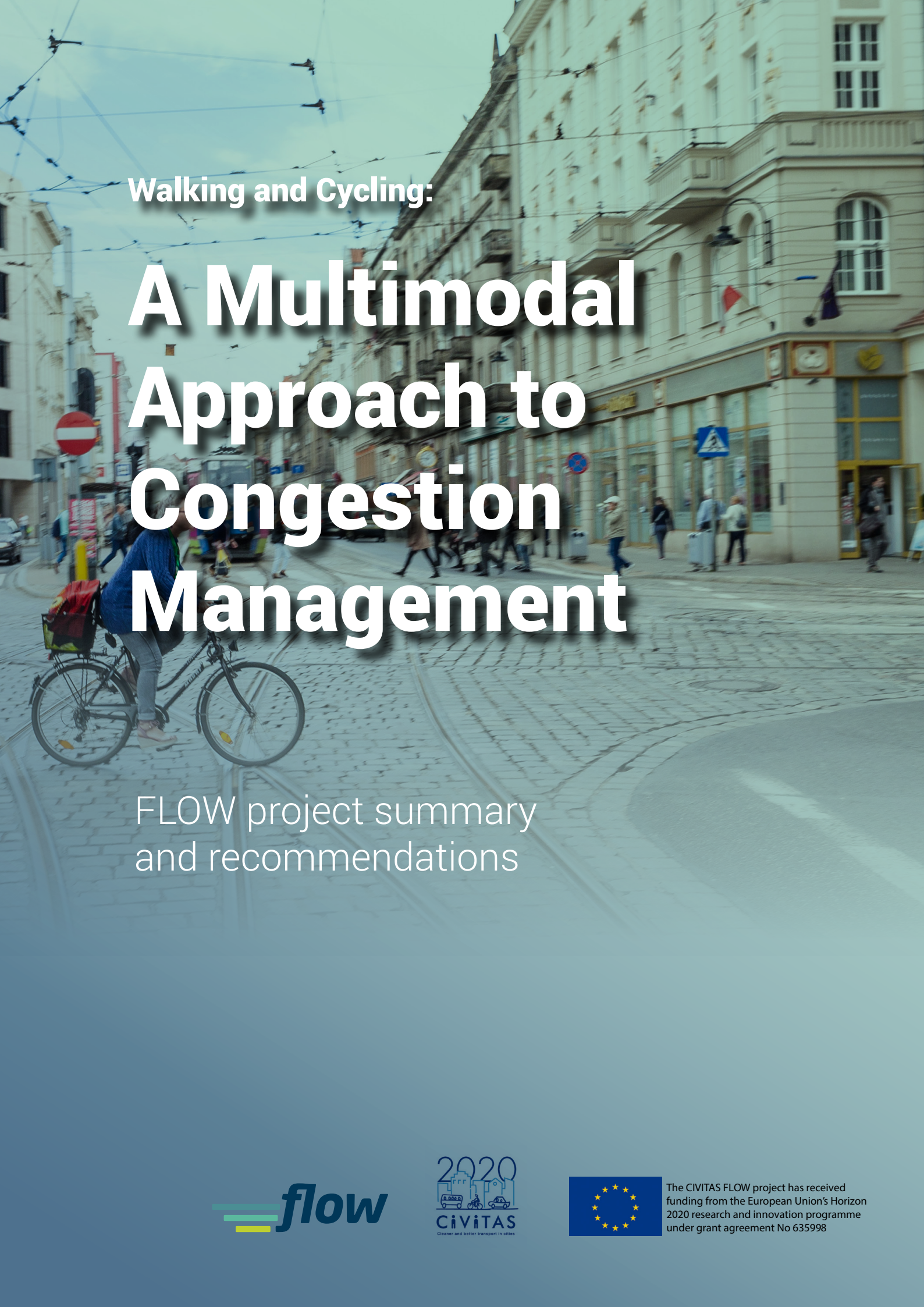

Walking and Cycling:

A Multimodal Approach to Congestion Management

FLOW project summary and recommendations

The CIVITAS FLOW project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 635998

Content

Introduction to FLOW

FLOW sees a need for a paradigm shift wherein non-motorised transport (often seen from a transport policy perspective simply as a nice "extra") is placed on an equal footing with motorised modes with regard to urban congestion. To do this, FLOW has created a link between walking and cycling, which are currently poorly linked to congestion, by developing a user-friendly methodology for evaluating the ability of walking and cycling measures to reduce congestion and a set of tools to measure their impact.

Our aim is for such tools to become standard within transport and traffic schemes to reduce congestion. The FLOW tools include 1) an impact assessment tool, 2) a set of calculations of transport network quality and 3) improved traffic modelling. Existing modelling software has been calibrated and customised in FLOW partner cities to analyse the relationship of cyclist and pedestrian movements to congestion. FLOW partner cities have developed implementation scenarios and action plans for adding or up-scaling measures that are shown to reduce congestion.

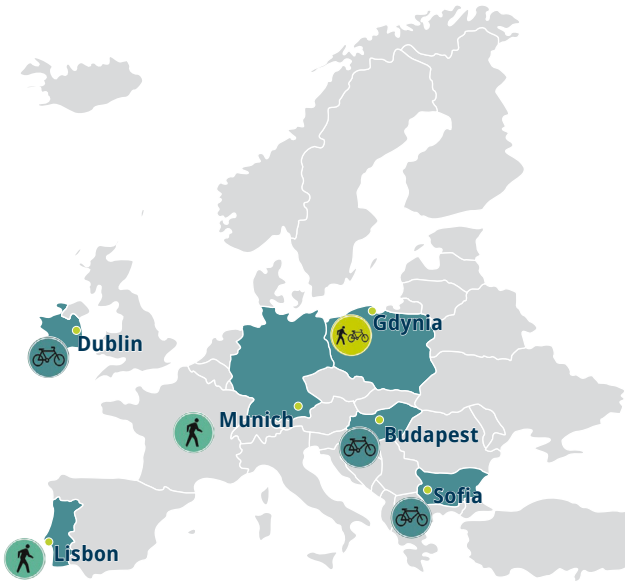

Figure 1: FLOW partner cities

FLOW targets three distinct audiences, with appropriate materials and messaging for each. Cities can learn about the value and use of new transport modelling tools, businesses are made aware of the potential market in congestion reducing products and services and decision makers are provided with facts to argue for walking and cycling to be put on equal footing with other modes of transport. FLOW is meeting the EU challenge of "significantly reducing urban road congestion and improving the financial and environmental sustainability of urban transport" by improving the understanding of walking and cycling measures that have potential to reduce urban congestion.

The communication work in the project shares FLOW outcomes and outputs with a wider group of cities and regions as well as other urban transport stakeholders across Europe through a set of communication products, networking tools and the recommendations contained in this document

01.
Introduction

The FLOW project (2015-2018) developed transport analysis tools to better assess the impacts of walking and cycling measures on transport system performance (i.e., congestion). Its starting point was the assumption that existing analysis and modelling tools do not accurately evaluate walking and cycling, meaning that walking and cycling measures are generally not implemented – or even considered – as means of improving transport system performance.

FLOW brought together a very broad range of stakeholders: NGOs for roads, cycling and walking, experts on transport modelling and engineering, cities and research institutes. Stakeholders not only represented different interests but varied extensively in their understanding of and experience using transport analysis tools and modelling. This diversity proved invaluable because it forced FLOW to begin by examining the fundamental building blocks of transport analysis and modelling.

The project results confirmed that walking and cycling measures are systematically overlooked due to the inability of existing transport analysis tools to fully assess their benefits. Therefore, FLOW developed a set of tools to fill this gap. These tools were tested in the FLOW cities and helped support the realisation of several innovative walking and cycling projects including Lisbon's Avenida das Descobertas pedestrian improvements and the pedestrianisation of Dublin's College Green.

This document outlines the activities carried out during FLOW and summarises the project's main results. These include:

- assessing conventional transport analysis and modelling techniques,
- developing improved transport analysis techniques and models,
- making recommendations for improving multimodal transport assessment, and
- preparing communication resources for further information.

All project publications and products are available at www.h2020-flow.eu.

02.
FLOW Project Activities

FLOW was a European Commission (EC) research project focussed on examining the congestion reduction benefits of walking and cycling. The project addressed the EC research programme's specific challenge of helping cities to better assess the transport impacts of walking and cycling measures so that the full benefits of these types of projects in reducing congestion could be understood, harnessed and conveyed.

2.1. RESEARCH AND DEVELOPMENT

FLOW began by investigating the definition of congestion, technical methods for assessing transport network quality (specifically congestion), and the transport impact analysis process. The research confirmed FLOW's hypothesis that standard transport analysis tools can systematically underestimate the transport benefits of walking and cycling measures (for more information please see *Analysing the Impact of Walking and Cycling on Urban Road Performance: A Conceptual Framework*).

Next, FLOW developed a set of methods to improve the ability of transport analysis tools to assess the benefits and impacts of walking and cycling measures. Concretely, FLOW developed five multimodal analysis calculations for assessing different aspects of transport network quality, a comprehensive impact assessment tool, and concrete improvements to existing transport modelling software.

In all cases the emphasis was on creating practical tools that better reflect the impacts of walking and cycling measures. FLOW's partner cities actively participated in developing, refining and validating these tools.

Finally, as outlined in the next section, these research and development results were communicated to a broad range of stakeholders.

2.2. COMMUNICATIONS

The inability of transport analysis tools to accurately assess the transport benefits and impacts of walking and cycling measures has led to a belief among the public and decision makers that walking and cycling measures are not effective tools for improving transport system performance or for reducing congestion. Indeed, many believe that walking and cycling measures cause congestion.

The FLOW results show these beliefs are generally false. However, the inability of standard analysis tools to accurately assess walking and cycling measures has made it difficult to effectively counter these beliefs. The FLOW tools outlined above will improve the assessment of walking and cycling measures, but communication is also necessary to make it clear that walking and cycling can be effective tools for improving transport system performance and reducing congestion.

Therefore, the FLOW project carried out a wide-ranging communications programme designed to increase the uptake of project results. Highlights include:

- *FLOW Quick Facts for Cities:* illustrating 15 walking and cycling improvements that have improved overall transport system performance in cities;
- *How Walking and Cycling Can Reduce Congestion: Tools for Cities from the FLOW Project* (short animated video describing the FLOW tools);
- *FLOW Portfolio of Measures on the Role of Walking and Cycling in Reducing Congestion:* A portfolio of 20 walking and/or cycling measures that were implemented for reasons other than congestion reduction but were found to have positive impacts on overall network performance;

The materials listed above were targeted towards a non-technical audience. In addition, a set of detailed reports, guidelines and software tools were developed for transport planners, engineers and modellers.

The written materials were supplemented by an interactive information campaign consisting of FLOW stakeholder workshops in the six partner cities, training sessions for city representatives and on-line learning in the form of 3 webinars and corresponding e-courses guiding practitioners through the FLOW methodology, the use of the FLOW transport analysis techniques and through presenting the concept of multimodality to decision makers.

All project communications and dissemination materials, including links to the webinar recordings, are available at www.h2020-flow.eu/resources.

03.

Transport Analysis and Modelling

For transport planners and engineers, it is the best of times and the worst of times. Powerful computers and innovative numerical methods make it possible to prepare highly detailed analyses and evaluations. On the other hand, time-honoured tools and techniques for assessing transport quality are being challenged both in terms of 1) their specific methods and assumptions, and more fundamentally, 2) in terms of whether they measure what's important for society.

FLOW set out to focus on the first challenge: examining how well existing transport analysis techniques and their built-in assumptions assess walking and cycling. But, from the beginning, the project partners realised that it would be impossible to ignore the second challenge: considering whether these techniques measure what is important to society.

Of course, these two challenges are closely connected. Many transport analysis techniques have a narrow focus (i.e., motor vehicle traffic on roadways) because in the past it was technically impossible to do otherwise. Insufficient computer processing capacity and a lack of data prevented a thorough assessment of all transport modes or consideration of all the multi-disciplinary trade-offs inherent in building liveable cities. And for far too long automobiles were accepted as the future of urban transport.

FLOW addressed the technical challenge by developing new techniques for assessing the transport benefits and impacts of walking and cycling measures. These techniques build upon established ones and represent first steps in the process of developing truly multimodal transport assessment techniques and models. The project's deliverables describe these improvements in detail and provide recommendations

for further improvement. Chapter 4 summarises the improved transport analysis techniques developed by FLOW.

FLOW addressed the challenge of considering the broader societal context by developing a set of recommendations related to the use of transport analysis results and the relationship between transport analysis and urban planning. Since FLOW's focus on this second challenge grew naturally through experience and knowledge gained during the project, these recommendations should be considered input to the ongoing conversation about congestion and urban transport. Chapter 5 summarises these recommendations.

A comprehensive summary of FLOW's findings regarding transport analysis and modelling can be found in the *Implementer's Guide to Using the FLOW Tools for Multimodal Assessments* (available at: http://h2020-flow.eu/resources/publications/).

04.

FLOW Project Results: Improved Analysis Techniques

FLOW's main objective was to develop improved transport analysis and modelling tools and techniques. FLOW examined existing tools and techniques in detail and used these findings to create:

- a set of five calculation methods for assessing multimodal performance on transport infrastructure (see 4.1)
- a comprehensive impact assessment tool (see 4.2); and,
- improvements to transport modelling software (see 4.3).

In all cases the emphasis was on creating tools and techniques that more accurately assess the benefits and impacts of walking and cycling improvements than existing methods.

The tools and techniques developed by FLOW were designed as practical tools for transport analysis. The development team was strongly supported in this effort by extensive feedback and testing from the 40+ cities participating in the FLOW project. Particularly important in this regard were the six partner cities, who performed detailed analyses of proposed walking and cycling measures. In practical terms, this led to the realisation of several noteworthy walking and cycling projects including the Lisbon pedestrian improvements and Dublin's College Green project.

Sections 4.1, 4.2 and 4.3 (below) summarise the improved transport analysis techniques developed by FLOW. For more detailed information and to download the spreadsheet-based tools visit the FLOW website at www.h2020-flow.eu.

4.1. MULTIMODAL TRANSPORT ANALYSIS CALCULATION METHODS

The FLOW multimodal transport analysis calculation methods were developed to improve the ability of existing analysis techniques to assess the transport benefits and impacts of walking and cycling measures.

Three key performance indicators (KPIs) are used to evaluate transport system performance: density, delay, and level of service (LOS). While these techniques are generally acceptable for evaluating the transport impacts of walking and cycling measures, they only provide mode-specific results. This makes it difficult to compare the potential impact of measures for different modes (e.g. whether it is better to add a bike lane or a car lane in a given situation).

THE FLOW TOOLS

REPRESENT AN IMPORTANT FIRST STEP IN MODIFYING EXISTING METHODS TO MORE ACCURATELY ASSESS WALKING AND CYCLING.

To address this problem, FLOW developed a set of five multimodal transport analysis calculation methods for evaluating delay, density and LOS. These tools are based on existing techniques but add important extras:

1. consideration of persons (rather than vehicles),
2. a utility points-based approach for comparing modes, and
3. optional policy-based weighting of one mode over others.

The tools were developed for three types of infrastructure: intersections, road segments and corridors. More specifically tools were developed to evaluate:

1. Intersection delay
2. Intersection LOS (based on delay and utility points)
3. Road segment density
4. Road segment LOS (based on density and utility points)
5. Corridor delay

Instead of calculating a LOS for corridors, FLOW recommends displaying the LOS calculated using the tools listed above for intersections and road segments in a diagram since this provides a better understanding of how the corridor works than a single LOS value.

The FLOW tools represent an important first step in modifying existing methods to more accurately assess walking and cycling but further research and development is needed to improve these methods in the future (see also recommendations in chapter 5 below).

4.2. FLOW IMPACT ASSESSMENT TOOL

The FLOW Impact Assessment Tool was developed to ensure that transport decision making considers more than just transport system performance (i.e. congestion levels). The tool specifically considers the *environmental, societal* and *economic* benefits and impacts of a proposed transport improvement measure – in addition to mobility benefits and impacts.

The FLOW Impact Assessment Tool is a spreadsheet-based tool that can be used to evaluate the benefits and impacts of a proposed transport measure by comparing data from before and after implementation. Users enter data from transport models and economic, societal and environmental projections, and the spreadsheet calculates the benefits and impacts of the proposed measure (e.g., construction of a new cycle lane). The spreadsheet uses factors based on country-specific and EU-wide default values that can be modified by users as necessary and appropriate to account for local conditions.

4.3. FLOW TRANSPORT MODELLING IMPROVEMENTS

Transport models are complex sets of inter-related computer programmes requiring large amounts of high-quality data that are used to estimate future conditions of transport networks. They are difficult to understand and use and are therefore the domain of highly specialised experts. Planners enter changes that are expected to affect transport demand (e.g., a city's future population and employment growth) and changes to transport supply (e.g., new transport infrastructure, services and policies) into the model, and the model estimates how these changes will affect transport network performance (e.g., future level of service on a road segment).

Despite impressive technical improvements of such models over the last decades, their theoretical basis and algorithms do not fully consider walking and cycling because they inherited the assumptions of a time when technical limitations were much more restrictive and when political objectives favoured car-centric planning.

Models are being constantly improved based on transport research results. FLOW contributed to these improvements through the following model refinements:

- Microscopic modelling – Enhanced modelling of conflict zones between cars and pedestrians, behaviour parameters, new mobility patterns, the interaction between bikes and pedestrians and shared space;

- Macroscopic modelling – Path-level attributes in stochastic assignment of bicycles, a modelling platform for combining two legs of a journey using different transport modes (here, shared bikes and public transport) and an enhanced representation of mobility sharing in public transport assignment

The improved models were tested by FLOW partner cities to evaluate the benefits and impacts of walking and cycling measures.

Here again, the FLOW work represents a small but important step in a long process. In fact, one of the project's most important contributions has been highlighting the need to improve transport models to better consider walking and cycling. FLOW must not be the end of the process but rather be seen as the first step in refocussing transport modelling research and development to fully address all modes.

05. FLOW Recommendations

Research projects often discover unexpected paths along their journey. FLOW was no exception. Early in the process, project participants realised that focussing exclusively on improving the ability of standardised transport analysis techniques to consider walking and cycling was insufficient. These techniques needed to be reviewed in a broader context.

The participants also found that a focus purely on reducing congestion was misplaced. Recent research findings on induced traffic, on disappearing traffic and on the effectiveness of managing congestion – among other topics – call into question the ability and benefit of trying to eliminate congestion.

A summary of FLOW's general recommendations is presented below. Detailed audience-specific recommendations can be found in Appendix 1.

1. Fully consider walking and cycling when developing plans and policies to improve transport system performance as well as through the impact analysis and implementation processes.

Many transport policies do not recognise the full benefits of walking and cycling on improving transport system performance. In the worst case, walking and cycling are considered recreational activities without transport relevance. Governments at all levels must introduce policies that recognise walking and cycling as means to improve urban transport system performance and liveability and must support their implementation.

Transport impact analysis plays an important role in decision making on new transport improvements and development schemes. However, these analyses are often performed using techniques and models that do not fully consider all modes (e.g., walking and cycling). Decision makers should require that multimodal analysis techniques and models be used for all transport impact analyses. Local

authority staff should include the requirement for multimodal analysis in their calls for tender and other stakeholders should petition elected representatives to call for multimodal analysis. Transport planning consultants should inform their clients about the importance of multimodal analysis and use it in all analyses.

2. Improve existing transport analysis techniques and models to include all modes and to account for the interaction between modes.

Transport analysis techniques and models must be significantly improved to place walking and cycling on an equal footing with motorised modes. Especially important will be developing methods for assessing new types of transport infrastructure – such as shared space, pedestrian districts and cycle highways – that fully consider recent transport research on topics such as induced demand and disappearing traffic. All stakeholders should support research targeted at improving existing transport analysis techniques and models and at developing new approaches.

3. Improve communication about multimodal transport analysis and increase transparency in the transport planning process.

New transport infrastructure or land development projects can have very significant impacts on an area's liveability, but the transport analysis techniques and modelling used in the decision-making process are very complex and the planning approval process is often unclear. Local authorities, transport consultants and researchers need to improve communication strategies to better explain analysis techniques and the planning process so that they are easily understandable by the general public.

4. Improve data collection for walking and cycling to better understand the movements of these modes. Refer to the recommendations of the European Cyclists' Federation and Walk21 and to results from the FLOW data workshop (on the FLOW website).

Data is necessary to better understand transport behaviour, to give input for assessment tools and to develop better transport models. Unfortunately, few authorities – at any level of government – collect sufficient data on walking and cycling, making it difficult to fully consider these modes in the transport planning process. There are excellent standards for collecting walking and cycling data, and new technologies (e.g., activity trackers) are making data collection easier. All government authorities must collect the data required to fully assess the effect of walking and cycling on congestion and on the urban environment as a whole.

5. Place transport system performance (including congestion) within the larger context of urban liveability, economic viability, safety and health (not above it).

The quality of transport service is one of many factors that combine to make a place liveable, economically successful, competitive, sustainable and healthy. But decision making often focusses exclusively on transport considerations (and mainly congestion). Taking a multi-disciplinary approach to transport decision making is critical to supporting an equitable and sustainable future for all.

Adopting a broader view of transport decision making also helps cities recognise how to shift current strategies, such as “eliminating” congestion, into more balanced (and feasible) strategies such as “managing” congestion or increasing overall capacity. This shift in perspective provides decision makers with a much broader palette of options to work with when planning their cities.

06.

For more information

The FLOW results and recommendations documented here are based on research, expert consultation, input from cities and consultancies across Europe and on discussion among the project team and external experts. For those interested in exploring the project results in depth, the following list summarises several key publications. All project deliverables are available at http://h2020-flow.eu/.

- ***FLOW Quick Facts for Cities*** (Deliverable 7.4) – booklet of examples of walking and cycling improvements that have reduced (or not adversely impacted) congestion; counters popular image that walking and cycling measures increase congestion.
- ***Implementer's Guide to Using the FLOW Tools for Multimodal Assessments*** (Deliverable 3.5) – summarises investigation results, presents recommendations, describes how to use FLOW analysis tools, impact assessment tool, and transport model improvements; includes full bibliography.
- ***FLOW Impact Assessment Tool*** (Deliverable 2.3) and guidelines to its use (Deliverable 2.4) – describe how to use the FLOW Impact Assessment Tool and background for its development.
- ***FLOW Multimodal Analysis Methodology of Urban Road Transport Network Performance*** (Deliverable 1.1) – describes FLOW multimodal transport analysis tools, their development, and recommendations; includes bibliography.
- ***Analysing the impact of walking and cycling on urban road performance: a conceptual framework*** (Deliverable 1.3) – documents background research results and sets forth the conceptual framework used to develop FLOW tools.

Appendix 1:

FLOW detailed recommendations

LOCAL	
Recommendations for practitioners in local authorities:	
LOCAL PRACTITIONERS	1. Ensure that the content and language of your policies and guidelines on urban traffic management reflect a multimodal perspective of urban road network performance.
	2. Ensure that multimodality and modal equity are applied at all stages by: i) having in your procedures and guidelines an impact assessment framework that includes multimodal transport benefits and significant non-transport benefits (e.g. health), ii) including in your terms of reference for procurement a requirement for services to include a multimodal impact assessment using good practice tools and techniques and iii) reviewing project performance after implementation with a multimodal impact assessment.
	3. Within the context of your sustainable urban mobility planning, actively seek opportunities to improve network efficiency and city-wide accessibility through measures to improve conditions for safe and attractive walking and cycling.
	4. Review your priorities when considering new transport schemes to avoid a disconnect between agreed-upon objectives (e.g. prioritise walking and cycling) and what is done in practice.
	5. Proactively address the walking and cycling data gap by reviewing existing data collection standards and processes to ensure that you can answer basic questions about walking and cycling activity such as volumes, mode choice behaviour, safety, infrastructure location and condition, etc.
	6. Have in-house understanding of how models work. Either develop in-house competency to carry out multimodal transport modelling or acquire the skills to write planning and modelling specifications that fully consider walking and cycling and to interpret analysis findings for decision makers.
	7. Educate decision makers and stakeholders to take a broader view of the transport problem. For example, reformulate questions on how to solve congestion to how to manage congestion and/or increase corridor capacity.

LOCAL	
Recommendations for local decision makers:	
LOCAL DECISION MAKERS	1. Require up-to-date data on walking and cycling. Local authority staff need strong political backing to address the data issue. Decision makers must provide leadership in relation to collecting data and gathering evidence in their communities.
	2. Shape the impact assessment framework by working with your staff to specify the assessment criteria for transport schemes at the beginning of projects. Ask for a balanced multimodal assessment that includes all the criteria that are important to the community (economic, social and environmental as well as transport) and about the impact of transport schemes on all modes.
	3. Support the ongoing training of your staff so that they understand the multimodal perspective and the need to assess all modes equally.

NATIONAL	
Recommendations for national actors:	
	1. Ensure that the content and language of your policies and guidelines on urban traffic management reflect a multimodal perspective on urban road network performance. Incorporate the concept of multimodality and mode equity into standards and guidelines for local implementation and offer incentives to cities that adopt these standards.
	2. Issue policy recommendations to local authorities that recognise the role of walking and cycling in reducing congestion/improving road network performance.
	3. In collaboration with local authorities, adopt guidelines to improve data collection and analysis for walking and cycling.
	4. Establish consistent mechanisms for evaluating project proposals that prioritise sustainable modes of transport, taking into account the movement of people (not vehicles). Include in your policy framework a requirement for the multimodal evaluation of mobility benefits for all transport schemes as part of any project appraisal.
	5. Provide financial support to local authorities which apply a multimodal approach to transport system decision-making that places transport into the larger context of urban life, the environment, health and the economy.

EUROPEAN UNION
Recommendations for EU actors:
1. Ensure that the content and language of your guidelines on urban traffic management reflect a multimodal perspective on urban road network performance. Establish consistent mechanisms for evaluating project proposals that require the prioritisation of sustainable modes of transport, taking into account the movement of people (not vehicles).
2. Create a European Walking Strategy as a framework in which cities can plan walkable communicates and incorporate the principles of multimodality and equity among transport modes into the EU Cycling Strategy and into all EU transport strategies.
3. Establish guidelines for standardised data collection methods for walking and cycling as modes of urban transport. Make funding available to develop the guidelines, for pilot schemes and for consultation with the local and national level.
4. Require cities to use multimodal assessments of transport system quality in their SUMP measure appraisals.
5. Provide financial support to local authorities which apply an approach to transport system decision-making that integrates transport into the larger context of urban life, the environment, health and the economy.

TRANSPORT CONSULTANCIES (AND THEIR PROFESSIONAL BODIES)
Recommendations for transport consultancies and their professional bodies:
1. Develop competencies to add multimodal evaluation of mobility benefits for transport projects and the modelling and assessment of walking and cycling to your service offering. As European transport consultancies, also tailor and market such services to international markets.
2. Ensure that the content and language of training materials and professional standards reflect the principles of multimodal assessment and mode equity so that they become the norm rather than the exception in transport planning practice.
3. Work with modelling software providers to improve walking and cycling in modelling tools: both demand and mode choice modelling (macroscopic) and behavioural modelling of interactions (microscopic).
4. Educate clients (i.e., decision makers and local authority staff) about the importance of fully considering walking and cycling in transport impact analyses and inform them about improved techniques and modelling of walking and cycling.
5. Develop a voluntary charter of technical proficiency, transparency and ethics for those who offer services in transport modelling and appraisal and hold those to account who fail to uphold technical and ethical standards.

MODEL DEVELOPERS AND RESEARCHERS	
Recommendations for model developers and researchers:	
	1. Carry out further research into the phenomena of induced and disappearing traffic that result from the introduction and removal of infrastructure to provide guidance for strategic transport modelling.
	2. Improve the understanding of the behaviour of pedestrians and cyclists – taking into account differences from country to country – and how to code these into a model accordingly.
	3. Carry out microsimulation transport modelling research on the interaction of cyclists and vehicles in shared lanes and on pedestrian behaviour in crowded street conditions. Improve the overall modelling of shared spaces.
	4. Develop more meaningful input variables and technical indicators for a calculating level-of-service index for urban cycling and walking.
	5. Develop a multimodal delay and/or level-of-service indicator for shared facilities (bicycles and motor vehicles on shared lanes or bicycles and pedestrians on shared paths), including behavioural research to understand modal inter-relations in capacity concepts.
	6. Help to improve our understanding of "acceptable" or "expected" travel times for all transport modes in an urban context with a view to defining a multimodal reference condition against which to measure delay in cities.

MESSAGES FOR INFLUENCERS AT ALL LEVELS	
	1. Educate decision makers and stakeholders to take a broader view of transport problems. For example, reformulate questions on how to "solve" congestion to how to manage congestion and/or increase corridor capacity.
	2. Actively promote a multimodal approach, knowing that efficient public transport is a significant contribution to congestion management. Discourage competition between cycling, walking and public transport.
	3. Promote the message: if implemented well, walking and cycling can help reduce urban congestion. Good examples can be found in the FLOW Quick Facts for Cities.
	4. Add congestion management to the already-long list of benefits of walking and cycling, when you're selling the idea to decision makers.
	5. Share the message that creating space for more cars in cities is a short-term solution. In such a scenario, urban growth will lead to more cars until the available space is full. Only more efficient use of space (walking and cycling) will make a city liveable and ready for future growth.

FLOW is a CIVITAS Horizon 2020 project that ran from May 2015 to April 2018. FLOW developed a multimodal analysis methodology to assess the impact of walking and cycling measures on transport network performance and congestion. FLOW's ideas were tested in its partner cities of Budapest, Dublin, Gdynia, Lisbon, Munich and Sofia.
www.h2020-flow.eu

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