feedback.

Resource Section

Local & European Legislation Context

The 2017 Smart Mobility and Services Expert group report states that the first/last mile logistics can be key to improve efficiency of urban mobility systems, increase the preference for sustainable modes of transport and efficient demand management:

"Individual mobility services can be integrated (in first/last mile and supplementary function) with public transport systems while Autonomous vehicles could eventually supplement or substitute current rigid-line public-transport systems in particular in first and last mile journeys"[1]

Enabling multimodal travel chains based on main public transport lines for residents to improve their accessibility in public transport within their places of residence and of the centres/cities where they find workplaces is a key requirement.

The European Union has recognised that improving urban transportation can contribute to a number of its long-term political objectives, including socio-economic and climate related targets, and has therefore sought to support urban transitions. From 2001's Gothenburg Strategy, the European Union has aimed to develop an integrated and sustainable transport sector. The 2011 White Paper, Roadmap to a Single European Transport Area set European transport policy in motion with long-term goals, including that by 2050 carbon emissions from transport should be reduced by 60%, with conventionally fuelled cars no longer used in cities. The strategy was followed up by the Urban Mobility Package in 2013 setting out procedures and support mechanisms for developing SUMPs[2]. The Commission released guidance on how to devise such plans, taking account of the complexities of overlapping planning and management competencies within cities. The guidelines encourage policy-makers to tackle the entirety of an urban area, and bring together policy-makers from a number of different policy-areas and governance levels, with different stakeholders involved in urban transport.

The European Strategy for Low-Emission Mobility highlights the areas on which Commission initiatives focus, including: digital mobility solutions; fair and efficient pricing in transport (which should better reflect negative externalities of transport); promotion of multi-modality; framework for alternative energy; roll-out of infrastructure for alternative fuels; interoperability and standardisation for electro-mobility; improvements in vehicle testing; post-2020 research and investment strategy for all means of road transport.

Malta's National Transport Strategy 2050 and Transport Master Plan 2025, published some years ago, has the form of a hybrid national transport plan and sustainable national urban mobility plan. It also sets the framework for regional or local mobility plans that are expected to be developed in the coming years.

The Transport Master Plan prioritises active mobility, but also takes public transport, ferries and freight transport into account. Since Malta is a tourist destination, apart from resident commuters, it considers the mobility needs for infrequent users such as tourists. The Transport Master Plan is the first 10-year plan of an expected series of Transport Master Plans that will strive to achieve the goals established in the National Transport Strategy for 2050. The upcoming SUMP is expected to build on the objectives originally set out in the strategy, further prioritising sustainable travel through various modes.
Another good local document, Micromobility in the Maltese Transport System, addresses Micromobility technologies, particularly e-kickscooters, which are available on the market and their popular use throughout major cities worldwide, including in Malta. Currently EU Member States are drawing up their own regulatory framework as deemed fit and according to their particular specificities. It is to be noted that, while this policy document will be updated over time, it currently only addresses e-kickscooters, which are the most widely available and used among all other technologies falling under the Personal Light Electric Vehicles (PLEV) classification. Hence for the purpose of this policy document in most of the cases, PLEV will stand for e-kickscooters, and the proposed regulations therein are only addressing e-kickscooters. This means that all other technologies falling under PLEV shall still be regulated by the existing regulations.

[1] https://ec.europa.eu/transparency/regexpert/index.cfm?do=groupDetail.groupDetailDoc&id=34596&no=1

[2] Currently being developed by TM for the various regions within Malta and Gozo.

Funding & Kickstarting

The European Union provides financial support for sustainable urban mobility through the European Structural and Investment Funds (ESIFs) and the Connecting Europe facility. From the ESIFs, sustainable transport can be funded through both the European Regional Development Fund (ERDF) and the Cohesion Fund.

One of the four most important target areas for the ERDF is Investment Priority (IP) 4 'supporting the shift towards a low-carbon economy in all sectors', with the sub-priority 4.4 of 'promoting low-carbon strategies for all types of territories, in particular for urban areas, including the promotion of sustainable multimodal urban mobility and mitigation-relevant adaptation measures.'

EU Urban Mobility Observatory:

To support regions with their SUMPS, the EU Mobility Package set out a uniform methodology for local and regional authorities to foster low carbon mobility strategies, and established a dedicated information hub. The Eltis platform, financed by the Directorate General for Mobility and Transport of the European Commission, is a one-stop shop for regional authorities looking to develop a SUMP. The website is divided into three themes:

- The Case Studies section provides a range of information including successful examples of sustainable urban mobility initiatives and strategies, statistical data, and a summary of relevant EU legislation and policies.
- In Sustainable Urban Mobility Plans, urban mobility professionals are given access to tools, guides and references for the production of SUMPs, together with a state of affairs regarding such plans within EU Member States.
- Finally, Get Involved provides contact with the EU Urban Mobility Observatory helpdesk.

Other support tools and activities are funded by the European Union, to help regions to integrate sustainable mobility planning and solutions. The URBACT programme supports knowledge exchange and capacity building on sustainable urban development, including urban mobility. The initiative is funded by the European Regional Development Fund and EU Member States involving 550 cities across Europe.

In turn, the CIVITAS initiative supports local partnerships to implement and test novel urban mobility approaches in real conditions. The network is co-funded by the European Commission and supports demonstration projects of urban transport solutions, and operates working groups on the topics of planning and mobility management. The platform provides access to numerous good practices for regions to explore.

https://urban-mobility-observatory.transport.ec.europa.eu/index_en

URBIS:

URBIS is a dedicated urban investment advisory platform within the European Investment Advisory Hub (EIAH). URBIS is set up to provide advisory support to urban authorities to facilitate, accelerate

and unlock urban investment projects, programmes and platforms. URBIS has been developed in partnership by the European Commission (DG REGIO) and the EIB in support of the ambitions defined in the EU Urban Agenda.

https://citiesclimatefinance.org/project-preparation-resource-directory/urban-investment-support-urbis#:~:text=URBIS%20is%20a%20new%20dedicated,projects%2C%20programs%2C%20and%20platforms.

Open Calls:

2024 CEF Transport MAP calls for proposals:

The 2024 CEF Transport MAP calls for proposals was published on 24 September 2024 with a total budget of €2.5 billion to build and modernise European transport infrastructure, in support of the European Commission's vision of a future sustainable transport system, with smart and resilient solutions implemented to interconnect Europe. Projects funded under these calls will help make the trans-European transport network (TEN-T) more sustainable, smart and resilient and contribute to the EU's goal of becoming climate neutral by 2050. The call is split into – Projects on the Core Network, Projects on the Comprehensive Network, Smart and interoperable mobility, Sustainable and multimodal mobility and Safe and secure mobility.

https://cinea.ec.europa.eu/funding-opportunities/calls-proposals/2024-cef-transport-calls-proposals_en

Horizon Europe:

Horizon Europe is the EU's key funding programme for research and innovation. Following the Multiannual Financial Framework Midterm Review (MTR) decision, the indicative funding amount for Horizon Europe for the period 2021-2027 is EUR 93.5 billion.

Cluster 5: Climate, Energy and Mobility focuses on making the energy and transport sectors more climate and environment-friendly, more efficient and competitive, smarter, safer and more resilient. Relevant areas of intervention include industrial competitiveness in transport; clean, safe and accessible transport and mobility; and smart mobility. Funding programmes include support for research and innovation in transport, including multimodal travel, defined as an important objective due to its potential to decarbonise transport and reduce air pollution and congestion in cities.

More information regarding research and innovation for multimodal travel opportunities may be found here:
https://research-and-innovation.ec.europa.eu/research-area/transport/multimodal_en
Other Supporting Networks and Tools:

ELENA:

ELENA is a joint initiative by the EIB and the European Commission under InvestEU. ELENA provides technical assistance for energy efficiency and renewable energy investments targeting buildings and innovative urban transport.

Cluster 5: Climate, Energy and Mobility
https://www.eib.org/en/products/advisory-services/elena/index#:~:text=A%20team%20of%20experts%2C%20consisting,(as%20of%20end%202023).

POLIS:

POLIS is the network of European cities and regions cooperating for innovative transport solutions. Its aim is to improve local transport through integrated strategies that address the economic, social and environmental dimensions of transport. To this end, it supports the exchange of experiences and the transfer of knowledge between European local and regional authorities. It also facilitates the dialogue between local and regional authorities and other mobility stakeholders such as industry, research centres and universities, and NGOs.

POLIS members meet regularly in working groups to exchange best practices and share knowledge on sustainable urban mobility.

https://www.polisnetwork.eu/

EIT Urban Mobility

EIT Urban Mobility is an initiative of the European Institute of Innovation and Technology (EIT). Since January 2019 they have been working to encourage positive changes in the way people move around cities in order to make them more liveable places. They aim to become the largest European initiative transforming urban mobility. Co-funding of up to € 400 million (2020-2026) from the EIT, a body of the European Union, will help make this happen.

https://www.eiturbanmobility.eu/about-us/

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ResidentFirst

Assoċjazzjoni
Kunsilli Lokali
Local Councils' Association Malta