

# ECCENTRIC

## Replication Package

### Increasing the Share of Walking and Cycling

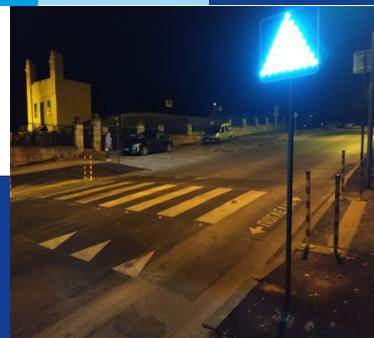
Author: Paul Fenton

Co-authors: Ana Rosa Llorente, Marisol Santos, Juka Jokela, Annette Korkiankangas, Helena Kalland, Helber López



THE CIVITAS INITIATIVE  
IS CO-FINANCED BY THE  
EUROPEAN UNION

[www.civitas.eu/eccentric](http://www.civitas.eu/eccentric)





THE CIVITAS INITIATIVE  
IS CO-FINANCED BY THE  
EUROPEAN UNION

## ECCENTRIC Increasing the Share of Walking and Cycling

<b>Publisher:</b>	ICLEI European Secretaria
<b>Authors:</b>	Paul Fenton
<b>Co-authors:</b>	Ana Rosa Llorente, Marisol Santos, Juka Jokela, Annette Korkiankangas, Helena Kalland, Helber López
<b>Graphic Design Template:</b>	Laura Sarlin, UBC SCC
<b>Design &amp; Layout:</b>	ICLEI ES
<b>Images on cover page:</b>	City of Madrid, Lennart Johansson, City of Ruse, City of Turku
<b>Date of publication:</b>	October 2020

This publication has been developed within the European **“Innovative solutions for sustainable mobility of people in suburban city districts and emission free freight logistics in urban centres. – CIVITAS ECCENTRIC”** project, co-funded by the European Commission, co-ordinated by the City of Madrid and managed by EMT and GEA21.

### **Legal Notice:**

The views expressed in this publication are the sole responsibility of CIVITAS ECCENTRIC and do not necessarily reflect the view of the European Commission. All texts and photos have been provided by the project partners and approved for reproduction in this publication.

## Guide to the reader

### Abstract

CIVITAS ECCENTRIC Work Package 4 was comprised of activities related to nine measures that aimed to increase the share and the safety of walking and cycling in Madrid, Munich, Ruse, Stockholm, and Turku. The nine measures were divided into two clusters: one cluster of four measures that aimed to increase the share of walking and cycling, and another cluster of five measures that aimed to increase the safety of walking and cycling.

This report focuses on presenting lessons learnt and recommendations for upscaling and replication. The report contains short descriptions of each measure, an overview of general and shared conclusions from the clusters of measures; and specific experiences, lessons, and recommendations related to three themes – developing attractive infrastructure for active mobility in peripheral districts; maintaining service quality throughout the seasons; and encouraging the adoption of e-bikes.

Parts of this report were first published in the conference paper, “More feet on pavements and more feet on pedals: Enabling safe walking and cycling in CIVITAS ECCENTRIC”, that was written by Paul Fenton and presented at Transport Research Arena in Helsinki on 29 April 2020. DOI: [10.13140/RG.2.2.28337.74084](https://doi.org/10.13140/RG.2.2.28337.74084)

### Target group

This document is aimed at providing practical support to project developers and planners / technical staff from cities to develop innovative measures, consider potential barriers, and select appropriate solutions to match their contexts. This document provides evidence that particular measures have been successfully implemented in a city and have good replicability potential.

# Table of Contents

<b>GUIDE TO THE READER</b>	<b>3</b>
Abstract	3
Target group	3
<b>EXECUTIVE SUMMARY</b>	<b>6</b>
<b>INTRODUCTION TO THE DOCUMENT</b>	<b>7</b>
<b>1. CIVITAS ECCENTRIC AND THE IMPORTANCE OF SAFE WALKING AND CYCLING FOR SUSTAINABLE URBAN MOBILITY</b>	<b>7</b>
<b>2. SUMMARY OF THE CLUSTER: INCREASING THE SHARE OF WALKING AND CYCLING</b>	<b>8</b>
2.1 Measures to foster the increase of walking and cycling levels	8
2.2 Brief summary of the respective measures	8
2.3 Demonstration, evaluation, validation, exchange, upscaling, and replication: collective actions in CIVITAS ECCENTRIC	9
<b>3. FROM ECCENTRIC CITIES TO REPLICATION IN OTHER PLACES</b>	<b>10</b>
3.2 Evaluating the replication potential of measures	10
3.3 Drivers and barriers to be expected	10
3.4 Example measures	13
3.5 Conclusions	20
<b>4. SUMMARY OF THE CLUSTER: MEASURES TO MAKE WALKING AND CYCLING SAFER</b>	<b>21</b>
4.1 ECCENTRIC measures to foster the increase of walking and cycling levels	21
4.2 Demonstration, evaluation, validation, exchange, upscaling and replication: collective actions in CIVITAS ECCENTRIC	22
<b>5. FROM ECCENTRIC CITIES TO REPLICATION IN OTHER PLACES</b>	<b>23</b>
5.1 Evaluating the replication potential of measures	23
5.2 Drivers and barriers to be expected	23
5.3 Example measures	27
5.4 Conclusions	34
<b>6. SOURCES /REFERENCES</b>	<b>35</b>

## List of Figures

Figure 1: Brochure New Municipal Ordinance campaign in Madrid	14
Figure 2: Winter testroute in Turku. Source: Anette.Korkiakangas	16
Figure 3: Offering test fleet of e-bikes and cargo bikes (STO 4.9)	18
Figure 4: WP4_ MAD 4.1 ECCENTRIC Municipal guide on Safety	27
Figure 5: WP4_ RUS 4.4 Safe sidewalks	30
Figure 6: WP4_ RUS 4.3 Secure crosswalk at night	30
Figure 7: WP4_ STO 4.5 Safety flexible fence	32

## List of Tables

Table 1: Overview of measures in WP4 cluster “Increase levels of walking and cycling”	8
Table 2: Overview of measures in WP4 cluster “Safer walking and cycling”	21

## List of Acronyms

<b>CO2</b>	<b>Carbon Dioxide</b>	<b>NGO</b>	<b>Non-Governmental Organization</b>
<b>D</b>	<b>Deliverable</b>	<b>NOx</b>	<b>Nitrogen Oxides</b>
<b>EC</b>	<b>European Commission</b>	<b>SM</b>	<b>Site Manager</b>
<b>EU</b>	<b>European Union</b>	<b>SUMP</b>	<b>Sustainable Urban Mobility Plan</b>
<b>e.g.</b>	<b>exempli gratia (for example)</b>	<b>WP</b>	<b>Work Package</b>
<b>H2020</b>	<b>Horizon 2020</b>	<b>WPL</b>	<b>Work Package Leader</b>
<b>ML</b>	<b>Measure Leader</b>		

## Executive Summary

CIVITAS ECCENTRIC work package 4 was comprised of activities related to nine measures that aimed to increase the share and the safety of walking and cycling in Madrid, Munich, Ruse, Stockholm, and Turku.

This report focuses on presenting lessons learnt and recommendations for upscaling and replication from the cluster of four measures that aimed to increase the share of walking and cycling and from the cluster of five measures that aimed to increase the safety of walking and cycling.

The findings from the cluster on increasing the share of walking and cycling include:

- The need for active and continuous engagement of local stakeholders, using mixed methods and a wide range of tools;
- The importance of a strategic approach in the management of acceptance and congestion of actions in cycling and walking;
- The need to motivate and frame projects in a realistic and manageable way, and to ensure that strategic objectives and project budgets are aligned;
- The importance of baseline data to develop projects and enable monitoring and evaluation that may justify a project's longevity; and
- The importance of systematic, long-term approaches that both address critical challenges and avoid trade-offs that compromise the availability and quality of good infrastructure for walking and cycling.

The findings from the cluster on improving the safety of walking and cycling include:

- The need for active and continuous involvement of stakeholders;
- The need to use diverse sources of information and identify new forms of data collection and management;
- The importance of selecting locations for trials, establishing clear baselines, and gathering qualitative and quantitative data for evaluation;
- The need to allocate sufficient time to enable processes to evolve;
- The need for political engagement and the development of long-term strategic approaches to road safety; and
- The value of external financing to stimulate transitions.

## Introduction to the document

In CIVITAS ECCENTRIC, five cities (Madrid, Munich, Ruse, Stockholm, Turku) have implemented a total of 50 innovative, sustainable urban mobility measures. The measures addressed a variety of urban mobility challenges, organised in different thematic Work Packages and clusters. This document is intended to equip practitioners and decision makers with the information needed to replicate measures included in the thematic cluster, “Measures to increase the share of walking and cycling”, and the thematic cluster, “Measures to make walking and cycling safer”.

Replicability refers to the possibility of transferring results from a pilot case to other geographical areas. These areas, of course, have different local contexts and conditions. When a specific measure proves to be successful in one European city, it should be possible to transfer it (in whole or in part) to another city (or upscale it within the original city).

## 1. CIVITAS ECCENTRIC and the importance of safe walking and cycling for sustainable urban mobility

In the last decade, European cities have made significant steps forward in the delivery of sustainable urban mobility policies, proving that major impacts in terms of reduced congestion and emissions can be achieved through ambitious measures. At the same time, peripheral districts remain largely unaddressed, with the effects of flagship projects rarely being transferred to these areas. Urban growth processes are putting additional pressure on peri-central areas.

A key challenge is to increase the attractiveness and sustainable mobility of peripheral districts, as well as to relieve central areas through clean and efficient urban logistics. The cities of Madrid, Stockholm, Munich, Turku, and Ruse formed the CIVITAS ECCENTRIC consortium in order to tackle these challenges and demonstrate the potential and replicability of measures that aim to enable sustainable urban mobility and transportation. Six thematic work packages comprised the project, one of which focused on a major strategic challenge for communities across Europe – how to achieve conditions that enable safe walking and cycling and increase levels of walking and cycling.

Increasing the levels of active mobility is essential for sustainable urban mobility. CIVITAS ECCENTRIC worked to enable active mobility through the demonstration of multiple approaches in two clusters, one focusing on making walking and cycling safer, and the other on increasing the modal share for walking and cycling by increasing the availability and quality of infrastructure and bicycles. This report presents results from both thematic clusters.

## 2. Summary of the Cluster: Increasing the Share of Walking and Cycling

### Measures to foster the increase of walking and cycling levels

Active forms of mobility, such as walking and cycling, are vital components of sustainable urban mobility, and cities around the world are keen to identify creative ways to increase levels of walking and cycling. This cluster demonstrated four measures in three cities. The measures included improvements to the design and maintenance of infrastructure, as well as the provision of a test fleet that allowed citizens to test e-bikes (see Table 1).

**Table 1: Overview of measures in WP4 cluster “Increase levels of walking and cycling”**

Measure	City	Partner(s)
Pedestrian-friendly public space outside the city centre (MAD 4.6.)	Madrid	City of Madrid; Grupo de Estudios y Alternativas 21SL (GEA21)
Enabling cycling outside the city centre (MAD 4.7.)	Madrid	City of Madrid; GEA21
Easy, safe and comfortable cycling and walking round the year (TUR 4.8.)	Turku	City of Turku; Turun University of Applied Sciences (TUAS)
Offering test fleet of e-bikes and cargo bikes (STO 4.9.)	Stockholm	Cykelkonsulterna; City of Stockholm

### Brief summary of the respective measures

#### *Developing attractive infrastructure for active mobility in a peripheral district of Madrid*

Two of the measures (MAD 4.6. and MAD 4.7.) were demonstrated in Vallecas, a large urban centre on the periphery of Madrid, and involved interventions to improve infrastructure for walking and cycling. These measures extended Madrid’s Pedestrian Strategy to a peripheral district. In addition to having an aim to increase the modal share of walking and cycling and reduce the use of private cars, these measures have a wide range of related objectives concerning, for example, socio-economic integration (both within the district as well as between the district and city), environmental pollution, and perceptions of safety.

The measures enabled, for example, green spaces across the district to be linked by a pedestrian corridor (the “Viewpoints Itinerary”, an action that was requested by citizens in a participatory budget process), allowed for an extension of the network of bike lanes to include secondary roads, and improved links between the urban centre and university campus, along with other general improvements to the urban space and communication actions.

### ***Maintaining service quality throughout the seasons in Turku***

The provision of safe and reliable infrastructure across the seasons is an issue that is relevant to many European cities, with winter cycling being a topic of particular interest to communities across Scandinavia. The City of Turku adopted sweep-salting methods, which were pioneered in Sweden to enable year-round cycling, for the maintenance of pedestrian and cycle paths in winter (measure TUR 4.8).

The demonstration involved consultation with the public about winter cycling, the gathering of best practices, tendering, and the launch of the new maintenance scheme in October 2017. The measure generated high levels of user satisfaction and also supported the launch of a year-round bike-sharing system in Turku (an action that was also co-financed by CIVITAS ECCENTRIC).

### ***Encouraging the adoption of e-bikes in Stockholm***

In Stockholm (measure STO 4.9.), over two hundred individuals tested e-bikes and e-cargo bikes for one-month periods as part of a campaign that was run by the company, Cykelkonsulterna. This trial, which coincided with the launch of a national incentive scheme that offered consumers a 25% discount on purchases of electric bicycles, aimed to increase the number of e-bike and e-cargo bike users in Årsta and other districts of Stockholm as well as to introduce such bicycles to new user groups.

## **Demonstration, evaluation, validation, exchange, upscaling, and replication: collective actions in CIVITAS ECCENTRIC**

CIVITAS ECCENTRIC not only enabled the demonstration, evaluation, and validation of the five measures, but also included a range of activities that enabled exchange between the project partners and with other interested cities and stakeholders. These activities focused on the dissemination of project results to enable capacity building, upscaling within CIVITAS ECCENTRIC cities, and replication in other locations.

These actions included two CIVITAS ECCENTRIC cross-fertilisation workshops in Munich and Madrid, an international workshop prior to the Third Global Ministerial Conference on Road Safety that took in Stockholm in February 2020, conference presentations (e.g. at the CIVITAS Forum in 2018 and 2019, and Transport Research Arena 2020), the hosting of study visits by CIVITAS ECCENTRIC cities, an internal peer review of measures by other CIVITAS ECCENTRIC cities, public webinars and local events, publications, as well as intra-project activities, such as telephone conferences.

To further assist other cities and stakeholders in learning from and replicating the CIVITAS ECCENTRIC measures that aimed at increasing the share of walking and cycling, this report proceeds by outlining drivers and barriers, the results and impact, and general conclusions and lessons learnt from the implementation of the cluster of four measures. This is then followed by key lessons and recommendations related to three themes – developing attractive infrastructure for active mobility in peripheral districts; maintaining service quality throughout the seasons; and encouraging the adoption of e-bikes.

### 3. From ECCENTRIC cities to replication in other places

The following chapter identifies the kinds of barriers and drivers that influence the demonstration of measures that aim to increase the share of walking and cycling, and indicates ways in which these have influenced implementation in the ECCENTRIC cities. The assessment reflects both the qualitative experience of the Work Package Leader and Measure Leaders, as well as the qualitative and quantitative analysis from the Project Evaluation Manager.

#### Evaluating the replication potential of measures

In order to make implementation possible, an in-depth analysis is required to understand the existing barriers that obstruct effective and successful implementation. Financial and governance aspects form part of this analysis. In the following, the necessary structures and processes to replicate the measures in the future is explained. The respective experiences with the measures implemented in each area of application as part of a “living lab” will be referred to.

#### Drivers and barriers to be expected

In order to make implementation possible, an in-depth analysis is required to understand the existing barriers that obstruct effective and successful implementation. Finance and governance aspects are addressed within Chapter 4, as these are closely connected to the particular types of actions that were demonstrated.

#### Barriers

- *Political/strategic problem-related:* The barriers include a general concern that key institutional stakeholders and decision-makers do not focus on the implementation of the measures, since they have other priorities in the municipalities or because they lack mandate or are dependent on other stakeholders for implementation. It was sometimes perceived that there was a mismatch between high-profile political statements that advocated walking and cycling and the actual prioritisation of efforts to increase the share of walking and cycling. In some cases, this created uncertainty about the continuity of measures after the ECCENTRIC funds ran out, since some measures required political decisions about investments. This is quite related to the next barrier.
- *Financial:* Experiences included limited budgets, restrictions on the use of other funds to enable infrastructure improvements, bureaucratic processes related to the use of funds for the implementation phase, and unclear justification for the funding of other investments (e.g. those favouring cars). It was also pointed out that the funding scheme is sometimes inconvenient; planning and implementation should be flexible and/or separated to match the political discussion and agenda.
- *Planning:* In general, it was perceived that there was a lack of a clarity about how to proceed after identifying necessary actions. Some examples include a lack of a guideline process on how to conduct part of the pilot projects (road closure), and difficulty to find convenient places to implement the measure or to

test the pilot project. In some cases, not all of the potential problems were identified during the planning stage.

- *Institutional*: The complexity of administrative structures slowdown a fast implementation of projects related to infrastructure, due to the long decision-making processes of institutions.
- *Positional*: Some measures struggle to position their product in the market due to insufficient partner arrangements, lack of involvement of stakeholders in the living lab, or changes in measure leaders over the course of the project.

Other barriers included a high segmentation of users, needs, preferences, and capacities. To overcome such barriers, on the political/strategic side, suggested actions include approaching key decision-makers and stakeholders at all stages related to the measure, as well as identifying other potential partners that could support the measure. To increase financial security for implementation, measures should be embedded in a city's Sustainable Urban Mobility Plan (SUMP). Moreover, there should be good communication with stakeholders. To overcome positional barriers, it was suggested to increase visibility by partnering with other measures or similar projects, as well as to implement marketing strategies to promote the measure.

### **Drivers**

- *Organisational/involvement*: This driver was described as there being good cohesion and high commitment within the teams of the organisations that coordinate the measures, as well as their leadership, and a clear segmentation of users.
- *Political and strategic/institutional*: The measures are aligned with policies and city strategies. They are meant to ease some of the cities' problems that pose political pressure, since they depend on public opinion. This translates in a favourable regulatory framework and environment when it came to implementing WP4 activities.
- *Positional*: The measures support the goals of the SUMP in some cities and provide additional benefits to pedestrians and cyclists. This creates a favourable attitude towards them and makes them more visible. In some cases, it speeded up their progress (MAD 4.7).
- *Planning*: Good ex-ante analysis, technical planning, and involvement of users in the planning process.

Other drivers include financial drivers, acknowledgement of the funding provided by CIVITAS, and, in some cases, a good involvement of and communication with stakeholders.

### **Foreseeable Impacts**

It is fair to expect an increase in the number of cyclists and pedestrians in areas where measures represent a moderate increase in the quality of infrastructure and the use of infrastructure is perceived as safe by the user (particularly for cycling).

An improvement when it comes to mobility conditions is to be expected, particularly for regular users of public transport or those that are dependent on public transport as their sole means of transportation. The measures are also expected to allow for multimodality

and an improvement in door-to-door accessibility. For car users, however, there is little proof that these measures alone can do much to have an impact on car dependency or change their mobility behaviour. Only in combination with other (most likely car-restrictive) actions could this be expected.

An increase in the acceptance of actions that provide more and better space for cycling and walking is not necessarily to be expected, particularly if these actions endanger the status quo of the private vehicle. Depending on the local context, reactions from citizens and decision-makers can vary widely for reasons that probably have nothing to do with the actual impact of the actions, but rather reflect other political or social concerns.

Measures for increasing cycling and walking must include safety as one of their central elements. Failing to do so will not only fail to support non-motorised mobility, but, even worse, will result in more injuries and deaths, and a backlash when it comes to the acceptance of such investments.

It is fair to assess the impact of these measures using indicators that are linked to the number of users and activities in the street. In addition, qualitative and quantitative indicators that measure the visibility as well as perception of the measure and its users are appropriate. Safety indicators are relevant, and are particularly useful if these can be associated with a spatial variable.

Modal split, mode shift, vehicle-kilometres travelled, energy consumption/savings, and other indicators that are commonly associated with urban mobility and transportation patterns are adequate only if they form part of a complete study that considers other modes and changes in the medium-to-long term (5+ years). Car ownership, location preferences, impact on sales, and other indicators that measure economic, long-term mobility and location impacts require large datasets (in time range and sample size) and fall beyond the isolated scope of transportation planning.

### ***Policy Recommendations***

Managing the impact of cycling and walking measures when it comes to road congestion<sup>1</sup> and other forms of resistance to the free flow of motorised individual transport, and its further impact on public opinion and acceptance is vital to ensure the rise of active mobility. At the same time, however, both opinion and acceptance are influenced by forces which might have little or no relationship with the actual effect of walking and cycling infrastructure. Tackling congestion successfully (e.g. by shifting users away from private vehicles) does not mean that acceptance will always go on the rise, and an increase in congestion (e.g. due to a reallocation of space) does not mean that acceptance has to decline.

Acceptance is to be managed strategically, considering a wide spectrum of variables that fall beyond the field of transportation and mobility planning (social, economic, political, etc). Similarly, impact related to capacity constraints is rather the result of a strategy that is anchored in decisions about the use of space for different aspects of the urban realm, than the result of measures for cycling and walking (or even transportation alone). Solving capacity constraints in different forms (e.g. congestion) should not be one of the objectives of investments in cycling and walking. Capacity constraints are rather a tool to regulate the use of space in cities.

---

<sup>1</sup> The concept of congestion in this context extends beyond its common connection to traffic flow. It also involves other forms of resistance to the use of private vehicles (e.g. parking manoeuvres).

Cities should aim to achieve a balance of walking, cycling, and public transport. These modes complement each other and improvements in connectivity, accessibility, and safety that are provided by actions in these areas will improve the overall quality and sustainability of the transport system. Nevertheless, achieving modal shifts from private cars to sustainable modes seems to require additional actions (e.g. through push-pull strategies) that address the needs of private vehicle users.

Safety should be at the centre of any action that is focused on active mobility. With an increase in the number of pedestrians and cyclists, there is a need to provide safe solutions to keep accidents at bay, if not to eliminate them completely. In the long term, and as part of joint strategies, the potential reduction in road traffic can bring an even more positive perspective into accident figures.

Visibility of the infrastructure and its users as well as effective communication are key elements to address acceptance and safety and ensure a rising number of non-motorised users on the street. Infrastructure alone can provide a safer environment, but its benefits must be visible and communicated to attract more users. Users can only attract more users, which again require visibility for safety-related and strategic reasons. Actions that support active mobility are currently lacking the tools and support for project delivery. From weak cases for financing, to a lack of guidelines for planning and approval, CIVITAS ECCENTRIC demonstrated the need to improve governance and robust risk management around these types of measures.

SUMPs are one of the tools to increase the significance of cycling and walking projects and support their delivery. SUMPs were identified in CIVITAS ECCENTRIC as a positive driving force, but they still need to find their way into a more permanent form in the formal planning procedures of each city. This is true particularly for non-central locations where the benefits of active mobility almost always yield to car-centric planning philosophies. CIVITAS ECCENTRIC was itself found to be a driving force when it came to supporting the acceptance and delivery of related projects.

## Example measures

### *Developing attractive infrastructure to enable walking and cycling outside of the city centre*

These two ECCENTRIC measures are considered together in this subchapter:

#### **Measure MAD 4.6 Pedestrian-friendly public space outside the city centre**

#### **Measure MAD 4.7 Enabling cycling outside the city centre**

### *Introduction*

Suburban and peripheral city districts have often been neglected in urban planning, particularly regarding sustainable urban mobility. In many such districts, the quality of urban space is poor and the provision of infrastructure for walking and cycling is inadequate. This may be reflected in actual or perceived levels of safety (see ECCENTRIC measures MAD 4.3. and STO 4.5. in Chapter 6, “Summary of the Cluster: Measures to make walking and cycling safer”); however, other factors – such as the quality of urban space, the accessibility of infrastructure, and attractive routes or destinations – may influence levels of walking and cycling.

By introducing new pedestrian-friendly spaces and enabling cycling in the district of Vallecas, Madrid aimed to respond to local challenges and develop an approach to improve urban quality and increase levels of walking and cycling that can be scaled up in other parts of Madrid or replicated in other cities in Europe.

**Figure 1: Brochure New Municipal Ordinance campaign in Madrid**

<p><b>Cuando aparcas bien, disfrutas más como peatón</b></p>  <p>→ Más espacio para los peatones. Estaciona en las zonas reservadas y si no es posible, hazlo junto al bordillo.</p> <p>→ También podrás estacionar en paralelo al bordillo en aceras de menos de 6 metros de ancho, y en semi batería o ángulo si son más anchas.</p> <p>→ Siempre deja tres metros libres para el tránsito.</p> <p>→ Está prohibido el estacionamiento a menos de dos metros de los pavimentos tacto-visuales para garantizar la movilidad de las personas con discapacidad visual.</p>	<p><b>¿Qué puedes hacer como peatón?</b></p> <p>→ Recuerda: todas las personas son peatones, y la movilidad a pie supone alrededor de un tercio de los desplazamientos en la ciudad.</p> <p>→ Además, se consideran peatones las personas con movilidad reducida con una silla de ruedas a motor o sin él y quienes transiten a pie arrastrando una bicicleta, patinete o cualquier vehículo de movilidad urbana.</p> <p>→ Puedes solicitar aparca-bicis e informar al Ayuntamiento cuando encuentres algún obstáculo en la acera que dificulte el paso.</p> <p><b>010</b>          @lineamadrid          Oficinas de Línea Madrid</p>  <p>madrid.es/apie</p>	 <p><b>SOMOS PEATONES, LA ACERA ES NUESTRA</b></p> <p>Conoce la normativa para que sea más fácil y seguro moverte por Vallecas</p> <p>Camina Madrid</p> <p>MADRID</p>
--	--	---

## Implementation

The approach used by Madrid to implement these measures is described in the report, “D4.2. Measures to increase the share of walking and cycling”. Below is a summary of important steps, which can inform other cities about how to replicate the approaches that were used.

- Cities should always try to include peripheral districts in their strategies from the beginning. The SUMP Guidelines indicate that planning should extend across Functional Urban Areas, including peripheral neighbourhoods. In cases where the city has an existing Pedestrian Strategy or Cycling Masterplan for the inner city, consider which parts of the strategy can be extended to peripheral districts and what kinds of additional actions may be required;
- Involve local stakeholders in the development of a local strategy that addresses their specific needs (e.g. in Vallecas, this included local residents and businesses, as well as the university and hospital located in the district) and enables tactical interventions;
- Conduct a thorough analysis of the district. Try to identify creative ways to address multiple policy objectives in low-cost ways; for example, perceptions of personal safety may be influenced by multiple factors (e.g. physical barriers, lighting, parked cars, etc.) rather than traffic conditions per se;
- Find ways to integrate sustainable forms of mobility (e.g. mobility stations) into placemaking, so that improvements to urban form reinforce the need for, and possibility for, modal shift; and

- Make an action plan that addresses priorities and generates goodwill – launch a communications campaign that encourages behavioural change, whilst emphasising the real improvements that are being made (e.g. in Vallecas, this included a green corridor with viewpoints looking out over Madrid).

The CIVITAS ECCENTRIC funds that were used in this measure development amounted to € 250,000, which was used for project development, technical planning, as well as evaluation and dissemination tasks. The construction works can be estimated to cost € 5 million.

### ***Business model and contractual partnerships***

The investments made in Vallecas were done by the City of Madrid, with additional support from CIVITAS ECCENTRIC. In most cases, investments would be publicly funded, and perhaps, on certain occasions, funded in partnership with private property owners or other large stakeholders in a district. There may be possibilities to, for example, gain support from charitable foundations to support investments. Contractual partnerships may be required with mobility service providers or other stakeholders that are seeking to lease or operate parts of a route (e.g. restaurants or similar).

### ***Critical challenges and success factors***

These measures were time-consuming and complex, as they attempted to introduce various types of interventions at multiple locations along and close to a long corridor for walking and cycling. Administrative delays and limited investment budgets created challenges for the implementation of the measures, partly because the political focus shifted away from addressing mobility challenges in peripheral districts. It was difficult to align project timelines and budgets with other initiatives and to secure necessary funding to implement all aspects of the strategy as desired. Market barriers also exist in most European cities, and service providers are often reluctant to launch new mobility services in peripheral districts. Such problems were partly overcome through the active participation of relevant stakeholders, such as the local bus company and the Technical University of Madrid, whose participation and input helped to ensure implementation.

### ***Lessons learnt and recommendations***

Important lessons from the demonstration of these measures include the need for strategies and budgets to be well-defined and aligned, to ensure that investments are (a) viable, in the sense of being realistic and achievable, and (b) synergetic with other strategic objectives (e.g. employment, social issues). The measures were complex, including many different actions across a large geographic zone; their inclusion in a European project with strict timelines made them difficult to fully achieve.

In hindsight (for the purposes of the project), the measures could have been implemented as single actions, and the implementation area could have been smaller. However, for the city and its daily work, the bold and transformative character of the measures – and the challenge of achieving them – suggests a need to align strategic objectives and budgets to achieve its wider objectives. Having said this, the demonstration of the measures led to substantial improvements in the quality of infrastructure for walking and cycling in Vallecas and laid the foundations for continued actions to increase levels of active mobility in Madrid.

Innovative concepts, such as e-mobility stations and wayfinding signage, have been introduced, and the City has been successful in engaging a diverse range of local stakeholders in planning and in communicating the importance of modal shift with citizens.

### ***Maintaining high-quality infrastructure to enable walking and cycling***

This ECCENTRIC measure is considered in this subchapter:

#### **Measure TUR 4.8 Easy, safe and comfortable cycling and walking year-round**

**Figure 2: Winter testroute in Turku. Source: Anette.Korkiakangas**



#### ***Introduction***

In all cities and contexts, the provision of high-quality infrastructure is essential to enable walking and cycling. Installing infrastructure is not enough; infrastructure needs to be well-maintained to ensure it is accessible and attractive for users. In warm climates, this may mean designing pavements or bike lanes to ensure natural cooling, through, for example, the use of vegetation or water or the construction of shade along routes. In cold climates, this may mean effective management of rainfall, snow, or ice to ensure that pavements and bike lanes are free from obstacles. This measure demonstrated the sweep-salting method of ice and snow clearance for the winter maintenance of pavements and bike lanes in Turku, to enable walking and cycling throughout the year.

#### ***Implementation***

The approach used in Turku is described in the report, “D4.2. Measures to increase the share of walking and cycling”. Key steps included:

- Gathering information about cycling behaviour and citizens’ attitudes towards cycling. This information provided essential baseline data. For example, the city administration learnt that pedestrians and cyclists were frustrated about the speed and quality of ice and snow clearance;

- Learning about good practice from other cities in the same climate zone;
- Identifying and planning priorities and selecting pilot routes for the CIVITAS ECCENTRIC tests;
- Procuring services for the tests and gathering baseline data;
- Winter campaigns in 2017-2018 and 2018-2019, including dissemination campaigns; and Monitoring and evaluation.

In Turku, the cost of normal winter maintenance of bicycle infrastructure is roughly 2000 €/km/year. The cost of sweep-salting on bicycle infrastructure is roughly 6200 €/km/year. Using more expensive maintenance requires careful planning regarding how much and where it should be used.

### ***Business model and contractual partnerships***

The service is procured, meaning there is a contractual partnership between the City and the tenderer.

### ***Critical challenges and success factors***

The demonstration of sweep-salting was successful, receiving a lot of positive feedback from pedestrians and cyclists in Turku. It is difficult to provide exact figures on modal split, but at one point along the route, a 39% increase in cycling during January-February was noted following the introduction of sweep-salting. The success of the measure was attributed to good planning, the integration of best practices, and efficient cooperation with the contractor. Thus, although sweep-salting, at 6200 €/km/year, is at least two times more expensive than normal winter maintenance, the method was adopted for future winter maintenance in Turku, and a masterplan for a prioritised winter cycling network was developed.

### ***Lessons learnt and recommendations***

Investing in quality is a key lesson and a recommendation to other cities that are facing climatic challenges. Analyse the situation in your own city and make use of existing knowledge by adapting and adopting good practice from other cities. Find out what citizens want to see addressed and communicate the objectives of a strategy with citizens. Consider how to use procurement processes most effectively to achieve desired outcomes (in terms of, for example, requirements concerning the speed and quality of ice and snow clearance) and link maintenance quality to wider social benefits, such as reductions in the number of accidents or insurance claims, improved public health from active mobility, etc. CIVITAS ECCENTRIC strongly recommends cities with cold, winter climates to consider sweep-salting as an appropriate form of maintenance and has demonstrated that ice and snow are not impediments to winter cycling.

## ***Providing test fleets to encourage modal shift***

This CIVITAS ECCENTRIC measure is considered in this subchapter:

### **Measure STO 4.9 Offering test fleet of e-bikes and cargo bikes**

#### ***Introduction***

Many people are willing to adopt new technologies following short trials, in which they get to test and familiarise themselves with a product or service without having to commit to a purchase. This measure aimed to introduce e-bikes and e-cargo bikes to new users in Stockholm through one-month trials, after which participants had the opportunity to purchase the bikes for a discount. The objective was to, through the provision of such a test fleet, encourage increasing numbers of people to cycle and, as e-bikes and e-cargo bikes enable users to extend their range, facilitate new kinds of travel.

**Figure 3: Offering test fleet of e-bikes and cargo bikes (STO 4.9)**



#### ***Implementation***

The approach used by the company, Cykelkonsulterna, to implement the test fleet is described in the report, “D4.2. Measures to increase the share of walking and cycling”. Around 125 individuals took part in the trials. These individuals were identified through a communications campaign that was aimed primarily at private housing associations that were located in and around the Årsta and Hammarby Sjöstad districts. Participants completed a survey to provide data on how they used the bicycles. Results indicated that participants were satisfied with the bicycles and about 90% did shift mode, but from public transport to cycling, rather than from cars. A total of 12 users subsequently purchased their e-bikes. The approach was considered reasonably successful, and the City of Stockholm subsequently adopted a similar approach with test e-bikes and e-cargo bikes as part of its “Winter Cycling” and “Without Your Own Car” campaign (part of CIVITAS ECCENTRIC measure, STO 3.5.). There were, however, significant challenges when it came to implementation, and these are outlined in the next section.

## ***Business model and contractual partnerships***

The service was provided by Cykelkonsulterna, with funding from CIVITAS ECCENTRIC. It should be noted that public and private e-bike and e-cargo bike sharing schemes have been established in many cities, with business models, contractual relationships, and customer offerings varying depending on the local context. For example, e-cargo bike sharing is increasingly common in the Netherlands and mobility “package” solutions (e.g. combined mobility/MaaS services) are emerging, as well as private subscription-based services or cooperative solutions.

## ***Critical challenges and success factors***

A range of factors coincided to complicate the implementation of this measure. One reason was a decision between local partners to move the equipment budget for the measure from the City of Stockholm to Cykelkonsulterna, a company providing various consulting and maintenance services to organisations in and around Stockholm. This complicated the role of Cykelkonsulterna, who had to provide bespoke services outside of their normal business areas. It was difficult to identify potential user groups and, once this was done, it was also difficult to identify appropriate routines that enabled, for example, the delivery or collection of bicycles to/from users. Cykelkonsulterna learnt to change their approach, but in hindsight would have preferred to focus on district hubs (in housing associations or equivalent locations) rather than being obliged to provide a mobile delivery and maintenance service.

Another factor complicating the demonstration was the launch of a national incentive scheme that offered consumers who were purchasing e-bikes and e-cargo bikes a 25% discount. This scheme was much appreciated by consumers and led to a rapid adoption of e-bikes and e-cargo bikes in Stockholm; in doing so, it also swallowed some potential clients of the test fleet. In total, e-bikes had a market share of 20% of new bike sales in 2018 and at least 6,875 new e-bikes were sold in Stockholm during 2018 (Source: Swedish Environmental Protection Agency).

Another complicating factor arose when the City of Stockholm announced (yet was unable to implement, due to repeated appeals of the procurement) plans for a city-wide e-bike and e-cargo bike sharing scheme, which may have made some consumers postpone investment decisions. Finally, the micro-mobility boom meant that a range of service providers launched e-scooters, e-mopeds, and similar services in Stockholm during 2018-2020, further transforming the dynamics of the local mobility market.

## ***Lessons learnt and recommendations***

Two important lessons are that consumers love to purchase e-bikes and e-cargo bikes, especially when they offered a discount! Having said this, the idea of offering test fleets of e-bikes and e-cargo bikes to potential buyers needs refinement. In hindsight, rather than proceeding as described above, it may have been better if the City of Stockholm had purchased the bikes and established a test fleet service from publicly-owned garages or for public service users (such as home care providers), enabling Cykelkonsulterna to focus on maintenance and service quality.

Such an approach may have guaranteed regular use by new user groups, whilst reducing the need to “recruit” users to a test, which proved logistically difficult to manage. Another lesson concerns business models - there are gaps in the market and there is potential to develop e-cargo bike sharing services, but it is hard to develop service offerings that are rapidly commercially viable. E-cargo bikes may need to be offered in combined mobility packages to subscribers (e.g. MaaS or through member associations).

Finally, the use of the test fleet highlighted the difficulty of getting people to leave cars; a modal shift from other modes to e-bikes was possible, but car drivers remained stubborn. This suggests that other forms of policy interventions will be necessary to reduce levels of car use and to avoid the diverse range of other mobility solutions from cannibalising each other. Thus, CIVITAS ECCENTRIC recommends cities to actively explore such alternatives to create disincentives to car use and to work harder to cultivate the use of e-bikes and e-cargo bikes through, for example, the introduction of dedicated infrastructure (e.g. e-bike “highways”, e-cargo bike parking, and secure storage facilities with charging).

## Conclusions

The experiences of the three cities in CIVITAS ECCENTRIC that implemented four measures to increase the share of walking and cycling highlight important factors that may be relevant to other cities. The examples from CIVITAS ECCENTRIC indicate the importance of:

- Actively and continually involving local stakeholders, using mixed methods and a wide range of tools;
- Clearly defining the reasons for a project, its scope, content, and level of ambition. Try to be realistic, focusing on the number of users and leaving targets related to mobility patterns to overlying programs. Reduce complex strategies into manageable parts;
- Making sure the strategy and budget are aligned and understood. Anticipate financial risks and make use of tools, such as public procurement, to integrate relevant non-monetary requirements into tenders;
- Acquiring good baseline data and pursuing active monitoring and follow-up. This will help to better inform decisions when planning an action and when trying to learn from its implementation;
- Managing acceptance strategically by effectively communicating with citizens. Don't be shy to present good results!
- Using actions related to walking and cycling as a tool to manage public space. It is frequently a tradeoff with congestion and other capacity constraints, which have to be addressed strategically but should not be an objective on their own.
- Working systematically for long-term change. Increasing the share of walking and cycling is complex work, involving many small changes and difficult discussions. Avoid trade-offs that compromise the availability and quality of good infrastructure for walking and cycling, whilst questioning the need for infrastructure that facilitates use of private vehicles.

## 4. Summary of the cluster: Measures to make walking and cycling safer

### ECCENTRIC measures to foster the increase of walking and cycling levels

Safety issues are reported to be one of the major obstacles for increased cycling and walking. To increase actual and perceived safety, this cluster demonstrated five measures, including a range of physical interventions and policy alternatives, that can improve safety for pedestrians, cyclists, and other road users (see Table 1).

**Table 2: Overview of measures in WP4 cluster “Safer walking and cycling”**

Measure	City	Partner(s)
Innovative and participative approach to traffic safety (4.1.)	Madrid	City of Madrid
Software-controlled security management in the road network (4.2.)	Munich	City of Munich
Providing secure pedestrian crosswalks (4.3.)	Ruse	City of Ruse; Club Sustainable Development of Civil Society Association (CSDCS)
Safe pavements with cycle paths towards the city centre (4.4.)	Ruse	City of Ruse; CSDCS
Policy for rerouting cyclists during construction work (4.5.)	Stockholm	City of Stockholm

#### ***Madrid and Munich: Methodological improvements to safety management systems to identify and mitigate actual and perceived risks***

Madrid and Munich implemented new safety management systems that include spatial, modal, temporal, and social analysis of accidents to identify real and perceived risks.

In Madrid (measure 4.1), the system incorporates information gathered from stakeholders, such as citizens and police, to illustrate both reported and unreported incidents, enabling geo-referencing with GIS.

In Munich (measure 4.2), inventories of traffic data and incidents were analysed to develop a programme for actions that can improve road safety. Interventions at hotspots are being made and monitored to assess outcomes, and the city administration continuously involves stakeholders, such as residents' associations and schools, in the process. This approach informs and complements the wider Vision Zero programme for Munich that was approved by the City Council in April 2018, meaning that lessons learnt during CIVITAS ECCENTRIC will be integrated into ongoing road safety work across the city.

Common challenges for these measures included the issue of data quality and management (including staff competencies), and the difficulty of balancing different perspectives (e.g. concerning impact versus costs or feasibility).

### ***Ruse: Provision of high-quality infrastructure to enable safe walking and cycling in a suburban district***

The safety of pedestrians and cyclists is a major concern in Druzhba, a suburb of Ruse. The general quality of pavements is poor and many residents, particularly people with disabilities, avoid walking. This results in a higher use of motorised transport than is necessary, with resultant conflicts between road users exacerbating the aforementioned problem.

In CIVITAS ECCENTRIC (measure 4.3), the quality of pedestrian crossings in Druzhba was analysed and improvements were made, including the use of LED lighting and elevated crosswalks, along with surveillance cameras to monitor performance and increase citizens' perceptions of safety. In addition (measure 4.4), Ruse invested in improving the quality of sidewalks and introducing designated bike lanes alongside several main roads. Both of these measures were supported with wide-ranging capacity-building and dissemination activities that involved stakeholder groups, such as citizens, non-governmental organisations, urban planners, and transport professionals.

### ***Stockholm: Ensuring accessibility to high-quality infrastructure during temporary road works***

The final measure in the cluster was demonstrated in Stockholm and involved the development of guidelines and product tests to improve safety around construction sites (measure 4.5). Temporary diversions due to construction works create disruptions for pedestrians, cyclists, and other road users, often resulting in conflicts and, in the worst case, accidents. This measure aimed to increase safety for unprotected road users and enforce the "order of priorities" for sustainable mobility by ensuring seamless travel for pedestrians and cyclists (as opposed to motor vehicles, which have often in the past received priority during diversions).

In addition to the development and implementation of guidelines for construction companies concerning road layout, signage, lighting, safety equipment, etc., the measure also involved collaboration with a business association, the Swedish Standards Institute, and two other cities to test, evaluate, and develop standards for innovative safety products. This included, for example, the use of soft materials and protective nets adapted from ski slopes, instead of metal or concrete barriers.

## **Demonstration, evaluation, validation, exchange, upscaling and replication: collective actions in CIVITAS ECCENTRIC**

CIVITAS ECCENTRIC not only enabled the demonstration, evaluation, and validation of the five measures, but also included a range of activities that enabled exchange between the project partners and with other interested cities and stakeholders. These activities focused on the dissemination of project results to enable capacity building, upscaling within CIVITAS ECCENTRIC cities, and replication in other locations.

These actions included two CIVITAS ECCENTRIC cross-fertilisation workshops in Munich and Madrid, an international workshop prior to the Third Global Ministerial Conference on Road Safety that took place Stockholm in February 2020, conference presentations (e.g. at the CIVITAS Forum in 2018 and 2019, and Transport Research Arena 2020), the hosting of study visits by CIVITAS ECCENTRIC cities, an internal peer review of measures by other CIVITAS ECCENTRIC cities, public webinars and local events, publications, as well as intra-project activities, such as telephone conferences.

To further assist other cities and stakeholders in learning from and replicating the CIVITAS ECCENTRIC measures that aimed at making walking and cycling more safe, this report proceeds by outlining drivers and barriers, the results and impact, as well as general conclusions, lessons learnt, and recommendations from the implementation of the cluster of five measures. This is then followed by key lessons and recommendations related to three themes – safety management systems and methods; the provision of high-quality infrastructure; and maintaining service quality during periods of disruption.

## 5. From ECCENTRIC cities to replication in other places

The following chapter identifies the kinds of barriers and drivers that influence the demonstration of measures that aim to increase the share of walking and cycling, and indicates ways in which these have influenced implementation in the ECCENTRIC cities. The assessment reflects both the qualitative experience of the Work Package Leader and Measure Leaders, as well as the qualitative and quantitative analysis from the Project Evaluation Manager.

### Evaluating the replication potential of measures

To make replication possible, an in-depth analysis is required to understand the existing barriers that obstruct effective and successful implementation. Finance and governance aspects will accompany this analysis. In the following paragraphs, it is explained which necessary structures and processes the measures are based on, for other cities to be able to replicate them in the future. The relevant experience from each measure implemented in the living labs will be used for this purpose.

### Drivers and barriers to be expected

In order to make implementation possible, an in-depth analysis is required to understand the existing barriers that obstruct effective and successful implementation. Finance and governance aspects are addressed within Chapter 8, as these are closely connected to the particular types of actions that were demonstrated.

#### **Barriers**

- *Political/strategic problem-related:* The barriers include a general concern that key institutional stakeholders and decision-makers do not focus on the implementation of the measures, since they have other priorities in the municipalities or because they lack mandate or are dependent on other stakeholders for implementation. It was sometimes perceived that there was a

mismatch between high-profile political statements that advocated walking and cycling and the actual prioritization of efforts to increase the share of walking and cycling. In some cases, this created uncertainty about the continuity of measures after the ECCENTRIC funds ran out, since some measures required political decisions about investments. This is quite related to the next barrier.

- *Financial:* Experiences included limited budgets, restrictions on the use of other funds to enable infrastructure improvements, bureaucratic processes related to the use of funds for the implementation phase, and unclear justification for the funding of other investments (e.g. those favouring cars). It was also pointed out that the funding scheme is sometimes inconvenient; planning and implementation should be flexible and/or separated to match political discussion and agenda.
- *Planning:* In general, it a lack of clarity was perceived about how to proceed after identifying necessary actions. Some examples include a lack of a guideline process on how to conduct part of the pilot projects and difficulty to find convenient places to implement the measure or to test the pilot project. In some cases, not all of potential problems were identified during the planning stage.
- *Institutional:* The complexity of administrative structures slowdown a fast implementation of projects related to infrastructure, due to the long decision-making processes of institutions.
- *Positional:* Some measures struggle to position their product in the market due to insufficient partner arrangements, lack of involvement of stakeholders in the living lab, or changes in measure leaders over the course of the project.

Other barriers included a high segmentation of users, needs, preferences, and capacities. To overcome such barriers, on the political/strategic side, suggested actions include approaching key decision-makers and stakeholders at all stages related to the measure, as well as identifying other potential partners that could support the measures. To increase financial security for implementation, measures should be embedded in a city's SUMP. Moreover, there should be good communication with stakeholders. To overcome positional barriers, it was suggested to increase visibility by partnering with other measures or similar projects, as well as to implement marketing strategies to promote the measure.

### **Drivers**

- *Organisational/involvement:* This driver was described as there being good cohesion and high commitment within the teams of the organisations that coordinate the measures, as well as their leadership, and a clear segmentation of users.
- *Political and strategic/institutional:* The measures are aligned with policies and city strategies. They are meant to ease some of the cities' problems that pose political pressure, since they depend on public opinion. This translates in a favourable regulatory framework and environment towards the WP.
- *Positional:* The measures support the goals of the SUMP in some cities and provide additional benefits to pedestrians and cyclists. This creates a favourable attitude towards them and makes them more visible. In some cases, it has speeded up their progress.

- *Planning*: Good ex-ante analysis, technical planning, and involvement of users in the planning process.

Other drivers include financial drivers, acknowledgement of the funding provided by CIVITAS, and, in some cases, a good involvement of and communication with stakeholders.

### ***Foreseeable Impacts***

It is fair to expect an increase in the number of cyclists and pedestrians in areas where measures represent a moderate increase in the quality of infrastructure and the use of infrastructure is perceived as safe by the user (particularly for cycling).

An improvement when it comes to mobility conditions is to be expected, particularly for regular users of public transport or those that are dependent on public transport as their sole means of transportation. The measures are also expected to allow for multimodality and an improvement in door-to-door accessibility. For car users, however, there is little proof that these measures alone can do much to have an impact on car dependency or change their mobility behaviour. Only in combination with other (most likely car-restrictive) actions this could be expected.

An increase in the acceptance of actions that provide more and better space for cycling and walking is not necessarily to be expected, particularly if these actions endanger the status quo of the private vehicle. Depending on the local context, reactions from citizens and decision-makers can vary widely for reasons that probably have nothing to do with the actual impact of the actions, but rather reflect other political or social concerns.

Measures for increasing cycling and walking must include safety as one of their central elements. Failing to do so will not only fail to support non-motorised mobility, but, even worst, will result in more injuries and deaths, and a backlash when it comes to the acceptance of such investments.

It is fair to assess the impact of these measures using indicators that are linked to the number of users and activities in the street. In addition, qualitative and quantitative indicators that measure the visibility as well as perception of the measure and its users are appropriate. Safety indicators are relevant and are particularly useful if these can be associated with a spatial variable. Modal split, mode shift, vehicle-kilometres travelled, energy consumption/savings, and other indicators that are commonly associated with urban mobility and transportation patterns are adequate only if they form part of a complete study that considers other modes and changes in the medium-to-long term (5+ years). Car ownership, location preferences, impact on sales, and other indicators that measure economic, long-term mobility, and location impacts require large datasets (in time range and sample size) and fall beyond the isolated scope of transportation planning.

### ***Policy Recommendations***

Managing the impact of cycling and walking measures when it comes to road congestion<sup>2</sup> and other forms of resistance to the free flow of motorised individual transport, and its further impact on public opinion and acceptance is vital to ensure the rise of active mobility.

---

<sup>2</sup> The concept of congestion in this context extends beyond its common connection to traffic flow. It also involves other forms of resistance to the use of private vehicles (e.g. for parking manoeuvres).

At the same time, however, both opinion and acceptance are influenced by forces which might have little or no relationship with the actual effect of walking and cycling infrastructure. Tackling congestion successfully (e.g. by shifting users away from private vehicles) does not mean that acceptance will always go on the rise, and an increase in congestion (e.g. due to a reallocation of space) does not mean that acceptance has to decline.

Acceptance is to be managed strategically, considering a wide spectrum of variables that fall beyond the field of transportation and mobility planning (social, economic, political, etc). Similarly, impact related to capacity constraints is rather the result of a strategy that is anchored in decisions about the use of space for different aspects of the urban realm, than the result of measures in cycling and walking (or even transportation alone). Solving capacity constraints in different forms (e.g. congestion) should not be one of the objectives of investments in cycling and walking. Capacity constraints are rather a tool to regulate the use of space in cities.

Cities should aim to achieve a balance of walking, cycling, and public transport. These modes complement each other and improvements in connectivity, accessibility, and safety that are provided by actions in these areas will improve the overall quality and sustainability of the transport system. Nevertheless, achieving modal shifts from private cars to sustainable modes seems to require additional actions (e.g. through push-pull strategies) that address the particular needs of private vehicle users.

Safety should be at the centre of any action that is focused on active mobility. With an increase in the number of pedestrians and cyclists, there is a need to provide safe solutions to keep accidents at bay, if not to eliminate them completely. In the long term, and as part of joint strategies, the potential reduction in road traffic can bring an even more positive perspective into accident figures.

Visibility of the infrastructure and its users as well as effective communication are key elements to address acceptance and safety, and ensure a rising number of non-motorised users of the street. Infrastructure alone can provide a safer environment, but its benefits have to be visible and communicated to attract more users. Users can only attract more users, which again require visibility for safety-related and strategic reasons.

Actions that support active mobility are currently lacking the tools and support for project delivery. From weak cases for financing, to a lack of guidelines for planning and approval, CIVITAS ECCENTRIC demonstrated the need to improve governance and robust risk management around these types of measures.

SUMPs are one of the tools to increase the significance of cycling and walking projects and support their delivery. SUMPs were identified in CIVITAS ECCENTRIC as a positive driving force, but they still need to find their way into a more permanent form in the formal planning procedures of each city. This is true particularly for non-central locations where the benefits of active mobility almost always yield to car-centric planning philosophies. CIVITAS ECCENTRIC was itself found to be a driving force when it came to supporting the acceptance and delivery of related projects.

## Example measures

### *Methodological improvements to safety management systems to identify and mitigate actual and perceived risks*

These two ECCENTRIC measures are considered together in this subchapter:

**Measure MAD 4.1 Innovative and participative approach to traffic safety**

**Measure MUC 4.2 Software-controlled security management in the road network**

### *Introduction*

These measures aimed to influence the mobility cultures of Madrid and Munich by increasing actual and perceived levels of safety. The cities adopted new methods to map and analyse information from multiple sources concerning actual and perceived risks within their cities. By increasing the quality of information, the cities gained new insights into road safety management and identified locations for interventions to reduce the risk of accidents. This helps to increase confidence among pedestrians and cyclists and thereby facilitates the adoption of sustainable, active forms of mobility.

Figure 4: WP4\_ MAD 4.1 ECCENTRIC Municipal guide on Safety



### *Implementation*

The specific steps that were taken by Madrid and Munich to implement each measure are described in the factsheets that have been developed by the project for Madrid ([here](#)) and Munich ([here](#)). Below is an aggregated checklist of steps, which can inform other cities about how to replicate the approaches that were used.

- *Identification of problem/challenge and its scope. Key questions include:*
  - What are we trying to influence? Do we aim, for example, for a local impact in a specific location or a city-wide strategy that promotes Vision Zero? How can we shift from reactive planning (i.e. responding to fatal accidents) to proactive, preventative planning (i.e. identifying and mitigating all risks, both actual and perceived)?

- *Identification of possible sources, both formal/official and informal/unofficial.*
  - Official records (e.g. police accident reports);
  - Other formal sources that are not normally included in official statistics (e.g. insurance company records, hospital records);
  - Informal sources (e.g. neighbourhood associations, social media)
    - Develop forms of cooperation to increase the range of data that is available! Contact relevant stakeholders and set up simple processes for data input (e.g. social media pages for concerned residents).
- *Analyse your data: Make use of digital tools, such as GIS, to geo-reference information.*
  - Identify clusters and hot spots, as these are ripe for improvement!;
  - Think about the impacts of clusters and hot spots – pedestrians and cyclists may be forced to use other, informal routes because of these risks – consider this when planning interventions!
- *Use your data and communicate your results!*
  - Inform politicians and other stakeholders about investment needs;
  - Plan and implement interventions to improve actual and perceived safety;
  - Inform citizens and educate all road users about how to share public space and ensure safe and sustainable travel;
  - Work for continual improvement!

### ***Business model and contractual partnerships***

There may be no need for a business model or contractual partnerships. However, there may be costs or conditions that are related to the use of private data, or there may be a need to procure support from consultants, for example, for process management, analytical support, or technical systems. For example, in Munich, consultants were procured to assist the city in the preparation of inventories and identification of objectives and appropriate measures, and to develop a monitoring programme.

The budget for the measure was 57.117 € to set up the tool and conduct the test in the Living Lab. This unique investment was public in this case. To be able to maintain this tool over time, including the part related to campaigns on social media and analysis of citizen participation, a yearly budget of 15.000 € will be required. This tool has been embedded in the normal tasks related to road safety of Madrid City Council.

### ***Critical challenges and success factors***

The collection and coding of data presents both a critical challenge to implementation and is a key factor for successful implementation. As noted above, it is important to identify multiple sources of information and to develop a comprehensive approach to compile and analyse data. Keywords or codes are, thus, important and need to be selected carefully. Similarly, geo-referencing is essential, but has not historically been used in accident reporting; resources must be allocated to enable a shift from manual, unsystematic reporting processes to digitalised, structured reporting.

Such resources concern both human users, who may require training in, for example, GIS or qualitative data coding, as well as the required technical systems, to ensure that high-quality data is collected and analysed appropriately.

Other important success factors include:

- The need for political support and to involve a wide range of stakeholders;
- The need for an in-depth (and continual) assessment of road safety in the target area(s), using all possible sources;
- Clearly linking outcomes of analysis with interventions to improve road safety – develop a list of priorities based on effectiveness, cost, and feasibility, and work systematically to address them; and
- Looking for “unseen” trends or patterns and finding ways to address these too. Be creative and keep increasing your level of ambition!

### ***Lessons learnt and recommendations***

Common challenges for these measures included the issue of data quality and management (including staff competencies), and the difficulty of balancing different perspectives (e.g. concerning impact versus costs or feasibility). However, these challenges can be overcome through the adoption of a structured and systematic approach, as outlined above. It is essential to tailor the process to the local context to ensure that, for example, staff work with tools they understand and can generate useful output from, politicians understand and accept the need to address key priorities, and stakeholders are engaged and can provide supporting input in a format that suits them.

CIVITAS ECCENTRIC strongly recommends that other cities adopt similar approaches as part of comprehensive city-wide strategies to support Vision Zero and enable safe walking and cycling. Such strategies should not be stand-alone documents, but should be integral parts of Sustainable Urban Mobility Plans and explicitly linked to both measures (e.g. reductions in speed limits) and other strategic objectives (e.g. fulfilment of Sustainable Development Goals, attainment of an attractive urban environment, etc.). By doing so, cities can place safe walking and cycling at the heart of sustainable urban development.

### ***Provision of high-quality infrastructure in suburban Ruse***

These two ECCENTRIC measures are considered together in this subchapter:

**Measure RUS 4.3 Providing secure pedestrian crossings**

**Measure 4.4 Safe pavements with cycle paths towards the city centre**

#### ***Introduction***

These measures addressed the need for urgent improvements to pedestrian and cycling infrastructure in the densely-populated suburban district of Druzhba, Ruse. Poor quality pavements and an absence of bike lanes were among the factors that influenced high levels of car use, and contributed to restricted accessibility for marginalised groups. These measures combined physical works – the installation of new sidewalks, crossings, and bike lanes – with extensive engagement with key stakeholders.

Figure 5: WP4\_RUS 4.4 Safe sidewalks

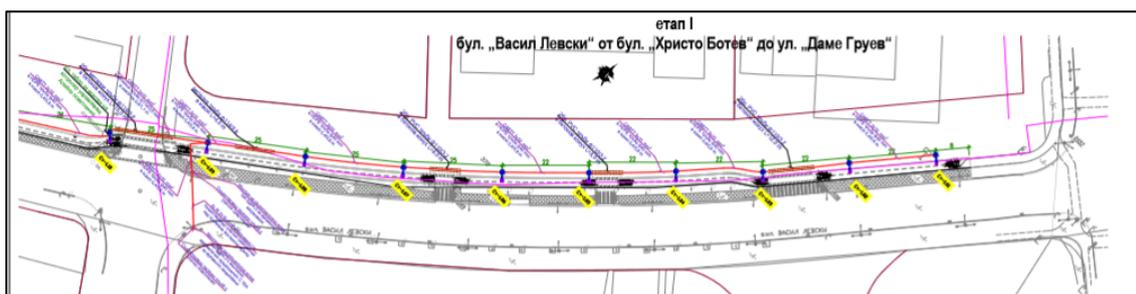


Figure 6: WP4\_RUS 4.3 Secure crosswalk at night



### Implementation

The specific steps that were taken by Ruse to implement each measure are described in the factsheets that were developed within the project for Ruse 4.3 ([here](#)) and Ruse 4.4 ([here](#)). The checklist below combines these steps to inform other cities about how to replicate the approaches that were used.

- Identify and analyse the potential of relevant best practices;
- Involve local stakeholders through workshops, social media, etc. Make use of all available data to identify critical locations for interventions – for example, crossings may be needed close to schools, shopping areas, or at other risk spots;
- Thoroughly analyse the neighbourhood to identify the potential for low-cost, high-impact solutions;
- If necessary, plan and commission physical works – consider issues such as land ownership, or the specific requirements that could be included in a call for tenders;

- If necessary, use the process as a pilot to develop technical standards for future works;
- Disseminate information in the neighbourhood and carry out follow-up evaluations to ensure that objectives are achieved and residents are satisfied – beware of unintended consequences, where the safety improvements at one site lead to behavioural changes that negatively affect safety at other locations!; and
- Work for continual improvement!

### ***Business model and contractual partnerships***

There may be no need for a business model or contractual partnerships, except in the case of procured services (as in Ruse) or in instances where private land is used. In such cases, it may be possible to split costs with property owners who benefit from increased safety and accessibility in and around their premises. Physical investments in infrastructure are always resource-intensive, so it is worthwhile to explore all possible measures to improve safety that do not involve construction – for example, speed limits or other traffic-calming measures.

### ***Critical challenges and success factors***

The main challenge – and a key criteria for success – has been to design a process that enables maximum engagement of the local community, in order to identify and select desirable locations for crossings, sidewalks, and cycle paths, and to ensure the acceptance and use of the new infrastructure. To achieve this, Ruse analysed the behaviour and preferences of residents of Druzhba and organised its process to ensure that citizens had multiple opportunities to engage (e.g. at workshops, by taking part in interviews, through social media, or by responding to questionnaires).

### ***Lessons learnt and recommendations***

Key lessons related to this measure include the value of wide-ranging analysis in informing and improving project design and decisions. Ruse benefitted from European benchmarking, a thorough analysis of the local situation, and the extensive and early input from its citizens into the planning process. CIVITAS ECCENTRIC strongly recommends that cities that are replicating these measures adopt a similar approach and try to blend local knowledge and the experiences of other cities in Europe to maximise the impact of physical works on local traffic safety.

### ***Ensuring accessibility and quality during temporary road works***

This ECCENTRIC measure is considered in this subchapter:

#### **Measure STO 4.5 Policy for rerouting cyclists during construction works**

##### ***Introduction***

Construction works often lead to temporary diversions or road works that disturb the flow of traffic for all road users, in particular for pedestrians and cyclists. Despite ambitions to enable active and sustainable travel, cities often make little or no effort to ensure that the journeys of pedestrians and cyclists are not disrupted by construction works.

Special efforts are often made to ensure the seamless movement of buses, cars, and trucks, whilst pedestrians and cyclists are forgotten or squeezed into narrow strips with low levels of safety. This measure aimed to counteract this by developing technical standards that promote uninterrupted walking and cycling at construction sites; testing and evaluating the implementation of diversion methods and innovative safety materials; and developing national standards for safety materials used at constructions sites to minimise risks to cyclists and pedestrians.

Figure 7: WP4\_ STO 4.5 Safety flexible fence



### Implementation

The approach used by Stockholm to implement this measure is described in the factsheet on Stockholm ([here](#)). Below is a summary of important steps, which can inform other cities about how to replicate the approaches that were used.

- Analyse specific practices and other important factors that influence risks at construction sites or temporary diversions. Identify the potential for improvement through the introduction of new practices, materials, etc.;
- Consider requirements that have been issued by the city when planning temporary diversions or road works; what is demanded and what is not, and how do these demands relate to the risks?;
- Develop updated technical standards and integrate these into regular routines;
- Carry out awareness-raising activities to ensure construction companies and their employees are aware of the reasons for new procedures;
- Monitor and follow-up on implementation;
- Use clear signage and monitor levels of walking and cycling before, during, and after construction works; and
- Work to continually improve the process!

### ***Business model and contractual partnerships***

The costs of implementing the measure should be integrated into contractual partnerships with construction companies; the practice should become business-as-usual and may result in cost savings at some locations (as the approach indicates less disruption to all traffic and was accepted and appreciated by construction workers as it reduced risks and confusion). The Swedish Standards Institute owns the content of the work to develop national product standards for safety equipment that is tailored to the specific challenge of urban, low-speed crashes that involve cyclists (as opposed to equipment designed for high-speed collisions on motorways). The use of new materials may result in higher costs in the short-term.

### ***Critical challenges and success factors***

This measure was challenging to implement, as it involved the introduction of new planning methods and working practices to live construction sites under real traffic conditions. The first demonstration of the methods and materials was conducted in a simulated environment (i.e. on pavements and cycle paths, but without an actual construction site). Feedback from this test was positive with regard to the methods and materials, but not concerning the disturbance to pavements and cycle paths (which users perceived as unnecessary, in the absence of a clear reason).

The second demonstration was, therefore, conducted at major construction site with a clear need for diversion. It was, however, difficult to identify test sites, as the city administration often receives information on temporary road works on fairly short notice, whereas the planning and implementation of a pilot action requires longer periods of time. Moreover, the site needed to be “useful” (in the sense of having a high throughput of pedestrians and cyclists), have a high impact on those users (in the sense of a clear need for diversion), provide good opportunities for baseline measurement and evaluation, and space to interview users, as well as have characteristics that enable comparison with similar sites in the city. Interpreting results was another challenge, as there is a general tendency to receive user feedback on aspects that function less well than those things that work; similarly, there was an absence of information about some kinds of data, such as non-reported minor injuries and perceived risks.

Having said this, the demonstrations were considered to have been successful and have enabled the City of Stockholm to develop its policy and guidance for construction companies, demonstrate new methods and materials, and initiate a process for the standardisation of an entirely new class of road safety products. The measure results were in line with the project objectives, as the temporary diversions led to only a 5.19% reduction in the number of cyclists that were using the affected route. This suggests that the widespread adoption of the approach can help maintain the prioritisation of walking and cycling during temporary disturbances and enhance safety for users.

## *Lessons learnt and recommendations*

As noted above, it is essential to carefully select the location of a demonstration and collect strong baseline data, including information on, for example, the availability and use of possible alternative routes. Find ways to gather positive and negative feedback, and make strong use of qualitative research methods, such as interviews, to acquire information on user experiences. Work collaboratively with other cities to get new ideas and develop common approaches, as this will help to accelerate the adoption of methods by stakeholders, such as construction companies.

## Conclusions

The experiences of the four cities in CIVITAS ECCENTRIC that implemented five measures to enable safer walking and cycling highlight various important factors that may be relevant to other cities. The examples from CIVITAS ECCENTRIC indicate the importance of:

- Involving stakeholders from an early stage of project design and continuously throughout the different stages related to the project, as this can add significant value to most demonstration projects. This relates not just to the process or technique in question, but also to:
- Carefully selecting locations for trials and pilots, to ensure appropriate and high-impact demonstrations; and
- Giving sufficient time to the process, particularly when trying to address trade-offs between issues such as the feasibility, affordability, and effectiveness of different safety measures. Negotiations, priority setting, and alignment at the political and administrative level are important and time-consuming parts of the process.

Moreover, the cities' experiences show that digitalisation is a valuable strategic tool, but quantitative data and official records provide only a partial impression of the actual and perceived challenges that are to be addressed. Thus, it is essential to:

- Ensure that processes are designed to enable the collection and management of high-quality data – both baseline and for monitoring – ideally from multiple formal and informal sources, collected using different methods, and with citizen input.

Each of these factors were essential when demonstrating the development of safety management systems in Madrid and Munich; the provision of high-quality infrastructure in Ruse; and the new methods and materials that were used to maintain service quality during periods of temporary disruption in Stockholm.

The importance of external funding and support from local stakeholders, in particular local politicians, is also clear. The measures that were demonstrated in CIVITAS ECCENTRIC may not have been realised without project funding, and they have, in each case, resulted in strong results that have consolidated political will to address traffic safety and ensure safer conditions for active forms of mobility.



Thus:

- External funding can facilitate action and add value to work in cities with pre-existing commitments and clear strategies.

Individually and collectively, the CIVITAS ECCENTRIC partners have illustrated pathways to safer walking and cycling in European cities; and where CIVITAS ECCENTRIC has taken the lead, other cities should follow.

## 6. Sources /References

ECCENTRIC Guide on Urban Safety 2019 (in English and Spanish)

P. Fenton, 2020. “More feet on pavements and more feet on pedals: Enabling safe walking and cycling in CIVITAS Eccentric”. Conference paper presented at Transport Research Arena in Helsinki on 29 April 2020. DOI: [10.13140/RG.2.2.28337.74084](https://doi.org/10.13140/RG.2.2.28337.74084)



THE CIVITAS INITIATIVE  
IS CO-FINANCED BY THE  
EUROPEAN UNION

## Contacts:

### Project Co-ordinator

**Francisco Lopez Carmona**, City of Madrid  
lopezcfjo@madrid.es

### Project Management team

**Isabela Velázquez & Carlos Verdaguer**, GEA 21  
ivelazquez@gea21.com  
cverdaguer@gea21.com

**Irene Blázquez Jimenez**, EMT Madrid  
eccentric@madrid.es

### Project Evaluation Manager

**Helber Lopez Covaleta**, TU Munich  
helber.lopez@tum.de

### Project Dissemination Manager

**Esther Kreutz**, Union of Baltic Cities  
esther.kreutz@ubc.net

### Site Managers

**Juan Azcarate**, City of Madrid  
azcaratelj@madrid.es

**Stefan Synek**, City of Munich  
stefan.synek@muenchen.de

**Nikolay Simeonov**, City of Ruse  
n.g.simeonov@gmail.com

**Paul Fenton**, City of Stockholm  
paul.fenton@stockholm.se

**Stella Aaltonen**, City of Turku  
stella.aaltonen@turku.fi

### Work Package Leader Clean Vehicles

**Maria-Angeliki Evliati**, City of Stockholm  
maria-angeliki.evliati@stockholm.se