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Cleaner and better transport in cities



STEP-UP

FOR INTERMEDIATE CITIES

**Manual on the
integration of measures
and measure packages
in a SUMP**



European Platform
on Sustainable Urban
Mobility Plans



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Manual on the integration of measures and measure packages in a SUMP

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IMPRINT

About

CIVITAS SUMP_s-Up is a 42-month project funded under the European Union's Horizon 2020 Research and Innovation Action programme under grant agreement no 690669. It works together with planning authorities across Europe to accelerate the development and implementation of sustainable urban mobility plans and bring cleaner and better transport to cities.

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1. EXECUTIVE SUMMARY

This manual provides support for cities that are familiar with sustainable urban mobility planning. A step-up city is applying SUMP measures, but not systematically.

The issues this manual addresses are how to apply a systematic and effective approach in measures selection, how to find synergies between different types of measures and policy areas, how to adapt new fields of measures in to what already has been done within the city and how to be more systematic in the measure selection process.

Hints and inspiration how to address these issues are presented in two focus areas:

1. Systematic overview of already selected or implemented measures to check if all relevant challenges, mobility policy fields, transport modes, and measure types are covered.
2. Stepwise guidance on how to select and package measures for systematic and integrated SUMP development.

For the systematic overview, three models can be used to sort and organise existing measures and plans based on (1) challenges, (2) mobility policy fields and transport modes and (3) types of measures.

When the systematic overview is completed, measure packaging can be done using the 4-step principle. It composes packages of measures based on the principle that measures affecting travel demand and measures for a more efficient use of the existing transport system should always build the foundation of a measure package.

2. INTRODUCTION

Despite the Sustainable Urban Mobility Plan (SUMP) support and knowledge for local authorities that has become available within the past years, the take up of SUMPs has been relatively slow. There is a need for a more systematic understanding and support for SUMP development and implementation.

This manual is a part in systemising the SUMP process and to identify the most effective planning tools and methods for the SUMP process and give guidance in key topic areas relevant for high-quality, effective and efficient SUMP development. The topic area of this manual is measure selection and packaging.

2.1 A product of SUMP-UP

This manual is a product of the project SUMP-UP (see Box 1 for links to more information).

CIVITAS SUMP-UP is an EU-funded project that brings together European cities, researchers, universities, environmental organisations, climate institutes, transport consultants and mobility experts into a singular initiative to help cities introduce cleaner, sustainable mobility solutions. It brings together eight partner organisations and seven partner cities and is one of the three projects related to Sustainable Urban Mobility Plans under the European Union's CIVITAS 2020 initiative.

The objective of SUMP-UP is to:

“Enable mobility planning authorities across Europe to embrace SUMP as the European-wide strategic planning approach, especially in countries where take-up is low and the negative effects of transport are severe.”

Box 1: SUMP-UP

SUMP-UP is a project taking place from 2016-2020 and aims to produce several supporting materials and trainings for cities that want to develop a SUMP.

- Outreach Cities: 600 cities will be reached out to over the course of the project. With Outreach Cities, the emphasis will be on capacity building.
- Cities in the Innovation Pilot Pool: 100 cities will become members of the Innovation Pilot Pool. The Pool will facilitate significant peer knowledge exchange and be split into an expert and a leadership group.

For more information, news and supporting materials, visit: www.sumps-up.eu



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2.2 Context of measure selection and packaging

Measure selection and packaging are highly important parts of the overall process of developing a SUMP. Mobility policies and measures are at the heart of the planning approach for sustainable urban mobility planning. The general process regarding this subject is further described in the SUMP Guidelines, see link in Box 2.

Measure selection can be a challenging task due to several reasons, as described in the measure selection manual developed within the European project CH4ALLENGE. For example, there is a wide range of possible measures which can make the selection process complex, many stakeholders have preconceived ideas of what to do and the selected measures must be feasible to implement (May, 2016).

The general guidance and information available about measure selection (see Box 2) makes a strong foundation of how to approach the measure selection process.

However, guidance has to be better adapted for practitioners in different types of cities. The wide range of cities with differing conditions in Europe implies that the challenges to select the right kind of measures depend on how mature a city is in terms of sustainable urban mobility planning, but also on the city's baseline. The three manuals on integration of measures and measure packages published by SUMP-UP provide targeted guidance for cities with different levels of SUMP experience.

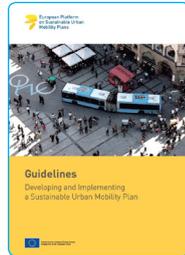
Box 2: Guidelines for SUMP planning

Guidelines: Developing and Implementing a Sustainable Urban Mobility Plan

The SUMP Guidelines are available on the ELTIS-platform, www.eltis.org/guidelines/sump-guidelines.

These guidelines are intended for urban transport and mobility practitioners and other stakeholders involved in the development and implementation of a Sustainable Urban Mobility Plan.

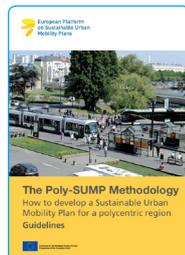
The guidelines are introducing the concept and the benefits of Sustainable Urban Mobility Plans and contain a description of the 11 steps of the SUMP-process (Rupprecht Consult, 2014).



The Poly-SUMP Methodology: How to develop a Sustainable Urban Mobility Plan for a polycentric region: Guidelines

Based on the SUMP process there are also guidelines available for how to develop a Sustainable Urban Mobility Plan for a polycentric region.

www.eltis.org/sites/eltis/files/tool/polysump-sump-guidelines-final.pdf.



Measure selection: Selecting the most effective packages of measures

For more information about the theory and evidence behind measure selection, see Measure selection – Selecting the most effective packages of measures for Sustainable Urban Mobility Plans. The publication produced in the CH4LLENGE project gives a wide introduction to the subject measure selection, how measure selection is an important part in sustainable urban mobility planning and what evidence and principal constraints there are regarding measure selection.

www.sump-challenges.eu/kits



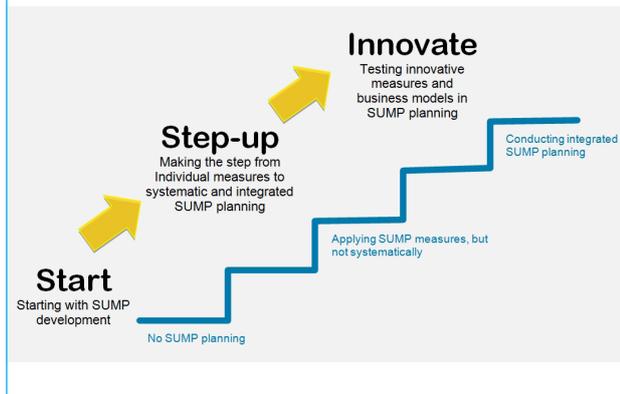
2.3 Overview of the manuals

The CIVITAS SUMP-UP project has designed three manuals for the integration of measures and measure packages in a SUMP. The manuals aim to support cities that follow or want to follow a measure driven approach for more comprehensive planning, and that want to develop measures and measure packages as a part of their SUMP process. The manuals focus on specific challenges that cities with different level of maturity and experience in SUMP planning may face in the measure selection process. As illustrated in figure 1 below, the three manuals are tailored to give support to cities who; are starting the SUMP development (Start version of the manuals), are making the step from individual measures to systematic and integrated SUMP planning (Step-up version of the manual) or testing innovative measures and business models in SUMP planning (Innovate version of the manual). Cities may also find inspiration in each of the manuals regardless of which level they currently belong to.

Each of the manuals follows the same structure. Firstly, an introduction section gives an overview of the context of measure selection and packaging in a SUMP. Secondly, the main section consists of the actual manual in either the “Start”, “Step-up”, or “Innovate” version. Thirdly, endnotes provide references to other relevant sources of knowledge and inspiration. Inspiration is given in green and yellow boxes, recommendations for “what to do” are presented in tables and blue figures while examples are presented in red text in tables and figures.

The manuals are designed to be used as a source of knowledge and inspiration for city planners and others involved in the SUMP process. The manuals do not claim to provide the only valid recipe for measure selection and packages for each city, but are rather designed to be a guidance and inspiration through the process of integrating measures and measures packages in a SUMP. They specifically focus on how to address city-specific preconditions, challenges, and targets in that process.

Figure 1: Schematic overview of the three manuals.



Start – Starting with SUMP development

This manual provides guidance to cities that would like to get started with SUMP development. The addressed cities typically want to take the step from the daily business of “keeping the wheels spinning” to a more strategic planning for sustainable mobility in the city. The target group are cities that are not yet familiar with sustainable urban mobility planning and need support with where to get started in the context of measure selection.

The issues to be addressed are how to start from scratch with long-term, strategic planning for measure selection, how to gain instant impact from selected measures, and how to find a balance between the ambition of the SUMP planning and the capacity of the city’s administration.

Compared to other available guidelines, the Start-manual suggest a simplified approach that lowers the entry barrier for cities that are starting with SUMP-planning. This is needed, because relevant information such as quantitative data, traffic models and extensive analyses are sometimes missing in starter-cities, which can make the advanced

measure selection approaches recommended in other guidance’s impractical.

Step-up – Making the step from Individual measures to systematic and integrated SUMP planning

This manual provides support for cities that are familiar with sustainable urban mobility planning. The typical step-up city is already applying typical SUMP measures, but not yet systematically. Measures may have been implemented for one or many challenges, policy fields and/or transport modes. The city would like to widen their SUMP planning to find synergies and to synchronise measures between different policy areas or other policy sectors.

The issues to be addressed are how to apply a systematic and effective approach in measures selection, how to find synergies between different types of measures and policy areas, how to adapt new fields of measures into what has already been done within the city and to find ways to be more systematic when packaging measures.

Innovate – Testing innovative measures and business models in SUMP planning

This manual provides support for cities who are experienced in SUMP planning, for example by having developed a second or third generation of their SUMP. The typical target city has integrated SUMP planning with an ambitious vision and targets. The city has a systematic way to approach measure selection among a wide range of policy areas, but needs guidance in how to select and implement innovative measures and business models in order to reach the next level of development in SUMP planning.

The issues to be addressed are how to find new ways to further develop measure selection and integration, in particular how to find ways to co-create actions with other actors (within the city, region, other cities, private sector, and other public organisations) to develop truly innovative measures.

3. STEP-UP

MAKING THE STEP FROM INDIVIDUAL MEASURES TO SYSTEMATIC AND INTEGRATED SUMP DEVELOPMENT

Many cities in Europe are familiar with SUMP planning, but do not yet follow a systematic and integrated approach. Within the SUMP-UP project, a survey was conducted in 2017 asking cities in Europe about their SUMP experience. Out of 328 participating cities, over a third has applied sustainable urban mobility measures, but not systematically (see figure 2). 85% of the cities have also plans or programmes for individual mobility areas such a bicycle plan or traffic safety programme.

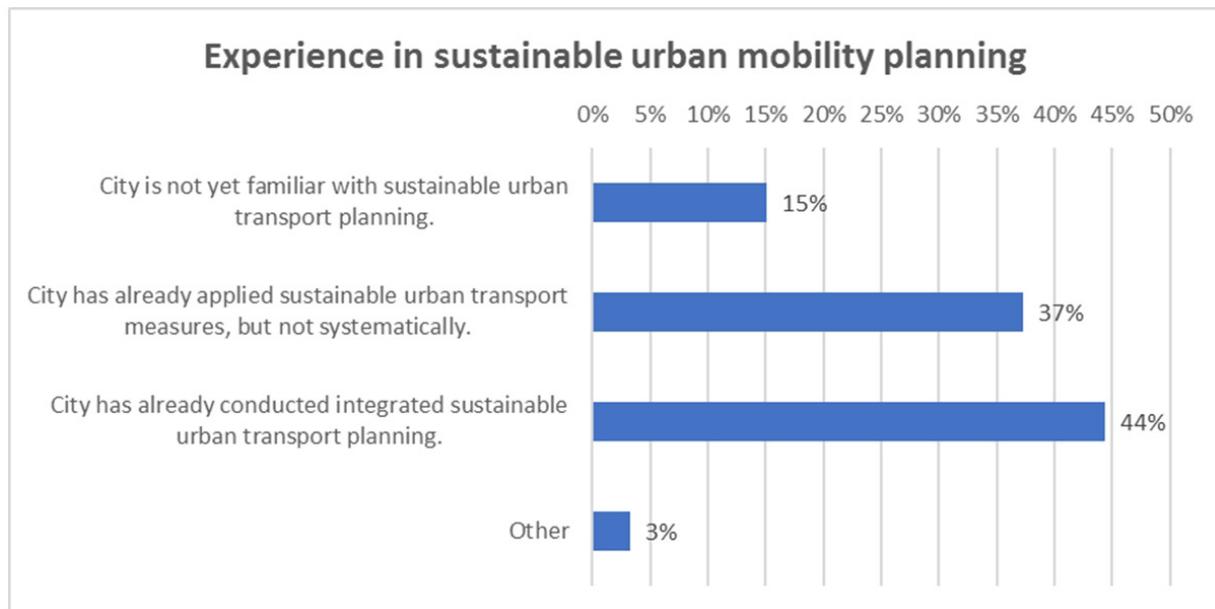
From this perspective, the SUMP-UP survey shows that there is a need for support for cities that are aware of sustainable urban mobility planning, and usually have one or several plans or programmes for individual mobility policy areas, but need to increase their capacity to conduct a more systematic and integrated SUMP planning approach where

synergies between different policy fields and measures can be found. These cities are referred to as “step-up cities” in this manual.

The manual for the step-up city comprises the following two main parts:

1. **Systematic overview** of already selected or implemented measures to check if all relevant challenges, mobility policy fields, transport modes, and measure types are covered.
2. **Stepwise guidance** on how to select and package measures for systematic and integrated SUMP development.

Figure 2: Experience in SUMP planning in the cities participating in a survey in the CIVITAS SUMP-UP project in 2017 (N=327; results weighted by country population). The full version of the survey report is available at: www.sumps-up.eu/reports.



3.1 Systematic overview of already selected or implemented measures

The step-up city may already have ongoing SUMP-processes and/or implementation of measures on basis of plans/programs for individual mobility policy fields. This first part of the manual for step-up cities involves a systematic overview of already selected or implemented measures to check if the range of challenges, mobility policy fields, transport modes, and measure types are covered in existing plans and programs. While a starter city needs to prioritise between challenges, targets and resources for different policy fields, the step-up city needs to go further and define weaknesses and find synergies to strengthen those weaknesses into drivers for a more sustainable transport system. Guidance is provided below for a systematic review of already selected or

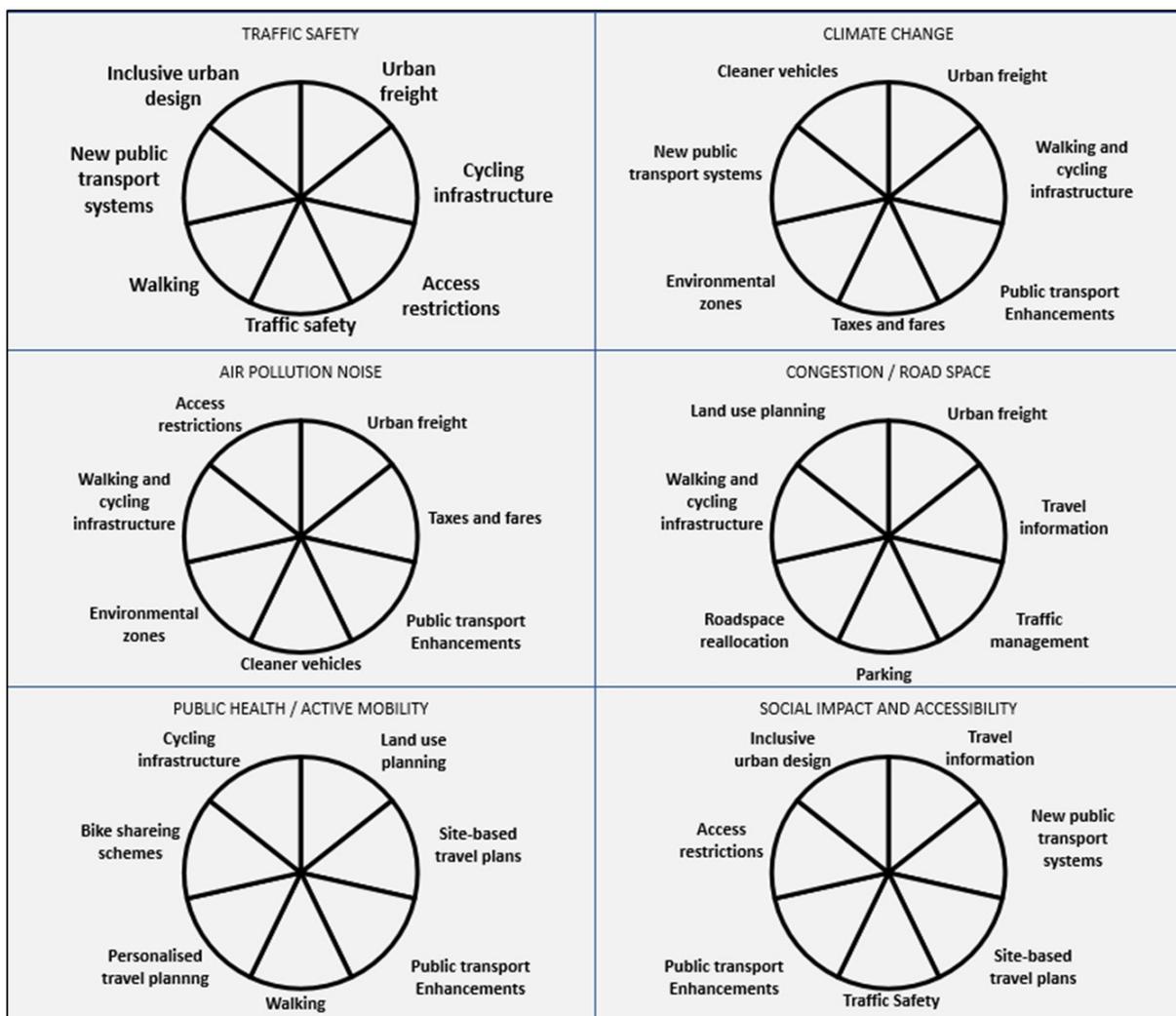
implemented measures in terms of challenges, mobility policy fields, transport modes, and types of measures.

1: Challenges

There can be many different types of local challenges in a city related to the use of the transport system and the system itself. Many of them can be sorted under the following examples of overall challenges for urban mobility:

- Climate change
- Air pollution and noise
- Traffic safety
- Congestion / road space
- Public health / active mobility
- Social inclusion and accessibility

Figure 3: Examples of measure areas to address different overall challenges common in urban mobility planning. A challenge can be addressed with a wide range of different measures. The different measure areas displayed in the pie-charts can be used as a control to see if a city has a broad approach addressing a certain challenge. The measure areas presented in the figure are based on available sources of different measures which are condensed in Annex I.

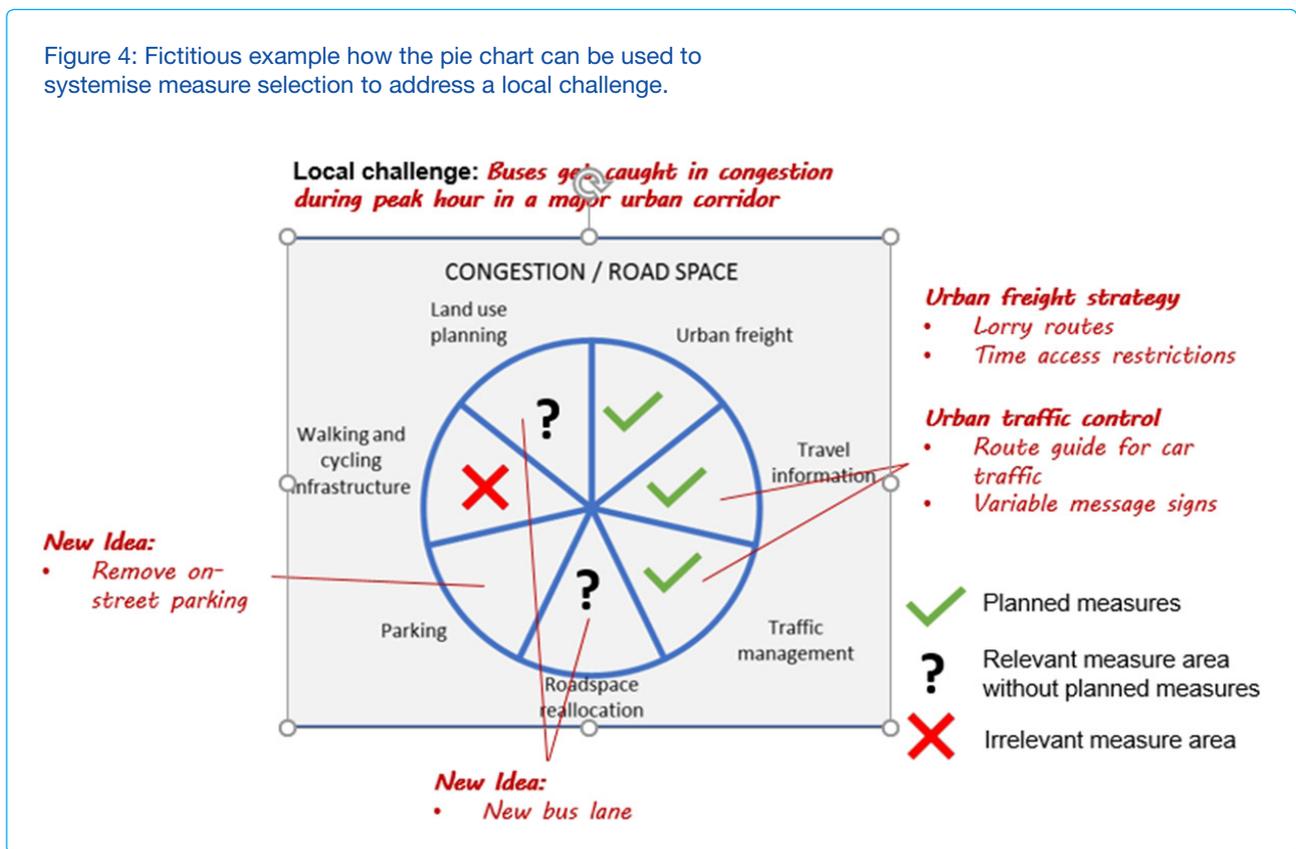


These examples of overall challenges can be used as a structure for a systematic overview to reveal whether there are local challenges that are not covered by any plan or measure. For example, if a city has congestion as a prioritised challenge, there is more than one way to address the challenge and to gain positive effects through implemented measures. Examples of measure areas useful to address the overall challenges above are shown in figure 3 (the pie-charts can be used as checkboxes).

By using this method, it will be clear if there is a prioritised challenge that is only addressed by a few different measure areas and that there is potential to widen the point of attack to the problem.

A fictitious example of how the pie-charts can be used are shown in figure 4. By writing down selected or planned measures from existing plans and programs it will be clear if there are measure areas that have not been considered. In this case, there are measures selected or implemented within the areas of Urban freight, Travel information and Traffic management already addressing the local challenge. To further address the local challenge, focus can be directed on the other measure areas. In this example, ideas of removing on-street parking and creating a new bus lane can form a measure package that complements the already implemented measures. The measure area walking and cycling was considered not important in this case.

Figure 4: Fictitious example how the pie chart can be used to systemise measure selection to address a local challenge.



2: Mobility policy fields and transport modes

If a city has a priority to balance the modes of transport and to increase sustainable transports it can be illustrated in the shape of a reverse pyramid. The reverse traffic pyramid has been used by many cities for years to illustrate priorities (see figure 5 as an example).

This approach can also be used to get a systematic overview of the transport modes a city has prioritised by already implemented strategies and measures, and whether or not the city's vision/targets and the measures selected are in line. Different elements can be used to illustrate this, e.g. allocated means, number of measures or resources working with a certain mobility policy field. Figure 6 shows an example of how to illustrate the consistency between the city's priorities (of transport modes and targets in this example) and what the city actually invests in. In this case, investments should be moved from road traffic to safety and security and measures to increase walking and cycling. One benefit with using this model is that it is a very illustrative way to inform decision makers about how to design the budget to meet targets.

Figure 5: The reverse traffic pyramid. Source: Bicycle Innovation lab (2012)

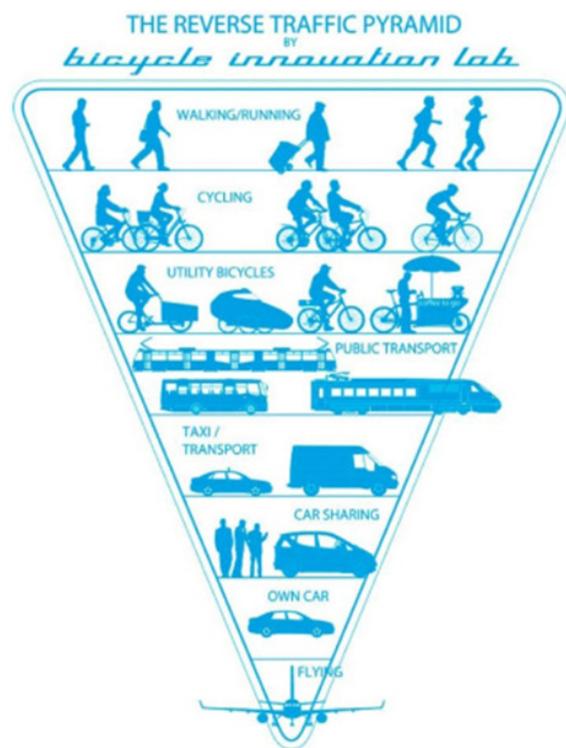


Figure 6: Example of how to illustrate the consistency between the city's priorities (of transport modes and targets in this example) and what the city actually invests in.

Transport modes	Priority	Investments the last year	Investments the last five years
Walking	<div style="width: 80%;"></div>	100	800
Cycling	<div style="width: 70%;"></div>	200	1300
Public transport	<div style="width: 60%;"></div>	5000	19000
Taxi / transport (e.g. special transport services)	<div style="width: 50%;"></div>	200	1000
Car-sharing	<div style="width: 40%;"></div>	100	200
Car	<div style="width: 10%;"></div>	2000	15700
Total		7600	38000

Targets	Priority	Investments the last year	Investments the last five years
Improve safety and security	<div style="width: 80%;"></div>	1000	4000
Increase walking a cycling	<div style="width: 70%;"></div>	200	1300
Increase quality and use of public transport	<div style="width: 60%;"></div>	5000	19000
Effective freight system	<div style="width: 50%;"></div>	1000	3000
Accessibility private cars	<div style="width: 10%;"></div>	2000	15700
Total		9200	43000

3: Type of measures

When working with a systematic overview of already selected or implemented measures it is not only a question of gathering information about measures within different policy fields, but also of what type of measure that has been selected or implemented.

A measure can be described as an action which can contribute to one or more policy objectives in a SUMP, or to overcome one or more identified challenges (May, 2016). Four types of measures are defined in Box 3 and cover a clear majority of all possible measures that can be included in a SUMP.

Note that single measures can belong to more than one type, i.e. these types are not mutually exclusive. All measure types can comprise internal measures (measures directed inward the organisation, e.g. elaboration of bicycle plan) and/or external measures (measures direct outward the organisation, e.g. implementation of bicycle path).

Measures may also be single measures or part of a package or programme of measures. While single measures have a certain impact, package of measures can increase that impact and create a greater value to other policy areas or even policy sectors. There is no general rule of how a package of measures can be defined. Often when packages of measures are mentioned, their purpose is to contribute to a given objective or to a certain challenge. But there can also be packages of measures aiming to increase cost efficiency, to create a higher value for money, or to be tailored for a specific organisation (May, 2016).

Box 3: Different types of SUMP measures

Four types of SUMP measures are defined below on basis of Clark et. al. (2017). Note that single measures can belong to more than one type, i.e. these types are not mutually exclusive. Measures may also be single measures or part of a package or programme of measures.

- **Strategic policy measures**

A policy represents a decision made by an individual or group which aims to achieve a specific aim or aims. A policy measure lies behind the other measures, since it constitutes a decision to implement the other measures / package of measures. For example, a policy measure can be a cycling action plan, i.e. a decision to implement certain actions, and this action plan could include details of individual measures. There are two ways in which policy measures can interact within a policy package: they can achieve more together than either would on its own and/or they can facilitate other measures in the packages by overcoming the barriers to their implementation (May, 2016).

- **Mobility management measures**

These are measures that manage demand for mobility by changing travellers' attitudes and behaviour. These measures include, for example, walking school buses, personalised travel planning, or broad information campaigns that aim to affect the way people think about their mobility. It also includes "process-related" measures which aim to change the way that work is done within administrations, as well as measures which aim to address how people obtain, read, understand and use information. Subcategories can be pricing and incentives, information and communication, promotion and education and training.

- **Physical environment / infrastructural measures including maintenance**

These are measures to change the physical environment such as infrastructure for walking and cycling, green area development, localisation, etc.

- **Regulation, service provision and legislation measures**

These are measures that regulates how the transport system can be used. These types of measures are top-down and can stretch over different geographical levels: national level, city level, work place etc. For example, legislation which allows right turns at traffic lights for cyclists or low emission zones fall into this category.

To get an overview of the range of measure types covered in a city, already implemented (or selected) measures can be sorted according to the structure shown in table 1. Preferably, a table for each prioritised challenge or target can be created to make it clearer how measures from different plans and programs influence the subject. It will also be clearer what types of measures there are on the table. To address a certain challenge and to achieve the visions and targets of the city's SUMP planning, it is often necessary to use a broad palette of measures both addressed externally to the citizens and internally (inward the organisation).

By using this structure, it will be clear if a certain type of measures is missing within a city's mobility planning. There is no general rule that there must be measures within every field in the table, but if there is not, it should be considered whether there is a reason for this. This overview brings clarity to whether or not there is a need to strengthen a city's capacity in some way, i.e. budget/financing, human resources or competence in a certain field.

Table 1: Example of a structure to get an overview of the coverage of different types of SUMP measures and the balance of internal and external measures.

Target: <i>No casualties in traffic accidents</i>		
Target: <i>Increased quality public transport</i>		
Target: <i>Increased modal share bicycle</i>		
Measure types	Internal measures (inward the organisation)	External measures (outward to the citizens)
Strategic policy-related measures	What has the city's administration realised? <ul style="list-style-type: none"> • <i>Bicycle plan (measures, guidance, objectives)</i> • ... • ... 	What has the city implemented? <ul style="list-style-type: none"> • <i>Bicycle plan (information)</i> • ... • ...
Communicative measures and mobility management	What has the city's administration realised? <ul style="list-style-type: none"> • <i>Travel policy for the city</i> • ... 	What has the city implemented? <ul style="list-style-type: none"> • <i>Information campaign</i> • ...
Physical / infrastructural measures including maintenance	What has the city's administration realised? <ul style="list-style-type: none"> • <i>Allocate budget and responsibility for maintenance</i> • ... 	What has the city implemented? <ul style="list-style-type: none"> • <i>New infrastructure for cycle traffic</i> • ...
Regulation, service provision and legislation including land-use planning	What has the city's administration realised? <ul style="list-style-type: none"> • <i>Reallocation of collected parking fees</i> • ... 	What has the city implemented? <ul style="list-style-type: none"> • <i>Low emission zone in city centre</i> • ...

3.2 Guidance on how to select and package measures

Cities that have a number of plans/programmes for individual mobility policy areas and other types of policy measures and strategies planned or implemented need to think how the different plans, strategies and measures interact. There are two ways how policy measures can work together in a package: they can achieve more together than either would on its own (this is the principle of synergy) and/or they can facilitate other measures in the package by overcoming the barriers to their implementation (May, 2016).

The benefits of measure packages might also turn into disadvantages if measures within a package are counterproductive. For example, if flexible working time at a workplace is implemented simultaneously with a vanpooling measure. Another question to answer is not only what types of measures are suitable in a package, but also in what order they should be implemented. Incentive measures (e.g. a new bus line) should be implemented and highlighted before disincentive measures (e.g. private transport restrictions) are implemented (OECD 2002). To lower the risk of counterproductive packages of measures and to avoid making the packaging too complex and time consuming it is recommended to follow a systematic structure.

To give inspiration for how a package of measures might look, see Box 4 for examples of packages of demand management measures and the city cases for real life examples from different European cities.

CITY CASE – Examples of measure packages

Birmingham Connected – The city of Birmingham

Birmingham's Sustainable Urban Mobility Plan, Birmingham Connected, set out a vision for the city to create a transport system which puts the user first and delivers the connectivity that people and businesses require. Implementing Birmingham Connected will improve people's daily lives by making travel more accessible, more reliable, safer and healthier and using investment in transport as a catalyst to improve the fabric of the city. Birmingham Connected will also allow the transport system to be used as a way of reducing inequalities across the city by providing better access to jobs, training, healthcare and education as well as removing barriers to mobility.

Birmingham Connected contains a number of key measures which are now being developed and implemented – these include:

- Transport Space Allocation Policy
- New Tram and Bus Rapid Transit Routes
- Green Travel Districts
- A Low Emission Zone or Clean Air Zone
- Enhanced Cycling & Walking Infrastructure

The plan is available in the SUMP registry:

www.sumps-up.eu/fileadmin/templates/sumps-up/lib/sumps-up_registry/utility/tools/push_resource_file.php?uid=2f6b9702



Box 4: Examples packages of demand management measures

OECD has described six different packages of demand management measures that can be used as an inspiration and an explanation of how a package of measures can be composed (OECD 2002):

1. Provide viable alternatives to driving alone while gradually increasing road transport costs.

E.g. park-and-ride, ridesharing platforms, improving quality of public transportation, enhancing car-sharing association memberships when building accommodations with limited amount of parking, road pricing, car-pooling lanes, parking fees.

2. Integrate land use and transport demand measures.

E.g. require (Green) Transport Plans in office and housing developments, avoid urban sprawl and dedicated land for commerce in places without public transport.

3. Introduce Green Transport Plans.

A green transport plan is basically a package of measures for a certain area or organisation.

4. Implement traffic reduction measures in city centres along with logistics measures for freight transport.

E.g. lorry routes & bans, time access restrictions, incentives and subsidies, urban consolidation centres, integrating logistics planning into land use planning, parking management.

5. Institute road user charges in co-ordination with intelligent traffic management systems.

E.g. parking charges, congestion charges, multimodal information & trip advice, dynamic guidance and information systems.

6. Promote virtual mobility and more flexible labour market.

E.g. telecommunications, telework, flexible working hours, company travel policies.

Packaging measure with the four-step-principle

The four-step-principle is a proven approach to use when packaging of measures in SUMP planning. See Box 5 for a conceptual background and definition of the four-step-principle.

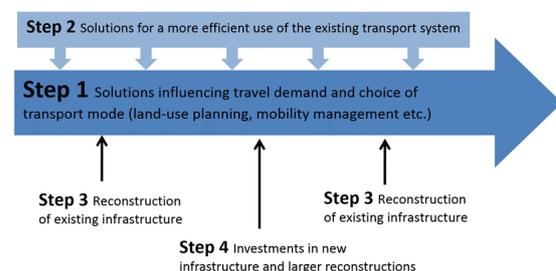
Box 5: Systematic approach with the four-step-principle:

A proven approach when packaging measures for a systematic and effective SUMP planning is by the four-step-principle. This approach is based on research and is advocated by Swedish national authorities for both SUMP planning in cities and for transport planning on national and regional levels (see Swedish Transport Administration et al, 2014).

The steps of the four-step-principle could be described as follows:

- **Step 1: Rethink!** Solutions influencing travel demand and choice of transport mode (land-use planning, demand management / mobility management).
- **Step 2: Optimise!** Solutions for a more efficient use of the existing transport system (infrastructure, vehicles etc.).
- **Step 3: Reconstruct!** Reconstruction of existing infrastructure.
- **Step 4: Build new!** Investments in infrastructure and larger reconstructions.

Even though the naming of the approach implies a sequential use, the approach should more correctly be seen as a “way of thinking” in sustainable mobility planning. The research behind the four-step-principle by Ekman et al (1996) emphasises the importance of continuously reducing dependence of motorised transport, prioritising more sustainable transport modes, and effectively using the existing transport system in order to reduce the need of large reconstructions or building of new road infrastructure. The four-step-principle assures that suitable measures are combined in measure packages to increase cost effectiveness in SUMP planning.



To understand how the four-step-principle can be used, one need to gain an understanding of how to look at different types of measures within the four different steps. In figure 7 a quick reference guide displays different types of measures for each step.

Figure 7: Types of measures in the different steps in the four-step-principle.
Source: Swedish Transport Administration et al (2014).



The four-step structure can be used as a control-station after a list of measures that are feasible and efficient has been developed. Put measures aiming to develop infrastructure in the box for step three and four, and divide the other measures between step 1 and 2. After this it will be clear if the measures are concentrated towards building new infrastructure or if rather towards management, policy improvements planning and regulation.

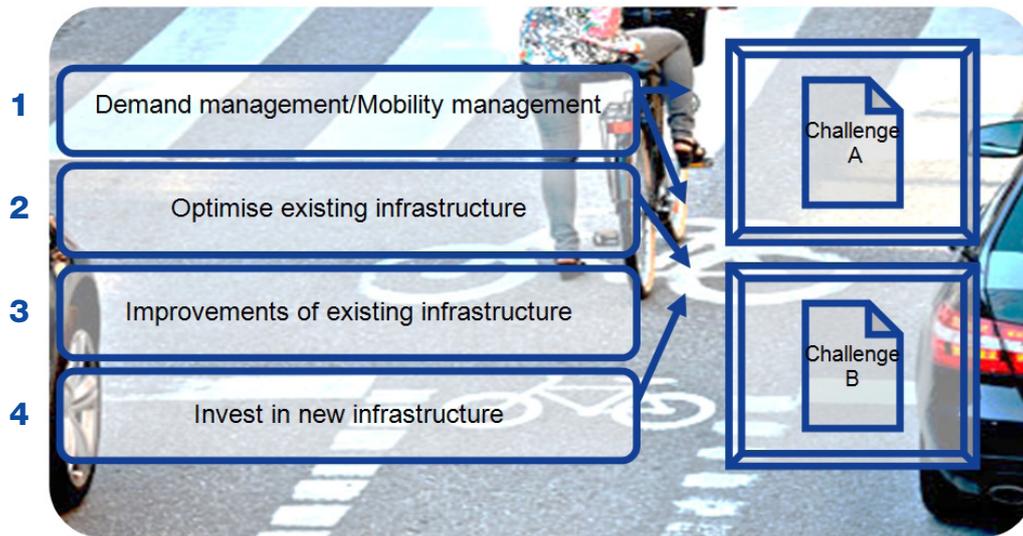
The rule of thumb is to make sure to always consider if there are enough measures in step 1 and step 2. The next step is to look at the challenges and see what type of measures can be used to address those challenges.

The use of this structure can potentially result in challenges being confronted/solved without the need of costly

infrastructure measures. It can also be used to design measure packages. A schematic example of this is displayed in figure 8. The measure packages can be created by adding measures aiming to solve a certain challenge in to a package.

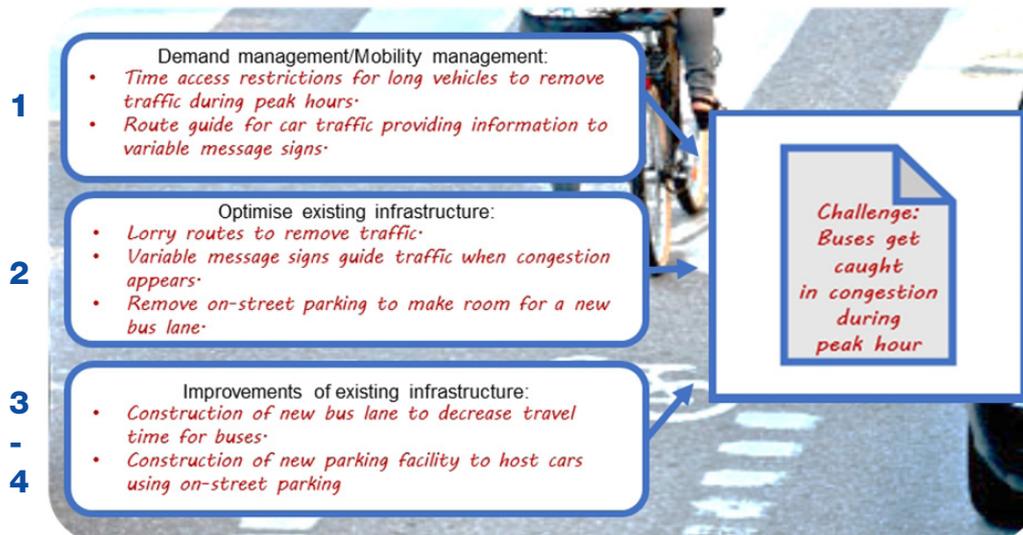
According to the theory behind the four-step-principle it is important to describe dependencies between the different measures in measure packages. This should be described in terms of timing but also with regards to synergy effects. As an example, it can be suitable to implement step 1 and step 2 measures as soon as possible and then monitor the effects. The other measures in the package can then be reconsidered and implemented or de-prioritised (Swedish Transport Administration et al, 2014).

Figure 8: How the 4-step principle can be used to package measures.
Source: Swedish Transport Administration et al (2014)



As an example, this method can be applied to the challenge described in figure 4 in order to illustrate how a package of measures consists of measures within different steps (see figure 9).

Figure 9: Example of a package of measures to address a local challenge.



Out of the selected measures, a package stretching across several policy fields has been designed in figure 9. The main challenge the package addresses is congestion for public transport, but there are also other feasible synergies, such as reduced air pollution and increased attractiveness to use public transport compare to private cars.

Develop an action plan

After defining measures and measure packages, the next step is to elaborate and implement the chosen measures and measure packages. Within SUMP-UP, principles and guidelines for SUMP Action Plans have been developed and presented in guidance material available online (see Box 6).

Box 6: Principles and guidelines for SUMP Action Plan development

Guidance material for cities on SUMP Action Plan development, including templates, links to quality examples and tools. The material is a complement to the SUMP Guidelines and is a product of SUMP-UP, available on www.sumps-up.eu.

CITY CASE – Examples of starter measures

Changes in the tariff policy of Sofia Public Transport – The city of Sofia

In Sofia a measure package aiming to increase public transport trips was designed and launched in June 2016. The package consists of four pricing and information measures:

1. Reduction of the cost of the annual pass for all lines from 500 BGN to 365 BGN. With this measure, more companies are convinced to buy annual passes for their employees.
2. Introduction of a new pass called “Metro+” – a pass for the metro and one additional bus/ trolleybus/tram line. With the expansion of the metro to two of the biggest districts in Sofia, many people started to commute by metro. Usually most of the people require one additional line to get from home to the metro or from the metro to their workplaces. With the introduction of this new transportation ticket, more people were convinced to use public transport.
3. Introduction of a three-day pass for all lines due to the increase of tourist flows.
4. Information campaigns in big companies and schools.

Over a six-month period, from June 2016 to December 2016, there was an increase of 48% in the purchase of passes for public transport (all type of passes).

CITY CASE – Examples of starter measures

Plan intervention areas – The city of Donostia-San Sebastián

In Donostia-San Sebastián the SUMP contains five basic policies:

- Encourage non-motorised modes.
- Increase the modal share of public transport compared to private cars.
- Achieve a more adequate, social and environmentally optimal use of urban public space.
- Impact /influence citizen mobility behaviour.
- Contribute to sustainable urban development.

These five policies have been broken down into several Plan Intervention Areas. Every area has specific objectives which are met by different packages of programs and action measures. Areas included in the plan are:

- Pedestrian mobility
- Cycling mobility
- Public transport
- Traffic management
- Circulation and of goods
- Interventions in public space/citizen space
- Parking
- Management, fleets of clean vehicles
- Mobility management for targeted groups
- Training and education in sustainable mobility
- Communication, outreach and marketing
- New land uses
- New transport infrastructure



CITY CASE – Examples of starter measures

Integrated network development – The city of Budapest

The basic infrastructure of urban transport is comprised of the rail, suburban rail, metro and bus network, as well as the main road network, providing various regional and long-distance connections and connecting the urban districts. More connections can be achieved by introducing new connections as well as through the safe and reliable development of the existing transport networks, the redistribution of public areas and the development of passenger-centred intermodal connections. The integrated approach is an overall requirement in network development. The plan is available in the SUMP registry:

www.sumps-up.eu/fileadmin/templates/sumps-up/lib/sumps-up_registry/utility/tools/push_resource_file.php?uid=51245b09

List of measures:

1. Public transport routes providing direct connections
2. Modernisation of the existing track-bound network
3. Connection of the separated parts of the city with new Danube bridges and grade-separated road-rail crossings
4. Construction of the missing components of the road network
5. Road reconstruction with a complex approach
6. Continuous main cycling network
7. Improving cycling interoperability, a cyclist-friendly secondary road network
8. Extension of the waterborne transport network and service infrastructure
9. Development of an intelligent city logistics network



3.3 General recommendations for integration of measures and measure packages

There are many ways to address a systematic and effective approach when entering the measure selection process and there is no silver bullet that is useful in every situation. One recommendation is to choose a measure selection process that has been used before in other strategic contexts within the city's administration. By doing so, less educational effort need to be given to stakeholders on how to select relevant measures. However, regardless of the method to systematically choose measures, the second recommendation is to always make sure that no measure area is forgotten in the work of addressing a local challenge with measures in the SUMP. The methods described in chapter 3.1 can here be useful, and a first brief control of covered measure areas can be done with a rather low amount of effort in terms of time and resources.

By carrying out these assessment methods for a systematic measure selection, a good foundation for measure packaging will be laid out, since different types of synergies can be found in between different measure areas.

When entering the process of measure packaging it is recommended to firstly have a look at the different examples of packages described in chapter 3.2 to get an idea of the concept and possible synergies and benefits. Secondly, it is recommended to use the four-step-principle because it promotes cost-efficient measures, measures aiming to optimise the existing system and measures aiming to encourage sustainable modes of transport.

4. ENDNOTES

4.1 Output from SUMP-Ups

The other outputs from SUMP-Ups are available on the project website www.sumps-up.eu.

- **Manual on the integration of measures and measure packages in a SUMP - Start**
- **Manual on the integration of measures and measure packages in a SUMP – Innovate**
- **Principles and guidelines for SUMP Action Plan development**
- **User needs analysis for take-up**
- **CIVITAS Tool Inventory**
- **SUMP Registry**

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ANNEX I

Long list of measures

Readers guide: This list of measures has been assembled with the aim to give inspiration to planning authorities in the process to selecting measures related to a SUMP. The list of measures and their description are based on several sources. When information is available online the measure is linked. Sources used in the list are: EVIDENCE, DELTA, KonSULT, Trivector, Vruits, Civitas, Copenhagenize.

SUMPs-Up European Programme for Accelerating the Take-up of Sustainable Urban Mobility Plans
Responsible author(s): Trivector Traffic AB

The long list of measures is divided in to 25 different measure areas based on the Evidence structure. For each measure area, a number of measures are described and the connection to Civitas' policy fields are displayed.

- | | | |
|---|--|-----------------------------------|
| 1. Walking | 11. Parking | 21. Cycling infrastructure |
| 2. Urban freight | 12. New public transport systems | 22. Congestion charges |
| 3. Travel information | 13. New models of car use | 23. Cleaner Vehicles |
| 4. Traffic safety | 14. Marketing and rewarding | 24. Bike sharing schemes |
| 5. Traffic management | 15. Land use planning | 25. Access Restrictions |
| 6. Taxes and fares | 16. Integration of modes | |
| 7. Site-Based Travel Plans | 17. Inclusive urban design | |
| 8. Roadspace reallocation | 18. e-ticketing | |
| 9. Public transport Enhancements | 19. Environmental zones | |
| 10. Personalised travel planning | 20. Electric Battery and fuel cell vehicles | |

1. Walking ([link](#))

NAME OF MEASURE	DESCRIPTION OF MEASURE	CIVITAS POLICY FIELD
Pedestrian areas & routes	Measures to influence pedestrian behaviour and to provide safe and attractive pedestrian areas.	
Create (temporarily) pedestrian areas	To limit traffic volumes within city or town centres, access restrictions and a clear strategy to foster pedestrian networks can be established.	
Intelligent pedestrian crossings	An Intelligent Pedestrian Detector (IPD) that provides real-time information to the Traffic Signal regarding the number of pedestrians waiting to cross, detected via the IPD, as they approach the crossing and they enter the detection area. The Traffic Signal extends the pedestrian green phase based on how many people are waiting to cross or on the number of still crossing pedestrians. The Light Demand can be switched off when the number of pedestrians isn't sufficient (based on the defined threshold). While VRUs are waiting for pedestrian green phase and during it, if the demand is active (i.e. if the number of people waiting to cross exceeds a predefined threshold) the Light Demand is also activated, regardless of the light cycle. This Light Demand is intended to alert vehicles about the presence of pedestrians in the scene. The illumination system (Light Demand) is used to highlight the crossing and its surroundings, warning vehicles about the presence of pedestrians and thus enhancing their safety	Car independent lifestyles
Increase accessibility for elderly or disabled people	Ensure accessibility for elderly or disabled people in form of smooth, even pavement, submerged pavement edge and tactile surfaces	Safety and security

2. Urban freight ([link](#))

NAME OF MEASURE	DESCRIPTION OF MEASURE	CIVITAS POLICY FIELD
Lorry routes & bans	Lorry routes are used to achieve Positive Routing by specifying the routes which lorries can take.	
Road freight fleet management systems	a number of telematics systems which use remote devices on both freight vehicles and trailers to control and monitor freight operations and present this data in a useable format to freight managers, either as real time data or static data.	
Implement a driving ban for lorries / HGVs on main travel routes during peak times	In order to avoid congestion on main travel routes, a driving ban for lorries/ HGVs (Heavy Goods Vehicles) during peak travel times should be implemented (for example on weekends).	
Freight quality partnerships	The most common tool for involving stakeholders are freight quality partnerships. FQPs aim to bring together the public- and private-sector parties involved in freight transport and logistics to discuss problems and identify and implement solutions, with the intention of improving the sustainability of freight transport activities in an economic, social and environmental sense.	
Freight advisory boards and forums	Establishing committees, boards and forums to provide an opportunity for stakeholders to meet and discuss challenges and opportunities of the freight system is the most direct way to engage all the actors. These forums can be established in the form of technical advisory committees that bring together public-sector staff from different administrative bodies and agencies, with the aim of investigating problems, conducting context studies and analyses to coordinate actions and decisions for a sound and effective urban freight policy.	Urban freight logistics
Designation of a city logistics manager	Similar to the concept of the Mobility Manager, the function of City Logistics Manager (CLM) is designed to reduce demand in relation to the mobility of goods in urban areas. The Mobility Manager as well as the City Logistics Manager represent real intermediaries between the various local stakeholders and the public authority; their task is to reconcile the needs and demands of the different companies and businesses.	
Time access restrictions	These measures impose restrictions on the times when freight activity can take place. The intent is to reduce freight traffic during peak hours in urban areas or to ban night-time deliveries due to noise constraints. The promotion of off-peak deliveries in cities is a promising strategy for offsetting the traffic impacts of urban freight.	

... 2. Urban freight ([link](#))

NAME OF MEASURE	DESCRIPTION OF MEASURE	CIVITAS POLICY FIELD
Environmental restrictions	These kinds of measures are aimed at preserving the liveability of city centres by trying to reduce the negative externalities produced by freight vehicles, both in terms of emissions and noise. These strategies have a twofold positive effect: on the one hand they reduce the environmental impact of freight traffic, while on the other hand they foster the use of clean technologies by promoting the use of electric or low-emission vehicles for urban deliveries. Vehicles renewal programmes can support this type of initiative.	
Size/load access restrictions	These kinds of measures focuses on increasing the liveability of urban areas and optimising the use of public space, specifically of public streets. More specifically, restrictions that prevent vehicles of a certain weight or size (length or width) from using a particular road or area can result in benefits on congestion levels and on road accident rates caused by large trucks.	
Pricing (road pricing, congestion charging, parking charging)	Road pricing means that motorists pay directly for driving on a particular roadway or in a particular area. Charges can be fixed or variable according to a vehicle's emission standards if the reduction of emissions is the target. Congestion charging refers to variable road tolls (higher prices under congested conditions and lower prices or free passage at less congested times) established in central areas to reduce peak-period traffic volumes. Tolls can be dynamic, meaning that rates change depending on the level of congestion that exists at a particular time. The main challenge affecting freight vehicles parking in cities is the lack of space, especially in historical centres. This results in parking violations and fines. Through parking charge schemes, motorists pay directly for using parking facilities. These schemes can be established for the use of kerb space, some being based on fixed rates, others involve variable pricing schemes and are generally implemented as part of a group of strategies.	
Incentives and subsidies	The opposite of taxation and tolls is the use of incentives or subsidies to encourage the development of sustainable urban distribution. The direct provision of incentives or subsidies by local authorities to operators is not widely used because it is too expensive, while provisions entailing cost advantages (indirect incentives) are more frequently used.	Urban freight logistics
Adapting on-street loading zones	On-street parking measures are aimed at adapting existing street designs and loading areas to accommodate current and future traffic and commercial vehicles volumes. The measures focus on allocating adequate kerb space for parking and loading activities. Parking places and loading-zone-related strategies focus on designating and enforcing kerbside parking, reallocating kerb space, and identifying potential freight traffic parking locations.	
Nearby delivery areas	The lack of parking and loading facilities aimed at receiving freight may require the use of staging areas (or nearby delivery areas). The objective is to develop an implementation-site and off-street areas at businesses or facilities that regularly receive freight. The establishment of common loading areas for sites that are large traffic generators or for other multi-tenant facilities may be a viable option. Alternatively, municipalities might foster the development of nearby delivery or staging areas that could serve as urban transshipment platforms.	
Collection points	This initiative promotes the use of specific locations for pick-up and deliveries, such as on-street automated locker systems, parcel shops and post offices as well as minidepots. In this scheme trucks deliver to collection points and customers travel to these pick-up areas to get their goods. This practice reduces delivery costs by concentrating deliveries and reducing delivery failures. However, since customers must pick up the orders using their own cars, it may increase overall traffic.	
Urban consolidation centres	This measure contributes to the reduction of freight traffic circulating within a target area by promoting the consolidation of cargo shipments at one or more urban terminals. Carriers that would otherwise make separate trips to the target area with low load factors, transfer their loads to a neutral carrier that consolidates the cargo and manages the last leg of the deliveries. Conceptually, this may include "joint delivery systems", "cooperative logistics," and "urban distribution centres".	

... 2. Urban freight ([link](#))

NAME OF MEASURE	DESCRIPTION OF MEASURE	CIVITAS POLICY FIELD
Modal shift	The aim of a modal shift programme is to encourage the use of alternative modes to reduce the number of trucks and vans in the city centre. Although appealing to many, this initiative faces major obstacles in urban areas where it is often impossible to find modal alternatives that effectively compete with trucks or vans. However, a number of pilot tests and small-scale implementations suggest that it is possible to induce small modal shifts. A shift of cargo flows from road to intermodal transport was achieved, using a combination of road and short sea shipping, inland waterways, rail, freight motor tricycles, or cargo bikes.	Urban freight logistics
Educate traffic planners in city logistics and freight	Develop an education in city logistics for traffic planners in regions/municipalities.	
Integrating logistics planning into land use planning	A more proactive approach is to incorporate freight planning into the land use planning process by identifying areas of conflict between freight activities and other land uses. By understanding the sources of conflict between freight activities and other land uses, efficient strategies for a compatible development can be delineated and selected.	

3. Travel information ([link](#))

NAME OF MEASURE	DESCRIPTION OF MEASURE	CIVITAS POLICY FIELD
Conventional timetable & service information	Quality of the information, the formats in which it is offered, and hence the resources and effort that should go into providing the information.	Collective passenger transport
Real time passenger information	Real time passenger information systems allow passengers to access real i.e. live departure information for public transport services via a variety of different sources.	
Trip planning systems	Trip planning systems, or multi-modal travel information can incorporate a range of provision of information from simple descriptions of available travel options by different modes, possibly linked to maps indicating routes and to timetables, to interactive database systems enabling users to search specific information.	Transport telematics
Multimodal information & trip advice	Travel information, delivered via a range of technologies, both before and during the trip: e.g. dedicated websites and software allow information on all modes of transport to be presented in a coordinated and hence more understandable form.	
Route guide for bicyclists + real time information	Detailed route guide from bicyclists with obvious signs, preferably with real time information of temporary congestion and road maintenance.	
Route guide for bicyclists	Detailed route guide from bicyclists with obvious signs.	
In-vehicle guidance systems	Traditional IVRG means that the system primarily select routes based on the shortest distance between a source and a destination, which is very useful in unfamiliar environments or complex networks. In the next generation, the navigation systems became capable of taking into account different criteria of optimisation, not just the shortest path.	

4. Traffic safety

NAME OF MEASURE	DESCRIPTION OF MEASURE	CIVITAS POLICY FIELD
Accident remedial measures	Speed limitation, speed enforcement and road marking.	
Cycle & pedestrian safety	Safety for non-motorised transportation greatly improves the experience of living and travelling around the city as the core issue of these experiences.	
Pedestrian crossing facilities	A variety of pedestrian crossing types are available for consideration by transport and urban planners, ranging from marked (zebra) and signalised pedestrian crossings, through to more significant infrastructure investments including footbridges, underpasses and the creation of "Shared Space" junctions and streets.	
Road maintenance	Road maintenance covers a range of practices and aims. Roads experience wear and tear through combinations of vehicular use and accidents, weather and other natural events. Further measures, such as gritting, can be used to mitigate the effects of weather or temperature conditions on the ability of vehicles to use a road. Beyond this, road maintenance can be used to realise benefits from developments in materials and in understanding of the impact of road building materials on pollution.	
Traffic calming measures	Traffic calming is the use of physical and regulatory measures to reduce vehicle speeds and acceleration	Safety and security
Barrier-free mobility	Measures to improve accessibility of (existing visual guidance systems, and measures to complement visual guidance systems by tactile and/or audio information.	
Educate school children in traffic safety	Implement mandatory traffic safety education.	
Improve traffic situation near schools	Congestion zones near schools/ forbid cars within 500 metres from the school.	
Prioritate VRU in regards to road maintenance	Ensure accessibility for VRU when closing a road for maintenance.	
Safe designated roads for cyclists and pedestrians	Ensure roads with sufficient width and even pavement and proper winter road maintenance.	
Traffic calming through comprehensive speed plans	Comprehensible and well-reasoned speed plans for optimal compliance.	

5. Traffic management ([link](#))

NAME OF MEASURE	DESCRIPTION OF MEASURE	CIVITAS POLICY FIELD
Conventional signs & markings	Upright signs - various types of upright signs with textual or graphical images, for information, regulation or warning Road markings – provided to channel traffic and to convey warnings, regulatory requirements or basic information Miscellaneous signs – including traffic signals, temporary signs and lamps to identify refuges or provide additional warning in cases of dangerous obstructions.	
Conventional traffic management	Conventional Traffic Management involves measures designed to affect the movement of traffic on a network. Measures include route restrictions and right of way restrictions which serve to alter the direction and movement of traffic as well as parking (and stopping restrictions) which allow for unhindered traffic movement on roads.	Demand management strategies
Urban traffic control	Urban traffic control (UTC) systems are a specialist form of traffic management which integrate and co-ordinate traffic signal control over a wide area in order to control traffic flows on the road network.	
Variable message signs	Variable Message Signs (VMS) are digital road signs used to inform car drivers about specific temporary events and real-time traffic conditions.	
Intelligent transport systems	Intelligent transport systems cover a wide range of applications of information and communications technologies to transport. These include traffic management and control techniques, real time information for users, management systems for public and freight transport, advanced safety systems, emergency and disaster relief and electronic payment systems.	Transport telematics
Mobility coordination centre	A platform for information flow and expertise	Mobility Management

6. Taxes and fares

NAME OF MEASURE	DESCRIPTION OF MEASURE	CIVITAS POLICY FIELD
Fare structures	A fare structure comprises the full range of fare policy measures short of a blanket fare rise or reduction. These elements include: differentiation of price by geographical criteria, time of day, regularity of use, and journey purpose; through-ticketing; concessions; and smartcard technology.	Demand management strategies
Fuel taxes	Fuel taxes are levied on the purchase of fuel in most countries. Levying a tax on fuel consumption not only raises revenues, it is also a relatively unselective means of charging for road use.	
Vehicle ownership taxes	Vehicle ownership taxation (an indirect tax) has two key purposes. Firstly, as a general revenue generator - income is rarely hypothecated. Secondly, to regulate the number of vehicles owned and potentially the age of the vehicle stock to meet environmental objectives.	

7. Site-Based Travel Plans ([link](#))

NAME OF MEASURE	DESCRIPTION OF MEASURE	CIVITAS POLICY FIELD
Company travel plans	A company travel plan (CTP) is „a strategy for an organisation to reduce its transportation impacts and to influence the travel behaviour of its employees, suppliers, visitors and customers“ (Rye, 2002). Very often, the travel plan focuses on employee travel behaviour.	Mobility Management
School travel plans	School Travel Plans, or School Mobility Management (SMM) consists of a whole range of measures that primarily aim to change mobility behaviour of pupils and parents for trips to and from schools – mainly by reducing car travel.	Safety and security
Walking Bus	A Walking Bus supports children to walk in groups to and from kindergartens/ primary schools.	
Cycling Bus	A Cycling Bus supports children to cycle in groups to and from school (sometimes also kindergarten). Usually the young children are accompanied by adults.	Car independent lifestyles
Cycling training	This measure provides cycling training as, especially for younger school pupils, traffic safety often plays an important role in the decision whether to cycle. Cycling training can also be given to other individuals; whole families or to employees at selected companies.	
Investigating school routes	Review of the school roads to find strengths and weaknesses and prioritise measures.	Safety and security

8. Roadspace Reallocation ([link](#))

NAME OF MEASURE	DESCRIPTION OF MEASURE	CIVITAS POLICY FIELD
High occupancy vehicle lanes	High Occupancy Vehicle (HOV) lanes are designed to discourage single or low occupancy car use by providing priority to vehicles with more than a minimum number of occupants (usually two or three) and to buses.	Collective passenger transport
New road construction	Road construction has apparently simple aims of providing access to areas previously inaccessible by motor vehicle, reducing traffic volume in one area by moving it to another, or of increasing capacity.	Demand management strategies
Limit accessibility for cars on specific streets	Limit accessibility for cars on specific streets.	

9. Public transport Enhancements ([Link](#))

NAME OF MEASURE	DESCRIPTION OF MEASURE	CIVITAS POLICY FIELD
Bus fleet management systems	A bus fleet management system uses real time information on bus location and performance to ensure that buses run to schedule.	
Bus priorities	To make bus travel times competitive with individual vehicle travel times, a range of priority interventions needs to be selectively applied to bus services.	
Bus regulation	Bus service regulation is taken here to refer to governance in which transport authorities either franchise bus service provision to private providers, or arrange partnerships, either with statutory or voluntary standing, with private providers.	
Fare levels	Fares can be described as the monetary charge for making a trip by public transport, e.g. the price of a rail or bus ticket. Fare levels can be affected by subsidies provided (or taxes levied) by national or local authorities.	
Concessionary fares	Concessionary fares offer certain sections of the population the opportunity to travel on public transport at a reduced fare, which in some cases can mean free travel.	
General improvements for PT accessibility	This measure seeks to improve public transport (PT) service quality by increasing levels of accessibility, which includes increased service speed, frequency, convenience, comfort, affordability and ease of access for all individuals (also barrier free design for people with physical or mental disabilities).	Collective passenger transport
Job PT ticket / rebated seasonal PT tickets	Job tickets are monthly or annual season tickets, purchased en block from a transport association by public or private organisations for their employees.	
On-Demand Public Transport services	Also known as: 'Demand Responsive Transport' services, On-Demand Public Transport is considered as a user-oriented form of public transport characterised by flexible routing and scheduling of small/medium vehicles operating in shared-ride mode between pick-up and drop-off locations.	
Reorganisation of PT schedules	The reorganisation of PT schedules aims at optimising public transport services and increase their use by adjusting schedules to better suit travellers' lifestyles and their mobility patterns.	
Special ticket offers for pupils	Special pupils' tickets are often low priced season tickets which are purchased showing a school document.	
Clean and silent vehicles in CPT	Clean and silent vehicles in CPT	Clean fuels and vehicles
Improve local CPT with distinct paths and stops	Improve local CPT with distinct paths and stops	
Increase accessibility for elderly or disabled people within CPT	Increase accessibility for elderly or disabled people within CPT through access ramps and tactile areas	
Reduced CPT price for youths	Reduced CPT price for youths	Collective passenger transport
Reduced prices for CPT or free CPT	Reduced prices for CPT or free CPT	
Road maintenance at CPT stops	Road maintenance at CPT stops	
Sustainable options for leisure trips/ tourism	Sustainable options for leisure trips/tourism	
Trial periods with reduced CPT cost for new users	Trial periods with reduced CPT cost for new users	Mobility Management

10. Personalised travel planning ([link](#))

NAME OF MEASURE	DESCRIPTION OF MEASURE	CIVITAS POLICY FIELD	
Flexible working hours	A bus fleet management system uses real time information on bus location and performance to ensure that buses run to schedule.		
Personalised journey planning	To make bus travel times competitive with individual vehicle travel times, a range of priority interventions needs to be selectively applied to bus services.		
Telecommunications	Bus service regulation is taken here to refer to governance in which transport authorities either franchise bus service provision to private providers, or arrange partnerships, either with statutory or voluntary standing, with private providers.		
Mobility Consultant/ Mobility Manager	Fares can be described as the monetary charge for making a trip by public transport, e.g. the price of a rail or bus ticket. Fare levels can be affected by subsidies provided (or taxes levied) by national or local authorities.		Mobility Management
Mobility Education	Concessionary fares offer certain sections of the population the opportunity to travel on public transport at a reduced fare, which in some cases can mean free travel.		
Personalised Travel Assistance (PTA)	This measure seeks to improve public transport (PT) service quality by increasing levels of accessibility, which includes increased service speed, frequency, convenience, comfort, affordability and ease of access for all individuals (also barrier free design for people with physical or mental disabilities).		
Telework	Job tickets are monthly or annual season tickets, purchased en block from a transport association by public or private organisations for their employees.		
Platform for MaaS	Clean and silent vehicles in CPT	Car independent lifestyles	

11. Parking ([link](#))

NAME OF MEASURE	DESCRIPTION OF MEASURE	CIVITAS POLICY FIELD
Cycle parking & storage	Cycle parking and storage within cities should ideally include the provision of: unsheltered but secure parking in convenient locations for shops and services, which is low-cost to implement; together with Cycle Lockers and supervised Cycle Stations that provide long-term storage options and the best protection from weather and theft.	Demand management strategies
Off street parking	Off-street parking is a special facility (multi-storey) or area (surface) that is dedicated for parking. Its provision has a significant impact on car usage.	
Parking regulations	Frequently, the number of parking spaces available for delivery is not enough to satisfy the needs of delivery trucks. Carriers are forced to double-park as the demand for parking exceeds the linear capacity of the streets. The provision of loading/unloading spaces are a common local policy to organise last-mile delivery operations. Lack of delivery spaces shifts delivery operations to traffic lanes or pavements and leads to congestion and potentially hazardous situations for other street users.	
Parking charges	Parking charges are financial charges paid by motorists for the use of parking spaces, either in dedicated car parks or in identified on-street parking bays.	
Parking controls	Parking controls are applied to on and off street parking (multi-storey, ground level and underground), although the style of control will vary with the type of parking space.	
Parking standards	Parking standards are the norms related to the amount of parking that is required, or permitted, for new developments of all types within the land use planning system.	
Private parking charges	Private parking charges are, in the main, levied by local authorities on existing or future non-residential developments, e.g. office buildings. They are designed to help suppress the demand for car parking and thus traffic levels, particularly in urban centres where commuting to work makes up a large percentage of the traffic.	
Parking guidance systems	Parking Guidance and Information (PGI) systems use variable message signs (VMS) to provide drivers with information on the location and the availability of spaces in car parks.	Transport telematics
Car Parking Management	The term 'parking management' refers to the process of controlling the amount, the costs and/or access to car parking on a site.	Demand management strategies
Site-based Parking Management	The term 'parking management' refers to the process of controlling the amount, the costs and/or access to car parking on a site.	
Co-usage of parking spaces workers 9-17 habitants 17-9 etc.	Co-usage of parking spaces workers 9-17 habitants 17-9 etc., mostly feasible in mixed settlement	

12. New public transport systems ([link](#))

NAME OF MEASURE	DESCRIPTION OF MEASURE	CIVITAS POLICY FIELD
Bus rapid transit	Bus Rapid Transit (BRT) is public transportation by bus that is intended to provide a faster more reliable and more comfortable journey for passengers than conventional bus services.	Collective passenger transport
Bus services	Public transport services refer to the entire range of transport services that are available to the public including demand responsive transport, buses, trams, light rail systems, metro (underground) and long distance rail services.	
New rail services	New rail services on existing lines can provide new opportunities for people to travel or improved opportunities to travel by providing more direct services and so reducing the generalised cost of travel.	
New rail stations and lines	New rail stations refer to new rail stations on existing conventional railway lines that provide new places for people to board and alight from trains and hence increase the geographical accessibility of the rail network.	
Terminals & interchanges	A terminal or interchange is designed to improve door-to-door journey times involving public transport through enabling easier movement between different modes and services within a single building.	
Trams and light rail	Trams and Light Rail share many characteristics with heavy rail systems such as metros and suburban rail, but operates with a lower capacity.	
School Bus	A school bus is a bus used to transport children and teenagers to and from school and school events.	

13. New models of car use ([link](#))

NAME OF MEASURE	DESCRIPTION OF MEASURE	CIVITAS POLICY FIELD
Car clubs	Car clubs are usually organised schemes, which members of the public can join to gain access to a vehicle for short periods of time.	Car independent lifestyles
Ride sharing	The concept of ride sharing is not new, but there is great disparity between the ways schemes have been developed in different countries. The disparity includes differences in terminology. Ride sharing can be loosely defined as any process which facilitates a car driver giving a lift to another person. This can range from informal lift giving between friends and family to a formally organised workplace scheme for journeys to and from work. Ride sharing (a European term) is variously known as lift giving, carpooling (in North America) and car sharing (in the UK). In the UK, a car pool is the term used to describe the situation where a company owns one or more vehicles for use by its employees on company business as and when needed.	
Carpooling	Carpooling is where two or more people share the same journey, using one of the participants' own private cars (in the UK this is called Car Sharing).	
Car Sharing	Car Sharing is a mobility service where people pay to use a car by hour / day etc., and the car is owned by an individual company that runs the scheme on a commercial basis. Normally the cars are not located in one central depot, but spread across the city or even several cities.	
Van Pooling	Van-pooling is where employees in a group run a minibus to and from work, sharing the cost of the vehicle and its operations. Sometimes this arrangement is subsidised by the employer; it may also be organised by a third party rather than by the employees.	

14. Marketing and rewarding ([link](#))

NAME OF MEASURE	DESCRIPTION OF MEASURE	CIVITAS POLICY FIELD
Promotional activities	Under the term promotional activities several different promotional tools are considered, ranging from very traditional tools like brochures, newsletters etc. to more progressive tools like Facebook, you tube etc.	Mobility Management
Crowd sourcing	Crowd sourcing can work in two different ways. The first is through the passive/semi-passive collection of information via Web 2.0 enabled devices such as smart phones which may be being carried by travellers on public transport services or in cars on the road network. This can be enriched by asking the crowd to provide supplementary information such as what mode they are travelling on and if public transport what the service number is.	Public Involvement
Advertising & other promotion actions	The core of the idea is encouraging voluntary behaviour change through awareness raising and promotion of alternatives to the car.	
Travel Awareness Campaign & Events	Media aimed at improving public understanding of the problems caused by traffic growth and the impact of travel behaviour, as well as conveying what can be done to solve these problems, including changing one's own travel behaviour. There may be various types of travel awareness campaigns, including annual events	Mobility Management
Campaign towards cycle-helmet use	Reduced price/free helmet along with traffic safety information	
MM-Advertisement and discounts to newcomers	MM-Advertisement and discounts to newcomers	

15. Land use planning

NAME OF MEASURE	DESCRIPTION OF MEASURE	CIVITAS POLICY FIELD
Developer contributions	Developer contributions to infrastructure involve a developer providing a payment (or levy) to support infrastructure in the area they develop.	Public Involvement
Development density and mix	Higher densities of development may encourage shorter journeys and, thus, the use of walking and cycling. They may also help to make public transport more viable. In a similar manner, a better mix of developments can improve accessibility and hence reduce the need to travel.	
Land use to support public transport	Improve conditions for the efficient operation of public transport;	Demand management strategies
Sustainable transportation in land use planning	Improve the accessibility of urban areas and enable people to travel more by alternative modes; Increase the demand for public transport, particularly by encouraging mode change from the private car.	

16. Integration of modes ([link](#))

NAME OF MEASURE	DESCRIPTION OF MEASURE	CIVITAS POLICY FIELD
Park & ride	Park and ride is a form of integrated transport that allows private transport users to park their vehicles at a car park and travel into the city centre using a public transport mode.	Demand management strategies
Integrated ticketing	Integrated ticketing allows a passenger to transfer within or between different public transport modes using a single ticket for their entire journey.	
Offering integrated fares	This measure allows passengers to use one single ticket for different services, e.g. all public transport modes within a city or a region, or to use an entrance ticket for a sports event as a ticket for public transport.	Transport telematics
Demand responsive transport	Demand Responsive Transport is an intermediate form of transport, somewhere between bus and taxi and covers a wide range of transport services ranging from less formal community transport through to area wide networks.	Collective passenger transport
Plan for multimodal travel, change from bus to bike etc.	Plan for multimodal travel, change from bus to bike etc.	Demand management strategies

17. Inclusive urban design ([link](#))

NAME OF MEASURE	DESCRIPTION OF MEASURE	CIVITAS POLICY FIELD
Shared space, measure implementation in Madrid	Freeing the city of cars	Demand management strategies
Shared space solutions	Minimise the segregation of VRU and vehicles.	

18. e-ticketing ([link](#))

NAME OF MEASURE	DESCRIPTION OF MEASURE	CIVITAS POLICY FIELD
Buying CPT trips from app etc.	Buying CPT trips from app for increased accessibility	Transport telematics

19. Environmental zones ([link](#))

NAME OF MEASURE	DESCRIPTION OF MEASURE	CIVITAS POLICY FIELD
Car free zones around schools	Car free zones within, for example, 500 m around schools	Demand management strategies
Low emission zones	Low Emission Zones (LEZs) are areas where access by vehicles is limited to those with low emissions. They tend to be focused on city and town centres, where land-use is dense, traffic is heavy and population exposure is high.	

20. Electric Battery and fuel cell vehicles ([link](#))

NAME OF MEASURE	DESCRIPTION OF MEASURE	CIVITAS POLICY FIELD
Electric cars awarded with the closest parking space	Can be used in industrial areas as well as city centres	Clean fuels and vehicles
Power stations for electric cars	Power stations for electric cars	

21. Cycling infrastructure ([link](#))

NAME OF MEASURE	DESCRIPTION OF MEASURE	CIVITAS POLICY FIELD
Cycle networks	A Cycle Network provides the framework for a series of cycle infrastructure interventions and improvements covering a given area or city and can incorporate: a network of Cycle Routes incorporating Segregated Cycle Facilities; provision of Cycle Parking and Storage; and integration of cycling with public transport. Ideally these "hard" infrastructure measures should also be supported by "soft" marketing, promotional and travel planning activities.	Car independent lifestyles
Segregated cycle facilities	Segregated Cycle Facilities is a collective term for a range of cycling infrastructure consisting of marked lanes, tracks, shoulders and paths designated for use by cyclists and from which motorised traffic is generally excluded.	
Cycling facilities improvements	Cycling facilities improvements aim to increase cycling activity by enhancing conditions for that. There are many ways to improve conditions for cyclists. These include: improving paths and bike lanes, bike parking, increasing personal security for cycling, as well as combining cycling with public transport.	
Power stations for electric bicycles	Power stations for electric bicycles	
Stations for bicycle pump and service etc.	Stations for bicycle pump and service etc.	

22. Congestion charges ([link](#))

NAME OF MEASURE	DESCRIPTION OF MEASURE	CIVITAS POLICY FIELD
Road user charging	Urban road user charging (also called congestion charging or road pricing) involves charging drivers for the use of roads they drive on.	Demand management strategies

23. Cleaner Vehicles ([link](#))

NAME OF MEASURE	DESCRIPTION OF MEASURE	CIVITAS POLICY FIELD
Promoting low carbon vehicles	Promotion of the use of Low Emission Vehicles	Clean fuels and vehicles
Cleaner vehicles and alternative fuels	Reduction of pollutant emission of road traffic	
Eco-driving	Eco-driving is a way of driving that reduces fuel consumption and therefore greenhouse gas emissions and accident rates. Special campaigns, workshops, and training aim for a change in driving behaviour in favour of energy efficiency and road safety.	

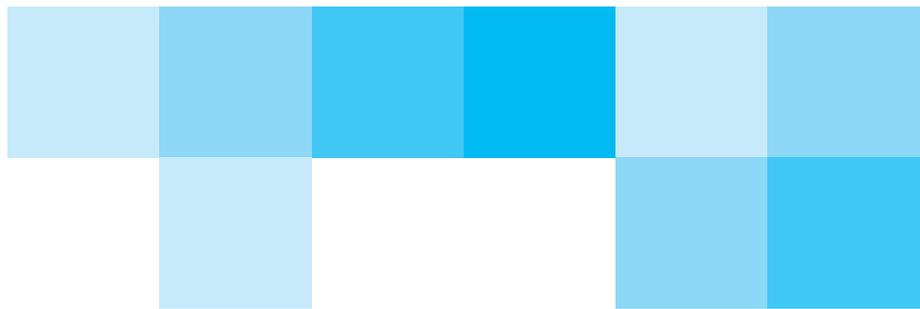
24. Bike sharing schemes ([link](#))

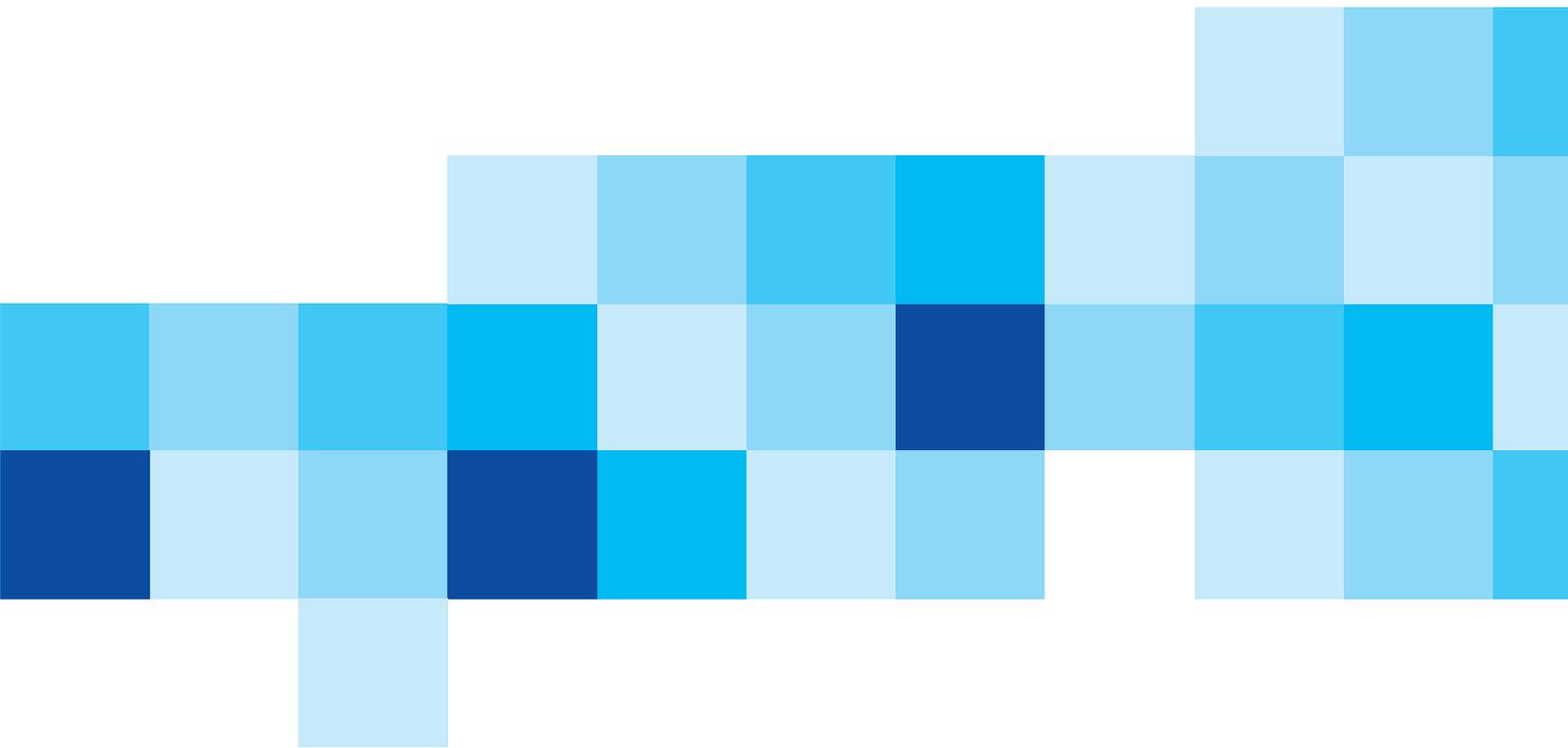
NAME OF MEASURE	DESCRIPTION OF MEASURE	CIVITAS POLICY FIELD
Bike sharing	The concept of a sharing programme is to make bicycles free or affordable for users as an urban means of transportation, in order to limit the increase of automobile traffic and the resulting pollution and congestion problems.	Car independent lifestyles
Pool Bikes	A mobility service whereby bicycles are made available in a city or a workplace allowing people to have ready access to these shared bikes rather than rely on their own bikes.	
Electric pool bikes	Electric pool bikes	

25. Access restrictions ([link](#))

NAME OF MEASURE	DESCRIPTION OF MEASURE	CIVITAS POLICY FIELD
Physical restrictions	Physical restrictions limit car use in urban areas or other specific zones by reductions in road capacity such as street closures or reallocation of road capacity from cars to other traffic such as buses, cyclists and pedestrians. They include bus priorities, cycle lanes, extensive pedestrian areas, street-running rail such as tram or light rail systems and also traffic calming measures.	Demand management strategies
Regulatory restrictions	Two principal types of regulatory restriction exist: permit systems in which only designated vehicles are allowed to enter an area and number plate restrictions which prohibit certain number plates on certain days.	
Create zones to which only permitted vehicles are allowed	Create zones in which only selected vehicles are allowed to drive around. These zones could be sensitive areas low emission zones, central or historical areas, nature parks etc. Restrictions may apply to all vehicles except e.g. clean vehicles.	
Create zones to which motorised traffic is generally banned	Create access controlled zones, in which motorised traffic is banned totally. Such zones may be central or historical areas, nature parks etc. This measure increases the attractiveness for pedestrians and slow traffic modes and also the quality of life and air quality in this area.	









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