



RSA Action 44 Towards Vision Zero for Cities & Towns: People, Process, Package of Interventions

FINDINGS - FEBRUARY 2025

Technological University Dublin

Authored by:

The Sustainable Transport & Mobility
Research Group at the School of
Architecture, Building & Environment,
TU Dublin, City Campus, Dublin 1



TU Dublin Research Team:

Principal Investigator: Jordana Corrigan

Co-Investigator: Dr. Sarah Rock

Project Manager: David O'Connor, Assistant Head of School

Acknowledgements: The research team would like to acknowledge and thank the interviewees who have generously given their time and insights to this study. A special thank you to Uxio Benítez and María Núñez Iglesias and the team at Concello de Pontevedra, Concello de Tomiño and Concello Vilagarcía de Arousa.

Funder: The Road Safety Authority of Ireland

TABLE OF CONTENTS

EXECUTIVE SUMMARY	2
1. INTRODUCTION AND METHODOLOGY	4
1.1 Introduction.....	4
1.2 Study Methodology	4
2. LITERATURE REVIEW	6
2.1 Introduction.....	6
2.2 Policy Context.....	6
2.2.1 <i>Traffic Reduction</i>	6
2.2.2 <i>Spatial Planning and Mobility Policy</i>	9
2.2.3 <i>Road Safety</i>	11
2.2.4 <i>Road Safety Evaluation and Monitoring</i>	14
2.3 Chronology of the Policy Process	16
2.3.1 <i>Problem Definition and Agenda Setting</i>	16
2.3.2 <i>Policy Formulation and Decision-Making</i>	17
2.3.3 <i>Implementation</i>	18
2.3.4 <i>Evaluation: Outcomes and views on success of measures</i>	19
2.4 Governance and stakeholder engagement.....	20
3. PROFILE OF THE CASE STUDY CITIES	22
3.1 Introduction.....	22
3.2 Oslo	22
3.2.1 Oslo Geography, Built Environment & Urban Form	22
3.2.2 Oslo Governance.....	23
3.2.3 Oslo Transport & Road Safety	24
3.2.4 Oslo Car-Free City Life Programme: the ‘Bilfritt Byliv’ Programme ..	29
3.2.5 Car-Free City Life (‘Bilfritt Byliv’) Programme Measures.....	30
3.2.6 The Oslo City Council / SWECO Evaluation of Oslo Car-Free City Life Programme	31

3.2.7 The Norway Institute of Transport Economics BYTRANS Research Study 33

3.3	Pontevedra	34
3.3.1	Pontevedra Geography and Urban Form.....	34
3.3.2	Pontevedra Governance (City & Province)	39
3.3.3	Pontevedra Transport and Road Safety	41
3.3.4	Pontevedra City Centre ‘Primero la Ciudad’ ‘The City First’ Programme	42
3.3.5	Evaluation of Pontevedra City Centre ‘The City First’ Programme	49
3.3.6	Smaller Towns & Villages - Ágora Network & Ágora Faculty	55
3.3.7	Conclusions	62
3.4	Brussels	64
3.4.1	Brussels Geography, Built Environment & Urban Form	64
3.4.2	Brussels Governance	65
3.4.3	Brussels Transport and Road Safety	66
3.4.4	The Good Move Plan.....	67
3.4.5	The Good Move Plan Programme Measures	69
3.4.6	Evaluation of The Good Move Plan	74
3.4.7	Study Finding and Conclusions	80
3.5	Ghent.....	82
3.5.1	Ghent Geography, Built Environment & Urban Form	82
3.5.2	Ghent Governance	83
3.5.3	Ghent Transport and Road Safety	85
3.5.4	The Circulation Plan & Associated Measures.....	86
3.5.5	Evaluation of Ghent’s Circulation Plan	90
3.5.6	Conclusions	95
4.	STAKEHOLDER INTERVIEWS	96
4.1	Introduction.....	96
4.2	Process	97

4.2.1	Problem Definition and Agenda Setting	97
4.2.2	Policy Formulation and Adoption / Decision Making.....	100
4.2.3	Implementation	102
4.2.4	Evaluation.....	104
4.3.	People.....	105
4.3.1	Key Stakeholders and Leadership.....	105
4.3.2	Interdepartmental working.....	106
4.3.3	Communication.....	107
4.4	Package of Interventions.....	108
5.	CONCLUSIONS & RECOMMENDATIONS.....	111
5.1	Conclusions.....	111
5.1.1	Process	112
5.1.2	People	116
5.1.3	Package of Interventions	117
5.2	Recommendations	120
	BIBLIOGRAPHY.....	125

EXECUTIVE SUMMARY

Phase 1 (2021-2024) of the Government's Road Safety Strategy sets out a series of high-impact actions essential to improving road safety in Ireland. This research report is in response to Action 44 which directs the Road Safety Authority to

Conduct a case study of countries that have adopted mechanisms to reduce traffic (for example car free streets in urban areas) to enhance the safety of other road users and make recommendations for Ireland.

The brief for this research sought a focus on the processes involved in implementing policies to reduce traffic and a consideration of the outcomes (or evaluations where available). The brief also acknowledged the relationship between mechanisms to reduce traffic and other policy areas (decarbonisation, climate action and sustainability). The research consists of a literature review, profiling of the case study cities (Brussels, Ghent, Oslo and Pontevedra) and interviews (with key stakeholders with various perspectives across the process). The objective is to understand the potential mechanisms to reduce vehicular traffic, and recommendations/considerations for the Irish context.

The research shows that the process for reducing vehicular traffic is a complex political one. Social acceptance of proposals, positive coordination of key stakeholders, technical expertise, economic and political support are essential to successfully implement any proposed mechanisms to reduce traffic. The identification of appropriate mechanisms to reduce traffic, and the implementation of same, is context-specific and that governance structures are also important. The research shows that proactive coordination and collaboration of stakeholders with strong leadership within the existing structures is requisite. Supporting programmes/agencies which can span administrative/institutional boundaries is also found to be advantageous.

Both push (e.g. traffic restrictions, cost) and pull (e.g. investment in public infrastructure) approaches are required, considering the wider urban system. The experience of the case study cities shows that rather than relying on a single intervention, a range of policy instruments supports the achievement of wider urban policy objectives related to active travel, reduced emissions, and co-benefits for quality of life and liveability. This is important in the context of addressing current and future urban challenges and promoting the social acceptability of proposals.

The availability of robust data is required across a variety of outcomes (e.g. safety, traffic, air quality, footfall, active travel) to make policies which are evidence-informed, and to communicate the benefits of proposals to citizens, businesses, and politicians.

The research across the case study cities provides learnings and recommendations for compact urban centres, wider metropolitan areas, and smaller, rural towns. The case study cities all demonstrate higher levels of local autonomy, combined with regional oversight, by comparison to the Irish context. However, there are clear opportunities to translate the mechanisms to reduce vehicular traffic in Irish cities, towns, and villages.

The framing and communication of any proposed mechanism to reduce traffic and the associated benefits is key to gaining social and political support. As mentioned previously, context is important so, we see variation in the approaches across the case study cities. Overall, the experience is positive in terms of promoting safer urban environments and the achievement of other policy objectives (e.g. climate, active travel, quality of life). Oslo promotes its *Car-Free City Life* with an emphasis on public transport. Ghent has

an emphasis on sustainable mobility, particularly cycling. Brussels has a metropolitan focus across both the process of making and implementing the plan (stakeholder engagement and public consultation) and achieving the outcomes of the plan. Pontevedra city (like Oslo) has prioritised the *City First*, with pedestrian priority and culture of ‘the *strongest must respect the weakest*’ (translated from Galician) which is central to their urban model which has been successful in achieving zero road deaths for several consecutive years and significantly reducing serious injuries. This people-focused culture has expanded into the wider province where public space is viewed as ‘a right of citizenship’.

A thematic summary of the recommendations is outlined below. The study findings recommend 13 actions to improve road safety as particularly associated with vehicular traffic reduction (in conjunction with other co-benefits such as quality of life, urban regeneration, decarbonisation) within a city, town or village setting; and the process for identifying and implementing these within the Irish context:

- 1 **Inform, educate and work across disciplines and departments for successful implementation**
- 2 **Promote the integration of *Vision Zero* and *Safe Systems* principles into spatial plan-making**
- 3 **Data needs to be identified and mapped**
- 4 **Urban speed limits**
- 5 **Pedestrian Priority and (Road) Space Allocation**
- 6 **Car parking – an important consideration**
- 7 **Experience successful outcomes of policy in action**

1. INTRODUCTION AND METHODOLOGY

1.1 Introduction

In 2021 the Irish Government launched the national road safety strategy (2021-2030) *Our Journey Towards Vision Zero*. The Strategy sets ambitious targets which seek to achieve a 50% reduction in deaths and serious injuries by 2030. *Vision Zero* is a longer-term goal aimed at eradicating road traffic deaths and serious injuries by 2050

Phase 1 (2021 – 2024) of the strategy sets out a series of high-impact actions essential to improving road safety in Ireland. Action 44 directs the RSA to

Conduct a case study of countries that have adopted mechanisms to reduce traffic (for example car free streets in urban areas) to enhance the safety of other road users and make recommendations for Ireland.

The Sustainable Transport and Mobility Research Group at the School of Architecture, Building and Environment at TU Dublin were appointed to carry out this research.

The purpose of the research is to better understand the actions taken across four case-study cities to reduce motorised traffic, through traffic and/or speed of traffic in urban areas, in particular pedestrian and cyclist rich areas.

The following cities were first outlined in the request to tender; Brussels, Ghent, Barcelona and Pontevedra. However, following initial review by the project team and consultation with the RSA it was agreed that Oslo would replace Barcelona.

The brief outlined that the research should concentrate on the processes involved in implementing these policies but should also reference outcomes or evaluations where they are available. In response to this requirement the stages of the policy cycle are used as a framework for considering the case study cities.

The brief also outlined that the Strategy

must also take account of other government programmes such as those aimed at decarbonisation, climate action and sustainability. To this end, Action 44 aims to consider measures which will impact road safety while also taking into account these other government priorities

And so, a holistic approach has been taken to understand the interventions across the case-study cities, and with a view to translating the learnings in the Irish context.

This report is in five parts. The methodology follows in this chapter one. Chapter two contains a literature review which provides a consideration of the broad policy context and the stages of the policy cycle. Chapter three provides a comprehensive profile of each of the case study cities. The interviews are discussed in chapter four and a summary of the conclusions, and an outline of the recommendations is contained in chapter five. A bibliography is also included.

1.2 Study Methodology

A review of the academic literature considered the theory as it applies to the research topic and the specific materials available across the case study cities (policy, action plans, and evaluations). The literature review informed the identification of potential interviewees across the case study cities.

The case study profiles provide a comprehensive overview of the cities. A methodological approach has been taken to profile the governance contexts, interventions, evaluation reports (where available) and road safety statistics to draw some conclusions as to the success or otherwise of the objectives.

It was intended to interview two people per case-study city and a list of fifteen potential interviewees was identified with an emphasis on identifying participants across political and executive roles, gender, and with broad experience of the research area but with various specific perspectives e.g. technical, community, business, governance. Introductory emails were sent by the RSA to potential interviewees which was followed up by the research team. Unfortunately, securing the interviews was challenging and this was perhaps related to ongoing political discussion on the topic in the case study cities, elections and language barriers. However, two interviews were secured for Oslo, one for Brussels and one for Ghent. A fieldtrip to Pontevedra provided extensive opportunity for discussion and learning (discussed further below).

A topic guide formed the basis for a list of questions which was provided to each interviewee in advance. Interviews were conducted over Microsoft Teams. They were recorded and transcribed. The transcribed interviews were coded using NVIVO software and in accordance with Braun and Clarke's (2006, 2020) framework for thematic analysis. Thematic analysis is considered appropriate in the context of the research process as we seek to understand the experiences and practices across the cities and in different contexts. The interviews explored the process of 'getting things done' and so an inductive approach was taken to the analysis. Codes were clustered to generate themes, with the objective of telling the story and providing context (social, cultural, political, and ideological).

The study trip to Pontevedra provides a further richness to the research as the team were able to witness the physical interventions but also to observe the communication, culture, and collaboration (urban and rural areas) in this policy area which is very relevant to the Irish context. Notes were taken and some meetings were recorded (where appropriate) to support the analysis. A summary of the itinerary and meetings is included in chapter 4.

The research limitations include the challenges referenced earlier of securing interviews. Language was also a barrier at times when reviewing the literatures, specifically the policies, guidelines and evaluation reports.

2. LITERATURE REVIEW

2.1 Introduction

Action 44 of the Road Safety Authority's *Phase 1 Action Plan 2021–2024* is to “conduct a case study of countries that have adopted mechanisms to reduce traffic (for example car free streets in urban areas) to enhance the safety of other road users and make recommendations for Ireland”.

The purpose of this literature review is to present the context for discussing the selected case study cities. The purpose of reviewing the case study cities is to:

- Identify policies that have been implemented to reduce motorised traffic, through traffic and/or speed of traffic in urban areas, in particular pedestrian and cyclist rich areas;
- Gain a better understanding of the possible approaches that could be taken in Ireland to reduce motorised traffic in urban areas;
- Understand the processes involved in implementing these policies and also to reference outcomes or evaluations where they are available;
- Provide recommendations for consideration in Ireland.

The chapter begins with a brief overview of the assumptions which have underpinned transport, and subsequently motorised-traffic reduction, policies. This is followed by a broader discussion of the relationship between spatial planning and transport policy. The catalyst for cities to make changes to reduce traffic are variable and intertwined and there is an emphasis on highlighting the specific road safety aspects of these interventions, specifically when reviewing the literature on the evaluation of outcomes (the details of which are further provided in the summaries of the case study cities).

The perspectives on the different stages of the policy process (Jann and Wegrich, 2007) and the ‘policy instruments’ as discussed by Kuss and Nicholas (2022) are then considered. This approach allows us to

- Unpack and understand the institutional, social and spatial context and scale i.e. at which stage and scale various stakeholders play key roles / have influence in the policy and decision-making process;
- To consider the means of evaluation i.e., what can be considered success/failure?
- To maximise the scope and variety of lessons and potential to make recommendations for Ireland.

Policy instruments can be described as 'Push Approaches' which include those which discourage private car use by increasing control and cost e.g. charges, taxes, fees, regulations; and 'Pull Approaches' which incentivise the use of low-carbon or non-motorised modes of travel e.g., monetary incentives, improvement of public transport, improvement of walking and biking infrastructure.

2.2 Policy Context

2.2.1 Traffic Reduction

Across Europe we have seen a move away from the ‘predict and provide’ approach to transport policy to one which supports ‘demand management’. A ‘predict and provide’ approach is one where there is an emphasis on expanding infrastructure for private motorised transport. ‘Demand management’ promotes multi-modality and more active modes of travel, integrating public transport and land use, and using technology to manage traffic and encourage more efficient and sustainable mobility.

There are numerous motivations for this policy shift including; congestion, climate, transport equity, better use of public space and safety and well-being. In Ireland, this shift in policy approach is evident in the work on the *5 Cities Demand Management Study* (2021) which has the objectives of; managing vehicular traffic congestion, reducing greenhouse gas emissions from road traffic, improving the quality of the urban environment, and addressing air quality issues due to vehicular traffic emissions.

Reducing motorised traffic is understood for the purposes of the literature review to apply to measures which primarily target private vehicles. Emergency (policing/healthcare) and utility vehicles (public transport, refuse, delivery/maintenance services) are essential for city operations and must be considered carefully. An outline of how measures are applied to different categories of vehicles across the case study cities is provided later, along with a discussion of the purpose and motivations for motorised traffic reduction in each case.

Cities' attempts to reduce car traffic are increasingly varied in the nature and range of approaches which may include reducing private-car journeys, slowing speeds, reducing through-traffic, promoting use of public and more active modes of travel, reallocating public space from cars to people, or a combination of these. Essentially there is a shift in the approach in urban and mobility policies towards greener, citizen-focused mobility solutions that may also be healthier (Nieuwenhuijsen, 2016).

It is also the case that for the first time in history all governance will occur under climate change which places demands on policymakers to innovate to amend existing, or to create entirely new policies which address climate change (Mintrom, 2019). The intervention approaches and policy instruments used across the case study cities will be discussed in accordance with the terminology used in Kuss and Nicholas (2022). They are categorised as push/pull approaches with a regulatory, economic, information/education or public goods/services policy instrument.

In this regard it is useful to consider the historic context and the 'the system of automobility' that generally shapes all current discussions around the car and mobility in cities. The 'system of automobility' (Urry, 2004) presents a system which considers;

- The car as the major item of individual consumption (after housing) which provides status to its owner/user;
- The interlinkages with suburban house building, retailing, urban design and planning;
- The car as the predominant global form of 'quasi-private' mobility that subordinates other mobilities and shapes our way of living and quality of life;
- The dominant culture that sustains major discourses; and
- The car as the single most important cause of environmental resource-use

Reference to this 'system of automobility' as described above, is valuable as it allows for an understanding of the complex social and institutional landscape within which policies are made; the existing path dependencies of policy (where it is assumed that decisions made in the past influence the potential options in the present and future); and the (often problematic due to car dependency) legacy of spatial distribution of activities discussed further in the following sections.

The research shows that 'in theory' there is an understanding that context is important with regard to changing behaviours, however 'in practice' there is a need to challenge the assumption that traffic levels will remain fixed and/or grow and that "nothing will make people get out of their cars—they'll always try and find another way round, and, if necessary, they'll just sit and wait in the traffic" (Cairns *et al.*, 2002, p.14). The costs of automobile dependence cannot be 'rationalised' or accepted based on a narrow understanding of cost and convenience. In a globally competitive urban environment drawing the simple conclusion that people prefer their private cars, and that we should base land-use policy on that preference, does not factor in the significant knock-on negative effects of car dependence in a city

(Newman and Kenworthy, 1999). These negative effects (congestion, pollution, longer commutes, less viability for public transport, poorer quality of life) impact how attractive and competitive a city is for investment.

Increased efforts to reduce car use for reasons of climate, health, and the reclamation of urban space are challenging this 'system of automobility', and while this 'system' has dominated in the past, Urry (2004, p.33) notes that 'nothing is fixed forever' and he describes tipping points for change (discussed further in section 2.2.1).

The concept of traffic reduction, or even 'traffic evaporation', has become an increasingly recognised term among transport planners. As a recognised effect of successfully implemented traffic management schemes, its key point is that traffic doesn't simply divert on to nearby streets, it reduces overall and appears to evaporate.

In their seminal meta-study of traffic management schemes across Britain and Europe, Cairns, Atkins and Goodwin (2002) provide a strong evidential basis for this otherwise counter-intuitive idea. The Department of the Environment, Transport and the Regions (DETR) (UK)-sponsored study looked at 70+ international schemes where road space had been taken away from cars and put to other use. In a large majority of cases, traffic levels were reduced on aggregate across each scheme. Across the range of studied schemes there was a 22% average overall reduction in traffic. More surprisingly, traffic levels on adjacent streets usually stayed about the same and in many cases even reduced.

On investigation, this traffic reduction was explained by recognition that people react to a change in road conditions in more complex ways than traditionally assumed in traffic models. The authors also noted that the potential for behaviour change was in most cases significantly higher than generally assumed, even by the schemes' proponents.

The study by Cairns *et al.* (2002) set out some useful conclusions and guide points for those contemplating traffic management schemes. Firstly, they note the importance of good design and implementation (they find that inter-disciplinarity is key to this). Planners are urged to monitor and evaluate, so that challenges / criticism can be countered by facts as early as possible. Communication is vital, to emphasise that there are likely to be initial problems, but also to communicate positive aspects of the scheme. Finally, the authors consider that incremental change often leads to the most successful outcomes.

Cairns *et al.*, (2002) study influenced the development of a follow-up European Commission-sponsored study, *Reclaiming City Streets for People - Chaos or quality of life?* (2004). Noting road safety as an issue requiring attention, the report includes eight case studies across Belgium (Ghent), England (Cambridge, London, Oxford, Wolverhampton), Finland (Kajaani), France (Strasbourg) and Germany (Nuremberg). Each case study provides a successful demonstration of traffic reduction, with business environments which remained protected (if not enhanced), along with recognised improvements in quality of life. Guidelines for implementers, consistent with those within the Cairns *et al* study, are put forward.

Such arguments for traffic management are supported by initiatives around the world. In the US, former New York City Traffic Commissioner, Janette Sadik-Khan, used a strong evidence base and proactive public engagement to justify incremental gains for walkability and the public realm (Sadik-Khan & Solomonow, 2016), such as the Delancey Street and Times Square space reallocation schemes.

The Global Designing Streets Initiative, sponsored by the Bloomberg Foundation, has prepared a Global Street Design Guide, whose intended aim is "to support practitioners to redefine the role of streets in cities around the world" (Global Designing Cities Initiative and NACTO, 2016). The practical guidance document offers technical support details to inform street design that prioritizes pedestrians, cyclists, and public transport users. Notably, the Design Guide places a high emphasis on road (and street) safety, not solely in

terms of the avoidance of collisions, injuries and fatalities, but also in terms of the perceived safety of especially vulnerable and marginalised groups within society. The latter is deemed to be vital towards promoting inclusive, healthy and vibrant urban communities.

In the UK, Mayor of London, Sadiq Khan, has championed clean air and what are termed “mini-Holland” initiatives, such as at Waltham Forest (Khan, 2023). These neighbourhood regeneration schemes have a direct aim to achieve safer streets by removing through-traffic, while also encouraging active travel such as walking, scooting & cycling. The schemes have wider social objectives, including to create “closer and calmer communities, encouraging friends & neighbours to meet, talk, socialise & play” (Transport for London, 2017). Taking a similarly wide approach to road safety (as the Global Designing Streets Initiative), the schemes propose to reduce injuries and fatalities, but also to reduce street crime and promote public safety.

While these “Low Traffic Neighbourhoods” (LTNs) have become contested in an increasingly polarised media and political discourse, a growing body of scientific studies (Sustrans, 2023) offers persuasive evidence for their success in achieving a wide range of societal goals, including improved health (better air quality, more active communities), safer streets (reduced crime, reduced collisions, increased perceptions of safety) and increased mobility (reduced traffic congestion, increased levels of active travel and public transport usage). A study on changes in traffic levels across 46 of London’s LTNs (Thomas and Aldred, 2023), finds that on an aggregate level the LTN (Low Traffic Neighbourhoods) schemes reduced traffic on the target streets of implementation, while traffic remained largely constant on adjacent boundary roads.

Crucially, in terms of this analysis, one paper which looks at police statistics between 2012 and 2019, (Laverty *et al.*, 2020), finds a “three-fold decline in the number of injuries inside low traffic neighbourhoods after implementation”. The study finds that walking, cycling, and driving trips became approximately 3-4 times safer per trip. The study concludes that low traffic neighbourhoods reduce the risk of injury across all modes within the LTN area of interest, without any negative impact on adjacent or surrounding streets.

2.2.2 Spatial Planning and Mobility Policy

Spatial strategies can act as a mechanism for ‘joined-up’ policymaking. They provide a forum for policy sectors to discuss and agree the spatial dimension of future policy. Spatial planning has a central role in promoting sustainable development and emphasises inclusivity; participation in the process and focus on social inclusion (Haughton *et al.*, 2010). Spatial planning involves “active cooperation across government, market and civil society actors to coordinate decision-making [that has] an impact on the quality of places and their development” Nadin *et al.* (2021) citing Cullingworth & Nadin (2006) and Tewdwr-Jones (2004).

In the Irish context there is a spatial planning policy hierarchy as illustrated below. The *National Planning Framework* (NPF) is the government’s national spatial strategy. This and the *National Development Plan 2021-2030* combine to form *Project Ireland 2040* which is the government’s long-term overarching strategy to make Ireland a better country for all, and to build a more resilient and sustainable future. The NPF sits within the Department of Housing, Heritage and Local Government. It provides the ten national strategic outcomes which inform the preparation of the Regional Spatial and Economic Strategies. The city and county development plans reflect a level of local autonomy, but they must also be compliant with the objectives contained in the regional and national strategies.

Figure 2--1: National Planning Framework (2019)



The *National Planning Framework* (NPF) is Ireland’s current national strategic spatial plan. There are ten strategic outcomes, two of which are particularly relevant to this research: ‘Compact Growth’ and ‘Sustainable Mobility’. The NPF targets the cities of Dublin, Cork, Limerick, Galway and Waterford for 50% of overall national growth, with the large and smaller towns, villages and rural areas accommodating the other 50% of growth. There is a clear emphasis on consolidating urban and rural areas in accordance with this principle of compact growth.

Achieving effective densities and consolidating urban areas, promoting public transport and more sustainable forms of mobility are priorities, thus preventing further urban sprawl and associated Greenhouse Gas (GHG) emissions. The Plan acknowledges that our cities and urban areas are heavily reliant on the car and road-based transport and thus there is an emphasis on improving public transport and providing sustainable mobility solutions for people. In 2022 the transport sector was responsible for 19.1% of Ireland's greenhouse gas emissions. Road transport accounts for 94.7% of these emissions and the total energy consumption in road transport increased by 7.2% in 2022. In 2021 passenger cars were responsible for approximately 53% of road transport emissions with this trend predicted to continue (EPA, 2023). The *National Sustainable Mobility Policy* sets out clear targets which are aligned with the transport target metrics in the *Climate Action Plan* to reach 500,000 additional active travel and public transport journeys per day and a 10% reduction in kilometres driven by fossil fuelled cars by 2030 which demonstrates commitment to implement sustainable mobility policies. While there are objectives to improve mobility safety and references to *Vision Zero*, there is no reference to vehicular speed reduction.

The NPF has a specific objective to “Ensure the integration of safe and convenient alternatives to the car into the design of our communities, by prioritising walking and cycling accessibility to both existing and proposed developments and integrating physical activity facilities for all ages” (GoI, 2018, p. 82). In summary we want our plans to encourage compact development which reduces the distances people must travel to live, work and play, and when they do have to travel, we want people to have sustainable transport options.

The NPF places an emphasis on addressing climate change and improving quality of life and liveability. It is also a strategic objective to ‘Strengthen Rural Economies and Communities’ and the Government’s complementary policies *Our Rural Future* (2021) and *Town Centre First* (2022) set out a vision to develop thriving Irish Towns for our social, economic, environmental and cultural wellbeing. Town Centre First recognises that successful places “Manage traffic within central areas so that streets prioritise vulnerable users (pedestrians and cyclists), enabling them to move about safely and in comfort” (GoI, 2022, p. 9) and the Town Centre First Plan prepared by the Town Centre Team with support from the local authority should include strategy and actions for traffic management.

The Government’s *Regeneration and Development Fund* (the Fund) will support the implementation of national, regional and local projects which encourage infill development (use of undeveloped, underdeveloped, or vacant land within existing settlements), integrated transport, regeneration and revitalisation of urban and rural areas in support of the strategic outcome of compact growth. The emphasis is on building sustainable settlements for our communities. The Fund will, combined with other initiatives (like the Town Centre First approach to renewal described below) create a catalyst for planning, investment and economic diversification of our rural towns and villages, re-purposing them to meet future challenges. These wider government policies are significant to this research as the study considers possible interventions to reduce motorised traffic and speed within towns of various sizes across Ireland. There is potential for road safety gains as part of these funded projects. However, while there are clear complementarities between spatial planning policy generally, and more specifically funding for regeneration projects which support compact growth and Town Centre First policies, there is however no reference to *Vision Zero* in these policy documents (National Planning Framework, any of the three Regional Spatial and Economic Strategies).¹

Policies which reduce road deaths and improve safety for vulnerable road users (particularly cyclists and pedestrians) are wholly consistent with urban and mobility policies which seek to improve the quality of life and liveability in our cities, towns and villages and to promote modal shift to meet national and European climate action objectives. There is also increased competition between cities (and places generally) to attract and retain people, capital and talent, so local governments and stakeholders have increasing responsibility for, and interest in, implementing cross-cutting policies which improve quality of life, liveability and address climate change in a collaborative approach to planning and governance.

2.2.3 Road Safety

Vision Zero is the international, long-term goal of achieving zero fatalities or serious injuries linked to road traffic. The United Nations Sustainable Development Goal 11 is to “Make cities inclusive, safe, resilient and sustainable” supporting modal shift and decreasing road casualties worldwide (Klanjčić, Gauvin, and Tizzoni, 2022).

“Cities need to reduce the number of road deaths by around 7% per year to achieve the UN’s new road safety target to halve the number of road deaths between 2021 and 2030” (ITF, 2022, p. 13).

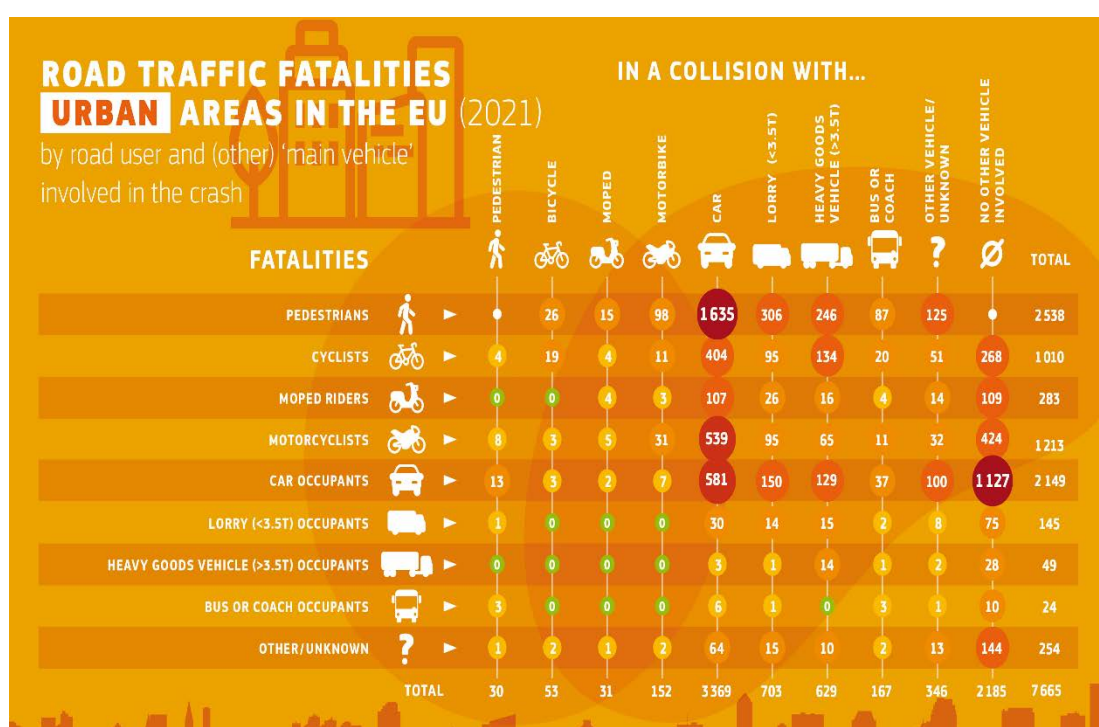
The road safety policy community is defined as the range of actors (i.e., governmental organisations, NGOs, international agencies, and academics) who are interested in influencing a specific policy topic (Kingdon, 2011). This area was historically fragmented, particularly regarding intervention strategies, but has become more comprehensive “with the development of a more systems-wide focus” (Hyder, 2022, p. 13). In this context, and where road safety gains are reliant upon urban policies and governance, it is interesting that (from the initial review of the Irish policy context as outlined above) there is no reference to *Vision Zero* or road safety more generally in our national strategic spatial plan. The Regional Spatial and Economic Strategy for the Northern and Western region is the only one to refer to road safety. These national and regional policies inform the city and county development plans where targets and actions to achieve *Vision Zero* can be localised. The NPF predates the adoption of *Vision Zero* as part of the Programme for

Government in 2019 and the Road Safety Strategy in 2021. There is an opportunity for road safety to be more visible in spatial planning policy and to translate road safety objectives at a local level.

Published figures are a valuable indicator of positive or negative progress towards targets, however they are somewhat limited as a snapshot in time if not viewed in the wider context. The number of fatalities will vary across regions, cities and towns. A focus on national figures and lower numbers at the municipal level makes statistical analysis challenging. The research also shows that there is under and inconsistent reporting of traffic-related injuries which is a significant barrier to evaluation (ITF, 2019).

It is also important to consider the variables within the statistics and the story that they tell for policymakers. For example, the figure 2-2 below (which illustrates data from the EU), very clearly illustrates the relationship between fatalities of urban road users and main vehicle involved in the crash.

Figure 2-2: "Collision Matrix" of urban road traffic fatalities in EU in 2021 (Source: [EU Commission](#))



While not all pedestrian fatalities occur in urban areas, it paints a stark picture of the level of risk faced by pedestrians in urban areas across Europe. By comparison to other road users and the urgent need to address this from a policy perspective. Serious injuries are also very important to consider in the urban context (data on this is provided across the city profiles). The ETSC (2020) called for the publication of an EU-wide safe active mobility strategy to encourage a co-ordinated European response, which recommends that these should have targets for increasing the walking modal share. Only Finland, which has a 30% modal share walking and cycling target for 2030, and Luxembourg, which recorded a 25% modal share walking and cycling rate by 2020, have defined targets for increasing the walking modal share. Some European countries have drafted a national walking strategy (Austria, Finland, Italy, Luxembourg, Sweden, England), some are in the process of drafting national (Portugal and France) and local strategies in cities and regions (Germany and Belgium).

As illustrated in figure 2.2 there is an urgent need for cities to do more to protect pedestrians on streets. It is recommended that cities prioritise walking and cycling, "adopting a Safe System approach which includes 30 km/h speed limits where motor vehicles mix with vulnerable road users. Automated enforcement and safe street design principles will maximise compliance with speed limits. Re-allocating road space in dense

urban areas can make city centres safer by shifting mobility from car and motorcycle trips to walking, cycling and low speed micromobility” (ITF, 2022, p. 8). These approaches all feature to varying degrees across the case study cities.

“The effectiveness of road safety management needs to be systematically evaluated not only in terms of results, but also of the intervention package and institutional delivery” (ITF, 2019, P.11). Context is therefore important in terms of urban form, profile of road users, and governance frameworks. Outside of the intervention type and the institutional delivery, factors such as terrain, climate, and culture are likely to contribute to high volumes of cycling (Fishman *et al.*, 2015, p.14) and thus road safety outcomes. Research by the ITF (2019) considered road safety policy in terms of indicators (casualties, trends) and governance. This current literature review suggests that it is also appropriate to consider culture specifically as it relates to governance as we wish to understand the potential translation of different interventions in different contexts i.e. from the case study cities to Ireland. The detailed profiles of the cities, and the discussion during the interviews allows for consideration of this.

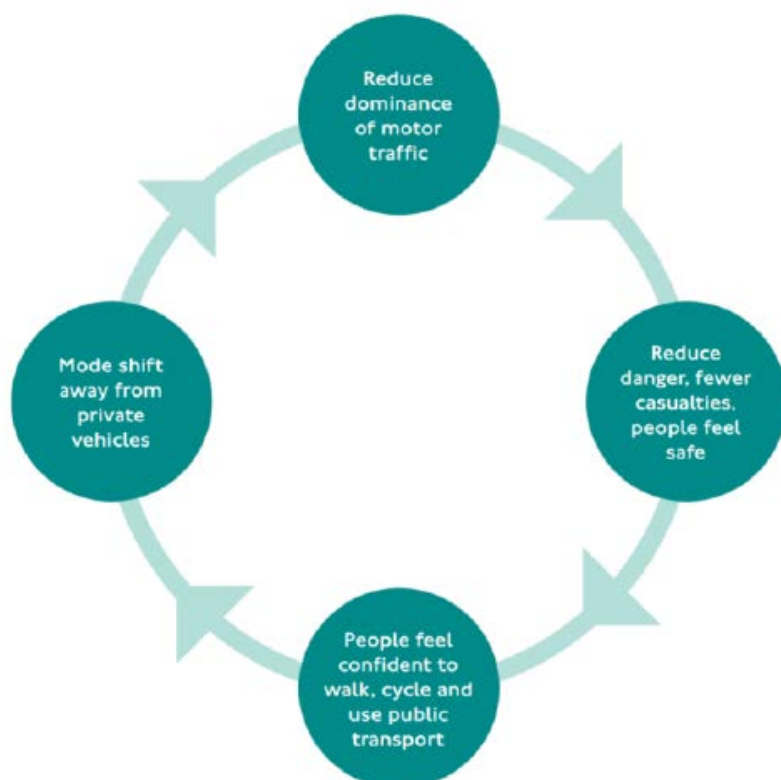
From a policy perspective road safety cannot be viewed in isolation from wider city operations, it is part of the city system dependent on multiple stakeholders within the overall governance framework. ITF contends that we have moved beyond an understanding of road safety outcomes being determined by traditional engineering and technical interventions. City authorities have a variety of policy instruments which can be developed locally (land-use planning, transport planning, pricing, infrastructure investment, education and information) to achieve better road safety outcomes. City authorities are not, and should not be solely reliant on national regulators or vehicle manufacturers (ITF, 2019).

Newman and Kenworthy (1999, p. 21) describe the relationship between transport-related deaths, the degree of automobile dependence and the level of development of the traffic regulatory system. In their study of global cities in 1990 they found that the US (with a high degree of automobile dependency and a developed traffic regulatory system) had the highest transport-related deaths per 100,000 persons. Transport-related deaths decline with decreasing car use, but not in a parallel way, presumably due to the level of traffic regulation. So, while a reduction in motorized traffic is expected to lead to a reduction in collisions, regulation must also be considered. There is a need to consider the complexities within cities and urban areas in more detail, and how in a worst-case scenario intervention could actually lead to increasing automobility and a decrease in walking/cycling thus reinforcing the nature of car dependency (Newman and Kenworthy, 1999).

There are clear interrelationships between road safety, mobility and urban policies and understanding how these can be leveraged for better road safety outcomes is critical to this study. The literature shows that improvements to the road traffic management system have wider social, economic and environmental benefits. Improving and ensuring road safety encourages modal shift to more sustainable transport, “People will not embrace modal shift if they do not feel safe on the streets” (ITF, 2019, p. 11). Encouraging a shift towards more active and sustainable modes of travel also impacts upon societal health. Fishman *et al.* (2015, p. 14) found that “regular daily physical exercise through cycling has great health benefits, e.g. Dutch people have half-a-year-longer life expectancy due to cycling”. These population-level health benefits then translate into economic benefits of “€19 billion per year, which represents more than 3% of the Dutch gross domestic product between 2010 and 2013” (The Dutch value of a statistical life applied is €2.8 million per death at the 2013 price level).

Figure 2-3 below further illustrates the “virtuous circle of road danger reduction”.

Figure 2-3: “Virtuous circle of road danger reduction”. Source: ITF (2019, p. 12) from Transport for London (2018) Vision Zero Action Plan.



2.2.4 Road Safety Evaluation and Monitoring

The indicators used to monitor road safety can range from obvious i.e. number of casualties/fatalities to a broader assessment of reviewing strategies, action plans and funding. Then extending even further into understanding behaviours and perceptions of safety. The ITF (2019) report benchmarks road safety performance in 72 urban areas, mostly in Europe and considers why some cities are safer than others. These findings inform the approach to the city profiles (as they relate to urban form and density, modal share and road users. Some key points are included below:

Urban Form and Density: Overall mortality rates rise with the size of the urban perimeter. Mortality rates are sensitive to density. Where density is twice as high, mortality is 20% lower. This could be down to increased public transport use (as denser cities tend to have more public transport).

Fatality risks for both walking and cycling are typically lower in a city when compared to the national average which may support the hypothesis that denser urban fabrics lower speed.¹

Gender: Men are at least twice as likely as women to be killed in traffic and the gender differences are reduced in some urban cores. Women are less likely to be killed in traffic partly because they tend to travel shorter distances and prefer public transport to cars.² Where male driver behaviour is found to be an issue, addressing it would save lives and make the streets more liveable and inviting for other road users.

Modal Share: Cities where people cycle the most tend to have lower mortality rates when casualties from all road user groups are added together. Deaths among cyclists have not reduced as fast as other road users. Cycling injuries increased by 21% between 2010 and 2020. However, in all cities, the number of trips increased more than the number of cyclist deaths and injuries. Therefore, by using a measure of risk exposure it is estimated that cycling became safer over the ten-year period³.

The research documents that countries where people cycle the most have the highest rates of cyclist deaths per unit of population. However, this does not mean that cycling is more dangerous where people cycle more as neither trip number nor distance are controlled for. It is also argued that cyclist fatalities should not be looked at in isolation because the trips could have been taken using a mode of transportation with higher risk (powered two-wheeler [PTW]) and driving can be more dangerous than cycling for some demographics (ITF, 2019, p. 25). However, in the Irish context there is no evidence that cyclists would use PTW's or vice versa, particularly in Ireland, and so there is very little likelihood of modal shift between these two vehicle types.

Cycling is not as dangerous as people perceive, in a majority of the cities it appeared safer to travel 1 km on a bicycle than on foot (but important to consider the profiles of both groups). There is also a body of evidence showing that the health benefits of cycling outweigh the risk of fatality. Riding a powered two-wheeler (PTW) rather than a pedal bike over a given distance quadruples the risk of fatality. Walking a given distance carries ten times the risk of fatality as riding the same distance in a passenger car. Travelling by bus is an order of magnitude safer than all other modes of travel. Calculations of third-party risk reveal a high impact of motor vehicles on the overall casualty number, and therefore strengthen the case for a modal shift towards reducing cars and promoting public transport, walking and cycling. We also need to consider the modal shift and travel time budgets. For example, assuming that urban trips on PTWs (Powered Two Wheeler) are twice as fast as cycling and the fatality risk of riding a PTW has been previously described as four times as high as cycling for a set distance, then it would be found to be eight times as high as cycling for a set duration (as people will cycle longer distances in the same duration). Differences in risk observed across modes should consider age and distance travelled.

These findings point to the need for reliable, robust data which will allow for evidence-based decision and policy making. There is a need for integration and collaboration between local, regional, national and international bodies in the interests of sharing data and expertise. ITF (2022) suggest “urban traffic observatories” should be established which can collect both general mobility data and road safety data. These observatories would be resourced and competent in monitoring and analysing this data. It is also

¹ A study by Klanjci et al. (2020) found that more walkers and cyclists imply more safety for drivers also.

² Previous research by ITF (2018) which used data from Dublin, found that Dublin and Auckland were the exceptions to this finding.

³ Updated figure provided in ITF (2022)

suggested that cities develop a Sustainable Urban Mobility Plan that covers all forms of mobility which prioritises non-motorised and public transport and is based on the Safe System principles. Within these, quantitative targets for evaluation and benchmarking can be set, which may assist with securing public and political buy in, and funding for investment ITF (2022). The agreement on a more sustainable and resilient trans-European transport network with associated mandatory Sustainable Urban Mobility Plans (SUMP) for cities along the network will also bring opportunity for better integration of road safety objectives and targets into spatial plans. This will require the provision of a robust evidence base for policymaking (road safety data) to adequately respond to this complex and political issue. There is existing guidance available on the types of road safety data which should be used to prepare a SUMP (Sustainable Urban Mobility Plan) in the EU guidelines (2019) and also in the Topic Guide for Urban Road Safety and Active Travel. The priorities are:

- Identification of the main types of accidents as a basis to define the right target groups to approach and measures to be developed;
- Identification of dangerous spots in the multi-modal network;
- Setting realistic but ambitious targets for safety policy;
- Awareness building: correct accident figures can help to build awareness;

The topic guide also defines a minimum set of data needed to analyse the road safety situation in a city. It states that the analysis should consider:

- Total number of casualties and fatalities per year in the city over a period of at least 3 years;
- Total number of accidents without injuries, grouped according to the different transport modes, over a period of at least three years; and
- Location and type of accidents on the (multimodal) network of the city

2.3 Chronology of the Policy Process

The literature review considers the chronology of the policy process (Jann and Wegrich, 2007, Knill and Tosun, 2020). It is acknowledged that under real-world conditions these stages are not so discrete and easily defined, however viewing the literature through this ‘stages’ perspective allows for a better understanding of various institutional, social and spatial contexts across the case study cities and the stage at which various stakeholders play key roles / have influence in the policy and decision-making process. This is useful as we wish to understand the potential translation of different interventions in different contexts i.e. from the case study cities to Ireland. It also allows us to consider culture specifically.

2.3.1 Problem Definition and Agenda Setting

This stage of the process broadly considers the recognition of a ‘problem’ and the placing of it on an agenda for consideration of public action. For the purposes of this research, it relates to the formal local government agenda across the case study cities. The way in which problems are identified and added to the agenda are of course connected to how a social problem is recognised and perceived in the media/by the public and so it is therefore an inherently political process (Jann and Wegrich, 2007).

Framing the discussion within the ‘system of automobility’ as described above is valuable as it allows for an understanding of the complex social and institutional landscape; the existing path dependencies of policy; and the (often problematic) legacy of spatial distribution of activities, based on car-centric perspectives.

However, this ‘system’ and the associated assumptions are arguably being challenged with increased efforts to reduce car use for reasons of climate, health, and the reclamation of urban space. While this ‘system of automobility’ has dominated, Urry (2004, p.33) notes that ‘nothing is fixed forever’ and he

describes tipping points which involve three notions: that events and phenomena are contagious, that little causes can have big effects, and that changes can happen not in a gradual linear way but dramatically at a moment when the system switches. These ‘tipping points’ will be considered across the mechanisms for implementation and the different policy stages.

It is useful to consider what is perceived as a policy ‘problem’ and then how it gets onto the formal agenda. Is it driven by the relevant authority, the public or other interest groups? Is the authority presenting a policy problem which already has public support /interest? Is it a forced choice to maintain credibility/legitimacy in response to a specific event or situation? (For example, in Oslo the research suggests that a catalyst for the *City Life* project was poor air quality. A focus was brought on this by a fine for Norway from the EFTA Court in 2015 for the high pollution levels).

It is also useful to consider whether ‘problems’ are being presented according to the perceived solutions available? The policy environment shapes the potential policy response i.e. is there a number of variables (e.g. social, economic) which warrants it becoming a significant topic on the policy agenda? How do several actors with various interests and capacity to effect change, and the public perception of the problem shape the potential policy response? Perception of problems can also be shaped by the professional discourse and the “monopoly of political understandings” whereby institutions maintain a “policy image”. Only when those non-active or disinterested actors become mobilised to contest “policy monopolies” can policy change occur. Therefore, agenda setting is not a tidy rational process whereby the most important problems are identified, agreed and prioritised, it is a process determined by a complex landscape shaped by various institutions, actors, ideas and the realities on the ground. The opportunity for change opens when the perception of the problem, political support and solutions align (Jann and Wegrich, 2007).

The *Overton Window* (Mackinack, 2023) is described as a model for policy change. Ideas which sit ‘inside the window’ are considered ‘politically safe’ in that the public are likely to support them. However, ideas outside the window may be too radical for the public to accept, thus a politician which supports or promotes these ideas may find themselves on the wrong side of public support, threatening their likelihood to be re-elected. Politicians do not define the ‘window’, rather, their role is to understand where the window sits amongst public opinion e.g. which ideas are likely to be acceptable and therefore ‘in the window’. The window can shift over time and changes to public perception of an idea can be influenced by media, social media, think tanks, or a crisis.

2.3.2 Policy Formulation and Decision-Making

Cities are systems which reflect a diverse range of activities and functions and associated institutions, actors and governance structures. Within the policy formulation stage the objectives (in response to the problem) are set and these are translated into local government programs. There may or may not be a requirement to consider a wider policy hierarchy whereby national policies must be translated regionally and locally (and this is the case in Ireland across the policy areas of spatial planning, transport and mobility, and climate).

The literature describes various organisational decision-making theories which have been applied to this stage of the process, reflecting the various styles and outcomes of policy and decision-making. These include corporatist, neo-institutionalist, incrementalism and the garbage can approach (Jann and Wegrich, 2007). Decision-making involves the rational process of gathering information and analysing same, but it also involves an aspect of interaction and often conflict resolution between the various stakeholders i.e. public, private and governmental departments. Coordination between departments/stakeholders can be considered either ‘negative’ (based on sequential coordination of different departments after the initial policy program has been drafted) or ‘positive coordination’ (pooling suggested policy solutions as part of the drafting). The tendency for ‘negative’ interactions leads to reactive rather than proactive policymaking (Jann and Wegrich, 2007, p. 49 citing Mayntz and Scharpf, 1975). These interactions and relationships

between actors take place within ‘policy networks’ which vary across policy domain and countries (each with their own administrative, legislative and cultural context).

The eventual adoption of policy options can be considered in terms of their feasibility according to several factors, but the availability of resources (economic, political support) and the competences/powers of the actors are key (decentralised or federalised state structures allow for more room to initiate policies). Arora-Jonsson and Böjrkman (2022), in their study of the motivating factors and political visions affecting car-free initiatives in Oslo and Stockholm, concluded that if a project only focuses on a single part of a city, it may become polarising, creating discontent and reducing political support among communities. The effects of such a policy change can be perceived to be unequally distributed spatially and socioeconomically across the city, for example the number of private parking spaces for office workers within the city was not impacted in Oslo whereas on-street car-parking for visitors has been reallocated to other uses and the research found that this was viewed by some as an unequal policy change. They also highlight the importance of considering the needs of what they describe as ‘critical groups’ i.e. people with disabilities or tradespeople.

The formulation of policy is also contingent on the policy advice which in the past could be considered narrowly as being ‘technocratic’ (advice of experts) or ‘decisionist’ (prioritising politics over science). However, the literature argues that policy advice is a pragmatic and collaborative process encompassing a variety of knowledge, not limited to a single study or report which stretches beyond the boundaries of single authorities or governments (Jann and Wegrich, 2007). The commissioning of this research project which considers other cases-study cities is demonstrative of this wider understanding of policy advice, and the idea of the potential for ‘policy transfer’.

A transport system is made up of numerous stakeholders and the rules which govern the decisions of the stakeholders are not always aligned; either with each other, or the purpose of the transport or urban policy. The interactions may be ‘negative’ rather than ‘proactive’ as described above. Therefore, a consideration of the ‘processes of decision making’ for each network actor is required so that actions and behaviours can be anticipated, and systems can be designed to address specific needs in a collaborative manner. Due to the ‘traditional top-down approaches to the implementation of traffic management systems it is noted that this happens less frequently than desired’ (Rezende Amarale, 2018, p.614).

2.3.3 Implementation

The stage of executing a policy by the relevant agency (often, but not always the public sector) is known as implementation. The actions on the ground may not always follow policymakers aims and objectives, policies and intentions might be changed or even blocked as political and administrative actions are “hardly ever perfectly controllable by objectives, programs, laws and the like (Jann and Wegrich, 2007, p.51, cf. Hogwood and Gunn, 1984). Therefore, consideration of this aspect of the policy process and the ‘policy instruments’ used across the case study cities is particularly useful in understanding the context and potential recommendations for Ireland. There are significant barriers to implementing sustainable mobility policies due to the potential for controversy and political push-back, path dependencies, administrative boundaries, institutional and budgetary constraints (Debie *et al.*, 2020). There has also been criticism of the gentrifying impact of some policy instruments and the variable impact of strategies across society and spatially.

The research shows the difficulty in mobilising political support for measures which reduce car-use and measures which address both the supply and demand side are important. There is a wide range of policy instruments to promote alternatives to car use. These are succinctly categorised in Kuss and Nicholas (2022) and include “Push Approaches” which discourage private car use by increasing control and cost e.g. charges, taxes, fees, regulations; and “Pull Approaches” which incentivise the use of low-carbon or non-motorised modes of travel e.g., monetary incentives, improvement of public transport, improvement of walking and biking infrastructure. These can further be categorised as

- “Regulatory” (rules, standards, prohibitions)
- “Economic” (taxes, subsidies, charges)
- “Information and Education” (information campaigns, marketing, persuasion, feedback), and
- “Public Goods and Services” (physical Infrastructure, planning, provision of services).

These instruments address both the supply and demand side of car use. They also seek to re-frame how car use is viewed, for example car-sharing initiatives decouple car use from ownership. “Car-free days” raise public awareness of the potential alternative uses of streets and roads as public spaces. This can contribute to the ‘agenda-setting’ stage in the policy cycle as actors within and outside government seek to shape the agenda by bringing attention to a particular issue and the potential solutions.

Kuss and Nicholas (2022) classifies policy instruments as either “push” or “pull”. A push measure targets individual car use – penalising independent car-based trips with regulations or barriers to movement. Pull measures nudge behaviours away from the car, incentivising public transport and more active modes of travel.

From the literature it is evident that both “push” (restrictive and coercive measures to dis-incentivise car use) and “pull” instruments (incentives to use alternatives to the car) are typically utilised by city and metropolitan authorities. This is related to the definition of the objective i.e. are there specific traffic-reduction targets in a specific geographic area or is there a broader goal to shift modal share and improve the attractiveness of the city. As discussed already it is increasingly the case that objectives cannot be viewed in isolation across an integrated city system.

It is evident from the literature that a single policy instrument is insufficient in terms of addressing the complexity of the issue (Kuss and Nicholas, 2022 and Nieuwenhuijsen, 2016). Multiple policy instruments means that there is a requirement for multiple stakeholders to support the implementation of measures.

Kuss and Nicholas (2022) also use the criteria of novelty, feasibility and suitability from a Transition Management governance approach:

- Novelty (a new approach that differs from dominant, existing practices)
- Suitability (to reduce car use)
- Feasibility (to implement in the near-term with available resources)

These criteria allow for the consideration of the potential of interventions in context and to weigh up the options in terms of ensuring effectiveness and suitability to achieve the objective and balancing novelty with feasibility. It can be useful to think about novelty in terms of what has been done before, whether it worked, and if not, why not? It may also suggest areas for prioritisation or phasing.

While there are many institutional factors which might hamper implementation, “it is ultimately the social acceptance of public policy that matters for successful implementation” (Knill and Tosun, 2020, p.141).

2.3.4 Evaluation: Outcomes and views on success of measures

Evaluation is an important step in the policy process. It allows for the consideration of the level of effectiveness and any unintended consequences of the policy. Negative findings may point to opportunities for change to make improvements. There is a ‘technical’ aspect to policy evaluation whereby “experts” make judgements using specific techniques. There is also a “political” aspect to evaluation whereby statements as to the success or failure of a policy can be used to generate positive/negative opinions of those in power (Knill and Tosun, 2020, p. 144).

It is apparent from the review that there is limited evaluation of outcomes as they relate to interventions to reduce private-car traffic in cities. There is a need to focus on ex-post analysis as evaluations which lack detail on the situation before and after an intervention limits the possibilities to understand the

relationship with context. Understanding this relationship with context is important for ‘evidence-based’ policy making (Kuss and Nicholas, 2022 and Nieuwenhuijsen, 2016).

However, Oslo did conduct an evaluation in 2017 which acts as a reference point with subsequent evaluations in 2018 and 2019 providing us with a better understanding of the impact of the changes made (discussed further in the profile of the city).

It is evident from the literature that there are a variety of societal, economic and environmental outcomes which result from the interventions made to reduce car traffic and thus various ways to view the success of same. Urban form, physical and socioeconomic characteristics and public transport availability will all influence car use across different cities. Car dependency can be thought of from different perspectives, objectively and subjectively, for example: rates of car travel amongst a population; extent of car-oriented land use patterns; alternative transport; the level of car ownership; the number of trips; the circumstances of, and attitudes towards car use; whether people drive out of choice or necessity; what level does it occur i.e., city/individual/trip (Saeidizand *et al.*, 2022).

What is apparent from the literature broadly is that;

- Predictions of the impact of road space reallocation are considered unnecessarily alarmist and with careful planning, consultation and communication the reallocation of road space provides complimentary benefits (Cairns *et al.*, 2002).
- The need to measure the movement of people rather than focusing on cars being pushed out is important as arguments amongst various stakeholders will focus on impact to business, impact on specific groups etc. Measuring effectiveness by counting the movement of people allows for a consistent understanding of impact and steers the discourse away from the private car (Cairns *et al.*, 2002).
- GHG emissions can be applied to mode share and the number of km per person travelled per day. This can highlight the level and impact of car use.
- It is also clear that there is a relationship between road safety and the national culture of a country which will interplay with support for interventions and views on success (Van den Berghe, Schachner, and Sgarra *et al.*, 2020).
- There is a need for reliable, robust data which will allow for evidence-based decision and policy making.

2.4 Governance and stakeholder engagement

The literature describes a shift in urban climate politics from top-down approaches to “collaborative and communicative planning” (Neji *et al.*, 2015) which is supported by the contention that “a poorly designed policy which lacks broad public acceptance is likely to fall short of its goals” (Knill and Tosun, 2020, p.180). Also, for the first time in history all governance now occurs under climate change which places demands on policymakers to innovate to amend existing, or to create entirely new policies which address climate change (Mintrom, 2019). Therefore, local governments and stakeholders have increasing responsibility for, and interest in, implementing cross-cutting policies which address quality of life, liveability and climate change in an entrepreneurial and collaborative approach to planning and governance. It is a complex social, cultural and institutional environment.

As discussed in previous sections there is scope for stakeholder engagement across the different stages of the policy cycle and the urban governance structures will impact the extent of this engagement and power to influence the process. The governance structures of each of the case study cities is explained in detail in chapter 3. The cities and regions benefit from decentralisation

of power and have high levels of autonomy for policymaking and implementation. By comparison, local government in Ireland has been described as “relatively powerless” and Irish local authorities have limited powers to shape transport policy or the finances to undertake major change (outside of their responsibility for regional and local roads) (Rau, Hynes, Heisserer, 2015, p.10). The OECD (2022) report *Redesigning Ireland’s Transport for Net Zero* (2022) recognises the complexities and scale of the challenge to decarbonise Ireland’s transport sector and recommends “a systemic approach to policy decision-making across government departments” and that “multi-level governance is required to improve government engagement with stakeholders, promote bottom-up and participatory approaches, increase local capacity to think in terms of systems, and communicate and implement transformative policies”. These recommendations are relevant to this research area as it relates to policies with high potential to transform the car-dependent system and integrating road safety objectives more visibly into spatial planning policy and other national policies, and investment programmes.

3. PROFILE OF THE CASE STUDY CITIES

3.1 Introduction

The literature review identifies several variables which are related to car use, dependency and dominance (as well as the relationship between car traffic and road safety). These include the physical and built environment, the socio-economic and demographic context, the rates of car ownership, the availability of public transport, culture (lifestyle and residential choices) and the political leanings of local government. This chapter outlines a profile of the four case study cities, introducing the basic geography of the city, their governance structures, and the status of transport road safety. The traffic reduction related plans for each city introduced are discussed, as well as any major evaluation study that was undertaken by, or on behalf of, the city of those plans.

3.2 Oslo

3.2.1 Oslo Geography, Built Environment & Urban Form

Oslo, as the capital and most populous city of Norway, is located to the south-east of the country (see **Figure 3-1**). Oslo has a status of both municipality and county, with the Oslo municipality (or city) recording a population of 699,827⁴ people in 2022 and a population density of 1643⁵ per sqkm. The wider 'Oslo urban settlement' recorded a population of 1,036,059 inhabitants (2020) and Greater Oslo (Oslo metropolitan region) a population of 1,546,706 (2020)⁶

For the purposes of this study, the primary area of concern is the Oslo municipality, with a land area totalling 426 sqkm. Oslo is divided into 15 districts, each with its own administration and district committee appointed by the City Council (except for the city centre and Marka which are outside of the district scheme).

In terms of urban form, Oslo is a compact European city of gridded streets, and tight urban blocks of typically c.5-6 storied mixed-use buildings in the city centre (see **Figure 3-2**). The inner suburbs typically include similar scale apartment blocks with larger courtyards and green spaces, while the outer suburbs are typically low-density single-family homes, often detached properties.

⁴ [11342: Population and area, by region, contents and year. Statbank Norway (ssb.no)]

⁵ [11342: Population and area, by region, contents and year. Statbank Norway (ssb.no)]

⁶ Oslo Region – Store norske leksikon (snl.no)

Figure 3-1 Oslo is located to the south-east of Norway adjacent to the Oslo Fjord (map source: openstreetmap.org)

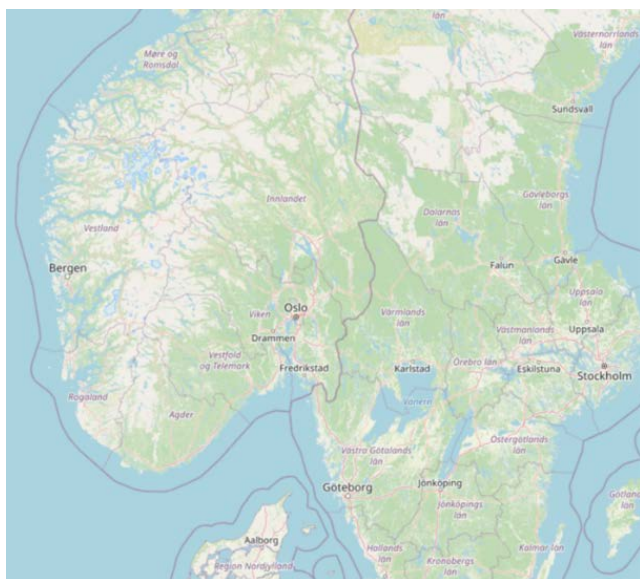


Figure 3-2 Sample images of Oslo city centre streets (source: Author)



3.2.2 Oslo Governance

The City of Oslo has a parliamentary system of governance (thus the city government is ‘responsible to the City Council in the same way that the National Government is responsible to the National Parliament’⁷). The City Government is the executive body, consisting of nine members including the Governing Mayor (a role which, with executive functions, could be compared to that of a prime minister). The Mayor appoints Vice Mayors to be members of the City Government (whose roles could be compared to that of national government ministers)⁸. Examples of Vice Mayors include the Vice Mayor for Environment and Transport, the Vice Mayor for Urban Development, and Vice Mayor for Culture and Sport. The previous government was a coalition composed of the Labour Party, the Green Party and the Socialist Left Party, whereas the recently formed new Government coalition (October 2023) is composed of Conservatives and Liberals.

⁷ City Governance - Politics - Oslo kommune

⁸ Ibid

The former Vice Mayor for Environment and Transport (Sirin Hellvin Stav) was a member of the Green Party and her priorities were⁹:

1. On the pathway to becoming a fossil free city;
2. A bike-friendly city for all;
3. Oslo - green and vibrant city; and
4. A safe city.

These priorities include objectives for the reduction in car traffic into the city, specifically referred to as the 'Car-Free City' project. Under the 'safe city' priority, safety here referred primarily to emergency-preparedness and personal safety in public spaces including street lighting and visibility of City Wardens. These priorities of the former Vice Major are now likely to change with the recent change in government, thus the impacts on the 'Car-Free City' project and its future are currently unknown. However, the recently published political statement from the new coalition government does make minor reference to the 'Car-Free City Life' programme as well as reiterates commitments to climate goals and to reduce the environmental impact of car traffic¹⁰.

3.2.3 Oslo Transport & Road Safety

At a national level, the Norwegian government has adopted a 'zero-growth' objective for transport, both in national climate and transport plans (Tennøy & Hagen, 2020). This means that increasing passenger transport demand caused by urban region population growth is not to translate into increased car-passenger road traffic volumes (total Vehicle Kilometres Travelled in urban regions), it must be absorbed by public transport. This marks a shift in more conventional practice, internationally and historically, that has assumed growing population demands will lead to increasing traffic volumes. Oslo is a signatory to this policy and is experiencing population growth. The aim is to create more attractive and liveable cities and urban regions (given the extent of negative externalities associated with car-growth and car-dependency).

The public transport system has been continuously improved over the last decade or so, and in 2016, a new metro tunnel opened in Oslo that allowed for a reorganisation of the metro system including new and better connections (Tennøy & Hagen, 2020). This has resulted in a significant increase in passenger kms travelled (see Figure 3-3). Oslo has a high quality and integrated public transport system consisting of trains, metro, trams, buses, and ferries, and ranks no. 6 in the world in 2022 for public transport according to a study by Oliver Wyman and the University of California, Berkley¹¹. The city also has associated high levels of sustainable travel. Using the UITP International Association of Public Transport 'City Transport

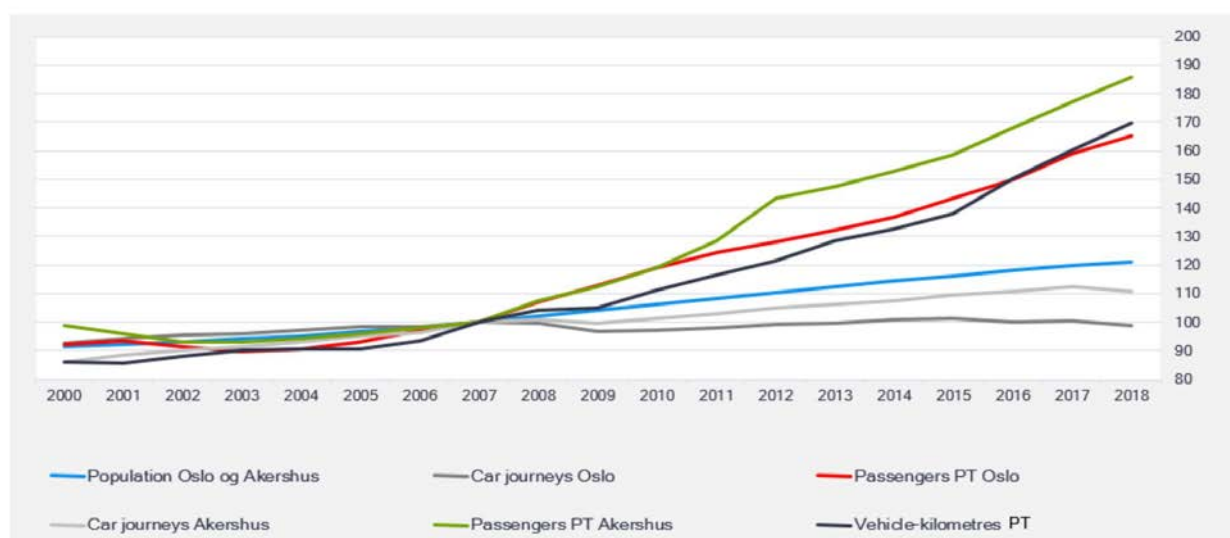
⁹ <https://www.oslo.kommune.no/politics-and-administration/politics/city-government/the-vice-mayor-for-environment-and-transport/>

¹⁰ For more information see <https://www.oslo.kommune.no/getfile.php/13493212-1698221205/Tjenester%20og%20tilbud/Politikk%20og%20administrasjon/Politikk/Byrådet/Hammersborgerklaeringen%202023-2027.pdf>

¹¹ For more information see <https://www.oliverwymanforum.com/content/dam/oliver-wyman/ow-forum/template-scripts/urban-mobility-index/PDF/Mobility-Index-Report.pdf>

Data¹², Oslo is recorded as having a 69.6% sustainable modal share¹³. As comparisons, Brussels is noted as 69% sustainable modal share, London 63%, Madrid 59.5%, and Berlin 75%.

Figure 3-3 Key figures for development in Oslo (and adjacent Akershus) showing population growth from 2000 to 2018, and associated change in car journeys, and growth in public transport passengers and vehicle-kms (image sourced from Tennøy & Hagen, 2020 based on Annual report 2018, Ruter 2019).



'Vision Zero' and Road Safety Achievements

Norway's Parliament adopted *Vision Zero* as a policy for all transport modes in 2001. The long-term trend in Norway is one of reducing road deaths and serious injuries, with Norway performing better than all EU27 countries (EC, 2021) (see Figure 3-4), and recording the lowest death rate among International Transport Forum countries in 2021 (ITF, 2022). The number of road deaths per 100 000 inhabitants in Norway fell by 73% between 2000 and 2019 (ITF, 2021). In its latest road safety strategy (2022-2025), Norway has increased its ambition by setting out plans for cutting roads deaths in half by 2030 and to zero by 2050 (ETSC, 2022).

Falling road deaths are also evident in the city of Oslo, albeit with some variance over time evident (see Figure 3-5). In 1999, 16 road deaths were recorded including 3 pedestrians and 3 cyclists. In 2019 and 2021, one road death per year was recorded. There was however 5 road deaths in 2022, including 2 pedestrians and 1 cyclist. Regarding 2023 figures, one road death was recorded in Oslo up to August 2023 (provisional figures from Statistics Norway).

¹² For more information see <https://citytransit.uitp.org/oslo>

¹³ 'Sustainable Modal Share' is defined by the UIPT City Transport Data as the percentage of daily trips in the relevant area undertaken primarily on foot, by bicycle, by public transport and by taxi.

Serious injuries have also reduced since 1999, but they have fluctuated more over time, with some intervening periods experiencing peaks (see Figure 3-6). For example in 1999, there was 84 serious injuries in Oslo, but these peaked between 2013-2016 with 116 serious injuries¹⁴ in 2016. By 2022, the numbers of people seriously injured on the roads and streets of Oslo reduced to 58.

Road Safety Interventions

Oslo has employed a number of interventions that contribute to both road safety as well as city liveability, including the use of 30km/hr speed limits outside schools and on most residential and city centre streets. Oslo urban speed limits include a range, with the majority of streets at 30km/hr, neighbourhood connectors at 40-50km/hr, with higher speeds reserved for highways, including the city centre tunnelled highway (see Figure 3-7).

Road safety is also an important component of the 2020 'Street Design Manual for Oslo'¹⁵, and central to this is the recognition of the multifunctional nature of streets. The Manual states that all streets and roads within the municipality must be planned as 'streets' and not 'roads' (except for the forested Marka area surrounding Oslo).

As part of this, Oslo employs minimum footpath widths, and states that all Type A and Type B streets (i.e. most urban streets) must have a minimum footpath width of 3m. Type C streets should be at least 2.5m wide.¹⁶

¹⁴ Caution may need to be exercised when comparing serious injury levels between jurisdictions due to potential differences in the definition of 'serious injuries' and collection methods.

15 Street-design-manual_ENG.pdf (oslo.kommune.no)

¹⁶ Type A streets are streets in the inner city where there is a lot of activity and life. One or two groups of road-users have clear priority and are given special preference over others. Type A streets have a lot of pedestrians' (p.33). 'In type B areas, considerations of mobility and local functions have to be balanced' (p.33) and include residential streets with low amounts of traffic as well as streets that have a transport function (e.g. public transport or cycle network) beyond just access to properties. Type C streets are 'transport arteries in residential areas in the suburbs' (p.36) as well as the national road network managed by the Norwegian Public Roads Administration (which follow other design standards).

Figure 3-4 Road fatalities per million population across case study countries and EU27. Chart compiled by author using source data from CARE (Community Road Accident) database. Figures are generally those as reported by police. Population data are from Eurostat. (1) Provisional figure - IE (2019-2021).

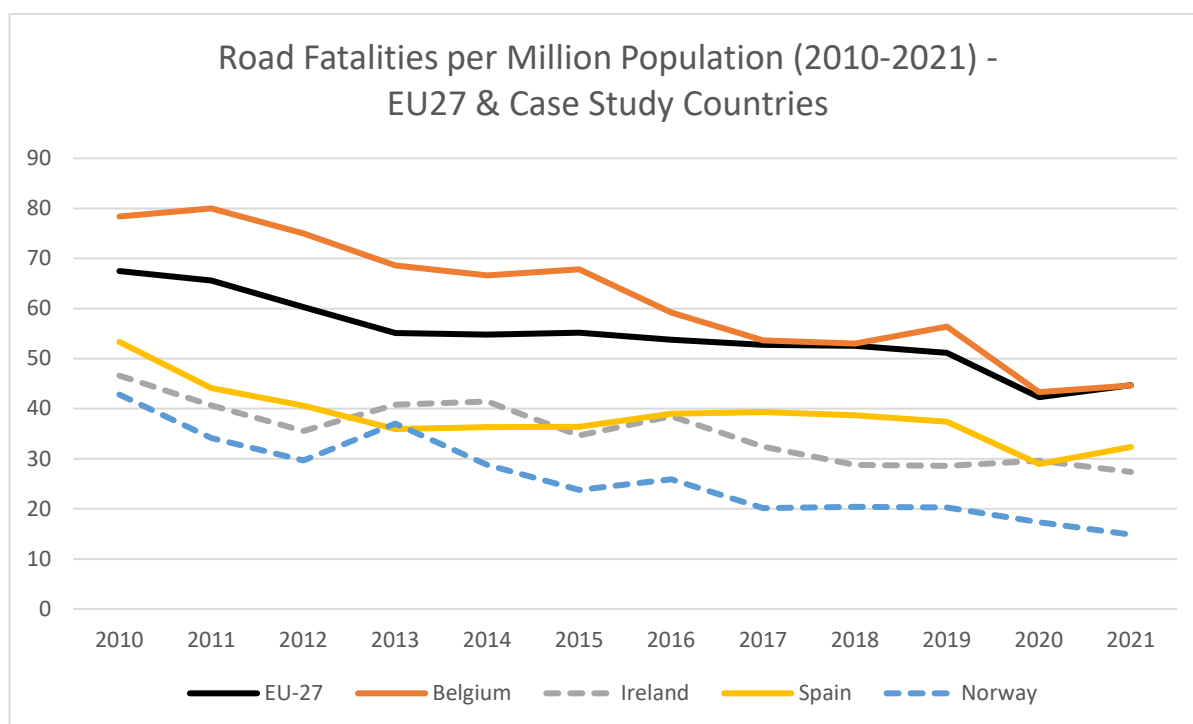


Figure 3-5 Number of people killed on Oslo Municipality roads from 1999 to 2022. Chart generated by author using data sourced from Statistics Norway - www.ssb.no/statbank/table/09011/tableViewLayout1/

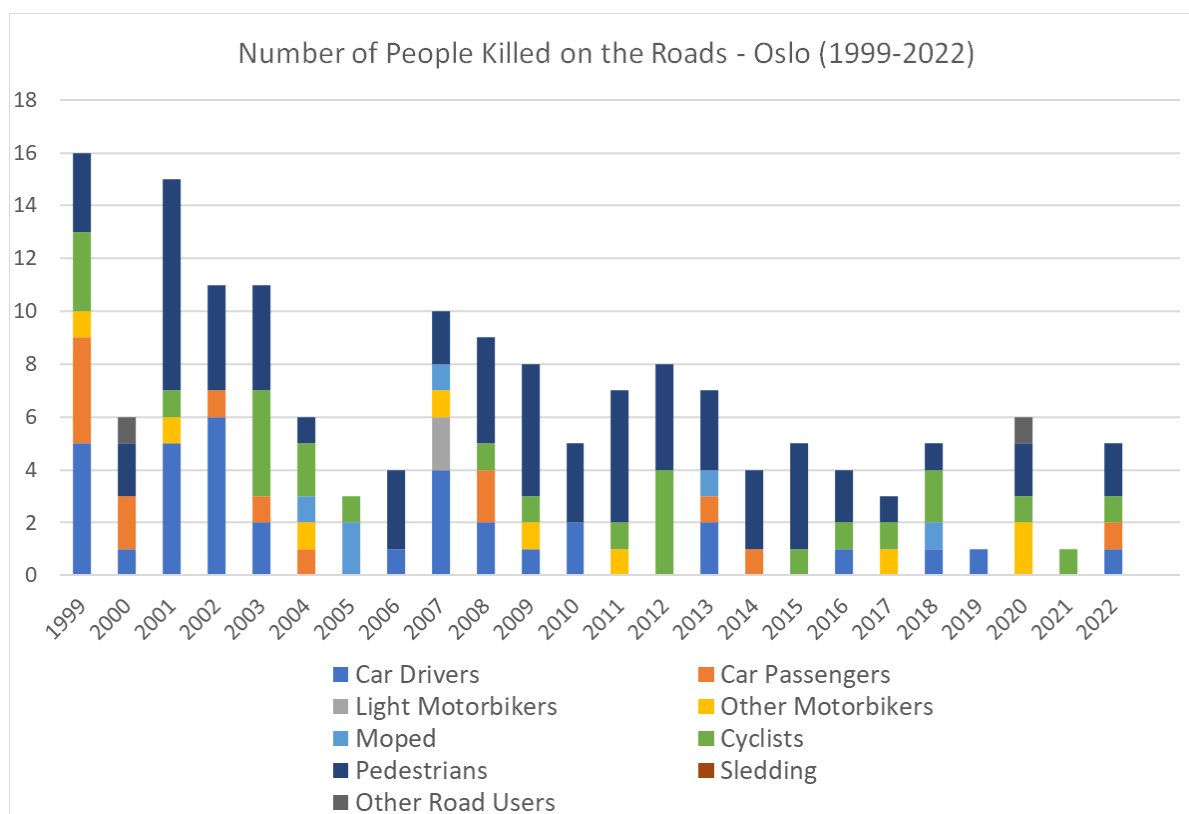


Figure 3-6 Number of people seriously injured on Oslo Municipality roads from 1999 to 2022. Chart generated by author using data sourced from Statistics Norway - www.ssb.no/statbank/table/09011/tableViewLayout1/

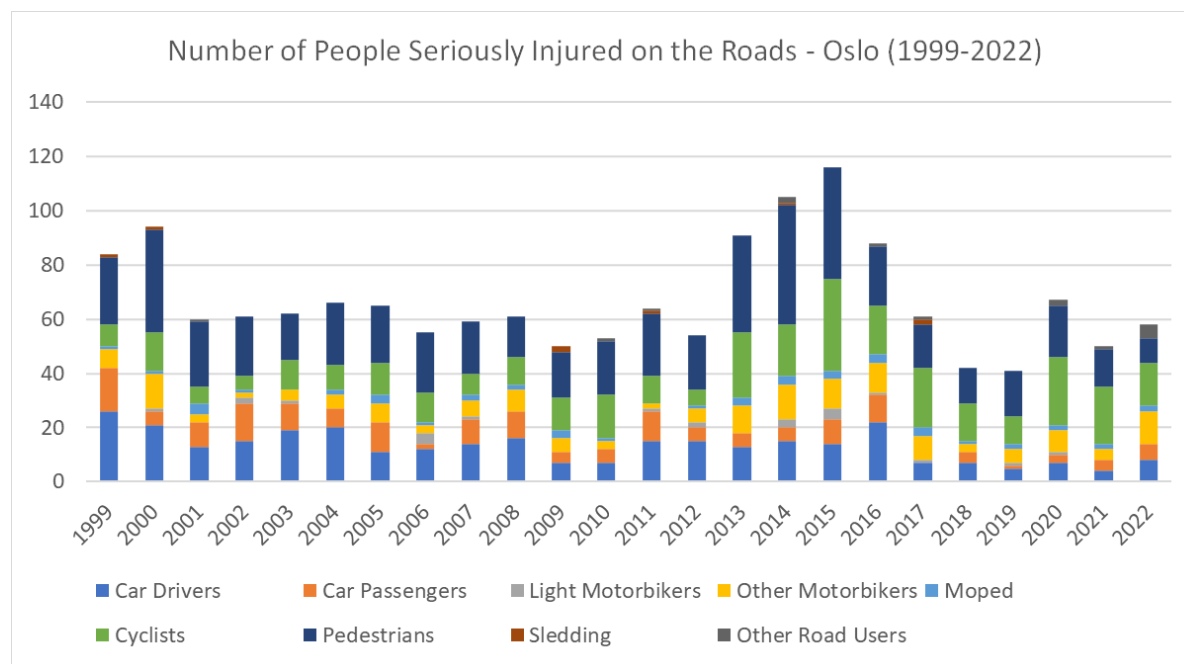
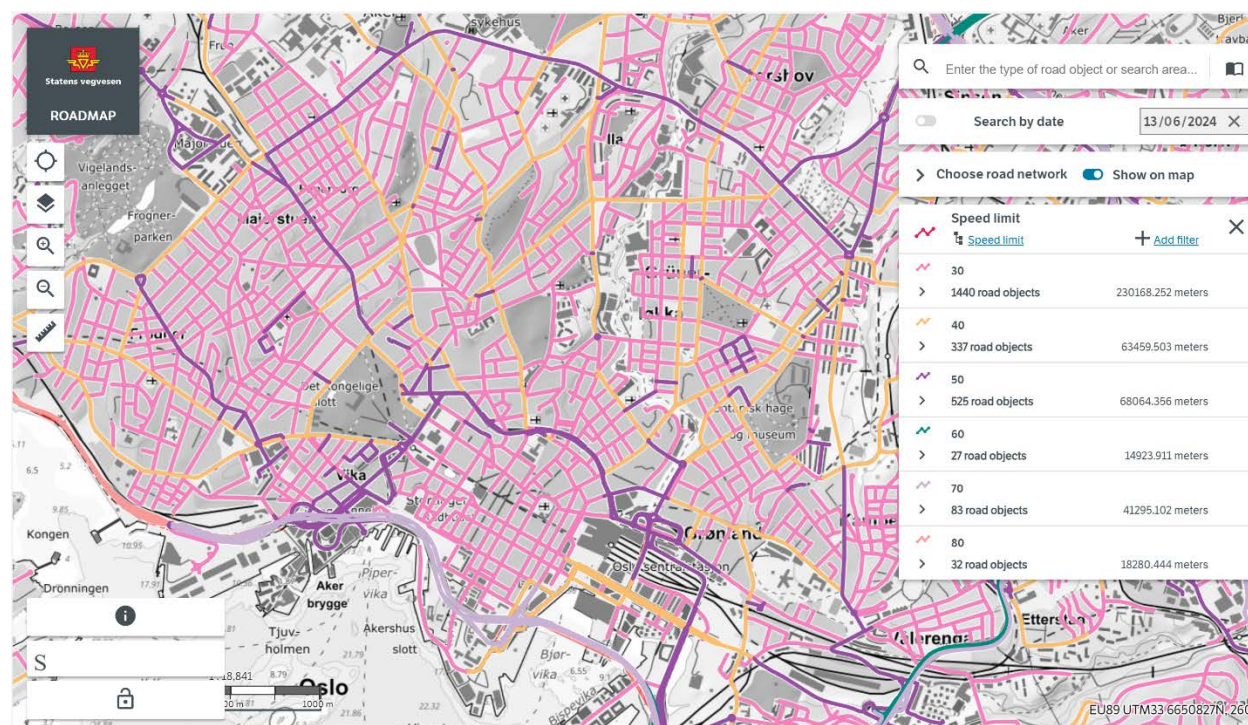


Figure 3-7 Oslo urban speed limit map illustrating the use of 30-80km/hr speed limits (image source: [Roadmap \(vegvesen.no\)](https://roadmap.vegvesen.no) nap.fellesdatakatalog.brreg.no)



3.2.4 Oslo Car-Free City Life Programme: the ‘Bilfritt Byliv’ Programme

The Car-Free City Life Programme was introduced by Oslo Municipality in 2016 to reduce car traffic and facilitate increased city life. The objective of the Car-Free City Life Program is ‘to create a better urban environment and increased urban life within Ring 1 (see Figure 3-8) during the city council term, where a car-free city centre is a means of action’ (SWECO, 2019). According to Arora-Jonsson (2022) citing Sondenaa (2022), a catalyst for the project was poor air quality in Oslo, with a focus brought by a fine from the EFTA Court in 2015 for high pollution levels (relating to Directive 2008/50/EC on ambient air quality). The project was introduced by the Green Party when they entered a coalition government.

According to SWECO¹⁷ (2019), an additional impetus for the programme was the designation of Oslo as European Environmental Capital in 2019. This was via an additional 2019 ‘Action Plan’ for permanent street improvements and additional measures for the Car-Free City Life Programme to help mark Oslo’s Environmental Capital status.

The Car-Free City Life Programme is focussed on the city centre, with the original programme geographically sitting within the Ring 1 major roadway that surrounds the city centre (see Figure 3-8) in an area that is c. 1.9 sqkm. The 2019 action plan resulted in the expansion of the are covered, to take more of the city in, particularly to the east (see Figure 3-10).

Figure 3-8 Car Free Living Program directed inside Ring 1 roadway (circles the city centre above and below ground). Map source: openstreetmap.org and adapted by author.



¹⁷ SWECO are a large international architecture and engineering consultancy. For more information, see <https://www.swecogroup.com/>

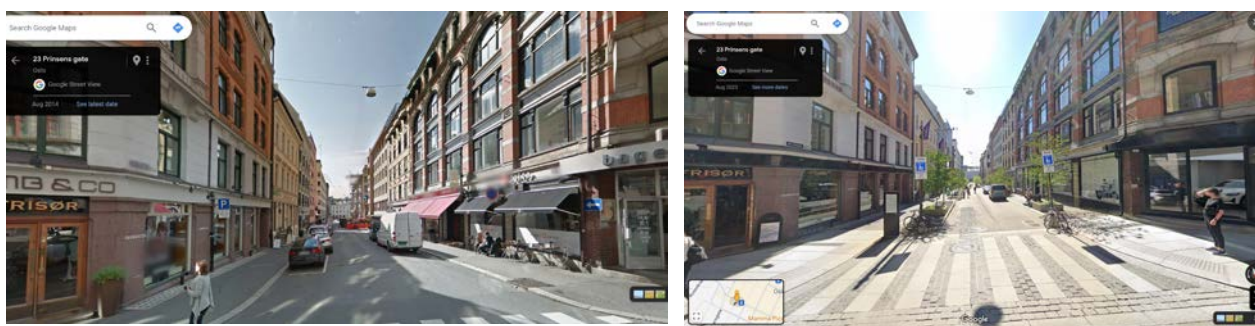
3.2.5 Car-Free City Life ('Bilfritt Byliv') Programme Measures

A range of interventions and measures were employed as part of the Bilfritt Byliv Programme over a number of years. In 2017, pilot projects took place in 6 areas around Oslo including the reallocation of road space to public spaces and parklets, with associated planting, seating and play facilities etc.¹⁸ and 350 public on-street car-parking spaces were removed and reallocated to public space, disabled parking, deliveries/business parking, and bicycle lanes. The rest of the public on-street car parking was reallocated in 2018 and 2019, totalling 760 spaces overall.

In June 2018, a significant plan was introduced to reduce vehicular through-traffic. This included restrictions on surface level through-traffic (in east-west and north-south directions) through the City Centre, with vehicular traffic being encouraged to travel via Ring 1 (the partial ring-road seen in Figure 3-8), and via the tunnel. Goods deliveries are still facilitated as is car access to car-parking garages (SWECO, 2019).

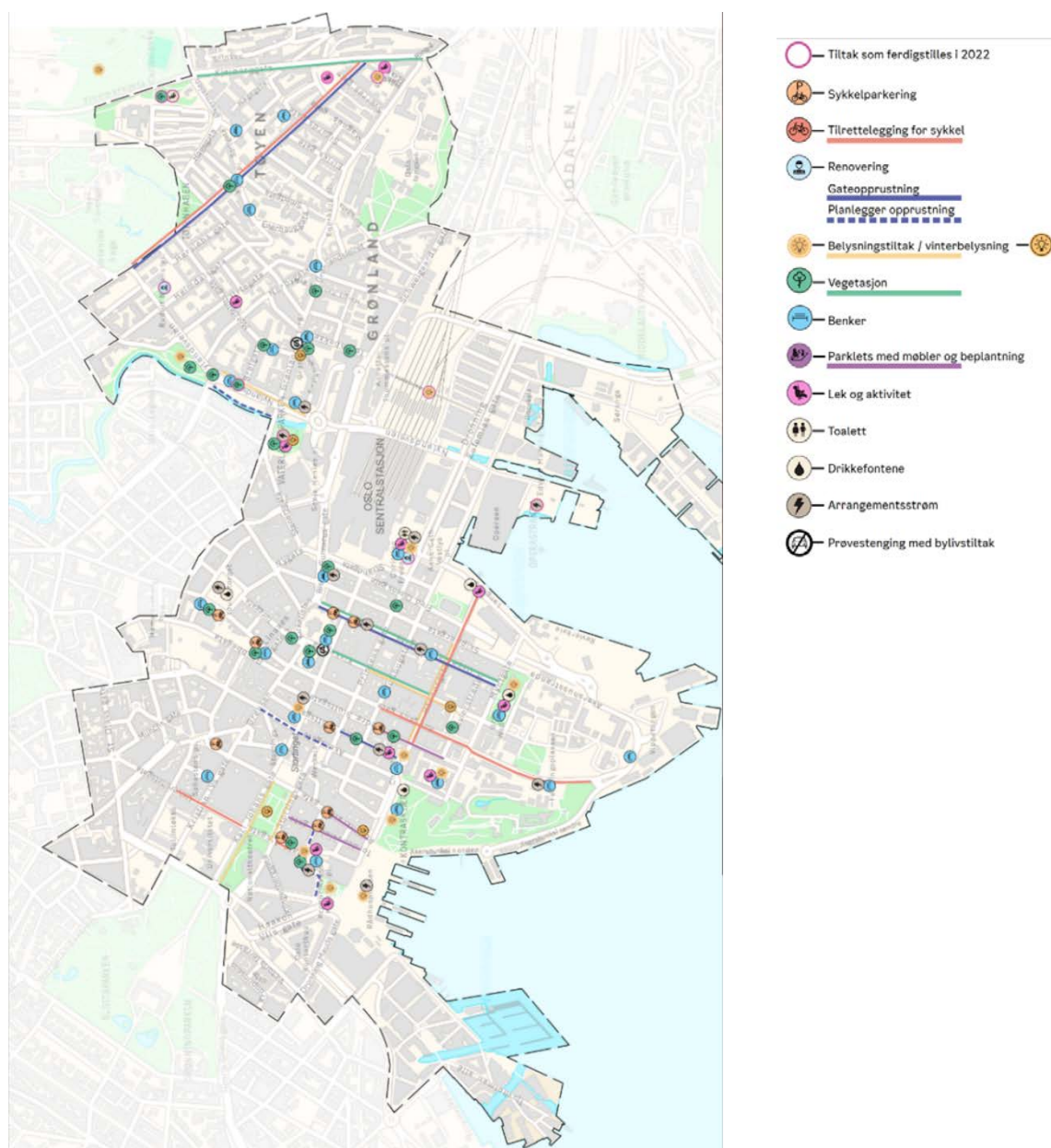
In summer 2019, a plan for city centre streets and public spaces was adopted to facilitate the desired physical changes (known as a 'Zoning Plan'). This was followed by the introduction of a series of public space improvements around the city centre including: additional seating, play facilities, outdoor dining, planting, drinking water fountains, light installations and decorative winter lighting, physical activity stations, and public toilets. A newly pedestrianised street with new street surface, street furniture and planting (Ovre Slottsgate) was introduced (see Figure 3-9), as well a programme of city events including children and family days, art, and culture (SWECO, 2019).

Figure 3-9 Example before and after images of city centre street, Øvre Slottsgate, pedestrianised as part of the Car-Free City Life programme. Goods delivery are permitted during certain hours. (Images source: Google Street View August 2014 - left & August 2023 -right)



¹⁸ For more information see <https://www.oslo.kommune.no/byutvikling/bilfritt-byliv/pilotomrader-bilfritt-byliv-2017> Pg. 30 –TOWARDS VISION ZERO FOR CITIES & TOWNS: People, Process, Package of Interventions –

Figure 3-10 Map showing overview of completed measures in the Car-Free City Life programme from 2017-April 2022 (image source: Oslo Municipality)



3.2.6 The Oslo City Council / SWECO Evaluation of Oslo Car-Free City Life Programme

Study Introduction & Methodology

In 2018 a mid-term evaluation was undertaken by SWECO on behalf of the City Council, and in 2019 a 'final' evaluation was undertaken by SWECO (it should be noted that the programme is currently planned to continue until 2027). A 2017 pre-programme baseline study was undertaken to provide key information and data on the 'before works' situation, so that comparisons could be made afterwards.

The key objectives of the evaluation were to assess:

- How the measures worked in practice,
- How the measures were perceived by the various actors.

A mixed methods approach was employed for the evaluation, including:

- Assessing levels of pedestrian activity in the city centre.
- Participant observation studies of use and behaviour in public spaces.
- A representative population survey (1000 respondents) to assess residents' attitudes toward the city centre and the 'Car-Free City Life Programme'.
- A survey to assess business attitudes towards the city centre and the 'Car-Free City Life Programme,' and to understand businesses' use of company cars and parking.
- A media discourse analysis.
- Interviews with focus groups across various groups.

A car-parking and delivery study was separately undertaken by SWECO as part of a different study, and the results of that study contributed to the overall evaluation.

A mixed methods approach employing both qualitative and quantitative methods is a common evaluation approach employed for such projects given the complexity of the project aims. While there is relatively little direct assessment of road safety within the evaluation study, a question relating to the perception of traffic/road safety in the city centre (pre and post programme) was included in a public survey. The results of this question saw a marginal reduction in the public perception of road safety in 2019 compared with the 2017 and 2018 surveys.

Evaluation Findings, and Conclusions

The key objectives of the 'Car Free City Life' Programme are to increase city liveability whereby car reduction is a means of action, thus the emphasis of the evaluation is focused on city life. This also aligns with Norway's wider 'zero-growth' objective for passenger transport demand to be absorbed through public transport in urban regions. Despite car reduction being the key means of action to achieve 'city life' however, there is not much emphasis on this in the SWECO (2019) evaluation.

The most significant change to the city is the removal of vehicular through-traffic and the removal of on-street parking spaces. However, through-traffic would not have been as significant an issue in Oslo compared with other cities, as it has a considerable tunnelled highway system.

The street interviews undertaken as part of the study asked people how they usually travelled to the centre of Oslo: 14% walked in 2019, up from 12% in 2017; 6% cycled in 2019, down from 8% in 2017; 6% drove in 2019 down from 8% in 2017; and 73% went by public transport in 2018, up from 70% in 2017. Success was measured according to; the number of people passing by and having a variety of reasons to stop and stay and a location that creates an inviting urban space which addresses a broad target group, consisting of both tourists, residents, adults and children. Overall the results show 14% more footfall in 20 out of 23-studied streets and 43% more people staying in public spaces in 2019 than 2017.

A key finding of the SWECO evaluation is that there was an upward trend (if marginally so) recorded in public attitudes towards the Car Free City Living programme. Those who either lived, or were present in the city centre when interviewed, were more positive than the rest of the population, as were those who didn't own a car.

Road safety is not major feature of this evaluation, however it should be noted that Oslo already has very low rates of road fatalities, thus it could be possible that it was not considered a priority area for

evaluation. Some proxy indicators for road safety include reductions in volumes of vehicular traffic and reductions in vehicular traffic speeds, however this is not the emphasis of the SWECO evaluation either.

3.2.7 The Norway Institute of Transport Economics BYTRANS Research Study

In addition to the Oslo City Council / SWECO evaluation, insights from the ‘Car-free City Life’ programme are also available from the BYTRANS study undertaken by The Norway Institute of Transport Economics. The Norway Institute of Transport Economics BYTRANS large scale research project provides considerable data relating to transport usage, trends and changes in modal shares over a 5-year period from 2015-2019, incorporating elements of the ‘Car-free City Life’ programme as well as wider city transport system changes (Tennøy & Hagen, 2020). The overall findings show that the measures implemented in the city centre have had the intended effect, although changes are only small with no significant changes to travel behaviour found with commuters or city centre users.

There was a decrease in modal share for drivers across the transport system in the wider Oslo area from 21% to 16% between 2015 and 2019. However, the city centre modal share from 2017-2019 (at a time when there was also a lot of construction activity also taking place), shows an increase in workers driving (from 4% in 2017 to 7% in 2019). Although public car-parking restrictions were introduced, it appeared that some employers took action to ensure private parking for employees as the ‘proportion of commuters who answered they had the opportunity to park for free at parking spaces offered by their employers increased from 19% in 2017 to 36% in 2019’ (Tennøy & Hagen, 2020, p. 25).

By contrast city centre users reported a decrease in car modal share over the same time period from 9% in 2017 to 7% in 2019. It is also worth noting that despite all the changes in the transport systems over a short period of time, this did not affect peoples’ commute satisfaction negatively, with 94% of survey respondents finding it ‘easy’ or ‘very easy’ to access the city centre.

The BYTRANS research project also found that between 2017 and 2019 the reported experiences of walking and cycling in the city centre improved. For example, the ‘proportion fully agreeing or agreeing that there is too much traffic in the city centre decreased from 57% in 2017 to 47% in 2019. For the statement “parked cars take up too much space,” the figures were 50% in 2017 and 29% in 2019. More than 80% agreed or totally agreed with the statement “I enjoy walking in the city centre” in all years (Tennøy & Hagen, 2020, p. 26). In addition, the percentage of respondents that agreed or fully agreed with statement “there is sufficient space for pedestrians on sidewalks and in pedestrian streets,” increased from 65% to 70% in 2019.

3.3 Pontevedra

Pontevedra is both a region and city in the Iberian Peninsula in north-west Spain. Pontevedra is the city with the longest history (out of the selected case studies) in reducing vehicular traffic by way of large-scale pedestrianisation, implemented since the late 1990s. In addition to the city, this case-study also makes reference to the rural villages of Seixo and Goían in the council area of Tomiño in the wider Pontevedra region.

3.3.1 Pontevedra Geography and Urban Form

Pontevedra city is the second most populous city (after Vigo) in the Pontevedra province of the Galicia region in north-west Spain, located on an estuary (Figure 3-11 and Figure 3-12). It has a status of both municipality and province or 'deputación,' with the city council area recording a population of 82,828 people in 2022¹⁹. In 1999, when Pontevedra embarked on their transformation plans, the municipality had a population of 74,139 people, thus representing a population growth of 8,689 people or 11.7% over that time (representing a significantly higher population growth than Vigo)²⁰ The municipality of Pontevedra is c.118 sqkm and has a population density of c.702 people per sqkm. According to the City Council, the central part of the city centre is c.3.5 sqkm, is very compact and contains c.51,000 people, equating to a high population density of c.14,500 per sqkm.

As illustrated in Figure 3-13 and Figure 3-14, the city centre is typically characterised by a dense historic urban form with high site coverage, a combination of 2-4 storied buildings on narrow irregular medieval streets of the old town; and the later narrow linear streets with 4/5-8/10 storied buildings. Pontevedra is a highly urbanized municipality with about 75% of the population of the municipality living within the 'centro urbano', and c.25% within the surrounding rural parishes.

The Concello (Council) of Tomiño is located to the south of Pontevedra adjacent to the Portuguese border (see Figure 3-12). The Council offices are located in the rural service village of Seixo which recorded a population of 1908²¹ people in 2022. Adjacent is the rural village of Goían which has a population of 2115²². Both villages are low scaled with 2-3 storied buildings typical (see Figure 3-15, Figure 3-16 and Figure 3-17).

¹⁹ *Institute Nacional de Estadística* (www.ine.es/nomen2/inicio_r.do)

²⁰ For more details <https://ide.depo.gal/visor/historico-de-poblacion>. The largest city in the region is Vigo. In 1999, this city recorded a population of 283,670 people, increasing 8,704 or 3.1% to 292,374 by 2022.

²¹ *Institute Nacional de Estadística* (www.ine.es/nomen2/inicio_r.do)

²² *Ibid*

Figure 3-11 Regions of Spain (map source: <https://maps-spain.com/maps-spain-regions/spain-autonomous-communities-map>)



Image use through Creative Commons

Figure 3-12 Map showing Pontevedra City and the Tomiño area which includes the rural villages of Seixo and Goían (image source: Google Maps).

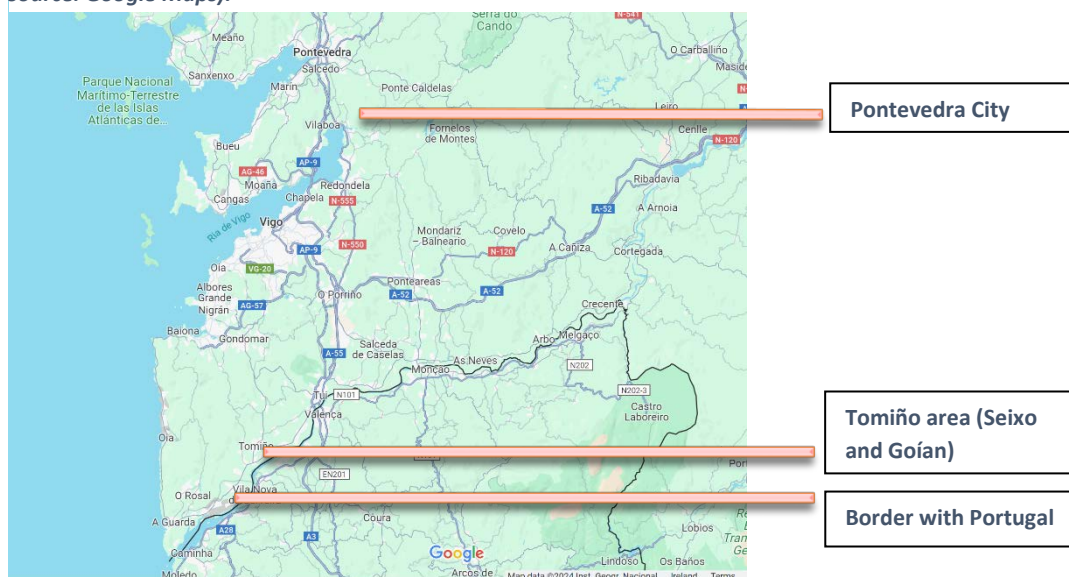


Figure 3-13 Aerial image of Pontevedra City Centre showing the old historic medieval core and the newer more regular streets (source: Google Maps)



Figure 3--14 Sample images of the Pontevedra city urban form (image source: Author)



Figure 3-15 Aerial image of Seixo village, Tomiño Council, Pontevedra Province (source: Google Maps)



Figure 3-16 Aerial image of Goñán village, Tomiño Council, Pontevedra Province (source: Google Maps)



Figure 3--17 Sample images of the urban form of the rural villages of Seixo (left) and Goían (right), Tomiño Council, Pontevedra Province



Galicia has two main climatic areas: a warm-summer Mediterranean climate in the south (area around Pontevedra), and an oceanic climate similar to Ireland's in the north, and like Ireland is influenced by the Atlantic Ocean. Although it has higher daytime maximum temperatures and higher levels of sunshine, its daily low temperatures are not too dissimilar from Ireland, as are its annual rain levels. For example, Galicia experiences a higher number of rainy days than Leinster and higher rainfall levels²³.

²³ www.worlddata.info

Figure 3--18 Key average daily weather indicators of Galicia, Spain in comparison with Leinster, Ireland (source graph and data from worlddata.info)

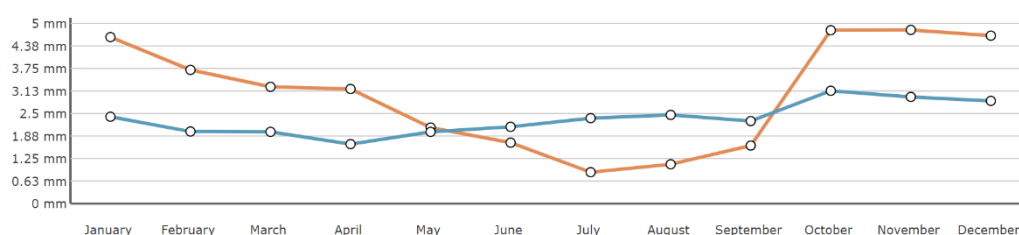
Annual values	Spain Galicia	Ireland Leinster
Ø Daytime maximum temperature	19.10 °C	13.30 °C
Ø Daily low temperature	9.1 °C	6.3 °C
Ø Humidity	78 %	83 %
Precipitation	1,110 mm	858 mm
Rain days	111.6 days	135.6 days
Hours of sunshine	2,227 hrs.	1,497 hrs.

Colors of the following climate diagrams:

Galicia
Leinster

Precipitation amount per day

Depending on the season and the location of a country, the wind brings a varying amount of water with it. As a rule, the water evaporating in the oceans is absorbed and then transported inland. The greatest amount of rain (hail or dew are also forms of precipitation) in Galicia occurs in November, when about 4.8 liters per square meter fall per day. In Leinster, the average amount of precipitation ranges from 1.7 liters per day in April to 3.1 in October. However, these are average values. If you consider that there are only 12.7 rainy days in Galicia in November, each of them accounts for about 11.4 liters.



3.3.2 Pontevedra Governance (City & Province)

Spain has three levels of government: central, regional and provincial/municipal. Galicia is one of the 17 Autonomous Communities (self-governing regions) of Spain, of which Pontevedra is a province. The provinces are part of the local level of government and they are further divided into municipalities or council areas. Each autonomous community has a unicameral legislature elected by universal adult suffrage (every four years) and an executive consisting of a president and a Council of Government responsible to that legislature²⁴. This regional level of government is called the 'Xunta de Galicia'. These Autonomous Communities have significant powers across housing, planning, transport, health, education, social welfare and culture.

²⁴ <https://www.britannica.com/place/Spain/Government-and-society>

As capital of the province, Pontevedra city holds offices of the Galician government. The City Council is the governing body of the municipality of Pontevedra and is made up three bodies: the Mayor who leads the City Council; the executive branch, the Governing Council, composed by the Mayor and the councillors appointed by him; and the Plenary, a democratically elected assembly representing the people of Pontevedra. The Mayor is elected by the members of the plenary.²⁵

The current Mayor of the Concello (Council) of Pontevedra is Miguel Anxo Fernández Lores, representing the Galician Nationalist Bloc (Bloque Nacionalista Galego, BNG). He has been in power since 1999, in coalition with the Socialists' Party of Galicia (Partido Socialista de Galicia, PSdeG-PSOE). The next election is scheduled for May 2027. The left leaning coalition lost some share of the vote to the conservative People's Party of Galicia (PP (People's Party)) in the most recent election (May 2023)²⁶, as was the trend across the autonomous region as well as Spain, however the coalition have still retained power, unlike at the Xunta level of government. The impact of the change of government at the regional level is yet to be fully determined, but there are indications that budget allocations at the municipal level may be affected with recent announcements (late October 2023) that funding is to be diverted away from some of the mobility and public space recovery projects across Pontevedra Province²⁷.

In addition to the Mayor, there are a number of Councillors, each with a specific area of responsibility. For example, BNG Councillor César Lourenzo Mosquera is particularly relevant to this study in his role as Councillor for Urban Improvement which includes urban mobility management, car-park management, and public transport. Mosquera has been a councillor and Provincial deputy since 1991, as well as vice-president of the Pontevedra Provincial Council from 2015-2023²⁸.

Province (Rural Villages)

The current Mayor of Tomiño, Sandra Gonzales Alvarez, is also a member of the BNG party and has been in power since 2007²⁹. Although the party also lost some voter share in the May 2023 election, they still retain the majority with 9 councillors (compared with 6 for PP and 2 for PSdeG-PSOE)³⁰. The Mayor and the Councillor Uxío Benítez Fernández (Ministry of Strategic, Territorial and Economic Planning) are particularly relevant for this study. Benítez Fernández is in charge of town planning, mobility and public space, road safety and traffic management (among others). Their current programme for government includes 'sustainable mobility'³¹ and previous actions have included the significant recuperation of public space³².

²⁵https://en.wikipedia.org/wiki/City_Council_of_Pontevedra#:~:text=The%20City%20Council%20is%20composed%20by%20three%20bodies%3A,elected%20assembly%20which%20represents%20the%20people%20of%20Pontevedra.

²⁶ For more information, see <https://resultados-elecciones.rtve.es/generales/2023/congreso/galicia/pontevedra/pontevedra/>

²⁷ <https://pontevedra.bng.gal/articulo/novas/ola-calo-sabado-ves-mani-compostela/20231026131354003248.html>

²⁸ <https://www.pontevedra.gal/concello/corporacion/grupo-municipal-do-bng/>

²⁹ <https://tomino.gal/concellerías/>

³⁰ <https://resultados-elecciones.rtve.es/municipales/2023/galicia/pontevedra/tomino/>

³¹ sandragonzalez.gal/#tomino2023

³² <https://2019.sandragonzalez.gal/>

3.3.3 Pontevedra Transport and Road Safety

Pontevedra City's transport system is largely based on travel by foot for those who live within the city centre, and park 'n' stride (driving, then parking and undertaking the final part of the journey on-foot) for those who live outside the city centre (supported by the city's extensive pedestrianisation of the city centre and adjacent, underground and peripheral car-parking areas). There is limited public transport, and limited travel by bicycle or e-scooters. Cycling is mainly supported through shared access streets within the pedestrianised city centre (not dedicated cycle-lanes), and the use of some dedicated cycle-lanes in areas outside of the pedestrianised zone. Public transport is mainly in the form of a local bus service and a relatively good quality intercity rail and bus network.

Figure 3-19 Map illustrating the main urban bus public transport network for Pontevedra Municipality with a c.30minute service Mon-Fri and an hourly service on Saturdays (source: www.pontevedra.gal/mobilidade/bus-urbano/)



Pontevedra has been internationally recognised for its record on road safety having won the first European Transport Safety Council's EU Urban Road Safety Award in 2020³³ due to consistently reducing road deaths since 1999 and through achieving *Vision Zero* for road deaths (Figure 3-20). Although there may be some differences between how different areas categorise serious injuries, Figure 3-21 -also illustrates the significant downward trend in such life-altering injuries within Pontevedra Council.

³³ <https://etsc.eu/pontevedra-spain-wins-the-first-eu-urban-road-safety-award/>

Figure 3-20 Traffic related deaths in Pontevedra City Council Area (Source: Concello de Pontevedra, PMUS, 2023)

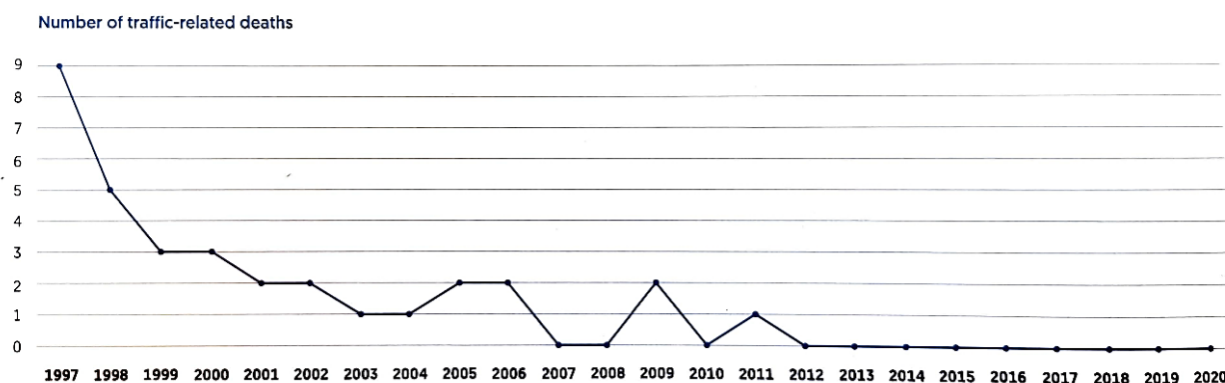
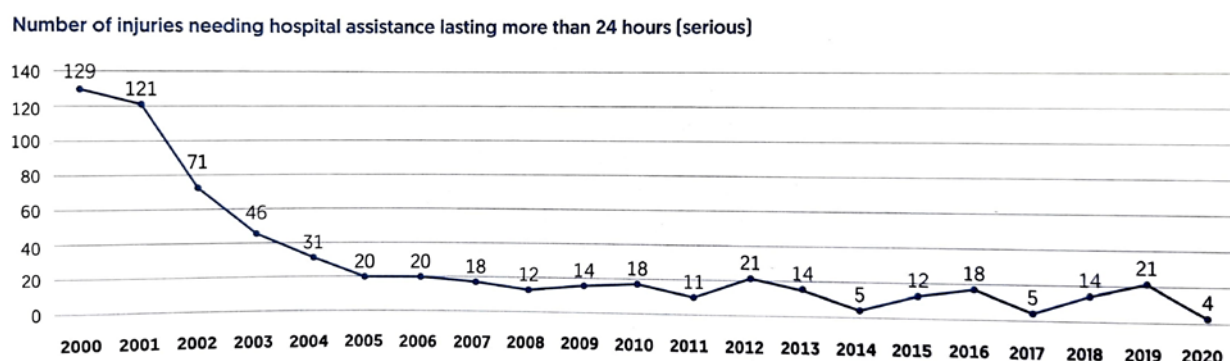


Figure 3-21 Traffic related serious injuries in Pontevedra City Council Area (Source: Concello de Pontevedra, PMUS 2023)



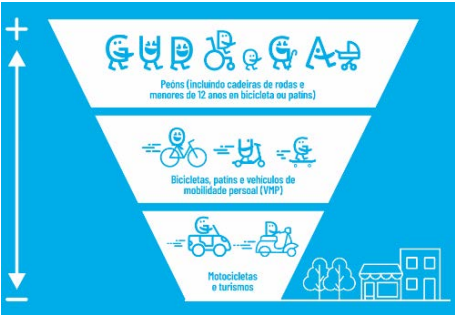
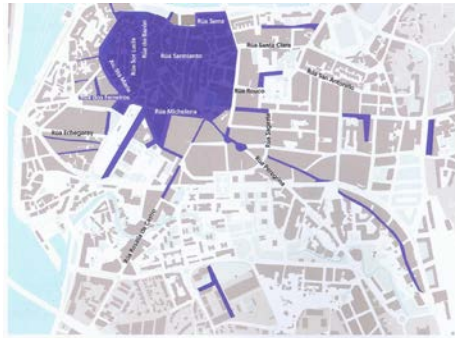
3.3.4 Pontevedra City Centre ‘Primero la Ciudad’ ‘The City First’ Programme

In Pontevedra, the case study with the longest history, the origins of traffic reduction are rooted in the desire to make the city more liveable. Measures were taken to significantly reduce vehicle volumes and speed and therefore danger with an additional objective of reducing road accidents (road violence) and increasing the feeling of security. Pontevedra’s fundamental approach is one of pedestrian first, public space as a citizen ‘right’ and the creation of a city that is ‘better on foot.’ The programme commenced in 1999, with a package of ‘step-by-step’ but integrated push and pull interventions over time, supported by regulatory measures and enforcement. Table 3-1 outlines the key ‘legal milestones’ and their timelines put in place to support the measures. Table 3-2 overleaf extracts some of the key objectives of the Pontevedra model and their associated key actions and interventions, including a use of ‘push and pull’ factors. In Pontevedra there is an emphasis on prioritisation of streets as public space, and the prioritisation of pedestrians and cyclists over other motorised transport. Streets are planned to have a strong place function (a place to meet, socialise, for business activity, etc.) in addition to the required movement function. The approach has been to avoid and reverse the specialisation of space/land-uses. This is to promote the coexistence of uses and to prevent the functional segregation of uses and users in planning.

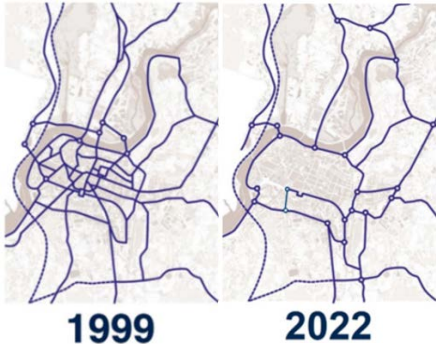
Table 3-1 Key Legal Milestone supporting Pontevedra's Urban Model (source: PMUS Concello de Pontevedra p. 72)

Legal milestones	
1999	Old town, pedestrianised
2002	Mobility proclamation in 2002
2003	PEPRICA. Protection plan. Old Town
2006 - 2011	Loading and unloading proclamation
2009	Guidelines for public spaces
2010	Speed limit 30 km/h in the whole city
2010	With DGT, collaboration. Traffic Regulations
2012	30 km/h on all municipal roads
2019	Design instruction for traffic calming devices
2020	Regulatory ordinance for citizen-friendly mobility and the use of public spaces: pedestrian priority in public spaces, a maximum speed limit of 10 km/h in zones with pedestrian priority, single platforms, old town and spaces for coexistence

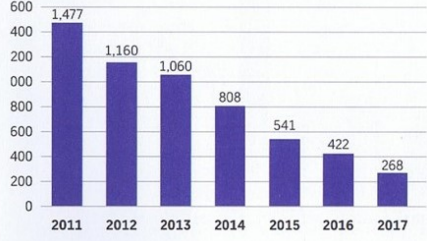
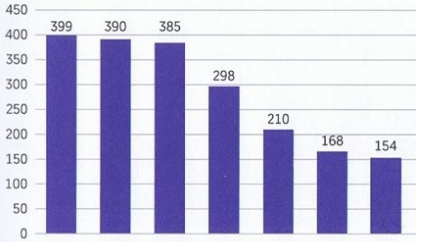
Table 3-2 Package of Key Objectives, Strategies, Actions & Interventions

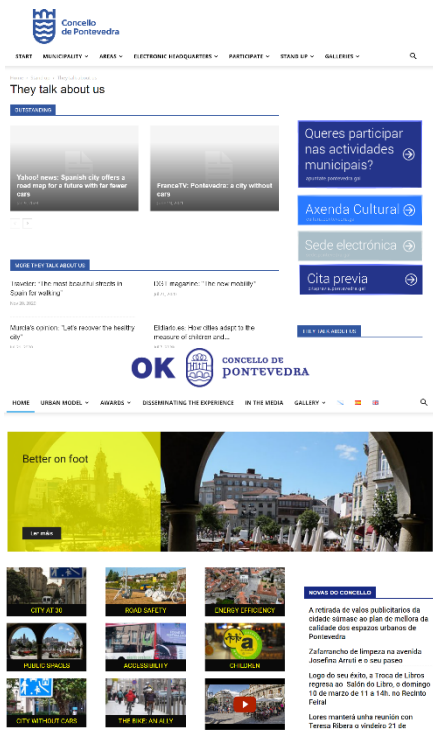
STRATEGIC AIMS	STRATEGIES	KEY ACTIONS	INTERVENTION DETAIL	SAMPLE IMAGES
(1) PEDESTRIAN PRIORITY & (2) ACCESSIBILITY & (3) ROAD SAFETY & (4) TRAFFIC REDUCTION	PEDESTRIAN PRIORITY	1. Implementation of a new Mobility/User Hierarchy	- New order of priorities/user hierarchy implemented which puts pedestrian at the top, followed by cyclists, public transport, service vehicles, private cars & motorbikes. - Emphasis on culture of respecting the user hierarchy, "the strongest must respect the weakest". - Webpage provided to public with more details https://www.pontevedra.gal/mobilidade/sumate-a-mobilidade/ - eScooters and eBikes are considered motorised vehicles.	<i>Simplified User Hierarchy (source: Pontevedra City Council)</i> 
		2. 'Single platform streets' (i.e. pedestrianised streets) with access permitted for 'necessary traffic' only	- Major reallocation of road-space focussed on the historic city core and surrounding streets. - Decommissioning of National Roads where crossing through city centre. - Pedestrian level street lighting. - Quality paving materials & street furniture. - Regular programme of events on reclaimed public spaces. - Enforcement of pedestrian streets to ensure free of vehicles moving at speed or unloading/parking illegally.	 <i>Extent of Single Platform Streets (source: Pontevedra City Council)</i> 

	3. Use of 'Co-existence Zones'	- Used in rest of municipality outside of pedestrianised streets. - Minimum footpath width of 2.5m (this results in many streets being one-way for vehicles to facilitate the min. footpath width). 1.8m min. width free of any obstruction including bins, poles for universal accessibility. - Regular Step-free/raised zebra crossings (most 5m+ wide; every 50m). - Context specific 'green-man' crossing time when traffic signals exist. - Vehicular speed and traffic reduction, including "agitated" traffic (explained further below). - Metrics recorded on number of pedestrian crossings per street.	<i>'Co-existence zones' showing streets that allow car access, wide footpaths, & wide zebra crossings.</i> 
	4. Other initiatives	- Use of well-designed and attractive pedestrian level lighting. 'Metrominuto' walking map developed based on metro style maps showing walking times to key destinations in city. Maps strategically placed around the city. - Introduction of 'The School Path' programme, organised by the local police department, to ensure safe routes to school; and the development of a Children's Council; and initiatives to assist in children's independent mobility (of which the city has high levels of independent mobility to school).	  <i>Example of city walking map designed in a metro style.</i>

(1) PEDESTRIAN PRIORITY & (2) ACCESSIBILITY & (3) ROAD SAFETY & (4) TRAFFIC REDUCTION	TRAFFIC VOLUME REDUCTION	1. Use of a Circulation Plan & very limited through-traffic • Development of city centre vehicular circulation plan, which is reviewed as needed, and if any street becomes too heavily trafficked. • Declassification of 'National Roads' that traversed the city centre, and conversion to Municipality controlled roads. • 'Necessary traffic' & 'Destination Traffic' defined and permitted (see below) • 'Agitation traffic' (traffic that is searching for on-street car-parking spaces) largely removed.	Map showing the significant reduction in through-roads in 1999 v 2022 (source: PMUS, 2023)  1999 2022  One location through the city centre where it is possible to indirectly drive from south to north.
		2. Necessary & Destination Traffic Defined & Permitted (the flows the city needs to keep moving) • Vehicles permitted at any time or day or night: ○ Emergency services ○ Public utilities ○ Private garage/basement access ○ Blue badge holders • Vehicles permitted during specific times: ○ Commercial supplies ○ Home deliveries ○ Transport of bulky items, removal services etc.	

(1) PEDESTRIAN PRIORITY & (2) ACCESSIBILITY & (3) ROAD SAFETY & (4) TRAFFIC REDUCTION	TRAFFIC VOLUME REDUCTION		TRAFFIC SPEED REDUCTION
	3. Car-Parking Management	• If live in the city centre: principle of ‘better on foot’ • If live outside of the city centre & travel by car: principle of park’n’stride or ‘park and then walk.’ • Free peripheral parking lots 10-12 minutes max. walk to city centre • Limited short-term free on-street and communal service parking areas (15/30min) to complete small tasks in city centre • Paid underground parking lots within city centre available. • Commercial loading & unloading car-parks available. • Ban on parking on pavements, pedestrian zones etc.	
		 <i>Council car-parking strategy (top - source PMUS, 2023) and example of a free city edge park’n’stride car-park (source image Google Maps).</i> 	 

	KEY SUPPORTING STRATEGIES	1. Enforcement	- Local police force buy-in overtime incl. integral role of Chief of Police. - Urban Design & Mobility education programme for police officers. - Fines for breach of regulations/ordinances. - Enforcement of short-term parking through mobile police vehicle with number plate recognition technology in-built. - No fixed cameras and limited deployment of other technology for enforcement.	Parking in a pedestrian zone  Parking in an area reserved for people with reduced mobility  <i>Greater compliance with pedestrian priority demonstrated over time (source: PMUS, 2023)</i>
(1) PEDESTRIAN PRIORITY & (2) ACCESSIBILITY & (3) ROAD SAFETY & (4) TRAFFIC REDUCTION	KEY SUPPORTING STRATEGIES	2. Occupation & Use of Public Space	Programme of events consistently planned for recovered public space including cultural, sporting and tourist events, bringing activity, people to support local trade & tourism. This also helps ensure that public spaces are well used and that the citizens don't see them as wasted or under-utilised space potentially questioning their value. Cars, for example, despite their inefficiency, are a very visual use of road space.	<i>Example of cultural event in public space. (Image source: ok.pontevedra.gal/en/picture-gallery/)</i>  <i>Pontevedra city centre hosts many major tourism events, such as the World Triathlon, Sept 2023</i> https://2023.pontevedra.gal/en/leisure-and-tourism/

	3. Communication, Culture & Public Messaging	• Emphasis on message of access to high quality ‘Public Space’ for all as a fundamental right of a citizen & for the common good, with benefits to be experience across the whole municipality (not just the city centre). • Particular emphasis on communicating benefits of model for children, women, and those with disabilities. • Emphasis on development of a culture of mutual respect, such drivers to respect pedestrians, cyclists and e-scooters users; cyclists and e-scooters users to respect pedestrians. • Active leadership & regular public communication. • Pride in the urban model demonstrated & communicated regularly with public.	<i>Council webpages demonstrating pride in the achievements of the urban model</i> https://www.pontevedra.gal/pontev edra and https://ok.pontevedra.gal/en/home-2017/e/falan-de-nos/ 
--	---	---	--

3.3.5 Evaluation of Pontevedra City Centre ‘The City First’ Programme

There are two key related reports commissioned and/or written by Concello de Pontevedra (Pontevedra City Council) that undertake an evaluation of the City’s ‘Primero la Ciudad’/ ‘The City First’ Programme. The first ‘The City First: Mobility in Pontevedra 1999-2019’ is a book/study written by Fernando Nebot Beltrán, VIATOBEN SL (1999), a civil engineer, commissioned by the City Council. The study was written in close collaboration with the Council. The second is the Sustainable Urban Mobility Plan ‘PMUS: Pontevedra’ (2023) for Pontevedra written by the Council with input from Fernando Nebot Beltrán. The SUMP plan contains some similar material to the 1999 study as well as building upon it to meet more general SUMP objectives. While neither are independent evaluative research studies, they both contain a wealth of relevant and important evaluative material.

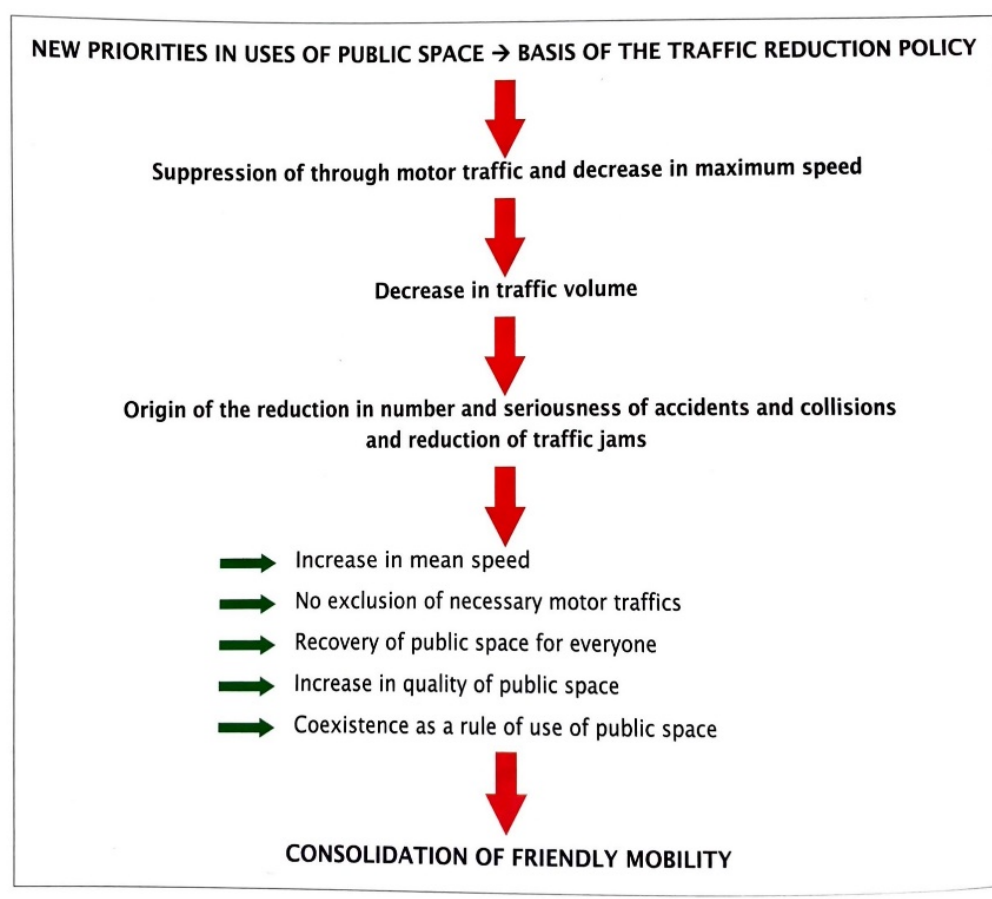
For accessibility, the key evaluative measures presented here relate to the key objectives the Council set-down for their ‘Primero la Ciudad’ programme, however other metrics are also available. The evaluative outcomes outlined here relate to vehicular traffic reduction and speed reduction and how this has made significant impacts on improved road safety.

As outlined above, Pontevedra is internationally recognised for achieving *Vision Zero* in road fatalities, which is a significant achievement of global significance. Figure 3-20 clearly illustrates the reduction in road

fatalities over time, with zero deaths recorded since 2012 (as far as data is available). In addition, there has been a marked decline in serious injuries recorded (see Figure 3-21)-. Reductions in vehicle traffic volumes and speeds are recognised as key drivers in this achievement.

The Evaluation Report notes the importance of traffic reduction in the first instance (notwithstanding the need to provide access for residents and service vehicles to affected areas) and speed reduction. This forms the basis for the success of other interventions, including street re-design, narrow traffic lanes, and reduced car parking provision, which allows for the reallocation of public space, without having the physical demands of motorised vehicles. The speed of circulation will have an impact on the road space requirements for vehicles (including heavy delivery vehicles). Speed reduction also reduces the space required within the circuits, and less road space reduces the speeds driven and increases the quality of public spaces and pedestrian comfort.

Figure 3-22 Extract from 'The City First: Mobility in Pontevedra 1999-2019' (Beltrán, 2019, p. 22)



Vehicle Volume Reduction

Very large reductions in traffic have been recorded in Pontevedra City, facilitated by the introduction of a circulation plan and the associated removal of north-south, east-west through traffic. Pontevedra Council have recorded a 69.5% reduction in City Centre traffic, and a 30.1% reduction in traffic across the municipality from 1996 to 2014 (see Table 3-3). Figure 3-23 and Figure 3-24 below illustrates the reduction in traffic volumes across individual city centre streets. For example, the city centre street Paseo Colón experienced a reduction in daily average number of cars of 22,800 in 1999 to less than half at 10,500 by 2014. Some streets removed all traffic such as Pr. Compostela. A small number of boundary streets showed an increase in traffic.

Table 3-3 Vehicular Traffic Reductions in Pontevedra City 1996-2014 (image and data from Beltrán/Concello de Pontevedra, p. 19)

REDUCTIONS IN TRAFFIC IN PONTEVEDRA		
	CITY CENTRE	WHOLE CITY
IMD1996	74.400	98.700
IMD 2014	22.709	69.995
Difference	-51.691	-29.705
Percentage	-69,48%	-30,10%

Figure 3-23 Extract from PMUS showing significant reduction in vehicular traffic levels from 1999 (top image) to 2014 (bottom image) across nearly all streets except for a small number of streets (source: Concello de Pontevedra/Pontevedra City Council, p. 50-51)

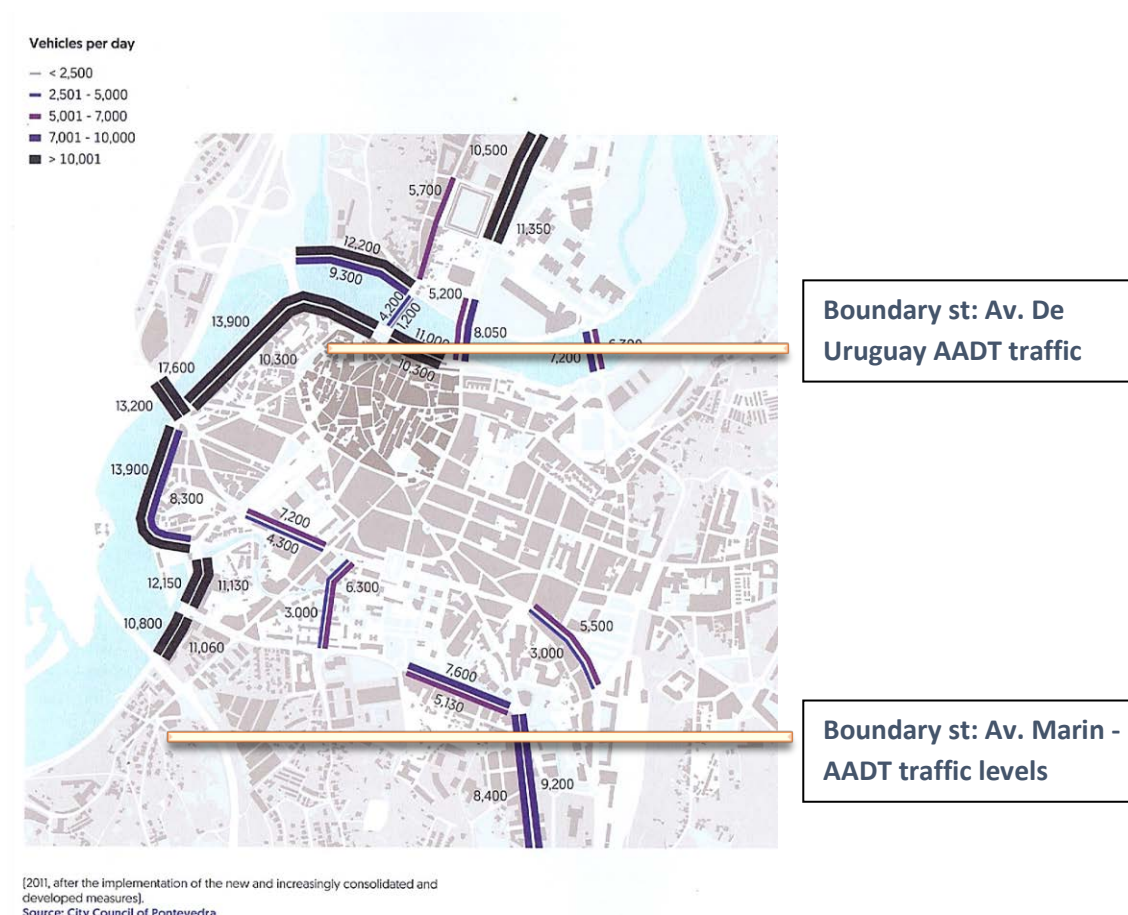
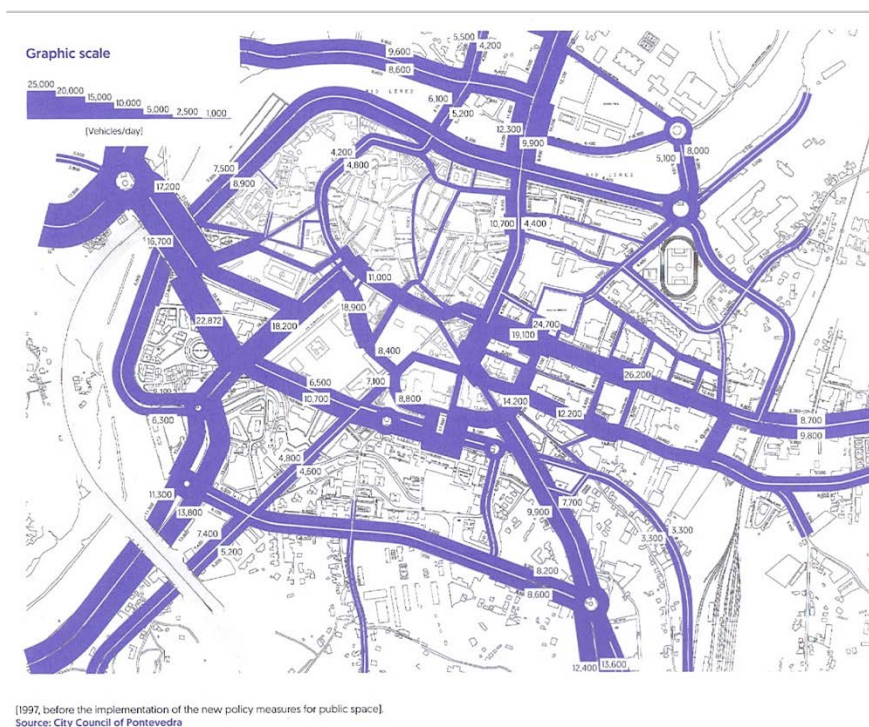
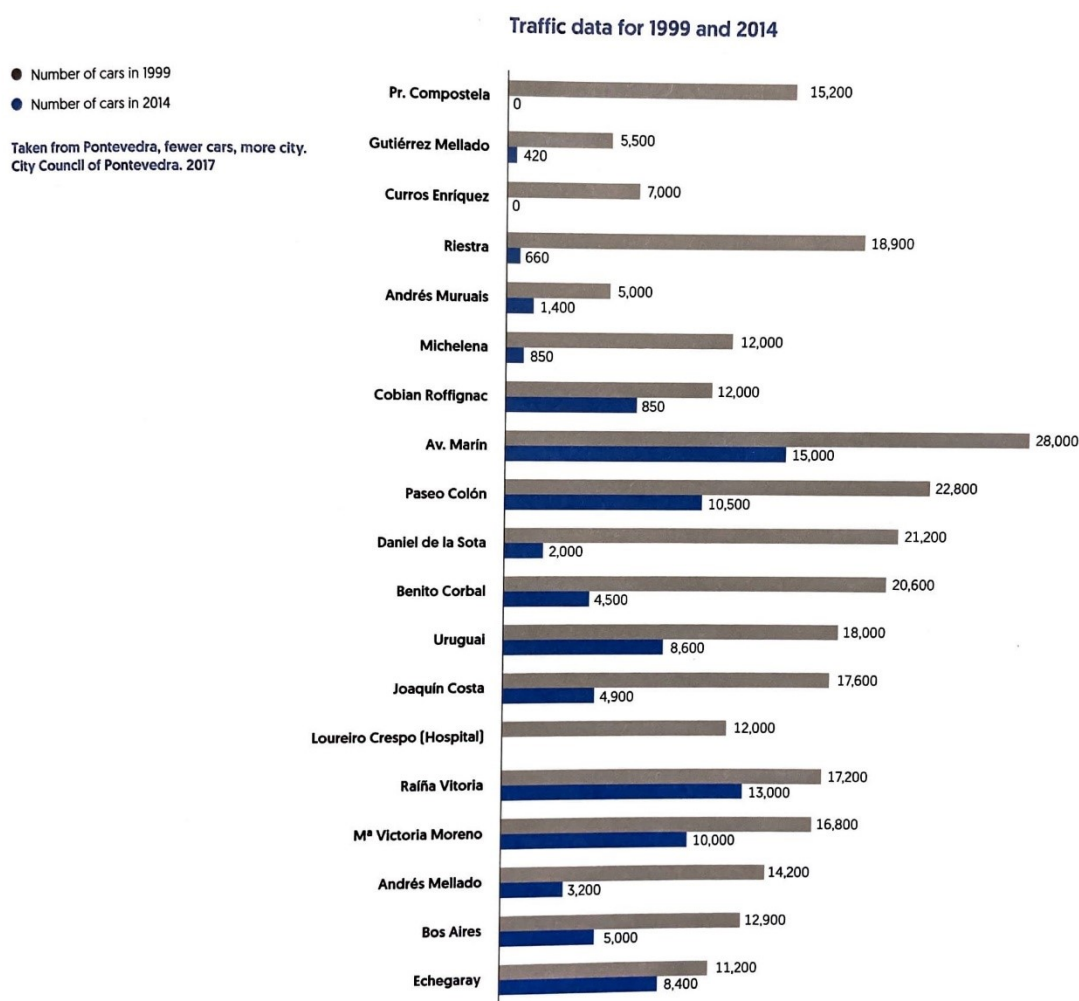


Figure 3-24 Extract from PMUS showing significant reduction in vehicular traffic levels on selected individual streets from 1999 to 2014 source: Concello de Pontevedra/Pontevedra City Council, p. 61)



Vehicle Speed, Congestion & Traffic Delay Reduction

Vehicle speed is a well-evidenced and major factor in road fatalities and serious injuries. Spain brought in a national speed limit review in 2021 that included a 30km/hr default speed limit on urban streets (except for multi-lane streets) and associated guidelines for the application of new speed limits (including a useful visual guide to how to implement new speed limits)³⁴.

Pontevedra, however, has a long-established use of a 30km/hr maximum speed limit. In 2010, the City Council passed an ordinance to implement a 30km/hr speed limit on all city centre roads, and extended this to all urban roads across the municipality in 2012. There are some conditions that allow for 40km/hr,

³⁴ For more information see <https://www.dgt.es/comunicacion/notas-de-prensa/la-dgt-y-la-femp-presentan-el-manual-de-aplicacion-de-los-nuevos-limites-de-velocidad-en-vias-urbanas>

50km/hr, and 60km/hr speed limits in non-urban roads. Within the city centre, speeds limits of 6km/hr, 10km/hr and 20km/hr maximum are also permitted on certain streets.

According to the City Council's data, congestion (defined by traffic time delays) actually reduced in Pontevedra through the implementation of the Circulation Plan and pedestrianisation programme, both within the city centre as well as the wider city (see Table 3-4). In the City Centre travel delays were down 95% between 1996 and 2014, and 78% across the whole city. The large reductions in the volume of traffic also lead to increased average speeds through the city centre, despite the fact that the speed limit decreased from 50km/hr in 1996 to 20-30km/hr in 2014. For example, in the city centre in 1996 when there was an average of c.74,000 vehicles a day in the city centre, congestion was very high and travel speeds were very low at 11.5km/hr. However, by 2014, the very large reduction in vehicular traffic (69.5%) resulted in average vehicle speeds increasing for remaining and necessary traffic to 15.3km/hr (representing a 33.2% increase).

Across the wider city that recorded a 30.1% reduction in vehicle traffic, average travel speeds increased from 15.3km/hr to 20.8kmh/hr. The traffic calming elements integrated into the street design aim to ensure that speeds do not become too high and therefore become a road safety issue. This can be seen in the maximum travel speeds recorded which reduced from 43.3km/hr in 1996 in the wider city area to 25.9km/hr in 2014. The city views these results as a positive message to convey to its citizens as part of the overall benefits of the 'Primero la Ciudad' programme. These figures are likely to be of interest to an Irish context given our prevalent levels of congestion. For example, Dublin is currently ranked as second most congested city in the world³⁵.

Table 3-4 Traffic Delays/Congestion in Pontevedra Before and After the Mobility Programme (image and data from Beltrán/Concello de Pontevedra)

TIMES OF TRAFFIC DELAYS IN PONTEVEDRA								
	CITY CENTRE				WHOLE CITY			
	Vehicle time km			Total year	Vehicle time km			Total year
	Máximum	Mínimum	Mean Delay	Hours	Máximum	Mínimum	Mean Delay	Hours
1996	13,84	1,52	3,7	1.674.620	9,88	1,38	2,55	3.521.492
2014	5,34	3,31	0,61	84.018	4,2	2,31	0,57	547.734
Difference	-8,5	1,79	-3,09	-1.590.602	-5,68	0,93	-1,98	-2.973.758
Percentage	-61,43%	117,96%	-83,54	-94,98%	-57,46%	67,3%	-77,75%	-84,45%

Source: Council of Pontevedra. Data from sources for 1996 and 2014 and measurements from the local police.
Times are in decimal minute format.

³⁵ According to TomTom traffic index with an average rush hour speed of 16km/hr in the city centre. For more information see <https://www.tomtom.com/traffic-index/dublin-traffic/>

Table 3-5 Traffic Speeds in Pontevedra Before and After the Mobility Programme (image and data from Beltrán/Concello de Pontevedra)

TRAFFIC SPEED IN PONTEVEDRA						
	CITY CENTRE			WHOLE CITY		
	Máximum speed	Minimum speed	Mean speed	Máximum speed	Minimum speed	Mean speed
1996	39,5	4,34	11,49	43,34	6,07	15,27
2014	18,11	11,25	15,31	25,93	14,27	20,83
Difference	-21,39	6,91	3,81	-17,21	8,20	5,57
Percentagee	-54,15%	159,22%	33,16%	40,17%	135%	36,46%

Source: Council of Pontevedra.

Data from traffic census of 1996 and 2014 and measurements from local police. The maximum speed in the entire city is currently 30 km/h and in the majority of the centre, 20 km/h. In 1996 it was 50 km/h in the whole city. As a comparative reference, in the centre of Madrid, the mean velocity in 2013 was approximately 10 km/h. Extract from *Pontevedra, otra movilidad, otra ciudad*. Pons Seguridad.

3.3.6 Smaller Towns & Villages - Ágora Network & Ágora Faculty

Ágora Network

The Deputación of Pontevedra is a provincial level of government. The provincial governments are mainly funded through transfers from the state. Their work is directed and overseen by a council with president which is formed through nomination of councillors from the municipalities (weighted by population). Their competences are mainly to offer technical support to the municipalities and to coordinate provision of local services, especially for and between small municipalities (De Gregorio Hurtado and Tomàs, 2022). The Ágora Network started in 2015 is a collaborative project with the objective of supporting and building the municipalities capacities in the reclamation of public space. The province is characterised by a dispersed, car-dependent population. It was explained to the authors during the study trip that the provincial council recognised that the cost of car insurance was relatively high in their administrative area, so the objective to address road safety (reducing speed) was prioritised. The Ágora project builds on this previous work to improve the safety on the roads by focusing on the reclamation of space and investment in infrastructure to reduce speed in a more comprehensive and holistic manner.

It is based on the fundamental principle that public space is a 'right of citizenship', with an overarching goal to increase public space across every municipality in the province that signs up to it by 2023. The Network is promoted and driven by the Provincial Council of Pontevedra (Depucación Pontevedra) and is led at the political level by key actors including Carmela Silva (President of the Provincial Council until July 2023); César Mosquera (Vice-President of the Provincial Council until July 2023); and Uxío Benítez Fernández (Provincial Deputy for Mobility, Public Space and Cross-Border Cooperation).

The Network encourages Councils (which have less than 50,000 inhabitants) to join the Network and to commit to expanding and improving public space and the quality of life of its inhabitants and work together towards similar goals while sharing and exchanging experience and knowledge. Out of the 61 councils/municipalities within the Pontevedra Province, 57 joined the Ágora Network (as of March 2023).

The Network is based on 10 key principles:

1. Public space is a right

- Governments must meet their obligations to guarantee that every person in urban environment has a right to quality public space for self-development and socialisation.
- 2. People first
 - Mobility priorities pyramid to be employed guaranteeing pedestrian mobility as the priority transport mode, followed by bicycles, collective transport, and the private car.
- 3. Inclusive mobility
 - Public space belongs to everyone.
 - Duty to provide universal accessibility to public space, with needs of children, the elderly and people with functional diversity being prioritised.
- 4. Children's autonomy
 - Returning safe public spaces to children.
 - Providing socialisation and participation opportunities for girls and boys.
- 5. Alternative mobilities
 - Promotion of walking and active mobility.
- 6. Safe spaces
 - Road safety through traffic calming; speed limits 10-30km/hr max.; raised pedestrian crossings and pedestrian priority.
- 7. Healthy living environment
 - Promotion of healthy travel /active travel.
- 8. Friendly and quality spaces
 - Minimum obstacle free width of 2.5m for pedestrians.
 - Use of single platform streets with traffic calming.
- 9. Local economic activity/Economic activity of proximity
 - Presence of people in quality public space to serve local trade.
 - Promotion of events (e.g. social, cultural, sports) in public spaces to support local trade & tourism.
- 10. Sustainable mobility
 - Reduction in use of motor vehicles for alignment with Sustainable Development Goals and climate crisis.

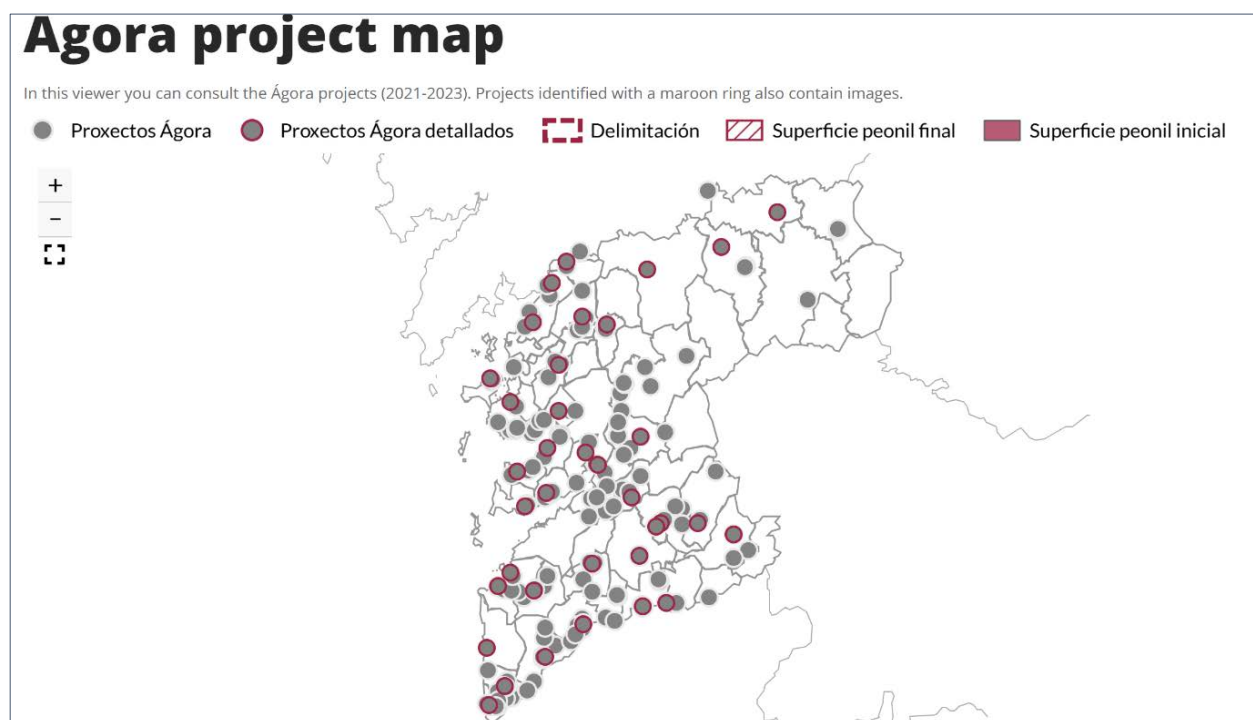
Figure 3-25 *Ágora Principles* (source: *Ágora, Deputación Pontevedra*)



The Ágora Network provides funding to local authorities that have signed up to the Network to increase the amount and quality of public space within their municipality. The key criterion for receiving the funding is to increase existing pedestrian space by more than 50% and create exclusive areas for pedestrians of at least 300sqm³⁶. The chances for securing funding increases if the municipality aims for over 1000sqm of recovered public space, and funding applicants must also demonstrate how they address the 10 Ágora Principles.

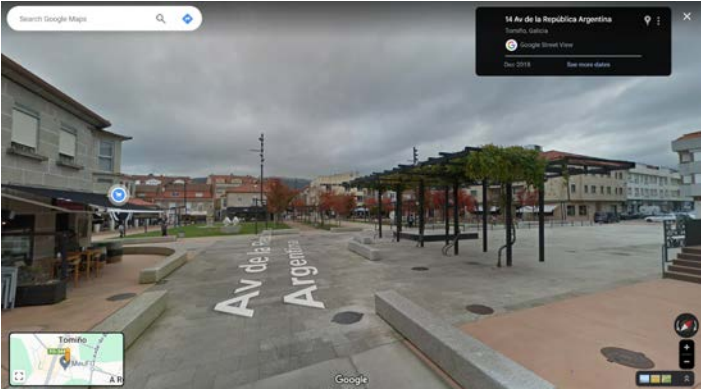
A significant outcome for the Ágora project is the large number of projects not only planned, but actually delivered on the ground over the space of a few years from 2021-2023 (see Figure 3-26, and Table 3-6 more detailed examples of two Ágora Projects).

Figure 3-26 Map showing the extent of reach of the Ágora project over a wide range of towns and villages across Pontevedra Province from 2021-2023 (Source: <https://redeagora.gal/proxectos/>)



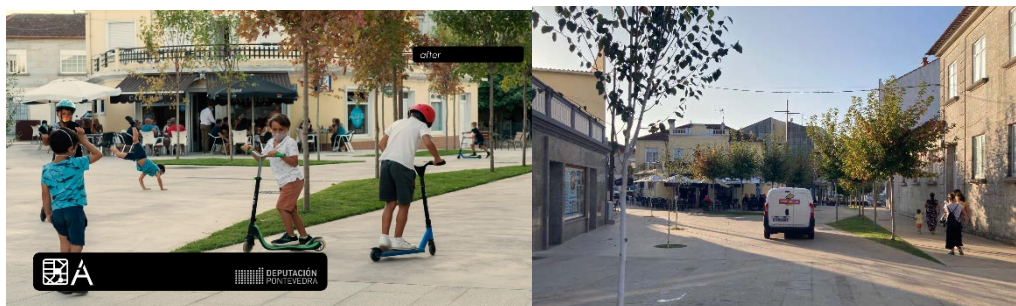
³⁶ <https://www.depo.gal/-/rede-agora>

Table 3-6 Ágora Project Examples:

Seixo, Tomiño (rural village, Pontevedra Province, Galicia)	• Rural service village: population c. 1908 • Public space in village increased substantially via road space reallocation from 15% in 2007; 36% in 2015; 56% in 2020; 62% in 2022. • Car-parking reorganised - primarily in form of edge of village centre peripheral carparks (free of charge), and some on-street parking on ‘co-existence’ streets. • Vehicular traffic reduction through village centre supported by an orbital vehicular by-pass developed in 2022, although road-space reallocation/public space reclamation works commenced c.2008.
	 <i>‘Before’ image, Av de la República Argentina, Seixo from Oct, 2012 (Source: Google Street View)</i>
	 <i>‘Before’ image, Praza de Seixo (Source: Google Street View)</i>
	 <i>‘After’ image, Praza de Seixo (Source: Google Street View)</i>

	 <i>'Before' image, Rua de Guarda from Dec 2018 (source: Google Street View)</i>  <i>'After' image, Rua de Guarda (source: Author)</i>
Goían, Tomiño (rural village, Pontevedra Province, Galicia)	• Rural village: population c.2115 • Substantial road-space reallocation, new links, and new public spaces and amenities. • Car-parking reorganised - primarily in form of edge of village centre peripheral carparks (free of charge), and some on-street parking on 'co-existence' streets.  <i>'Before' image from May, 2011 (Source: Google Street View)</i>

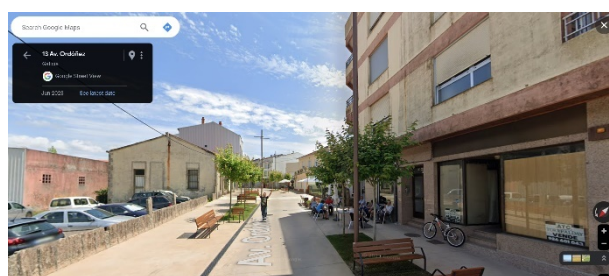
'After' images Goían Av. Ordoñez. Image source left (Agora), right (author)



'After' images Goían main square. Image source left (author), right (Agora)



*'Before' image from May, 2011
(Source: Google Street View),
Goían, Av. Ordoñez*



*'After' image from May, 2011
(Source: Google Street View),
Goían, Av. Ordoñez*

The Ágora Faculty

The Ágora Faculty arose out of the Ágora Network in 2019. It provides multidisciplinary training and resources to professionals and local level political leaders in the area of Urban Design and public realm/public space design.

Uxío Benítez Fernández described the need for education in this area (in Galician) as “En Arquitectura ensinan a facer edificios de fachada para dentro e en Enxeñería a facer as estradas. Do espazo que queda entre a fachada e o bordo, o que queda para as persoas, ninguén se ocupa.” Nós queremos cubrir esa

parcela: é necesario e impotante que todo o deseño urbano se faga ben.” (Deputación Pontevedra, p.15, undated) which approximately translates to (using Google Translate):

“In Architecture they teach how to make buildings with facades inward, and in Engineering how to make roads. From the space that remains between the façade and the edge, what – it’s for people, no one cares’. We want to cover that plot: it is necessary and important that all urban design is done well.”

The faculty aims to address this ‘urban design’ knowledge gap, and to be especially tailored to the more dispersed nature of the municipalities in the Province of Pontevedra outside of the major cities and highly urbanised areas.

Uxío Benítez Fernández describes the Ágora Faculty as having a ‘*multidisciplinary, plural, and diverse vision of what public space is*’ and that ‘*public space belongs to everyone, truly democratic, and if that’s the case, what needs to be done is to democratise analysis, design, and the search for solutions. It does not make sense that it is only an architect or engineer who proposed solutions and designs the public space. You have to listen to medical staff, teachers, police, geographers, biologists, sociologists, photographers.....You have to make a choice, see different perspectives*’ (Deputación Pontevedra, p.15, undated, translated from Galician using Google Translate).

The training included 11 seminars on four key themes: good urbanism/urban planning; good mobility; healthy places/environment and healthy local economies. Seminars were held by people from engineering, architecture, sociology, teaching, medicine, photography, sport, geography, biology, landscape, and the environment among other areas. One third of participants were elected officials.

Regarding road safety specifically, a particularly innovative part of the Ágora Faculty is the training session dedicated exclusively to policing run for police officers by police officers³⁷ (with an introduction by an elected leader). The training is described as the role of the police in ‘*public space and the new horizons of mobility*’ including road safety and *Vision Zero*, and the role of ‘*empathy between police and citizens*’. Topics include:

- The prevention of collision and its relationship with design of public realm
- Speed reduction techniques
- The defence of recovered public space
- Circulation Plan design, car-parking reorganisation & concept of necessary traffic and it’s management
- How to achieve buy-in and collaboration from citizens.

³⁷ <https://redeagora.gal/wp-content/uploads/2022/09/mini-dossier-poli.pdf>

Figure 3-27 Dedicated police training to support the Ágora mobility & public space model (Source: Ágora, <https://redeagora.gal>, translated from Galician using Google Translate)

Specific workshop for police officers: basic concepts on mobility and public space.	
speakers	Program
Daniel Macenlle Díaz , General Director of Citizen Protection of Pontevedra City Council.	9:30 Opening: Uxío Benítez, Deputy for Mobility and public space.
José Manuel Duarte Solla , Chief Inspector of the Local Police of Pontevedra.	9:45 The prevention of accidents and its relationship with the design of public space, Daniel Macenlle Díaz. Exhibition and colloquium
Benigno Moldes Álvares , Chief Officer of the local Police of Pontearas	10:30 Speed reduction techniques, Daniel Macenlle Díaz Exhibition and colloquium.
Manuel Omil Díaz , Local Police and spokesperson for the Local Police of Pontevedra	11:15 Café
	11:45 The defense of public space recovered, José Manuel Duarte Solla. Exhibition and colloquium.
	12:30 Circuit design and organization of the parking scheme to ensure that only the necessary traffic enters and its control, Benigno Moldes Álvares. Exhibition and colloquium.
	13:15 How to achieve the collaboration and complicity of citizens, Manuel Omil Díaz. Exhibition and colloquium
	14:00 Closing and Summary



3.3.7 Conclusions

The Pontevedra region is unique amongst the case study cities in that its focus is very much on pedestrian mobility and quality of communal life for its residents, in turn integrated with vitality and regeneration. It is also the smallest city in terms of population size within the whole municipality totalling c.82,828 (2022 figure) and the city centre c. 63,172. This population is similar to Waterford in Ireland, for example. Pontevedra has very clear outcomes that can be seen and experienced on the ground - it is a city full of life and activity, with people from young to old playing an active part of urban life, and one where vacancy, dereliction and depopulation appear to be non-issues.

At a time when many towns, villages and cities across Ireland are experiencing these points as significant challenges, there is much potential to learn from Pontevedra. While the Galician region has experienced largely stagnating population numbers over the last two decades, with some areas experiencing decline and some growth, the Pontevedra province has experienced modest population growth in comparison (c.3.8%), and Pontevedra city has continued to attract people into the municipality to live (c.11.7% population increase) and at a considerably greater rate than the largest city in the province, Vigo.

The smaller city scale and compactness of the city centre are likely to be contributors to the successful establishment and longevity of this type of urban model, particularly in a city that has limited public transportation provision. The limited nature of public transport provision as well as the limited nature of dedicated cycling infrastructure could be argued as key mobility weaknesses of the city, and this would be particularly important to minimise transport inequity especially as the city continues to grow. The City Council's 2023 Sustainable Urban Mobility Plan, however, does include objectives to improve public

transport and cycling mobility (the latter of which is to be primarily done by making streets safer to share, rather than through segregated cycling infrastructure).

The model has been successfully replicated in smaller villages and towns within the province, showing transferable potential for similar sized Irish towns and villages.

The Ágora Network and Ágora Faculty has achieved significant outcomes across the province, with 57 out of the 61 municipalities signed-up to it, and considerable transformation on the ground evident in public space reclamation and road space reallocation over multiples towns and villages, achieved within short time frames (a few years). The active, dedicated and highly enthusiastic role of the political leaders, including César Mosquera and Uxío Benítez Fernández has been key to its success. Of particular note in the context of road safety, is the clear and considered integration of the police force within the education, awareness raising and role within and enforcement of the model.

The model has much potential for larger Irish town and city centres too. However here, a greater integration with public transport and cycling will be particularly important for those who have to travel longer distances to the centre than those manageable on foot.

In terms of road safety, the outcomes for Pontevedra city are clear. It has achieved *Vision Zero* for road deaths for several years, and it has a consistent downward trend for serious injuries. It has achieved this through a package of interventions including the near elimination of city centre through-traffic, a very large reduction in vehicular traffic (as well as congestion) and establishing urban speed limits that substantially reduce the chance of fatality or serious injury should a collision occur. The cultural aspect of ‘the *strongest must respect the weakest*’ (translated from Galician) is also central to their urban model. The urban design of the street environment is such that the speed limits are intuitive and make sense. Above all, it has put pedestrian mobility and liveability as the priority and has managed to balance the everyday functioning of a modern small city very well, recognising that vehicular mobility has a place in a modern city and its functioning, but that this access should be reasonable and equitable.

Pontevedra’s approach is also one of active leadership, to communicate constantly with its citizens, to take a ‘common sense approach’ to the communication and enforcement of its model, and to overall aim for the benefits of the urban model outweighing any disbenefits or inconveniences for its citizens.

3.4 Brussels

3.4.1 Brussels Geography, Built Environment & Urban Form

The Brussels Capital Region (BCR) consists of 19 communes including the City of Brussels. Population has been increasing since the 1990s with additional distribution of development activity on the periphery, prompting increased movement from the centre outwards and between areas on the periphery (Debie et al., 2020). The current population is 1.2 million spread across 162 sqkm giving a high population density of 7,528 inhabitants/sqkm³⁸. The Brussels ‘functional urban area’³⁹ has a population of approximately 3.3 million⁴⁰.

The River Senne runs through the city separating the western commercial quarter from the eastern upper town which is home to the main government buildings. The ‘Pentagon’ describes the historic, walled city centre of Brussels. Tree lined boulevards replaced the city walls in the nineteenth century. Le Grand Place is located within the Pentagon on the western side of the city. It is the central square of the city and the largest pedestrianised and tourist area, and is a UNESCO (United Nations Educational, Scientific & Cultural Organisation) heritage site.

Figure 3-28 Map showing Brussels city within the region (source: Openstreetmap.org)



Population densities are highest in the centre (with the exception of the eastern quarter of the Pentagon which is mostly offices). Public transport includes metro, tram and bus. The city also has associated high levels of sustainable travel. Using the UITP International Association of Public Transport ‘City Transport

³⁸ <https://eurocities.eu/cities/brussels-capital-region/>

³⁹ Using population density and travel-to-work flows as key information, a FUA consists of a densely inhabited city and of a surrounding area (commuting zone) whose labour market is highly integrated with the city (OECD, 2012).

⁴⁰ Eurostat, 2024

Data', Brussels is recorded as having a 69% sustainable modal share⁴¹. As comparisons, Oslo is noted as 69.6% sustainable modal share, London 63%, Madrid 59.5% and Berlin 75%.

Brussels has a compact urban form typical of many European cities. Its historic centre consists of tight urban blocks, irregular medieval streets with buildings ranging from 2-5/6 stories. Outside of the historic core there is a diversity of housing and building types typically ranging from 2-4 storeys with some taller buildings (up to 20-40 storeys) clustered outside the north and eastern edges of the Pentagon.

Brussels experiences a Marine/Oceanic climate with cool winters and warm summers and few extremes – similar to Ireland.

3.4.2 Brussels Governance

Belgium has four levels of governance; federal government, ten provinces and three language-based communities (responsible for language and citizen-related matters (e.g. education, culture, health care) three regions (responsible for spatial planning, transport, environment)⁴² and 581 municipalities. The Brussels Capital Region (BCR) is one of three regions within Belgium. It consists of 19 municipalities. The City of Brussels is the largest municipality and the seat of federal government.

Belgium has a history of weak planning practice by comparison to its neighbours. This is related to the governance structure, private property rights and land use, and a cultural preference for owner-occupied houses. The result is a history of urban sprawl. There is no overarching national spatial plan for the country but the *Civil Code* legislation regulates aspects of building activity. There are four levels of plan within the planning policy hierarchy; regional, sub-regional, municipal, and sub-municipal⁴³. There are strategic regional and municipal plans (non-binding), regional and local land use regulatory plans (binding) and local masterplans (strategic and regulatory) in the BCR. There are also several 'major regional policy tools' related to the economy and environment. The *Good Move Plan* is one of these tools⁴⁴.

The BCR is governed by legislative and executive branches. The parliament of the BCR is directly elected for a period of five years and has legislative powers through the use of ordinances. The parliament is made up of eighty-nine deputies. The executive power sits with a government made up of a President (Socialist Party), four ministers, and three state secretaries (deputies to the ministers).

The regions have oversight of the municipalities (communes) within their administrative area. While there is oversight, the autonomy (and powers of) the municipalities are extensive considering the de-centralised governance system. At the last regional elections in 2019 the French-speaking socialist party (PS) obtained the largest number with 17 seats followed by Ecolo (French-speaking, green-based party) and MR (French-

⁴¹ <https://citytransit.uitp.org/brussels>

⁴² <https://be.brussels/en/about-region/structure-and-organisations/community-associations-and-committees>

⁴³ <https://www.arl-international.com/knowledge/country-profiles/belgium>

⁴⁴ OECD Regional Outlook, Country Profiles: Belgium, 2023

speaking liberal party), with 15 and 13 seats respectively. The biggest Dutch-speaking party in the Parliament of the Brussels-Capital Region is currently Groen, which won four seats in 2019⁴⁵.

Municipal elections take place every six years. Councils are formed on the basis of direct election and proportional representation (ranging from 7-55 members). The council then elect the Aldermen and the Mayor is appointed by the regional government. Federal and regional elections will take place in June 2024.

3.4.3 Brussels Transport and Road Safety

Projects designed to improve the ease of movement of car traffic in the 1950s and 1960s increased the road network in Brussels and fragmented the urban area. In the 1970s there were protests against car-use and calls for reclamation of public space. In the 1980s there was an increase in emphasis on the provision of public transport. In the 1990s there was a shift in public policy to addressing the negative externalities of the car and to promote more sustainable mobility, and these measures were contained within the *IRIS 1* and *IRIS 2* plans (the first mobility plans for the region). So while Brussels has been referred to as the ‘European capital of traffic jams’⁴⁶ there has been significant improvements during the 2000s in the rate of public transport use, walking and cycling within the BCR (Debie et.al, 2020).

The BCR has had a regional mobility plan since 1998 and while the effect of that plan wasn’t as significant as intended, the government consider that it has laid the groundwork for a culture of sustainable mobility. Since 2013 the municipalities within the BCR have developed competencies in making car-parking policies, managing roads, permits etc. They also have an obligation to adopt mobility plans which are consistent with the regional mobility plan. Therefore, there is more coordination across the BCR to implement the actions within the plans. There is also funding for municipal projects which would fall under the ‘Information and Education’ and ‘Public Goods and Services’ policy instruments. The consolidation of discipline areas and competences means that the vision and road safety aspects of the regional plans are strengthened.

The *Good Move Plan* (discussed in more detail below) is the most recent regional public policy which continues to build on previous iterations, strengthening the objectives to increase sustainable mobility and reducing car mobility. Notably the *IRIS 2* plan adopted in 2010 (which precedes the current *Good Move Plan*) had the stated objective to reduce the distances travelled by car by 20% by 2018. The *Good Move Plan* suggests that they fell well short of this target and only achieved a 2% reduction by 2016, however they tripled their modal share for cycling. This was the first time that reducing car mobility was formally written into regional policy. The actions to achieve the objectives included promoting “alternative mobilities” (new walking and cycling infrastructure and improvements to public transport) and “rationalising car traffic” (parking management, speed reduction and pricing) (Debie et. al., 2020). The research by Debie et. al. (2020: p.iv) notes that the actors involved with both *IRIS* plans identified ‘limits’

⁴⁵ <https://www.statista.com/statistics/513797/belgian-regional-elections-parliament-of-the-brussels-capital-region-seats-by-party/>

⁴⁶ According to the TomTom Traffic Index 2003, Brussels is ranked 10th most congested city in the world, while Dublin is ranked 2nd. [Brussels traffic report | TomTom Traffic Index Brussels traffic report | TomTom Traffic Index](#)

or barriers to a narrow “infrastructural approach; the focus on supply at the expense of examining the regulation of demand; formulation processes which are little open; the weight of modelling in the formalisation of public policies, goals etc.” This approach did not address the complexities across places, behaviour and governance (discussed further in section 3.4.4.). The research also noted that the *IRIS 2 Plan* was restricted by a lack of funding (road pricing to fund public transport was never implemented) and lack of implementation/translation of objectives from regional to municipal mobility plans (the legislative framework did not make this compulsory).

All for Zero, the first federal road safety plan was adopted in Belgium in November 2021. Zero road deaths by 2050 (at the latest) is a clear objective nationally. However, this has already been an objective of BCRs (Brussels Capital Region) mobility plans. IRIS 2 aimed to reduce the number of deaths and serious injuries by 50% by 2020 and while there was an improvement in the figures the target was not achieved and sadly, in 2020, 15 people lost their lives on Brussels' roads and there were 159 serious injuries⁴⁷.

In 2015 BCR, in collaboration with the VIAS Institute⁴⁸, identified accident concentration zones (ZACA - Zones à concentration d'accidents en région de Bruxelles-capitale). The zones were identified based on the 2010-2013 accident figures. The accidents were mapped and using the KDE (kernel density estimation) method it was possible to identify 448 accident concentration zones. A weighting of six criteria⁴⁹ applied to zones totalling at least 12 accidents over 4 years (101 zones), made it possible to produce a classification of these zones. The first 30 are now the subject of an in-depth study for resolution as part of the Good Move Plan. Road safety figures are discussed further in the sections which follow.

3.4.4 The Good Move Plan

The latest regional plan, which began consultation in 2016 is described as a “paradigm shift” in approach by the Director of Strategy, Bruxelles Mobilité in April 2018 (Debrie et. al., 2020). There is an emphasis on both objectives (actions to address demand) and the process of making the plan (consultation with the various municipalities, citizens, public and private stakeholders through consultation and workshops). The purpose of this two-pronged approach was to address the governance issues which had limited the progress/effectiveness of the preceding plans.

The Good Move Plan was adopted in March 2021. It won the European ‘SUMP Award’ (Sustainable Urban Mobility Plan) as part of the European Commission's annual competition based on the themes of safe walking and cycling. The cover page describes it as a ‘strategic and operational plan’ which is reflective of the emphasis on both actions and process. The plan has been developed with extensive stakeholder engagement in accordance with the stated principles of ‘transparency, transversality, co-production and appropriation.’ The principle of ‘appropriation’ is understood to relate to the commitment by stakeholders

⁴⁷ <https://www.brusselstimes.com/199569/brussels-aims-for-zero-traffic-deaths-by-2030-after-missing-2020-target>

⁴⁸ Vias institute, known until recently as BRSI (Belgian Road Safety Institute), was established in 1986 by the Belgian government. It has been fully independent since 2016.

⁴⁹ number of accidents, severity, number of vulnerable users, length of the zone, number of STIB (Brussels Intercommunal Transport Company) vehicles involved, quantity of traffic.

to actions/adherence to the plan, there is an emphasis on ‘territory’, ‘behaviour’ and ‘governance’ so consideration of the stakeholders is important.

Table 3.7 Overview of key Stakeholders in the Good Move Plan

Overview of the Stakeholders	
Project owner:	Government of the Brussels-Capital Region, supported by the regional Minister (Mobility and Public Works)
Project Lead:	Brussels Mobility (the regional public mobility service) and Brussels Planning Office with additional expertise provided by a private-sector consortium (awarded through public procurement)
Municipalities:	Aldermen and mobility advisors (training for mobility advisors is an action within the plan)
Regional Mobility Commission:	Representatives of actors concerned with urban mobility: public transport companies, local and regional authorities, trade union organizations, economic circles, public transport users, pedestrians, cyclists, environmental defence associations, vulnerable users and motorists
Citizens	Citizen Lab web platform and a citizen's assembly in 2017
Politicians	Members of the Parliament's Mobility Committee

During the exploratory phase of the Good Move Plan six workshops were held and 350 participants from the municipalities across the region, the Regional Mobility Commission (CRM), other Brussels administrations, STIB (Brussels Intercommunal Transport Company), business federations and the various Brussels Mobility services agreed the expectations of the stakeholders as illustrated in the chart below.

Figure 3.29 Stakeholder Expectations, Brussels Good Move Plan, p. 19 (the formatting errors in this graphic are due to the machine translation of the document)

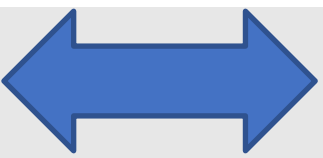
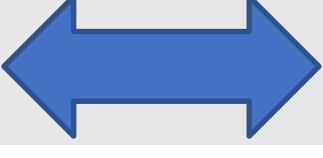


3.4.5 The Good Move Plan Programme Measures

It is interesting to note that the preparation of the Good Move Plan included a consideration of, and emphasis on all the progress that had been done throughout the years across the BCR. It builds on this work and highlights the positive achievements. There is also a consideration of aspects which were more challenging. The plan is comprehensive in setting out the actions for the key stakeholders (as above). There is a vision for the overall city region and a vision for mobility more specifically as illustrated below (see Table 3-8). The vision for mobility has three aspects;

1. a significant improvement of the living environment,
2. an integrated mobility system centred on people's needs,
3. and governance which is clear on the interventions, cooperation and the role of different public and private stakeholders.

Table 3-8 The city and mobility visions for Brussels

CITY VISION		MOBILITY VISION
Green: Reduce the impacts of different forms of mobility on the environment - <i>-35% of greenhouse gases by 2030 as compared to 2005</i>		<i>Influence overall travel demand</i>
Social: Offer forms of mobility that allow everyone to move efficiently and pleasantly - <i>Reduce household travelling expenses and aim for a reduction from 12% (in 2015) to 8% by 2030</i>		<i>Allow less use of individual Cars – reduce travel as a driver of a car from 33% to 24%</i>
Pleasant: Reconciling mobility needs with good quality of life - <i>250 km of peaceful areas in 2030 (pedestrian, residential or meeting areas)</i>		<i>Strengthen MaaS</i> <i>Guarantee well-structured and efficient transport networks</i>
Healthy: Promote forms of mobility that have a positive impact on physical and mental health		<i>Support urban distribution initiatives – objective to reduce road delivery distances by 10% by 2025</i>
Performing: Design forms of mobility favourable to socio-economic development and supply of the Region		<i>Align the car-parking policy with the region's mobility vision.</i>
Safe: Ensuring safe and secure forms of mobility – <i>Vision Zero - 0 killed and 0 seriously injured in connection with travel in the regional public space in 2030</i>		
Efficient: Develop forms of mobility that optimize resources		

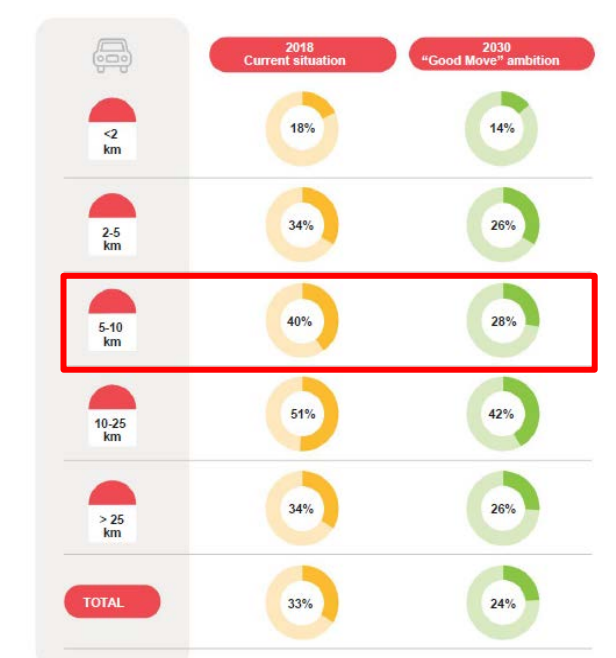
The fifty actions contained within the *Good Move Plan* are structured across six focus areas encompassing ‘territory,’ ‘behaviour’ and ‘governance’ so the programme of measures is extensive:

1. Good Neighbourhood: supervise mobility in neighbourhoods and improve the quality of life of residents;
2. Good Network: organise transport networks and ensure efficient service;
3. Good Service: offer a range of integrated services to the residents and users of the Region;
4. Good Choice: guide individual and collective choices, without harming individual freedom;
5. Good Partner: ensure partnership governance of the mobility plan;
6. Good Knowledge: update mobility data and regularly assess the Good Move Plan.

The interventions contained within the Good Move Plan include “push” and “pull” approaches across spatial scales (municipal and regional). The full fifty actions and any relevant data related to implementation is available on the Brulocalis website which hosts a live dashboard of the plan implementation.⁵⁰

The policy instruments include regulatory (speed reduction), economic (parking charges, PT fare reduction for the under 24s), information and education (regional school mobility plan and Pedibus, options for freight transport and urban logistics by bike) and public goods and services (walking and cycling infrastructure). The ambition is to decrease the proportion of trips made by individual motorized vehicle (as a driver) from a third to a quarter for all trips linked to the Region with the largest reduction targeted in the 5-10km.

Figure 3-30 Targeted evolution of the modal share of the individual car (as driver) by distance (source: Good Move Plan, p.64).

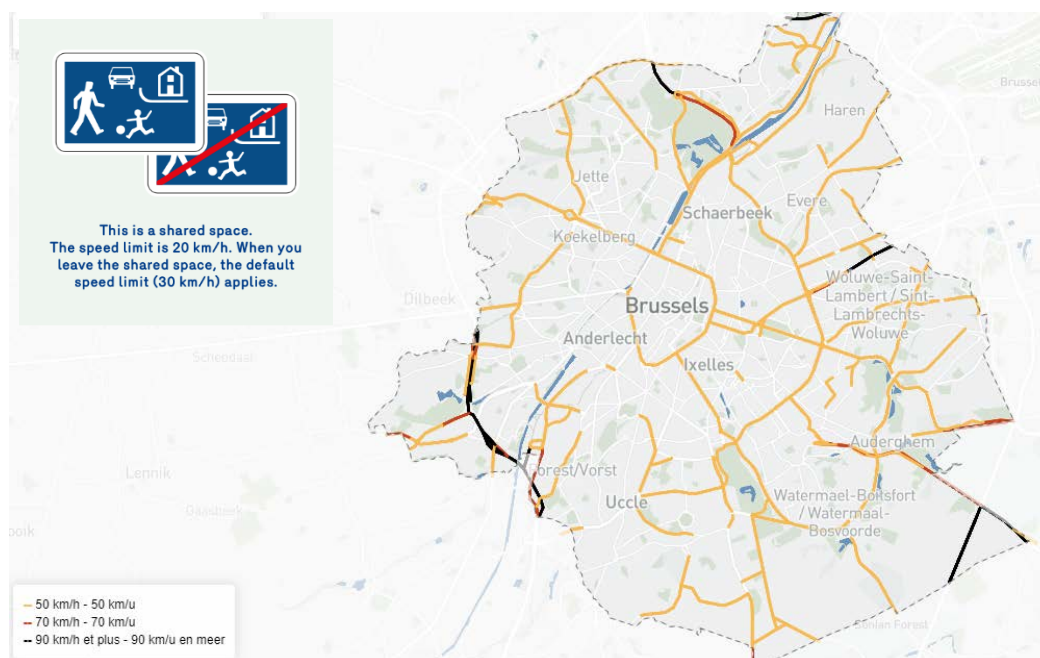


⁵⁰ <https://data-mobility.irisnet.be/home/fr/mise-en-oeuvre/>

Speed Reduction

Since January 2021, the general rule is all roads in the city centre have a maximum default speed limit of 30km/hr. The map below illustrates the routes where higher speeds are permitted. 20km/hr shared space zones are also permitted. The rule also applies to separated bike lanes and separated lanes for public transport. The only exceptions are trams, emergency vehicles in blue-light mode and snowploughs. Enforcement is through speed cameras, and any revenue generated from fines is to be paid into the Regional Road Safety Fund to be used to raise awareness, make infrastructure safer for all users, and purchase speed enforcement equipment. In 2021 90% of the roads in the Region are limited to 30km/h (or less), compared to 50% in 2020.

Figure 3-31 Map showing roads outside of the 30km/hr maximum speed limit zone in Brussels (source: <https://city30.brussels/basics>)



Road Reclassification and Traffic Reduction

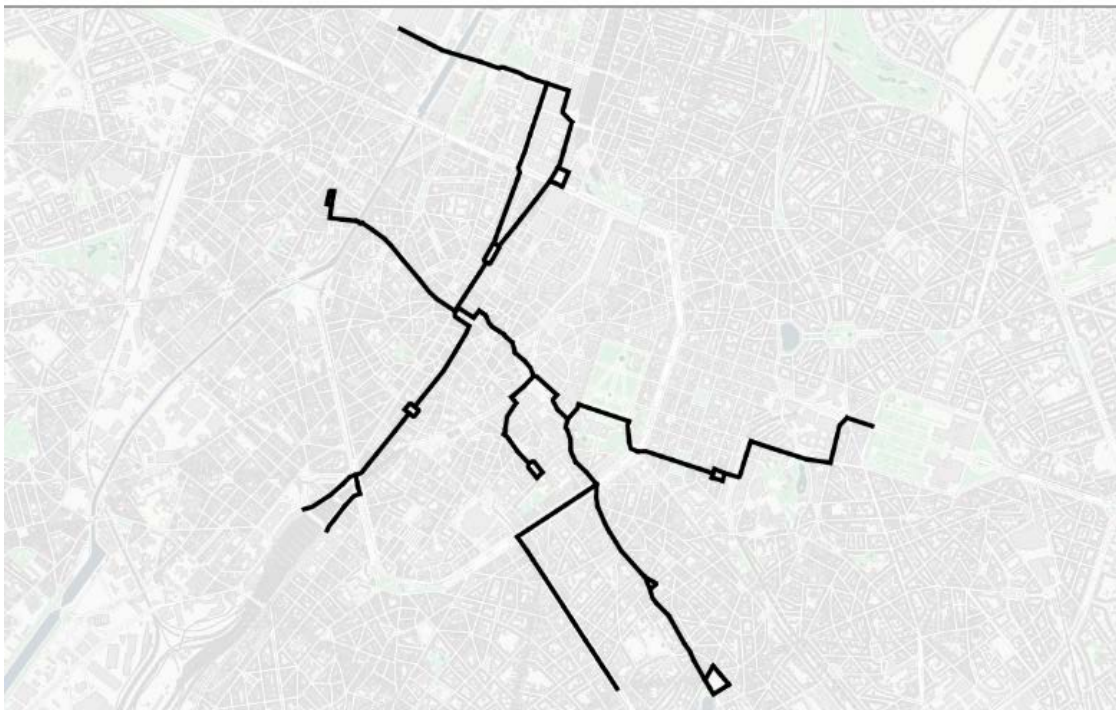
Routes throughout the BCR have been classified to reflect their intended function. The idea is that this hierarchy supports the control of traffic demand so that there can be a balancing of distribution of public space to the benefit of all mobility types. It is an objective to promote a decrease of around 35% in traffic on local roads, around 10% in traffic on main roads and an increase of around 18% in traffic on the Ring and the motorway network.

The route classification is as follows (subject to translation):

- *More*: main roads on a metropolitan scale, ensuring the accessibility of Brussels and its major existing and future hubs;
- *Comfort*: the connecting axes which complete the mesh of the different networks; and
- *Neighbourhood*: peaceful “meshes” where stay functions take precedence over travel functions which must be limited to local access.
- *Improved pedestrian environments*: The Pentagon area has been further pedestrianised with the objective of preventing cars traversing the city centre area (through-traffic). Traffic is directed onto

a ring road and some major thoroughfares are now one-way or reserved/restricted to public transport and priority vehicles. The map below illustrates the improved/planned improved ‘magistral’ or ‘masterful’ pedestrian routes in the central area (shown in black). These routes serve to connect the social, economic and cultural assets of the city, they maximise the use of and connections between landmark/existing open spaces promoting a ‘place function’. They are intended to be distinct from other pedestrian routes with extra-wide sidewalks, pedestrian friendly crossings, seating, landscaping etc.

Figure 3-32 Special emphasis Pedestrian Routes in Brussels City Centre (source: *Good Move Plan*, <https://mobilite-mobiliteit.brussels/fr/good-move/good-network>)



Pedestrian Priority

As part of the *Good Move Plan* the pedestrian network throughout the city has been mapped and priorities for improvements identified. It is an objective to improve the ‘stay’ function of public space (where people sit/socialise/play/exercise) alongside these improved pedestrian routes. There is extensive technical guidance for the municipalities available through Brussels Mobility to support the design of pedestrian and public space improvements.⁵¹ Street closures are also used on a temporary basis to facilitate events and community activities and there are supports for Living Lab projects to test community-engaged projects to reclaim public space.

⁵¹ <https://mobilite-mobiliteit.brussels/fr/good-move/good-network>

Cycling

It is also an objective to improve the cycling network for medium and long distances. A dense network of cycle routes is planned to reinforce the role of cycling in urban mobility. There are two categories: Vélo PLUS routes for rapid intra- and inter-regional connections (offers facilities which limit conflict with other users) and Vélo COMFORT for more central routes (where traffic is reduced/slowed).

Parking

It is an objective of the *Good Move Plan* to develop a tool to understand on-street and off-street parking provision to address space requirements and also to promote decreased car use and ownership (supported by measures to develop MaaS). Car ownership and median incomes are low in the central neighbourhoods where the share of paid parking is the highest. While more affluent municipalities have higher rates of car ownership and a much lower share of paid parking than the average. Residents have the possibility of parking near their home thanks to exemption cards which are described as having 'an excessively low price' (across all municipalities). It is described that understanding the socio-economic and spatial distribution of parking allows for better targeting of social policy in terms of parking.

The BCR use financial tools (road tax and registration tax) and education tools (mobility budget planner, company mobility plans) to promote car-pooling. All information is provided through a very accessible website operated by Brulocalis so residents have all the information they require. There is also the *Bruxell'Air bonus*⁵² which is a mobility budget ranging between €505-€1010 (depending on household income) which is provided in exchange for the cancellation of a car's registration plate. This budget can be used for mobility alternatives - public transport, bicycles, shared cars, etc. It is an objective to reduce the number of on-street car-parking spaces from 265,000 to 200,000 and increase access to off-street parking to 20,000 spaces for local residents. Park and Ride facilities will be provided (as far up-stream as possible i.e. metropolitan train stations/ring road as interface to other public transport, the aim is for 25,000 P+R in the metro area).

3.4.6 Evaluation of The Good Move Plan

As detailed above evaluation of the IRIS plans by Brussels Mobility formed the basis for developing the Good Move Plan so there has been an ongoing process of review and evaluation of mobility planning across the BCR since the 1990s. The work and achievements of the IRIS plans were built upon. There are fifty actions within the Good Move Plan across the six focus areas. Brussels Mobility has an online dashboard which tracks progress across the actions⁵³. The evaluation below focuses on travel behaviour and mode share, road safety and vehicular traffic reduction. The publicly available dashboard on implementation provides valuable data and communicates to the citizens the benefits of the actions.

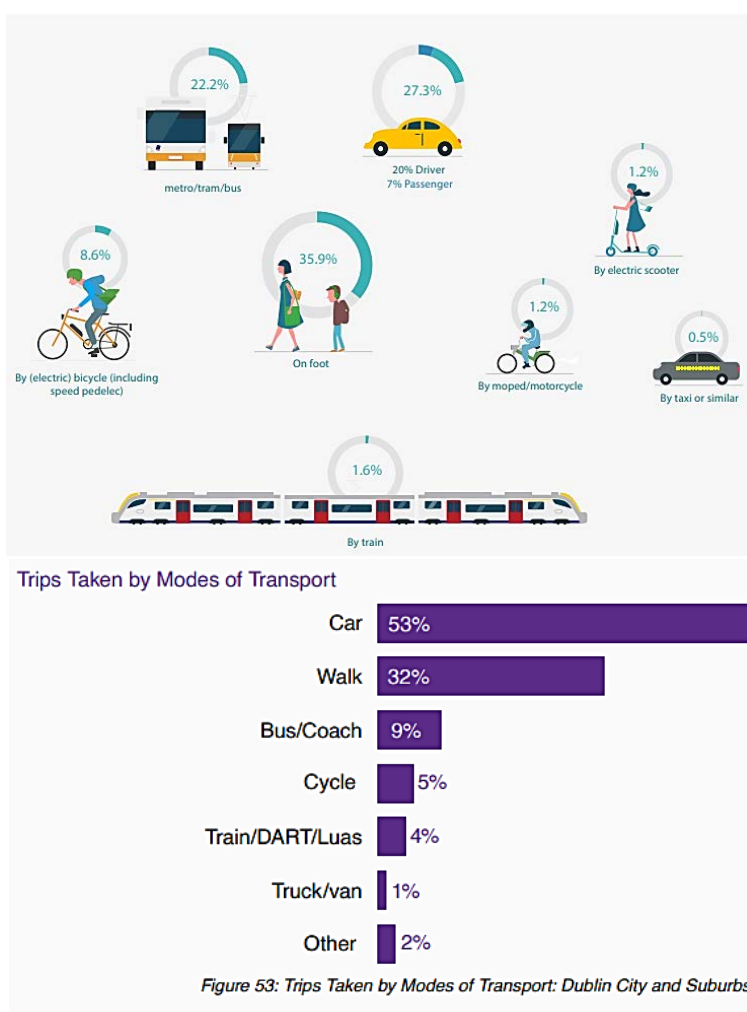
⁵² <https://environnement.brussels/citoyen/services-et-demandes/prime-et-aides-financieres/la-prime-mobilite-bruxellair-pour-se-deplacer-autrement-dans-la-capitale>

⁵³ For more details, see <https://data-mobility.irisnet.be/home/fr/mise-en-oeuvre/>

Travel Behaviour & Mode Share:

Brulocalis (formerly AVCB, the Association of the City and Municipalities of the Brussels-Capital Region) is a non-profit organization serving the local authorities of the Brussels-Capital Region. They publish a quarterly mobility and road safety monitor. The most recent (published in autumn 2023) details the results of a travel behaviour survey (sample size 2685 respondents) carried out by Brussels Mobility (Brussels Regional Public Service) between October 2021 to October 2022. The mode share is illustrated below in Figure 3-33 (figures for Dublin City and suburbs are also provided by way of comparison).

Figure 3-33 Top: Brussels Mobility Travel behaviour survey, summary analysis, 2021-2022 figures (OVG/ECD, 2023:3). Bottom: National Household Travel Survey (2022), NTA (National Transport Authority)



The data for Brussels is compared to the figures from 2010 which details a shift in modal share:

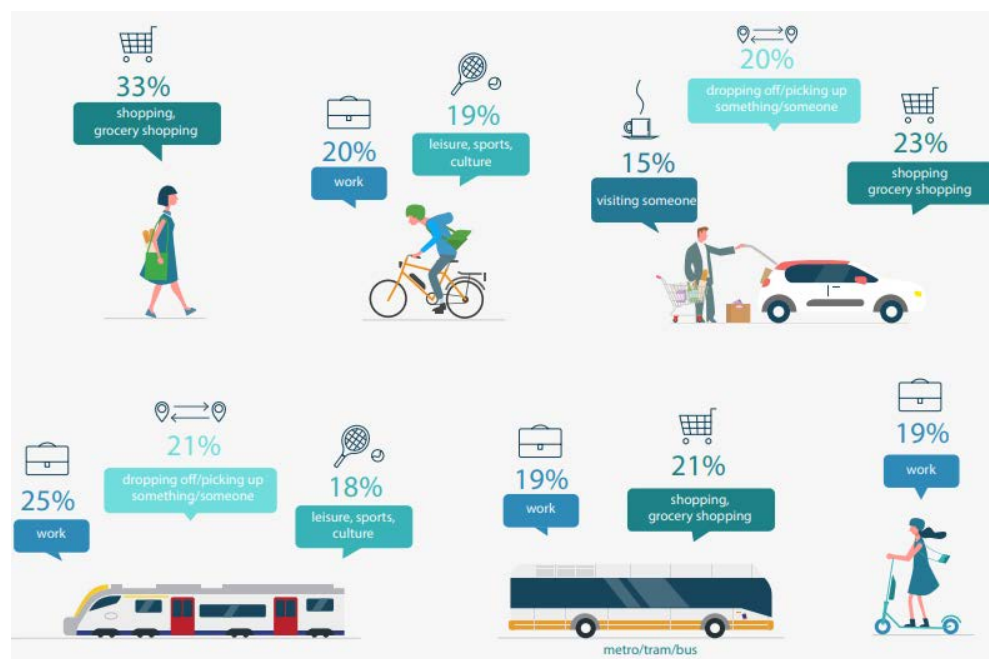
- Walking up 4%
- Cycling up 9%
- M/T/B remained the same
- Taxi up 1%
- Car drivers down 8% and car passengers down 2%

Nearly three quarters of trips are 'single-leg' (72%) and the remainder are multi-modal trips.

Car ownership has been decreasing across the BCR. In 2022 the Brussels-Capital Region has an average rate well below the national average (1.06 cars) with 0.57 cars per household (decrease of 2% compared to

2021)⁵⁴. The results of the survey also show that car modal share among families with their own car has decreased by 10% to 41% and 5% of Brussels families are subscribed to or registered for carpooling. The study emphasises the importance of considering the travel purpose per mode of transport in order to move away from the narrow consideration of mobility relating to commuting to school and work during rush hours.

Figure 3--34 Brussels Mobility (OVG/ECD, 2023) Travel behaviour survey, summary analysis, p.8



The survey goes into the detail of average trip distance, duration, gender and age etc. and specifically it notes the potential to increase gains in the use of trains for shorter journeys and to increase the rates of cycling amongst the younger age cohorts (that currently favour the use of public transport).

Road Safety:

Road safety figures for the BCR from Statbel (the Belgian Statistics Office) across the years 2015-2022 are illustrated below. Data is based on road traffic accidents with personal injury in Belgium which resulted in a police report⁵⁵.

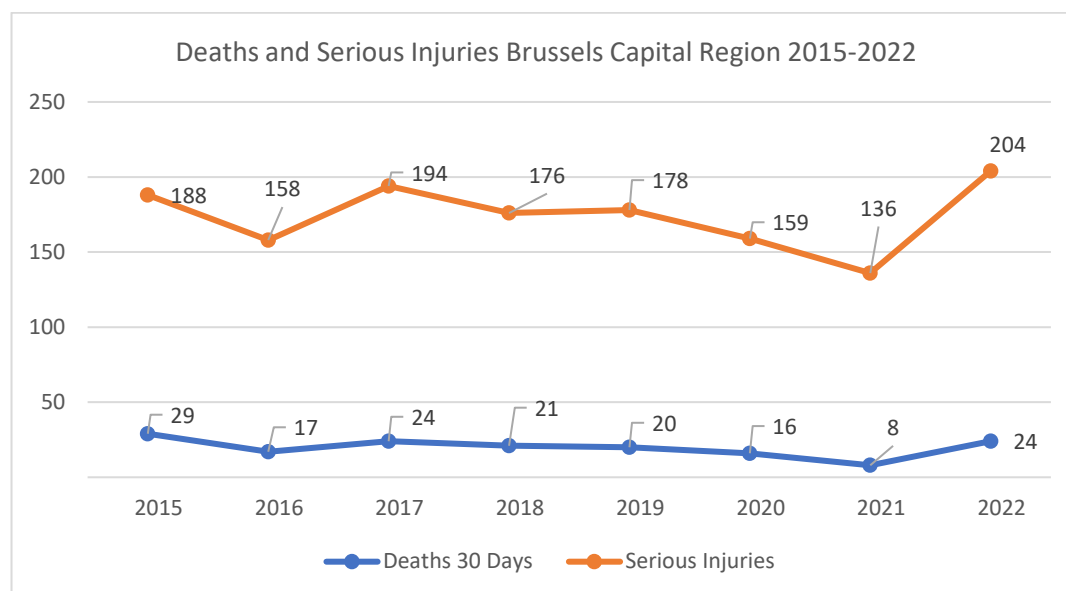
⁵⁴ <https://statbel.fgov.be/en/themes/mobility/traffic/vehicles-household#:~:text=In%202022%2C%20Belgian%20households%20had%20on%20average%201.06%20cars%2C%20as,nature%20of%20the%20Brussels%20territory.>

⁵⁵ Accident is defined as "an accident between two or more road users is considered as one accident. Only accidents on public roads and claiming casualties are included in these statistics". "Death 30 days" refers to any person who died on the scene or within 30 days after the accident. "Serious Injury" applies to any person injured in a road accident whose condition requires hospitalisation of more than 24 hours. "Minor injuries/Light casualty" applies to any person injured in a road accident who is not classified under fatal or serious injury.

Statbel note that data on minor injuries is likely underestimated, especially for vulnerable road users. Belgian and international studies estimate the police registration rate at 90% for fatal accidents, 50% for casualties requiring hospitalisation and less than 20% for minor injuries (not requiring hospitalisation).

While there is some fluctuation in the figures (the greatest decreases during the pandemic years), overall there has been an increase in serious (Figure 3-35) and minor injuries (Figure 3-36) when comparing 2015 to 2022. Deaths have fallen from 29 in 2015 to 24 in 2022, however excluding the key Covid-19 years of 2020 and 2021, road deaths do not appear to be taking a downward trend with 24 deaths in 2017, 21 in 2018, 20 in 2019 and increasing again to 24 in 2022. Serious injuries show a worrying increase in 2022. Figure 40 provides some more details on death and serious injury by mode, and while pedestrian data improves in 2022, there is a very large increase in scooter related incidents, and a large increase in cyclists being injured or killed. It should be noted that there has been a large increase in the numbers cycling in the city (39% increase from 2021 to 2022)⁵⁶. The City's Dashboard also provides a map of where accidents take place around the city (see Figure 3-37).

Figure 3-35 Road Deaths and Serious Injuries 2015-2022 (graph compiled by author using data from Statbel).



⁵⁶ <https://data-mobility.irisnet.be/home/fr/observatoire/le-velo/lusage-du-velo/>

Figure 3-36 Minor Injuries 2015-2022 (graph compiled by author using data from Statbel).

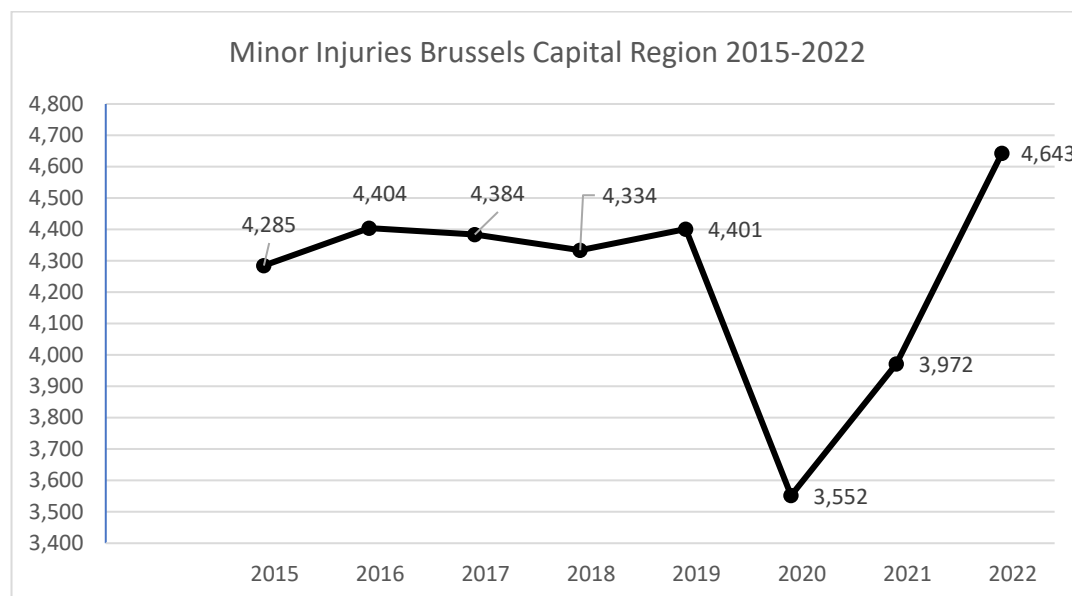
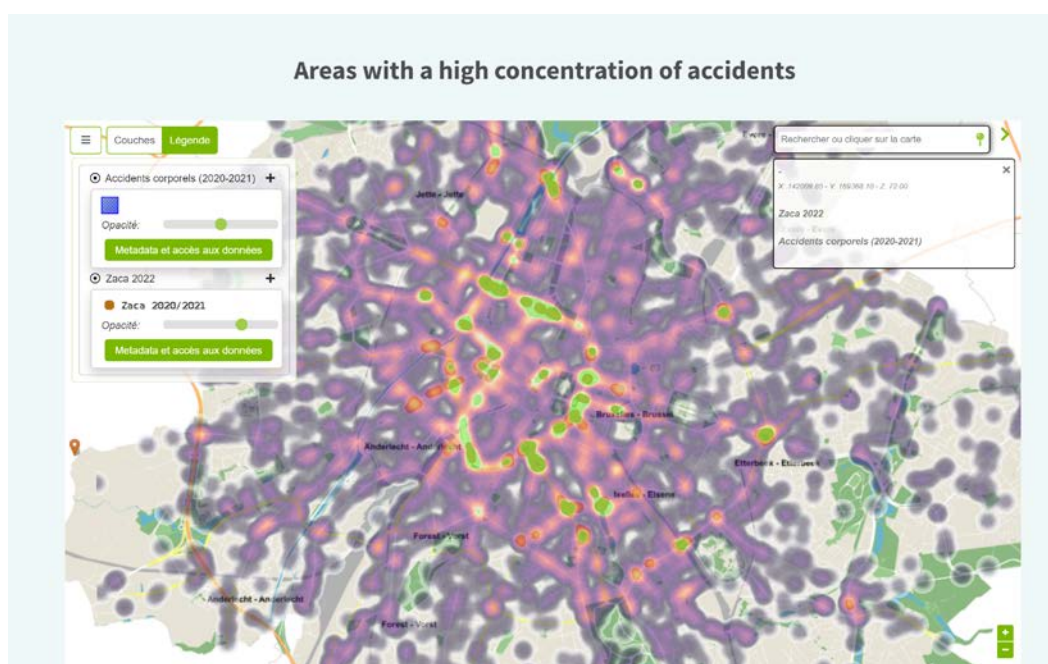


Figure 3-37 Extract from the Brussels Mobility website showing the spatial location and concentration of collisions/incidents



The Brulocalis Mobility and Road Safety Monitor from Spring Summer 2023 also publishes data on injuries. There is some discrepancy between the BelStat and Brulocalis figures (The ITF report has different figures again). The consistent reporting, classification, evaluation, and presentation of data is a common challenge across the case study cities.

Figure 3-37 (a) No. of deaths/serious injuries per means of Transport, Brulocalis Mobility and Road Safety Monitor, No. 68 Spring Summer 2023



Figure 3-37 (b): No. of non-serious pedestrian injuries, Brulocalis Mobility and Road Safety Monitor, No. 68 Spring Summer 2023

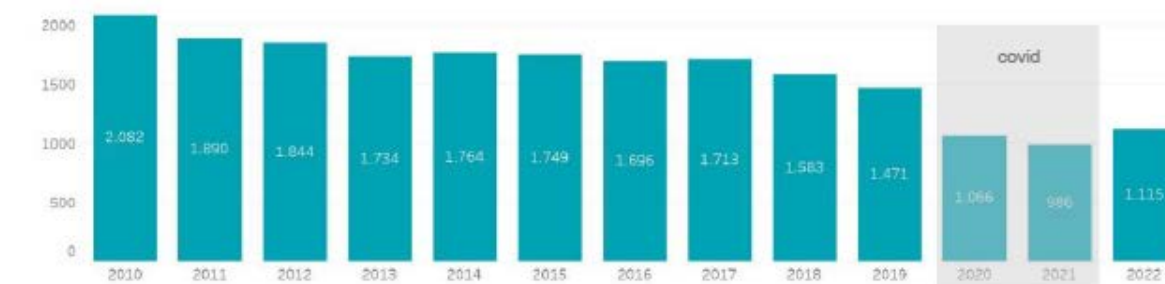
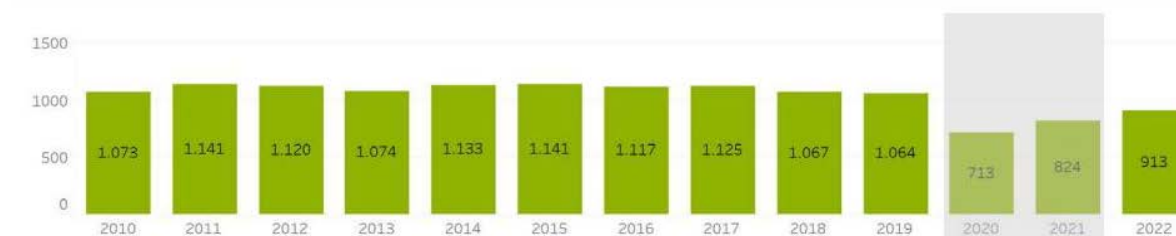


Figure 3-37 (c): No. of car occupants injured (not differentiated serious/non-serious), Brulocalis Mobility and Road Safety Monitor, No. 68 Spring Summer 2023

The recent evaluation figures note that walking has increased by 4%. Even with the increase in pedestrian movement, pedestrian injuries (serious, non-serious and fatal) all decreased in 2022. While the proportion of injuries caused by cars has remained relatively the same over a ten-year period, the rate of injury of car

occupants has reduced since the speed reduction which suggests benefits in this regard to car occupants also⁵⁷.

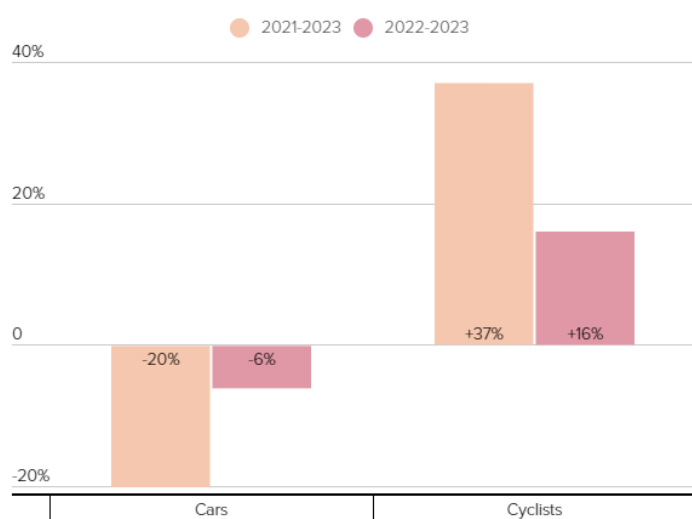
Vehicular Traffic Reduction:

An article in Politico in September 2023 considers the impact of the interventions. Bart Dhont, the city's alderman for mobility states that there has been a 27% reduction in traffic in the city centre and a 36% increase in the number of cyclists on our streets demonstrating a significant modal shift. While the changes were not unproblematic, by late autumn there was an average of 20% fewer cars counted in the city centre, and the number of vehicles at rush hour dropped by as much as 50% in some places.

Figure 3-38 Percentage13 change in motorised and bicycle traffic 2021-2023. by Giovanna Coi, Politico (2023), data from Brussels Capital Region

GOOD MOVE YEAR 1

Percentage change in motorized vehicle and bicycle traffic* during peak hours between 2021-2023 and 2022-2023.



*Traffic in and out of the Pentagon. Traffic data from October 26, 2021 (10 months before the launch of Good Move); November 8, 2022 (three months after the launch of Good Move); June 23, 2023 (10 months after launch).

3.4.7 Study Finding and Conclusions

There is no formal evaluation of the Good Move Plan available, so the following conclusions are drawn by the authors as far as is possible (without an independent evaluation being undertaken). The conclusions are based on the implementation of the actions available through the Brulocalis dashboard, media reports and academic studies.

⁵⁷ **Figures from the Mobility and Road Safety Monitor No. 68 Summer 2023**

It is clear that the *Good Move Plan* builds on the learnings and successes of the previous IRIS plans. Sustainable mobility has been on the agenda for the region since the late 1990s. What is most notable in more recent years is the “paradigm shift” in approach which encompasses an emphasis on both objectives to manage demand and the process of plan-making. The latest *Good Move Plan* displays extensive consultations and inter-departmental working. The plan has had to strike the balance between the expert and technical opinions (both public and private) and the voices of the citizens. There also appears to be significant consideration of the governance challenges associated with shared actions across the metropolitan region – this is reinforced in the full name of the plan i.e. *Good Move, Regional Mobility Plan 2020-2030 Strategic and Operational plan*.

The fifty actions contained within the *Good Move Plan* are structured across six focus areas encompassing ‘territory’, ‘behaviour’ and ‘governance’ so the programme of measures is extensive across the region using a range of policy instruments to improve the public realm and physical infrastructure in the region, and to address personal behaviours.

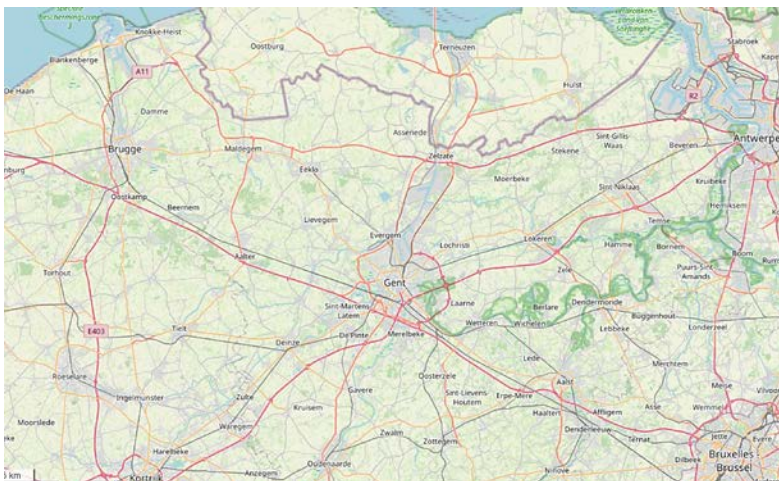
Despite the emphasis on engagement with communities, the interventions made have not been without problems and protest, but it is apparent that the reduction in traffic was quantifiable (using counters), and this allowed for the ‘holding of ground’ in terms of continued action. The alderman for mobility describes the positive impacts as ‘better air quality, less noise from cars and a growing number of people moving to Brussels’ historic core which contributed to rising property values in the area’ (the authors note that rising property values are related to gentrification and a discussion of this is beyond the scope of this study). However, despite these ‘successes’ *Politico* reports the public opposition and timing of municipal elections does appear to be impacting on the implementation of actions across other municipalities (this is considered further in the interviews and analysis).

3.5. Ghent

3.5.1 Ghent Geography, Built Environment & Urban Form

Ghent is a city and municipality in the East Flanders region of Belgium. It is the second largest city in Flanders with a population of 264,000 (80,000 of which are students)⁵⁸. The current population density in the city is approximately 1600 inhabitants/sqkm. The OECD (2022) notes the population of the functional urban area at 632,000 with 39% of the population living in the city.

Figure 3-39 (a) Ghent, an inland city north-west of Brussels (source map: openstreetmap.org)



Ghent's origins are as a medieval town at the confluence of two rivers (Lys and Scheldt). It industrialised through textile productions, then later through the development of the port, pulling development north of the city. In more recent years the university has been an important driver of growth. By the end of the 1960s the city had experienced population loss and high levels of vacancy as people sought affordable housing in the suburbs.

The city has a historical city centre, generally low-medium-rise, with higher density extending into the suburban neighbourhoods At Malem Island and what is known as the 19th century belt.

⁵⁸ <https://eurocities.eu/cities/ghent/>

Figure 3-39 (b) H14 historic city centre of Ghent (source image: Google Maps)



Pedestrianisation was used as a measure to improve the commercial core in 1974 (which was not without objections) and a masterplan in 1976 sought to improve the liveability of the city and to counteract urban flight.

In 1977 the city of Ghent was merged with neighbouring municipalities which doubled the population of the administrative area and increased resources and the coordination of services. Political attention was mainly on the outer areas as this is where native people had moved to, and the centre was increasingly occupied by students/graduates and immigrants. However, there were urban revitalisation projects ongoing i.e. pedestrianisation of squares, and an underground car park beneath market square was opened in 1982 – taking cars out of that space. This is the origins of the Ghent Mobility Company described in the following section.

The first ‘circulation plan’ was trialled in 1987 but it failed because of protests by shopkeepers (Boussauw, 2014). The City of Ghent has a long, proactive history of promoting sustainable mobility and quality urban environments.

Ghent has a pleasant, maritime climate, with average minimum and maximum temperatures of 0.4 °C and 7.0 °C in January, and 13.2 °C and 23.0 °C in July. The average annual precipitation amounts to 859 mm (Caluwaerts et.al., 2020).

3.5.2 Ghent Governance

Ghent City Council has 53 directly-elected members. The current coalition is formed by Open VLD (liberal Democratic Party), Groen (ecological party), sp.a (social democratic party) and CD&V (Christian Democratic Party). Together, they hold 35 of the 51 seats in the City Council. The remaining seats are occupied by the opposition parties; N-VA (Flemish nationalist party), PVDA (left-wing Labour's Party) and Vlaams Belang (right-wing party) (City of Ghent, 2023).

The elected representatives nominate an executive committee of ten councillors. These work alongside the Mayor (since 2018 a member of the Flemish Liberal Party) and the General Manager and Deputy General Manager of City of Ghent to make policy and budgetary decisions. The Mayor is nominated by the regional minister of internal affairs from the elected councillors.

Ghent is the only one of the four case-study cities to have its own 'Mobility Company'. Consideration of this additional aspect of governance is beneficial for this study. The Ghent Mobility Company allows for integrated mobility planning (both strategic and operational) which is (partly) financed using public car-parking revenue.

Ghent has had a 'parking company' since 1982 when the city opened the first underground car park at Vrijdagmarkt. The city's remit in parking control extended to manage on-street parking and the construction and management of new car parks. In the mid to late 1990s the implementation of a bicycle plan, the opening of a small 'bicycle planning unit' and the prioritisation of pedestrian zone in the city represented a shift towards the development of a more strategic, sustainable mobility planning department beyond the traditional operational and traffic-planning approaches. The parking company supported this shift with the 'stand still principle' whereby no additional parking spaces could be provided in the city - each new parking space provided in underground garages had to be offset by the removal of an equivalent number of surface parking spaces. The role of the mobility department and the parking company were becoming more and more interdependent and in 2012 the *Mobility Company of the City of Ghent* was formed. The company is an internal agency⁵⁹ the following objectives;

- Researching, implementing, and evaluating road safety measures in the context of the optimization of the mobility policy of the city of Ghent;
- Managing and further development of the (bicycle and car) parking infrastructure;
- Further development of traffic and transport management in collaboration with both city departments and third parties; and
- To support projects to improve mobility in Ghent and - taking care of the communication and awareness raising with respect to parking and mobility

The mobility company's objectives and level of financial autonomy (revenues from parking and ability to borrow) means it has ample tools to integrate and fund sustainable mobility in the city. The company has four units; policy, operations, projects and support. In 2015 it also incorporated some policing powers which supports operations and enforcement of rules. The city benefits from the mobility company through a financial payment back to the city council (as agreed with councillors). The city also benefits from the fact that any gains from the company are reinvested in sustainable mobility projects like 'park-and ride' and bicycle parking. The barriers in establishing the mobility company are documented as being related to the legal and financial ramifications associated with the 'internal agency' approach. Negotiation and agreement between the director and city council was required. The drivers in establishing the mobility company are stated as being; the political willingness, and support of management to merge the parking and mobility departments and the willingness of the politicians to create the 'reserve fund' for investments so that car parking/ bicycle parking are not overlooked (Vansevenant, P. of the Mobility Company of Ghent, n.d.).

⁵⁹ In an internal agency the director has more autonomy than regular city departments but is still answerable to the city council. An internal agency is not taxed on benefits as it is still considered a local authority. An external agency is not under the direct supervision of the city council, a Board of Directors is appointed. It has more autonomy (Vansevenant, P. of the Mobility Company of Ghent, n.d.)

3.5.3 Ghent Transport and Road Safety

Ghent has a well-developed transport system including a public transport network consisting of trams and buses, as well as a connection to intercity trains via 6 rail stations. There are 4 tram lines with an expansion plan currently underway. Ghent's key transport plan - the 'Circulation Plan' – was introduced in April 2017 and is detailed overleaf, including impacts on road safety.

Road deaths in Ghent have generally been on a downward trend over recent years, whereas serious injuries have fluctuated somewhat. There has been a large decrease evident in minor injuries particularly in 2017-2019 and in 2022 (excluding years with key Covid-19 impacts). Cycling injuries on tram tracks has received particular attention in recent years, including a research study contending that official data on road injuries significantly underestimates cycle related incidents involving tram tracks (for example, see Leune *et al.*, 2021).

Figure 3-40 Road Deaths .and Serious Injuries 2015-2022 (graph compiled by author using data from Statbel).

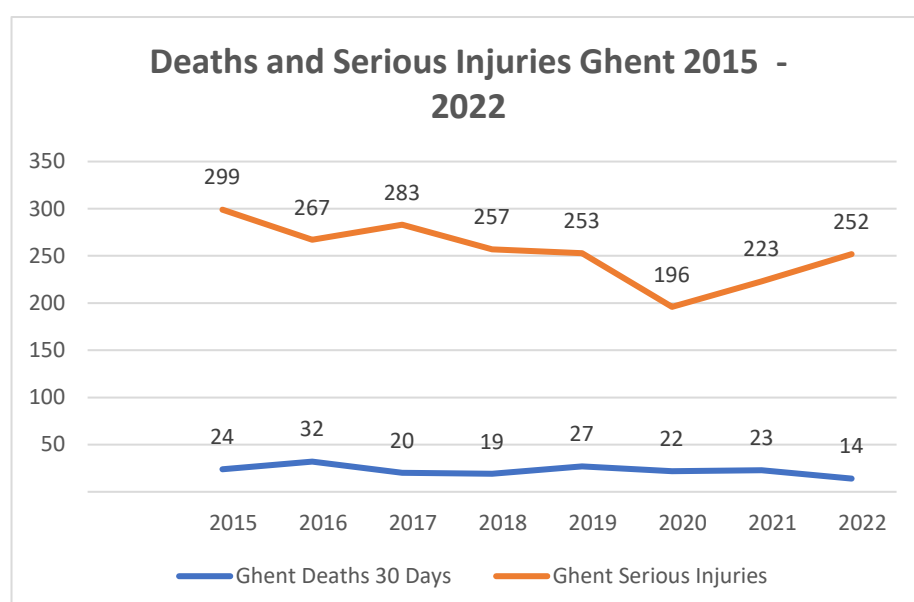
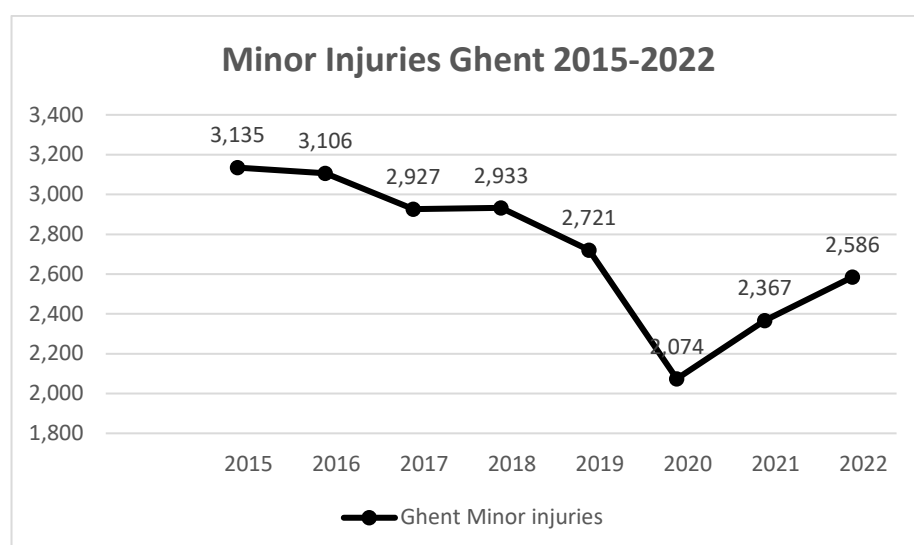


Figure 3-41 Minor Injuries 2015-2022 (graph compiled by author using data from Statbel).



3.5.4 The Circulation Plan & Associated Measures

Ghent City Council adopted a new Mobility Plan ‘Ghent – Strategic Mobility Vision’ in September 2015. This Plan includes the concept for the Circulation Plan for the inner city. After further refinements, the ‘Circulation Plan Inner City of Ghent’ was approved by the City Council in October 2016 and implemented in April 2017. The aims of the Circulation Plan⁶⁰ are to:

- provide more space to enjoy the city centre
- be able to move safely
- to be able to live, work and study in a healthy living environment
- to be able to reach destinations easily

The main changes proposed and implemented as part of the Circulation Plan are:

- Extension of the pedestrian area⁶¹/restricted traffic area (previous to the Circulation Plan, a smaller pedestrianised area was already in place which doubled as part of the Circulation Plan).
- Divisions of city centre into 6 sectors surrounding the restricted traffic area. No direct vehicle travel between sectors, except for permit holders.
- through-traffic restrictions (necessary traffic permitted: emergency services; public transport; refuse collection; taxis; healthcare providers with permits; (e-)bikes; cargo-bikes; certain class of mopeds).
- Change of travel directions on certain streets.
- Use of inner ring road (R40) to provide vehicular access between each of the 6 sectors.
- Use of the main ring road (R4) to travel by car between municipalities.

The ‘Centrum’ area is the car restricted area and can only be accessed by priority vehicles and loading/unloading with a permit (see Figure 3-42). Four smaller car-free areas were also introduced. Bus routes (and tram routes) remained largely the same when the Plan was introduced except for some minor bus route changes.

Traffic light signalling was optimised on the R40 ring road, as well as some adjustments to road markings and new turning movements.

Cycling infrastructure was improved through the introduction of two new bicycle underpasses; a number of new bicycle priority streets; a new secure bicycle crossing, and some dedicated cycling infrastructure. However, many of the measures were undertaken using a rapid build ‘tactical urbanism’ or temporary urbanism approach (for example, see Figure 3-44). This allowed for fast and inexpensive implementation of the Plan. There can also be disbenefits to this approach. For example, public buy-in may be reduced as there are limited public realm improvements and sense of place benefits visible on the ground.

⁶⁰ For more information, see <https://stad.gent/en/mobility-ghent/circulation-plan/reasons-implementation-circulation-plan>

⁶¹ Pedestrian streets are reserved for pedestrians only between 11am and 6pm (i.e. no cargo traffic, no car traffic, no taxis, no bikes except for pushing a bicycle by hand). One street (Greslei) is pedestrian only during the summer months. Fines of €55 are applicable to drivers or cyclists who break the rule (though policing for cyclists, and automatic number plate recognitions as well as police officers for drivers). See <https://stad.gent/en/mobility-ghent/circulation-plan/pedestrian-streets>

Figure 3-42 Ghent's Circulation Plan showing the Central Traffic Central area surround by the 6 city sections, with access between sectors permitted for vehicles by the surrounding Ring Road (source: Ghent City Council)

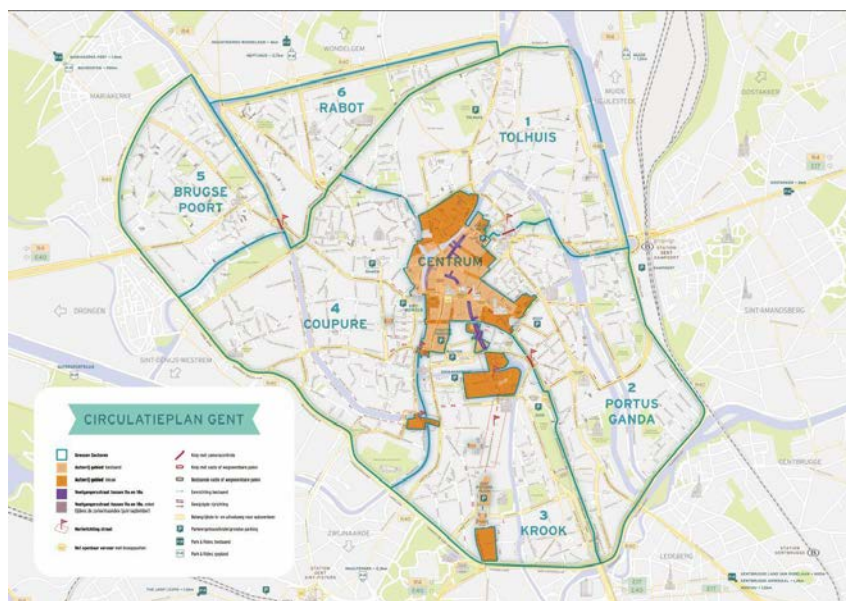


Figure 3-43 Google Map (using typical traffic function) of Ghent showing the inner ring road (R40) and the outer ring road (R4)

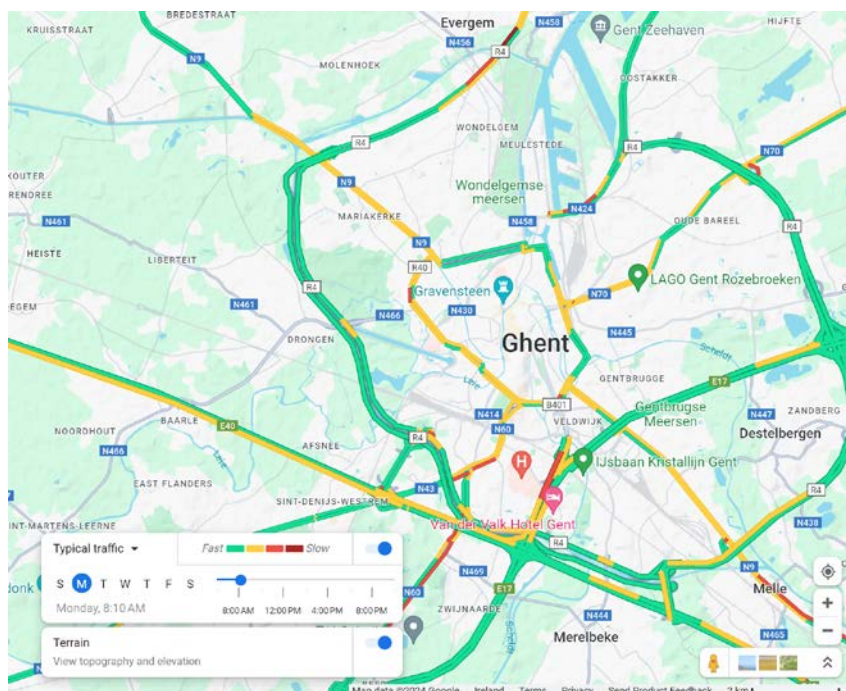
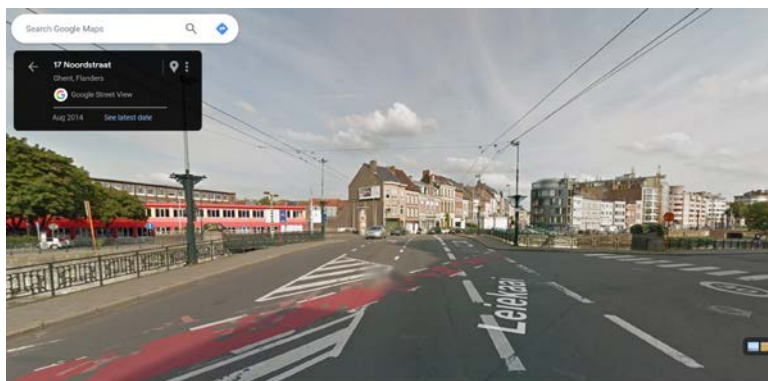
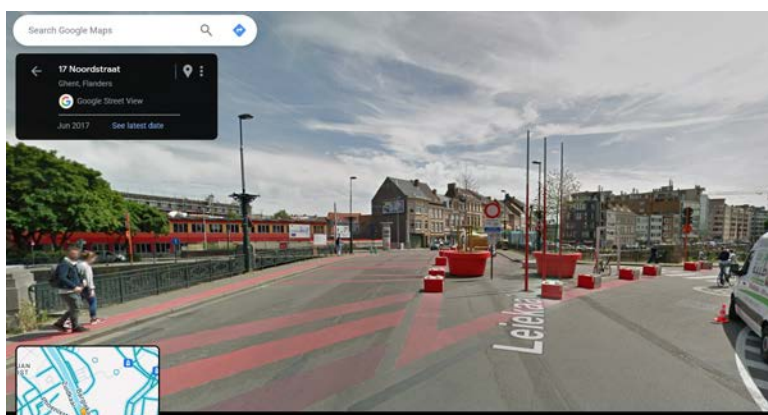


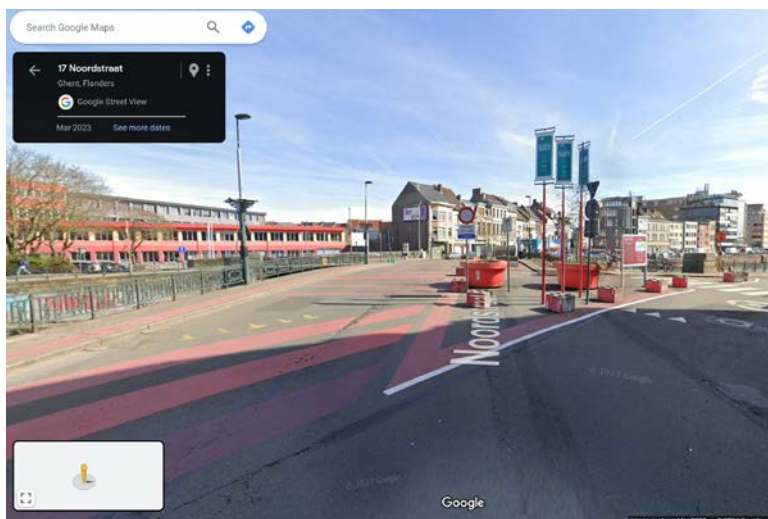
Figure 3-44 Bargiebrug (bridge) separating 2 sectors in the north-west of the city. The Circulation Plan removed access across the bridge for private vehicles (enforcement through Automated Numberplate Recognition camera technology), however access was permitted for walkers, cyclists and public transport vehicles using a temporary ‘tactical urbanism’ approach.



Aug. 2014 – Google Street View



June 2017 – Google Street View



Mar. 2023– Google Street View

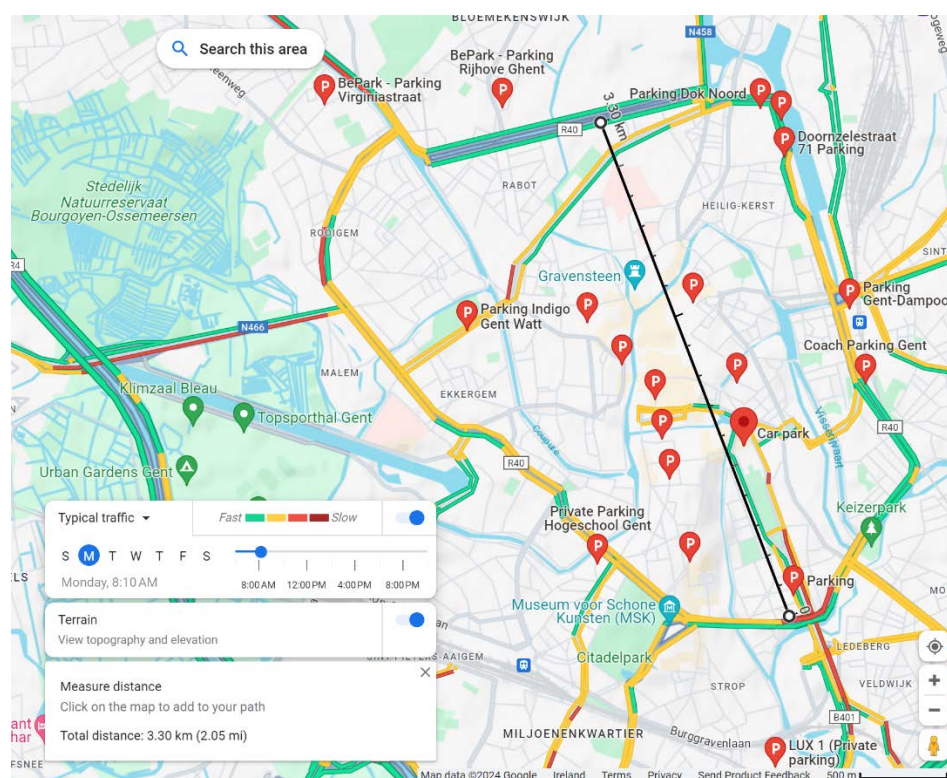
Complementary & Additional Measures

At the same time as the Circulation Plan, a complementary Car-Parking Plan was also introduced (described below). A Low Emission Zone (LEZ) was introduced in January 2020 to improve air quality. In 2022, 30km/hr speed limits were rolled out across 60% of Ghent’s roads, and 20km/hr ‘Woonerf’ zones in residential

areas. In December 2022, the Ghent Pedestrian Plan was approved aiming to improve pedestrian mobility, safety, and comfort.⁶²

Parking Plan: The Circulation Plan forms part of the City's Mobility Plan⁶³, in conjunction with the Parking Plan. The latter aims to address the availability of car-parking 'efficiently and wisely,' with 'the further away from the centre, the lower the tariffs. City edge parking is mainly free of charge, and there are 'park-and-rides' locations with integrated switching with public transport or bicycles encouraged. Resident's parking within the city centre is permitted on-street, and non-residents are not permitted to park on residential streets. Car parking for visitors is permitted via tariffs on-street and via tarified underground car-parking stations. Most of the city-centre car-parking stations are within the ownership and management of the Ghent Mobility Company.

Figure 3-45 Google Maps outline of Ghent city centre using 'typical traffic' function, showing the inner ring road (R40), the key traffic axis N430, car-parking stations and a sample distance from north to south of the inner ring road (c.3.3km). In an east-west direction, the distance is c.2-3km. For scale comparison, Dublin City Centre within the North and South Circular Roads are approximately 3km x 4km).



⁶² <https://stad.gent/sites/default/files/media/documents/Jaarverslag%20mobiliteit%202022.pdf>

⁶³ For more info see <https://stad.gent/en/mobility-ghent/mobility-plan>

3.5.5 Evaluation of Ghent's Circulation Plan

Introduction

An interim evaluation study was published by the Ghent Mobility Company in association with 'Transport & Mobility Leuven'⁶⁴ in 2017, and an updated review again in 2019. The first study relates to the period between April-October 2017, in the first 7 months directly after the Circulation Plan was implemented. The second study relates to the period between April-November 2018, undertaken between the period of 1-1.5 years after the Plan was implemented. The Evaluation assesses the effects of the Circulation Plan against its original objectives. This analysis presented below primarily focuses on the outcomes of the second evaluation period, given the longer time period.

After the first evaluation was published, it was noted in the 2019 study that a number of adjustments were made to the Circulation Plan in 2018 including:

- Adjustment to one of the sectors to reduce impact of condensed traffic flow and disperse traffic.
- Installation of additional traffic lights
- Simplification of the permit system for suppliers and traders
- Automatic extension of resident permits and permits for visitors of residents.
- Launching of a major communication campaign.

The evaluation focussed on the following research questions:

1. Extent of increase of sustainable transport modes for journeys to and in the city centre.
2. Extent of accessibility changes to city centre for pedestrians, cyclists, public transport users and cars (particularly with regards to 'smoothness' and 'pleasantness' of access and 'safety'.
3. Extent of car and freight traffic improvements in city centre including traffic flows, air quality, noise levels, and road safety for pedestrians and cyclists.

Key Study Methods

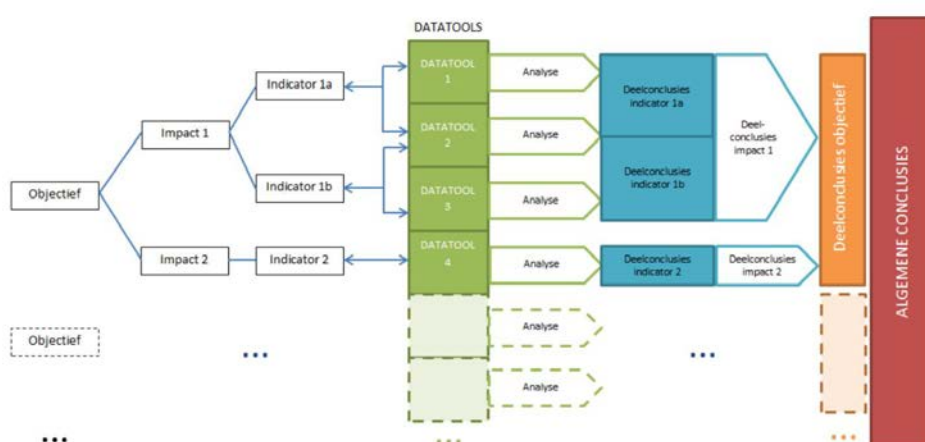
The studies are extensive in their nature and utilise a wide range of primary and secondary data sources. A mixed-method approach is taken including both quantitative and qualitative methods, based on an assessment of the impacts of the Plan's objectives (see Figure 3-46). Data sources included:

- Travel behaviour surveys
- Vehicle counts at intersections
- Bicycle counts
- Travel times
- Police accident data
- Public transport passenger counts
- ANPR counts in car-free areas
- Footfall counts on shopping streets
- Economic data on commercial property uptakes, start-ups, and bankruptcies

⁶⁴ Transport & Mobility Leuven' is a research company associated with KU Leuven university. For more information see <https://www.tmlleuven.be/en/content/about-us> and <https://www.kuleuven.be/english/about-kuleuven/>

- Purchasing flow research
- Mobility and travel behaviour surveys of population and large company employees
- Air quality and noise measurements
- ‘Park-and-Ride’ occupancy data
- ‘Park-and-Ride’ shuttle bus counts

Figure 3-46 Extract showing general structure of analysis objectives based on indicators and data tools (source: Gent Mobility Company & T&M Leuven, 2017 & 2019)



Key Study Findings and Conclusions (2019 Study):

The evaluation draws the following key overall conclusion (translated into English using Google Translate):

“This second extensive evaluation of the functioning of the Circulation Plan and its impact on the accessibility, liveability of the city centre and the travel behaviour of Ghent residents and Ghent users confirm the general conclusions of the first evaluation, which concludes that the Circulation Plan achieves the set objectives” (2018, p.168).

Below is a summary of the key findings under the headings: Travel Behaviour & Accessibility; Vehicular Traffic & Congestion Reduction; Economic Impacts; and Road Safety.

Travel Behaviour & Accessibility

The study finds a clear increase in the use of cycling and public transport users, and a clear decrease in car use.

- Cyclists in the city centre increased by 50%; and to and from the city centre by 60%.
- 6% average daily increase in numbers of public transport users.
- 17% average reduction in the number of cars entering and leaving the city centre.
- Mobility Survey shows reduction in travel on foot of 2%⁶⁵ (possibly showing a transfer to bike).

⁶⁵ There appears to be limited emphasis on the pedestrian and public realm quality and experience in Ghent, especially when compared with Pontevedra for example. It is also notable that the car-free areas are not necessarily framed as being pedestrian priority areas.

- The Mobility Survey showed car use by residents decreased by 7% and bike trips increased by 5% and public transport trips by 5%, with non-work trips representing the highest changes.
- Large company employees survey indicates a clear shift in work travel patterns with an increase in bike usage (+9%) and decrease in car use (-8%) (For companies within the inner ring road).

Vehicular Traffic and Congestion Reduction for Private Vehicles and Public Transportation

Change in vehicular traffic volumes is calculated in the evaluation study through counts of vehicles entering and leaving the city centre during peak periods (all main axes/roads included, but not all possible routes, so the figures do not represent total vehicle volumes entering and exiting the city centre). The evaluation study notes a 15% reduction in morning peak vehicular traffic and 20% reduction in the evening peak (average of 17% reduction). The study concludes that the flow of car traffic to the ring road is comparable to pre-Circulation Plan, except for some isolated locations. To reach a destination in the city centre from the approach roads post Circulation Plan, the route distance has increased by an average of 10%. Residents generally expressed dissatisfaction with car accessibility in the surveys post Plan implementation. The reduction in vehicle traffic has improved the reliability and speed of public transport, with an average increase in travel speeds of 6% for buses, and 5% for trams. There are some sections with lower speeds, however the study concludes that these are very limited and mainly located at intersections with the R40. Travel times between the Park 'n' Ride car parks and the city centre bus stops also improved.

Economic Impacts

The evaluation study concludes that the Circulation Plan does not curb the growth of economic activity and enterprise in Ghent, although there are some contrasting findings noted between the population surveys (Mobility Survey), the enterprise data and the footfall count data. Trade and catering companies are shown to grow particularly strongly in the central area and higher than the Flemish averages. However, the population survey reveals that 30% of resident's say that they go shopping less often in the city centre since the Circulation Plan, while 5% say they go more, and 65% say they go the same amount. Purchasing power per travel mode does not appear to be assessed. Footfall counts indicate that there is a shift from the main shopping streets to surrounding streets in the pedestrian shopping areas.

Road Safety

Police accident data was analysed over a number of years to increase statistical confidence (2014-2018), although as with all such data, the evaluation also recommends caution still needs to be exercised when drawing conclusions as chance events can also have a large impact. However, the data indicates a reduction in both minor and serious injuries within the city centre over that time (see Figure 3-47 and Figure 3-48). The Circulation Plan was introduced in April 2017. For example, there were 25% fewer overall incidents documented in 2018 compared to 2016. Fatalities recorded for the city centre are generally zero for all years, except for 2015 when one fatality is recorded. Although referring to a wider geographic area of Ghent (not just the city centre), Figure 3-40 shows more recent road safety data which provides some additional insights into trends over a longer period of time (2015-2022).

Figure 3-47 All road victims recorded by police within the city centre from Apr-Oct 2014-2018 (Source: 2019 Evaluation Study using Police data)

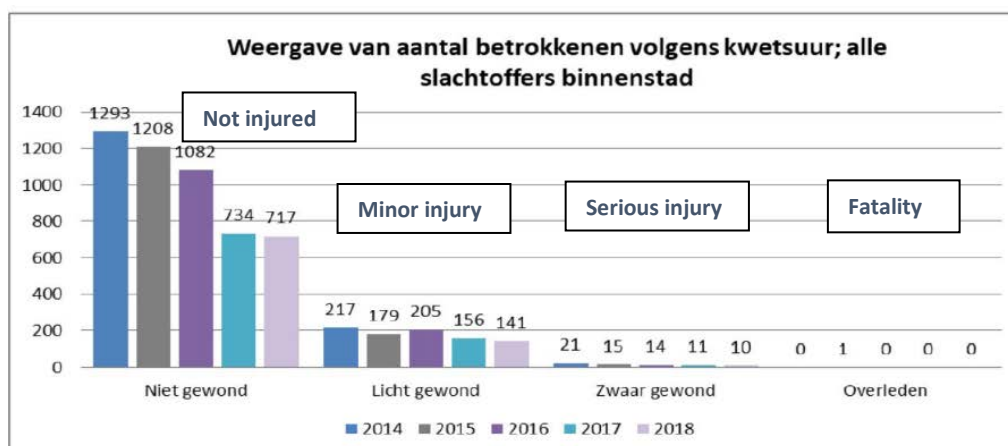


Figure 3-48 number of incidents recorded within the city centre from Apr-Oct 2014-2018 (Source: 2019 Evaluation Study using Police data)

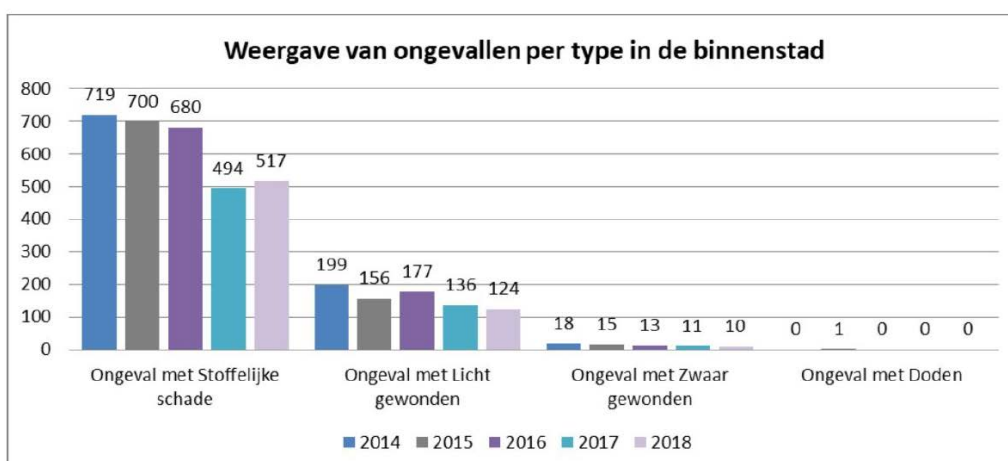
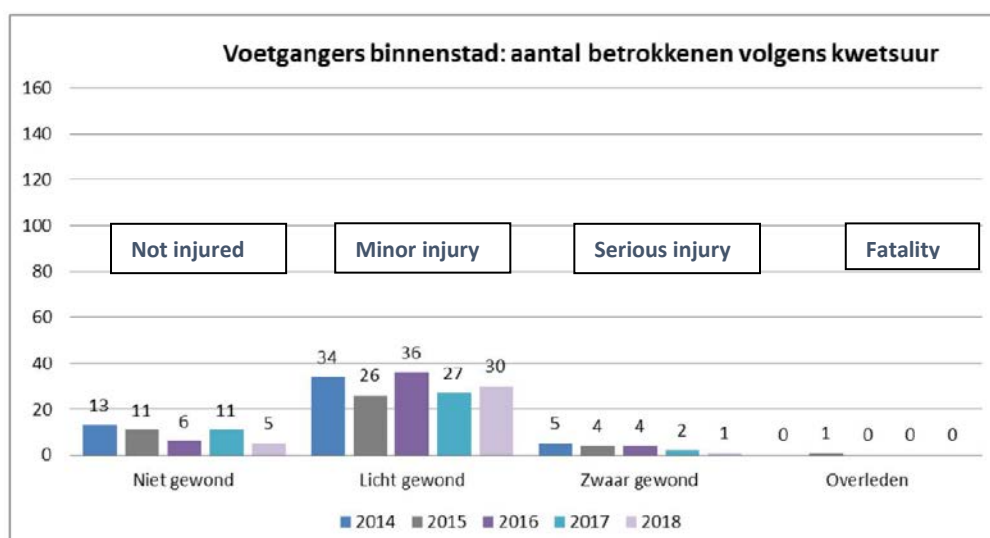
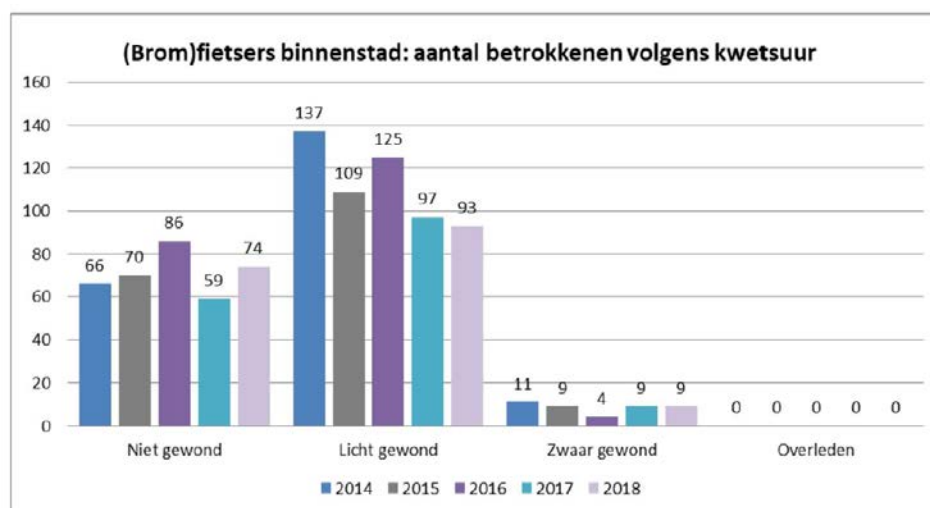


Figure 3-49 Number of pedestrians involved in an accident in Ghent city centre (Apr-Oct) (source: Ghent Evaluation 2019, based on police accident data)



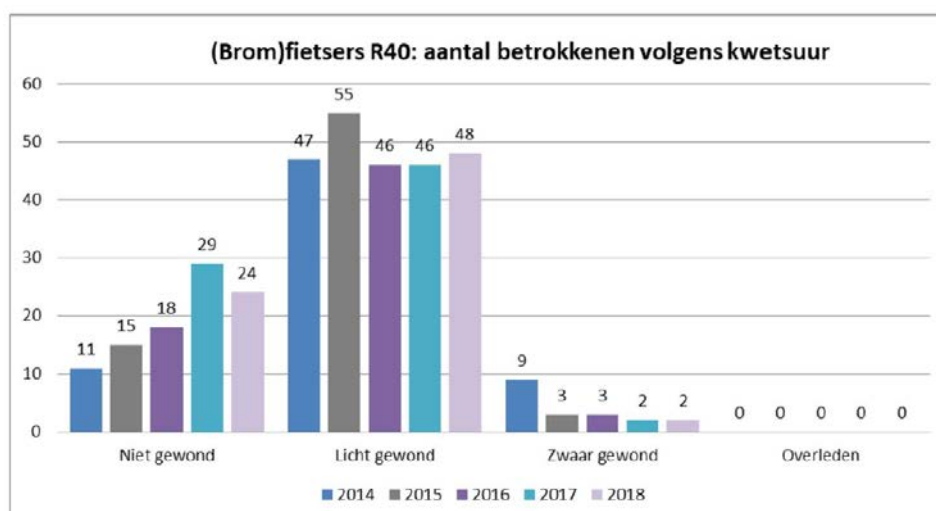
Although caution should be exercised due to the short numbers of years covered, Figure 3-49 shows figures for incidents related to pedestrians. No deaths were reported in 2017 and 2018, and serious injuries reduced. In the resident survey undertaken, 49% of Ghent residents believe pedestrians can now move more safely, and 8% feel it's less safe.

Figure 3-50 Number of cyclists and moped riders involved in road incidents in the city centre (Apr-Oct) (source: Ghent Evaluation 2019 based on police accident data)



A large increase in the numbers of cyclists (c.50-60%) has been an outcome of the Circulation Plan. Figure 3-50 does not appear to show an increase in the number of minor or serious injuries involving a push bike or moped in the city centre (minor injuries decrease in 2017 and 2018). The evaluation report notes that cyclists are perceived as a nuisance by some pedestrians. The R40 ring road also shows a continuation of the downward trend of serious injuries for push bikes and mopeds (see Figure 3-51).

Figure 3- 51 Number of cyclists and moped riders involved in road incidents on the R40 Ring Road (Apr-Oct) (source: Ghent Evaluation 2019 based on police accident data).



3.5.6 Conclusions

The Circulation Plan has resulted in a clear and considerable shift in modes of travel in and around Ghent city centre, with large increases in cycling in particular, followed by public transport usage, and a reduction in private car usage. The Circulation Plan is mobility focused on the use of temporary style tactical urbanism, street closures for private vehicles and traffic reduction as a way to make fast space gains for cyclists in particular. It also introduced new cycling priority streets, and dedicated cycling infrastructure on other streets. Ghent describes itself as a ‘cycling city’⁶⁶. The Plan doesn’t appear to have put as much emphasis to-date on the pedestrian or public realm environment. This also appears to be the case in the city’s mobility monitors/online dashboard where most of the dashboard data relates to the cycling environment⁶⁷. However, in December 2022, the Ghent Pedestrian Plan was approved by the Mayor and Alderman (Gent Mobility Company, 2023 – Annual Report 2022⁶⁸). This Plan aims to improve pedestrian comfort and safety within Ghent and improve public spaces. New pedestrian improvement indicators have also been introduced.⁶⁹

Road safety has improved in recent years in Ghent, although there is still more room for further improvement. For example, there were still 14 deaths and 252 serious injuries within the city in 2022. The vehicular traffic reduction measures associated with the Circulation Plan is likely to be a key factor in this improvement. In 2022, 30km/hr speed limits were introduced in 60% of Ghent roads, and 5% at 20km/hr. These reduced speed limits and a new emphasis on pedestrian mobility (if implemented) should see further improvements in road safety in the coming years.

⁶⁶ For example, in a 2021 survey of Ghent, 61.5% of respondents agreed that ‘Ghent is a cycling city’. See <https://gent.buurtmonitor.be/dashboard/dashboard/mobiliteit>

⁶⁷ See <https://gent.buurtmonitor.be/dashboard/dashboard/mobiliteit>

⁶⁸ <https://stad.gent/sites/default/files/media/documents/Jaarverslag%20mobiliteit%202022.pdf>

⁶⁹ https://stad.gent/nl/mobiliteit-openbare-werken/plannen-en-realisaties-mobiliteit/te-voet-gent#Ontdek_het_Voetgangersplan
Pg. 95 – TOWARDS VISION ZERO FOR CITIES & TOWNS: People, Process, Package of Interventions – February 2025

4. STAKEHOLDER INTERVIEWS

4.1 Introduction

Chapter 3 provides a comprehensive profile of the case study cities. The interviews provide the basis for further exploration and discussion of the complex historical, social, and political contexts which shaped the implementation of the interventions across the cities. The interviews are discussed thematically and with reference to the literature in the sections which follow. As explained in the methodology section the thematic analysis of the interviews did not include a formal transcription and NVIVO coding of the discussions in Pontevedra. However, the findings from there (as provided in significant detail in chapter 3) are related to the discussion of the themes where considered appropriate.

As detailed in chapter 1, it was intended to interview two people per case-study city with an emphasis on identifying participants across political and executive roles, gender, and with broad experience of the research area but with various specific perspectives e.g. technical, community, business, governance. Unfortunately, securing the interviews was challenging and this was perhaps related to ongoing political discussion on the topic in the case study cities, elections, and language barriers. However, the following interviews were secured;

Table 3.9: List of interviewees

City	Name	Role	Organisation
Oslo	Oslo interviewee 1	Business policy director	Oslo Handelsstands Forening (OHF) which is a business association for trade, service and catering in the Oslo region, with close to 2,000 members
Oslo	Oslo interviewee 2	Project Leader, Living Streets Oslo	Living Streets is a bottom-up, community engaged approach to understanding and redesigning use of city streets based in the city municipality
Ghent	Ghent interviewee	Previous Director of the Ghent Mobility Company	Currently Mobility Manager at De Werkvennootschap which is an organization that supports large and complex mobility projects across Flanders.

Brussels	Brussels interviewee	Citizen of Brussels, and Policy Director European Transport Safety Council (ETSC)	ETSC is a Brussels-based independent non-profit making organisation dedicated to reducing the numbers of deaths and injuries in transport in Europe.
----------	----------------------	---	--

The study visit to Pontevedra included the following:

- Meeting with Mayor of Pontevedra Miguel Anxo Fernández Lores and explanation of the Pontevedra 1999-2023 model with César Mosquera (responsible for management and general organization of urban mobility at the Pontevedra City Council since 1999).
- Technical meeting with Jesús Gómez Venías (General Director of Mobility/ Engineer) and Daniel Macenlle Díaz (General Director of Citizen Protection/Former Local Police Chief of Pontevedra).
- Tour of public spaces in the city: the process of recovering the streets for people.
- Meeting with Councillor for Urbanism and Mobility of Vilagarcía, Paola María Mochales and walking tour of public spaces.
- Meeting with Uxío Benítez Fernández (Former deputy of Mobility and Public Space at the Pontevedra Provincial Council/Ágora Network, deputy mayor of the Tomiño City Council since 2007). Explanation of the Ágora Network.
- Meeting with Mayor of Tomiño Sandra González and technical meetings on actions to recover public space with municipal architects and engineers. Visits to Seixo, Goián and Figueiro public spaces.

A topic guide formed the basis for a list of questions which was provided to each interviewee in advance. The questions sought to understand the processes involved in developing and implementing policies/interventions, the outcomes or evaluations where available, and the governance context. Questions addressed the interviewees' role, the origins of the interventions/plan, the governance arrangements as they applied to their organisation, the research available on road safety evaluation, the barriers / challenges to implementation, key stakeholders and levels of engagement and any advice that the interviewee would like to offer for organisations or public sector bodies considering such approaches.

Interviews were conducted over Microsoft Teams. They were recorded and transcribed. The transcribed interviews were coded using NVIVO software. Codes were then clustered and discussed under the headings / themes across the policy cycle below.

4.2 Process

4.2.1 Problem Definition and Agenda Setting

The objective to reduce the dominance of the car and to promote healthy, safe environments in urban areas is of course central to the interventions across the case study cities. As discussed in chapter 2 many policy decisions in the past have been based on a system of automobility resulting in sprawl and car-

dependence. In an era of climate crisis, this is a significant policy challenge as the extent to which the problem is understood and prioritised is underpinned by political, social, and economic ideology.

When asked about the ‘origins’ of the interventions to reduce cars in the case study cities, the respondents refer to a specific period i.e. election of a new government or beginning of a policy or programme and related to wider city policies /activities e.g. retail, liveability. This provides an explanation of how the issues/problems are framed and the interventions justified. It also highlights the very political and collaborative nature of this policymaking beyond a technical mobility-planning exercise.

In each of the case study cities’ policies, sustainable mobility has been on the agenda since the late 1990s but the nature of the policy approach changes over time. Pontevedra city has the longest history of explicitly prioritising pedestrians and limiting access for the private car to certain conditions (pedestrian priority, speed reduction, parking restrictions). Interestingly, the work within the city has now spread to the municipalities in the wider province. There is an additional aspect to the definition or understanding of the problem in that the provincial council considered the relatively higher cost of car insurance in their administrative area as being a cause for action and to work collaboratively to improve road safety, developing further into a more comprehensive and holistic project in the Ágora Network.

In Oslo, the Car-Free City Life Programme was introduced in 2016 to reduce car traffic and to facilitate increased city life. It is apparent that climate action and improving the quality of urban life is the policy justification for the most recent interventions. However, the OHF and partners had been researching this aspect of city life for years. as part of their work promoting attractive marketplaces (retail and commercial areas in the city), before it became part of a formal political (green) agenda. There were perhaps concerns that newly elected politicians did not fully grasp the impact of such policies on the wider planning of the city activities, and the mobility requirements of the businesses they represent.

So, while in the case of Oslo traffic reduction, and thus car-dominance, may appear as a ‘forced-choice’ item on the political agenda (because of air-quality and pollution-related fines) there were also ‘interested actors’ within the space, motivated to promote liveable, car-free, accessible downtown areas as this aligns with the objective of promoting attractive marketplaces.

The government were also elected again despite the perception that they made unpopular choices at the start. The initial Car-Free City Life programme has also been expanded to include the *Living Streets Project* on foot of an apparent political desire to engage with communities in their locality and to identify and promote the ownership of actions locally. *Living Streets* is a bottom-up, community engaged approach to understanding and redesigning use of city streets based in the city municipality.

Living Streets kind of came to action after the city hall had been working with this car free city life for seven/six years, and then Living Streets came, because they wanted to make clearer action where local people could engage in this, not something just we did from the Kommune’s part, and kind of made plans for their neighbourhoods, but so Living Street is inhabitants saying ‘We want to do this in our street’

Oslo interviewee no. 2.

Initially Ghent undertook some pedestrianisation and parking rationalisation within the city centre to address problems of urban vacancy and decline and to improve the attractiveness of the marketplace. These interventions were further developed in response to mobility and environmental concerns. The formation of the Ghent Mobility Company provided an opportunity to integrate policies relating to parking, sustainable mobility, and enforcement due to the structure and competences of the agency. The formation of this specific-purpose agency is, in and of itself, unique across the case study cities in that it is representative of political and public support to promote sustainable mobility, it is a very clear declaration of action. However, the agency was not given free rein to work to their own agenda, the relationship with politicians in the early stages of plan development appears to have been an important one in that the politicians sought clarity as to what was planned and how it could be done

it was not the aim to do the circulation plan in that time, but we went with a SUMP [Sustainable Urban Mobility Plan] to the [politicians], and they said okay, you want to have no trespassing or semi-trespassing [through] traffic through the city centre anymore. It's a good idea, but we will not agree with the idea if we don't know what it wants to say. How will you implement it?

Ghent interviewee

In Brussels there has been numerous regional interventions since the 1990s' to promote sustainable mobility (linked to their regional development plan). The most recent *Good Move* plan places an emphasis on liveability, a localised approach to identify and promote the ownership of actions through Living Lab activities and improvement of 'landmark' public spaces

it just struck me because...there are examples of that also in my neighbourhood ... it's a square where one side has really been... well I don't think it's totally blocked off, because I saw that van, but highly reduced access for vehicles, it was just such a lovely space, whereas before, I think you would have heard the traffic, you would have been worried as a Mum, that the kids would run off into the traffic.

Brussels interviewee

While road safety does not appear to be a significant factor in defining the problem or setting the agenda for interventions under the previous plan, the preparation of the Sustainable Urban Mobility Plan, by contrast, was. And its role looks to be an expanding one in the future, which will bring benefits for clarifying and emphasising road safety objectives:

as part of the trans-European network for transport regulation revision, the Commission proposed that all of the cities and towns on the TEN-T network would have to develop sustainable urban mobility plans, if they haven't yet got them, and essentially if you want to do a SUMP, you have to look at road safety, you have to adopt targets as well for reducing deaths and serious injuries, so we see that as a tool, hopefully, of addressing our road safety priorities as well.

Brussels interviewee

4.2.2 Policy Formulation and Adoption / Decision Making

The interventions across the case study cities consist of both push and pull approaches over time, with a range of policy instruments utilised. A range of policy instruments are required considering the complexities of reducing car use and the social and political acceptability of same. Decoupling car use from wider urban policies related to climate, quality of life and liveability is difficult because of the car-centric policies of the past which have shaped urban environments.

In the case of Ghent the mobility company is a key actor in policy formulation and decision-making. They have the remit and competences to implement integrated policies supporting sustainable mobility. However, as per the section above, formulating the exact details of their plans was a process of discussion between the mobility company and the politicians. This is reflected in the literature which describes policy advice as a pragmatic and collaborative process encompassing a variety of knowledge, not limited to a single study or report which stretches beyond the boundaries of single authorities or governments

The advantage that we had is that [politicians] were really near to us. Every two weeks I [met] with all the three major political parties who were not the opposition, every two weeks everybody was sitting together, with really the basic people who make the decisions on political way to see 'We will try this for that. We will try it...' and so then we made a plan.

Ghent interviewee

In Oslo, workshops and conferences were held by the municipalities to engage different stakeholders during the policy formulation phase. However, as outlined above it was felt that this occurred after it had already become a public policy issue. There was a sense that the options to discuss different measures to alleviate the concerns of the retailers was not on the agenda, which was a narrow one focused on removing cars from the centre.

There were also concerns expressed about the way in which this phase of the process was housed within the municipality. A 'pilot department' was created and it was explained by the interviewee that this led to a loss of the valuable history, the relationships, the experiences built up over time between the stakeholders and the municipality was lost in an 'ad-hoc department'. It was felt that this was a silo-ed approach to issues (traffic regulation, climate change) which have wider ramifications across the city and that the 'modern management style' in a vertical agency approach does not work horizontally across wider issues within a municipality. When the competences were transferred over to the *Planning and the Development Agency* in Oslo it was considered much more beneficial and productive in that there was a familiarity in the workings of the department, an established mode of proceedings and a proper channel for communication which led to better quality policymaking.

Similarly, the *Living Streets* programme was initially housed within the administration responsible for the *City Life* programme but it then moved to another department due to the expertise and time demanded by the project (from departments with an engineering to community emphasis). This is described as advantageous to questioning the potential options and challenging the 'normal way of thinking of the street' and associated workings across departments within the municipality.

The *Living Streets* project offers some flexibility to tease out the possibilities for the street from several different perspectives i.e. road safety, mobility, car parking and community acceptance. There is a

practicality in working from the ground up, with communities, and across departments to solve different challenges and to respond to different contexts at the neighbourhood level. The programme, as described, appears somewhat iterative in nature, exploring possibilities with communities and between departments, challenging assumptions about the dominance of the car and pushing for new and varied solutions. However, it was mentioned that there are socio-economic factors which appear to influence the level of engagement of communities with the process.

The *Living Streets* project in Oslo suggested that the involvement of community members during the plan-making stages reduced conflict (the specific example of removing car-parking spaces was mentioned).

So that's also a different way of not making it something that we do, and just saying 'This is our plan' but now it's the people's plan instead, and then it gets less conflicts.

Oslo interviewee no. 2.

Consultation with schools as part of the *Heart Zone*⁷⁰ programme also allowed for identification of more targeted solutions to high pedestrian and cyclist areas from a road safety perspective. However, the consultation with the local community in these areas was also important with the municipality working towards balancing the different interests i.e. the concerns of the school and the subsequent knock-on effect of any changes for the local residents. The interviewee noted that any time-restricted interventions around schools need careful consideration of the impact this has on the student's understanding of the situation (and related risk) outside of those times.

'but then the road safety [department] were like no, this is very complicated for the kids. Then they'll think that they could go into the streets whenever they want.'

Oslo interviewee no. 2.

This community-based programme also promotes active citizenship and engagement with city governance more broadly, in addition to the place-specific decisions on interventions. This appears to be considered advantageous from the politician's perspective.

In Brussels, the interviewee spoke about the opportunity for citizens to become involved in the Good Move plan in the early stages of development through the consultations which were held informally (in public spaces). There is also the forum known as 'Interpellations' where citizens can formally address their local councillors in the local town hall. These more formal forums became quite contentious in some cases and their effectiveness to discuss issues to inform decision-making being dependent upon the quality of the chair. This is discussed further under the 'people' theme.

⁷⁰ A heart zone is a car free zone around a school where it is not permitted to drop off or pick up pupils by car. The measure is intended to make school areas safer and less chaotic. Alternative drop/pick-up locations are identified outside of the zone.

The interviews also referenced learnings from earlier projects/programmes, from networks (European Transport Safety Council, European Road Safety Exchange, Eurocities, POLIS) and from other cities as informing the policy formulation. The Living Streets project in Oslo reference the work done in Ghent, specifically about the importance of, and challenges associated with inter-departmental working. Oslo described similar experiences as Ghent when it came to balancing the road safety and mobility interests in decision-making, and the value of those established relationships when it comes to getting things done (this is discussed further under the people theme).

We also discuss this with the Ghent project, that they have exactly the same challenges with the road safety and the mobility divisions, that they had this... the project, they have been running it for ten years now, they had people in that divisions that they could talk to directly and ... discuss how do we solve this, and they quit, they had a different [contact person], and so immediately when it came [to working with] another person, they had to start all over with those kind of discussions. So this is something that we need to build a system for. That's also something we want to do – build a system, how do we involve the different divisions in that administration to make this happen easier?

Oslo interviewee no. 2.

The business representative group in Oslo referred to the *Sustainable Streets* programme in New York City as being a good example of establishing a baseline to understand the impact of changes to city mobility on the different business activities and revenue across midtown Manhattan. This is addressed further in the section on evaluation. The importance of mapping and understanding the different business activities and impacts across the city was emphasised so that the objectives for *City Life* and competitiveness is maintained. It is important to understand the actual and perceived relationship between the type of retail activity/service and the mode of travel e.g. People will use public transport to reach the city for eating/drinking, but with for example a bed shop, the perception is that car access is required (even though a bed will more than likely be delivered). They also spoke about their exchanges with Brussels and that public investment (in lighting, paving, landscaping for example) is viewed as beneficial as it attracts further private investment. This public investment (pull approach) is considered more productive as a policy instrument than simple regulation (push approach).

The eventual adoption of policy options can be considered in terms of their feasibility according to several factors, but the availability of resources (economic, political support) and the competences/powers of the actors are key. It is apparent that the decentralised structures in the case study cities allow for more room to both initiate and implement policies.

4.2.3 Implementation

As outlined above, the politicians in Ghent sought clarity from the mobility company on the actions required to implement the SUMP before they would support same. Increasing parking charges was the first 'push' approach and economic instrument used for implementation in Ghent. The decision was made to increase parking charges significantly, rather than incrementally, to maximise the efficacy of this tool in changing behaviour. Increasing parking charges was effective as an economic instrument for implementation in Ghent. The cost makes other options more attractive, particularly for the shorter distances (under 5km). The city had the advantage of owning most of the car parks in the city so they could increase the parking prices and they did not have to factor in property and access rights to the car parks in

the new circulation plan. ANPR (automatic number plate recognition) cameras were used to record and restrict access in accordance with the plan, but the coordination of that system took some time to work out as the high number of fines initially was considered unreasonable for the citizens and unmanageable for the mobility company. The municipality/mobility company were also given some powers to issue fines for speeding and parking offences and this works well as the mobility company can prioritise enforcement and utilise the revenue from fines in a way that the police may not have the remit for (e.g. reinvestment in sustainable mobility initiatives).

The topography of the city is referenced as being relevant when it comes to implementation of the interventions and the replicability/scalability of them. The interviewee from Ghent explained that it is more difficult to enforce the 30km speed limit on the areas designed in the 1970s, with larger roads. Also, the presence of water (rivers/canals) and bridges means that traffic can be controlled more easily. The implementation of the circulation plan was considered a success (notwithstanding localised disadvantages for people living in certain parts of the city) and the autonomy that the mobility company has is a distinct advantage in implementation. The relationship with the politicians is very important also. People need to be brought along on the journey, with consistent dialogue to maintain political support.

In Brussels, the implementation of traffic speed reduction was preceded by a strong communication campaign. Citizens received a letter about the benefits of speed reduction to 30km/h and specifically the likelihood of a pedestrian or cyclist surviving a crash at 30km/h compared to 50km/h. During implementation of the *Good Move Plan* there was greater opposition than initially expected and organised protest in some parts of the city. New infrastructure was destroyed in some parts of the city and pilots for low-traffic zones were cancelled or put on hold because of public pressure. The European Transport Safety Council wrote an opinion piece which received a lot of attention in the press. The piece supported the actions for implementing the Good Move Plan in response to the opposition and encouraged the politicians to hold firm highlighting the need for consistent communication of the benefits of the interventions during the implementation phase.

it was a sort of supportive opinion piece where we were saying to the doubters ‘Look, this is also going to be really good for road safety’ and appealed to the Politician, the Minister in Brussels region, to say ‘Don’t give up, adapt yes, but don’t give up.’

Brussels interviewee

Communication and media coverage is a very important consideration during the implementation phase. As discussed in the literature review ‘information and education policies’ are a policy instrument which can shape the narrative, garnering support or opposition for interventions. A targeted communications strategy is required. It is clear from discussion during the interviews and over the course of the fieldtrip to Pontevedra that broad, general coverage can leave space for conflict and unproductive policy discussion, whereas clearer initiatives which communicate the benefits as they relate to liveability, climate, mobility are more useful and effective.

Political support for implementation can waver because of conflict and opposition. This is the case in Brussels where municipalities in the regions have some flexibility when it comes to implementing the measures contained within the *Good Move Plan*. Opposition and conflict in one area can lead to

conservatism and reluctance to proceed with actions in another. Willingness to implement plans can be impacted by potential changes in government and associated changes in policy direction.

4.2.4 Evaluation

The term 'evaluation' in this section is broad. It does not solely relate to a formal evaluation of the programme of interventions proposed/implemented. Oslo did have a pre-programme baseline study (2017) to provide key information and data on the 'before works' situation, so that comparisons could be made afterwards. The key objectives of the evaluation were to assess how the measures worked in practice, and how the measures were perceived by the various actors. Evaluation of the interventions across the case study cities is not a straightforward task considering the ongoing work, different objectives, the relationship with other policy areas and the political context within which it sits.

There is a level of ongoing evaluation and analysis as stakeholders work through different interventions in different contexts. In the case of the *Living Streets* project in Oslo, the level of evaluation and analysis required depends on the location and duration of the street intervention. That appears to then have an impact on the types of projects which are implemented;

Closing a street totally for a longer period, that's difficult, that's something they need a lot of analyses of how is the road mobility, or how is the mobility for cars in the other streets nearby? So they don't want to do that in our [Living Streets] projects, because then they need a lot of time to do that testing or analyses for that, so that's something we have now figured out that in Living Streets we are not closing the roads totally for a longer period. So we could do that for a shorter period.

Oslo interviewee no. 2.

There is an evaluation of each street to see how people use the street (via resident surveys).

it's a bit difficult, but we do that typical questionnaire for everyone living in the area after we are done, and also talking with the ones that are the people initiating it, and we also have people there every day, or at least three or four times a week that are talking with people and talking about the project.....to see how do they use the street differently.

Oslo interviewee no. 2.

The municipality is also working on developing a means to evaluate the *Living Streets* project in its entirety.

In Ghent there were predictions that there would be an increase in traffic on some routes post implementation of the interventions, and so some evaluation was carried out in this regard, with the intention of taking extra measures to increase safety. However, it was considered that there were no extra road safety issues evident in the immediate period after implementation. Notwithstanding this, the increased rates of cycling led to an associated rise in collisions and injuries. The availability of data, and the underreporting of cyclist collisions and injuries, and the appropriate approach to analysis (non-reactive) was mentioned.

I think if we have a good registration of all the accidents and analysis of that accident, that would help... that would help us a lot to make a lot of the infrastructure more safe. So that's a part that we from the mobility company don't do enough I think.

Ghent interviewee

The SUMP guidance is suggested as a framework for setting targets and evaluation.

the SUMP guidance also stresses the need to set targets and you've targets, sub-targets with the different road user groups, but then gather the data and monitor the data... I think they had this circular decision-making...then use that to continue to inform your process.

Brussels interviewee

The evaluation process can be a contested one. A city stakeholder described an evaluation as more of a 'marketing tool for the municipality' than a credible piece of research, thus demonstrating the challenges of evaluation within a complex social and political context.

4.3. People

4.3.1 Key Stakeholders and Leadership

Across the case study cities, local and regional politicians are the lead stakeholders (as opposed to national politicians) supported by the staff of the municipalities. There are then different stakeholders which support/input into the development and implementation of the interventions i.e. business representative groups, citizens, parents in schools, NGOs etc.

In Ghent, the mobility company is a somewhat unique stakeholder as a specific-purpose agency, but again the close relationship with politicians is clear and the process for agreeing the actions was described as an intensive period. In Brussels, Brulocalis supports the municipalities across the Brussels Capital Region to implement to the Good Move Plan. Similarly, the Provincial Council of Pontevedra builds capacity of the municipalities to translate the objectives of the Ágora Network across the municipalities.

It is interesting that the business representative group in Oslo referred to their involvement in city governance for over 180 years and conveyed a sense that their knowledge and understanding of the theory underpinning 'car-free cities' was underestimated and underutilized by the political leadership (while their message did reach the decision-makers in the municipal departments). The point was also made that when it comes to driving changes for improving city life, commercial activities (retail, services, and customers) are significant factors that sit somewhat outside the municipalities' control.

The effective and balanced chairing of public meetings by politicians (as discussed in Brussels) is essential to the successful leadership of these programmes. In Oslo, the Living Streets project is a means of encouraging leadership within communities to drive change and wider civic engagement. The project provides a forum for strengthening relationships between citizens, politicians and the municipalities.

Citizens become part of the governance processes and understand the workings of the municipality, which can encourage some to become involved in wider civic activities beyond the Living Streets project.

4.3.2 Interdepartmental working

Interdepartmental working is a strong feature in Oslo's *Living Streets* project and the extension of the project from a mobility focus to a wider road safety and community engagement focus (and subsequent shifting in the departments involved) has allowed for a process of questioning the traditional ways of thinking about the role and function of streets, and also the ways of working within the municipality

We see that we need to work in our administration to change, or shift it a bit from 'the streets are for the cars', so we need to talk about that in the administration – how do we change that thought about what is the street for? So, we need to have a good dialogue with the different departments working on maintaining and securing the streets.

Oslo interviewee no. 2.

With reference to dealing with other departments (within the municipality e.g. roads engineering, planning)

So [we know] 'Okay, this is what is usually possible' and then we always have to challenge them a bit, so they don't go into the autoreply 'Oh this is not possible.'

Oslo interviewee no. 2.

However, it is apparent that the success and extent of interdepartmental working is related to the individuals involved and the interpersonal relationships. When people move departments, those productive exchanges can be lost. Oslo referred to Ghent having the same experience as them and that is why they are working on building a system within the administration to formalise this working practice (as done in Ghent)

We also discuss this with the Ghent project, that they have exactly the same challenges with the road safety and the mobility divisions, the project, they have been running it for ten years now, they had people in that divisions that they could talk to directly and discuss how do we solve this, and they quit, they had a different [contact person], and so immediately when it came another person, it was the same... they had to start all over with those kind of discussions. So, this is something that we need to build a system for. That's also something we want to do – build a system, how do we involve the different divisions in that administration to make this happen easier?

Oslo interviewee no. 2.

The Ghent mobility company had less need for inter-departmental working considering their structure and remit. However, the financial surpluses generated and the allocation of same to sustainable mobility projects appears to create wider tensions in city governance where there is pressure on other aspects of service provision, for example spending money on building bike parking versus public housing (this was not discussed in further detail). This ties in with the discussion around difficulties of single-agency or taskforce approaches to the implementation of interventions as previously discussed.

Interdepartmental working is important from the perspective of sharing road safety data although there are other GDPR (General Data Protection Regulation) requirements that condition what and how information is shared.

The means to enforce the interventions is a significant factor in their identification, prioritisation, and successful implementation. Again, this is where the complexity of road safety as a social and political urban issue is clear. In Belgium, the municipality/mobility company had some powers to enforce car parking and speeding offences. This had clear benefits in the city centre but there appears to be less scope to benefit from this in more car-centric, suburban areas where enforcement is generally more difficult, and the mobility company had less remit. This points to the spatial consideration for enforcement.

In Spain, the municipalities have their own police force which affords closer administrative, operational, and personal relationships within the city. This means that the implementation of measures and enforcement is a more productive process, than a city having to work with national policing structures.

4.3.3 Communication

Communication is relevant for galvanising support for the outcome and for ensuring a productive policymaking process. The physical outcome of an intervention communicates a message to citizens e.g. Living Streets ‘this is your project, your neighbourhood.’ In Pontevedra city and across the province with the Ágora network the interventions to create high public realm and quality pedestrian environments communicates ‘people and pedestrians first in the city’ and ‘is a fundamental right of citizenship.’ The physical outcome of the intervention must align with the intended outcome. That is why it is so important for space to be utilised and occupied post-intervention. If not, people may question the motivation, logic and success of the interventions.

You have the [people against the interventions] who can say ‘look, three streets away there’s a long traffic jam because the cars have been redirected here’, they have not yet gotten used to the idea of this new redirected system, and [they question] what’s the benefit while we’ve got this empty road here and no one’s really [using and benefitting from], apart from a few cyclists?

Brussels interviewee

If the value of the intervention is not communicated to people appropriately then support can be lost (politicians, citizens, city stakeholders).

It was also suggested that the investment of public money in places clearly communicates the intention of, and commitment to the policy. This was particularly strong in Pontevedra as demonstrated through the implementation of very high-quality public spaces.

In the simplest terms informative, targeted, honest, and inclusive communication during the policymaking process is key. There are various forums and opportunities for communication throughout the process and amongst the different stakeholders i.e. political dialogue, formal consultations and workshops with stakeholder, information campaigns, interdepartmental and inter-municipality forums (within municipalities and across agencies and different tiers of government).

Projects like Living Streets are also a means of communicating with local community groups and as a means of changing the approach to communication within the municipality (discussed previously).

Organisations like ETSC offer an impartial source of expert advice and factual information. The presence of these types of communications in the wider media is important. As discussed previously, general, and vague coverage can leave space for conflict. It is important that the media is informative in communicating the essence of the public policy as it relates to mobility, climate etc. rather than providing a narrow commentary on the differing perspectives.

The benefits of the interventions also need to be understood from different perspectives and communicated to different audiences

I think for sure do massive amounts of consultation, public participation, but also present the potential benefits in relation to road safety and here, I mean you've included the liveability noise reduction, and I think that's a very important aspect. So, some people might be attracted through road safety, others through environmental benefits, others because... they want to take their dog for a walk, just think of all the different inroads for the different parts of the community.

Brussels interviewee

4.4 Package of Interventions

Several different interventions were discussed during the interviews; traffic reduction, speed reduction, car parking reduction, public space improvement, cycling, temporary road-space reallocation projects. The interventions vary across time and space in the case study cities. There is no single intervention, rather a series of complimentary measures - a package of interventions - which seek to physically reduce car dominance and address individual behaviours and perceptions of mobility and urban life over time.

The process to reduce car-dominance through the 'Living Streets' project in Oslo is apparently an iterative one which contributes to challenging the in-grained assumptions about the car which inform decision making.

That's like the first thing that comes to their mind when they get this 'So how does this affect the cars?' So, it's not about how does it affect people.

Oslo interviewee no. 2

Temporary closures are also used in Brussels with similar effect

Opening up that possibility for people to experience car free streets will also then like ease them in gently to the actual traffic reduction zone, when and if it comes.

Brussels interviewee

The use of streets once they are closed to car traffic is an important consideration. As discussed above spaces must be occupied and utilised otherwise people fail to see the gains. This requires municipal support in terms of funding for activities

Coming back to the low traffic neighbourhoods, one of the other things that the communes and the region had foreseen, was budget for the communes to be able to do some funky stuff, some exciting things, with the new reclaimed space. So, where I live, where the space is there and has survived so far – fingers crossed – they have now put this in place and there have been some really nice activities...there is a section which is totally car free, like pop-up theatre, open-air theatre... Like a pump park where they put stuff for kids to do cycling on and... so I think this would fit into the category of tactical urbanism...

Brussels interviewee

A Living Streets programme also features in Ghent and is considered a good experiment by the interviewee. The School Streets⁷¹ and Play Streets⁷² are part of this programme and are described as a good example of the mobility company working with communities to implement interventions which are driven from the bottom-up. However, the limitations were also noted i.e. the demand for these projects is seasonal (during the summer months when people are at home and don't need their cars as much). Also, there can be conflict locally as the benefits are visible on one street whereas additional car parking is redirected to adjoining streets. No specific solution to this was identified.

In Ghent and Brussels actions have been taken to reduce through traffic through circulation plans and low-traffic neighbourhoods. In Ghent, the removal and increased charges for car parking contributed towards implementation of these interventions. Pedestrianisation and large pedestrian areas support the actions to reduce through traffic in Brussels. While the pedestrian zones were initially trialled, some have been made permanent and money has been invested in making them look 'beautiful and pleasant.' The public investment in the public realm in Brussels was also highlighted by an interviewee from Oslo as being very beneficial to the success of car-free areas for urban life, which then attracts private investment, something Oslo could learn from. The positive on the ground outcomes of a high-quality public realm are also very evident across the Pontevedra region. Here, temporary, or tactical urbanism is generally not used as an approach. Road space that is reallocated to public space is done with the intent of conveying clear public benefits through high quality public spaces designed to outweigh any potential disbenefits or inconveniences to citizens.

Traffic speeds have been reduced across the case study cities. This coupled with vehicular traffic reduction, leads to substantial potential for road safety improvements when combined with other quality of life measures. The potential for public transport reliability tends to improve with reduced traffic congestion, an

⁷¹ School streets are car-free areas outside schools. Roads are closed to vehicles (or they have severely restricted access) normally at the start/end of the school day.

⁷² The programme is a cooperation between citizens and the municipality. Communities can apply for road closures/traffic restrictions for events/play.

important factor in successful public transportation systems. The impact on remaining vehicle speeds on urban streets must also be considered to ensure that reduced congestion does not lead to excessive speed for remaining or 'necessary traffic' (including public transport) and thereby inadvertently reinstating a form of motorised dominance and associated road safety and quality of life implications.

Car-parking removal is also a feature in the Oslo case, however it was explained that those travelling to the city centre by car for retail activities were few, and commuters had the largest share of individual car use. There was no reduction in the number of private parking spaces, and in some cases, employers actively sought to increase employee car parking options, and so the policies were ineffective in that regard. From the perspective of the business owners there is need to understand the impact of the interventions and to provide appropriate supports e.g. communication of new arrangements and other options for people (like home delivery).

There has also been protests in Brussels. This led to the alteration of original plans for low-traffic zones to what might be described as a watered-down approach. Exemptions for business owners are provided thus reemphasising that there will be a place for the car.

When it comes to transferring or scaling up the interventions, context is extremely important. The point was made in Oslo and Ghent that the intervention needs to be specific to the objective and proportional. If not, one risks losing political support for the measures. A success in one place does not demonstrate a general proof of concept for other places. The extent of the problem in each context must be considered and the interventions reflective of same.

If you then start to do this in secondary city centres, then you lose a lot of support, because you do it because you want to do it and not because there is a big problem, and that's something which is very dangerous in sustainable mobility....

....if you have a success, take your success, but don't exaggerate and try to do much.

Ghent interviewee

It appears that there is a need to balance ambition with feasibility and that the process of developing the interventions is a complex political and social one, requiring consistent and clear communication across agencies and stakeholders. The interventions must be seen to be justified and the outcomes beneficial.

The city governance structure is key to the successful development and implementation of the interventions and while these vary across the case study cities, municipal and regional autonomy is a significant advantage.

5. CONCLUSIONS & RECOMMENDATIONS

5.1 Conclusions

This section summarises the key lessons from the literature review, city profiles and the interviews to draw conclusions and provide recommendations. Hyder (2022:135) contends that ‘Road safety is inherently complex and political and this must be confronted to progress and create sustained change’. The conclusions and recommendations address this complexity across the themes of process, people, and a package of interventions. The literature review describes the categorisation of interventions to reduce car use as push/pull approaches implemented through regulatory, economic, information/education or public goods/services policy instruments. The city profiles demonstrate a range of these policy instruments being utilised. Road safety is found to be context-specific, and the suitability and feasibility of interventions is shaped by people and process across city and regional governance.

The literature review, case studies and interviews point towards a number of headline conclusions that can inform policy and spatial planning practice in an Irish context.

There is a wide range of actions and interventions available across policy instruments which include:

- Reduction of speed and reduction of vehicle volumes
- Review and implementation of mobility / user hierarchy
- Circulation plans and limited- / necessary-traffic only restrictions
- Single platform streets / co-existence zones
- Pedestrianised areas and reclaimed public space
- Minimum footpath widths
- Car parking management (review, reorganisation and rationalisation)
- Pilot projects / Trials – reallocation of (road) space, temporary restrictions
- Public space improvements and programming of events
- Improved public transport
- Improved cycling infrastructure

Vehicle traffic reduction in urban areas, town and village centres is a very significant road safety tool, as it reduces or removes vehicular traffic which is the primary source of urban road fatalities and serious injuries.

Pedestrian priority in urban areas has very significant potential in terms of meeting urban road safety targets and other spatial planning policy objectives. There is a much greater need in Ireland for a focus on pedestrian mobility than is currently the case. Both ‘push’ and ‘pull’ approaches and a range of policy instruments are required.

As per the literature review and the city profiles, there is an opportunity for positive coordination of stakeholders within established working relationships to drive changes in spatial planning policy which elevate and promote road safety within the national strategic outcomes for compact growth, strengthened rural economies and communities, sustainable mobility and transition to a low carbon and climate resilient society. Ill-informed proposals risk failure to win public and political support. Communication and positive coordination of stakeholders is vital for ensuring a productive policymaking process and to gain support for

the intended outcome. The physical outcome of an intervention i.e. changes to public space communicates a message to citizens and so space must be occupied and utilised, otherwise people will question the motivation, logic and success of the interventions.

5.1.1 Process

Setting the Agenda, 'Framing the issue'

There are apparent differences when it comes to 'framing the issue' and setting the agenda across the case study cities. There is a stronger emphasis on climate and liveability in Oslo, transport circulation in Ghent, sustainable mobility in Brussels, and placing the pedestrian first with public space as a citizen's right in Pontevedra.

Some discussion is worthwhile as to whether and how lessons from these varying contexts can inform Irish policy and practice. Arguably in Ireland we have been trying to cover most of these angles, public space as a right less so. This is communicated well in Pontevedra where public space and active mobility are more democratic, it is not just about getting rid of cars. The reclamation of public space is viewed as a right of citizenship, and representative of the relationship between the city and the citizen.

Interdisciplinarity is key to good design and implementation (Cairns *et al.*, 2002). Communication and positive coordination between key stakeholders are therefore important at the agenda-setting phase so that all design and implementation considerations are included through the policy process. Communication is also vital, to emphasise that there are likely to be initial problems, but also to communicate positive aspects of the scheme.

Across the case study cities road safety does not appear to be a significant factor in defining the problem or setting the agenda for interventions, with the exception of Pontevedra. Although Pontevedra's plans commenced in 1999 at a time when road safety was not a significantly documented public issue, it has become increasingly important over time as interventions are expanded. There appears to be little discussion around, or consideration of the number of road-related deaths or serious injuries. Rather, it features within the broader 'sense of safety' linked with quality of life and liveability discussions. References to *Vision Zero* in the case study plans and evaluations (and media) seem to become more prominent when cities meet or come close to meeting the target. Across all the case study cities, the means of evaluation and access to road safety data (deaths and serious injuries) is highlighted as an issue and this is evidenced in the inconsistencies in figures reported in official documents (as per the city profiles).

In the Irish context, a review of the policy context suggests that while there may be some reference to road safety generally, there is a current gap in translating specific *Vision Zero* targets to statutory spatial plans nationally, regionally and locally. There is no reference to *Vision Zero* and *Safe Systems* approach in Ireland's statutory spatial plans at a national or regional level. The National Planning Framework and the Regional Spatial and Economic Strategies do not refer to *Vision Zero*. Similarly at the local level the development plans in Dublin (with the exception of Dún Laoghaire-Rathdown County Council) do not refer to *Vision Zero*. There is an opportunity to increase the visibility of this objective on the agenda through increased emphasis in spatial planning policy. The centralisation of our spatial planning policy is an advantage in the Irish context, in this case, where (by comparison to some European countries) we have the *National Planning Framework* with ten common National Strategic Outcomes (NSOs) applicable to all spatial scales. The values underpinning the objective for *Vision Zero* are aligned with these NSOs as they

relate to compact growth, strengthened rural economies and communities, sustainable mobility and transition to a low carbon and climate resilient society. The provisional agreement on more sustainable and resilient trans-European transport network with associated mandatory Sustainable Urban Mobility Plans (SUMP) for cities along the network will also bring opportunity for better integration of road safety objectives and targets into spatial plans. This will require the provision of a robust evidence base (including road safety data as discussed in section 2.2.3) for policymaking to adequately respond to this complex and political issue.

A high level of engagement and consultation, through programmes like the Dun Laoghaire Rathdown County Council *Living Streets initiative*, helps set the agenda and has the potential to improve the identification of solutions, improve the acceptability of and support for decisions and reduce conflict in residential areas. This is because action and identifying potential solutions is driven from the ground-up through local communities. This approach has wider civic gains as it promotes more active engagement with local governance structures. This appears to be seen as very beneficial by politicians, particularly in the case of Oslo. However while Oslo works on developing an online system/process for scaling up the programme, the development of these projects does seem resource intensive when viewed solely as a means to improve road safety – the wider advantage is that there is the potential to shift people's views of the car in neighbourhood environments (benefits for climate and health), and there are wider civic gains to increasing engagement with local authorities internationally. There are potential opportunities to incorporate the principles of the *Living Streets* projects in other local authority community programmes and initiatives.

Policy formulation and decision-making

The Oslo interviews across the public sector and trade association points to the importance of considering the different actors during the agenda-setting stage of policy formulation. This highlights the potential to contribute towards the understanding of the problem and to shape solutions in a 'positive, coordinated' approach to policy formulation and decision-making.

Different, yet viable, governance frameworks appear across the case study cities as they relate to local political systems. For example, the studied cities all have local authorities with high levels of executive (policy and decision-making) elected powers with responsibility for agenda setting. Consideration of the forum for discussion or the 'home' for the policy-formulation and decision-making phase is extremely important. The benefits of a single agency with competences for actions, as in the case of Ghent is apparent when it comes to creating policies which are implementable. However, a taskforce approach is cautioned against in the case of Oslo where the existing structures with their history of relationships and experiences, is considered a more productive means of policymaking.

Interventions to reduce car use to improve road safety also have clear benefits for safety, liveability and climate. There is a significant opportunity to 'join the dots' within existing structures/policymaking processes. Ireland has the advantage of having a national strategic spatial planning policy (the National Planning Framework) with ten common strategic outcomes which apply to all places. This provides a common space to elevate and promote road safety in spatial planning. Notwithstanding this common space, there is of course a need to consider the appropriateness of interventions at different spatial scales, population densities and service function of towns and villages. Also, this area of policymaking can't be decoupled from wider city issues and discussions around (and perhaps competition for) allocation of

resources and priority. Therefore strong, committed leadership is required by elected and executive functions who believe in interventions for change. The case study cities and countries have a similar hierarchical and coordinated planning system. A very profound difference is that the local and regional governments have more power and autonomy to enforce change e.g., municipal police forces.

Across the province of Pontevedra there have been very significant changes made in relatively small towns. These learnings are particularly important and relevant in the context of *Compact Growth* and *Town Centre First* policies in Ireland. The Pontevedra case study demonstrates a context similar to Ireland where municipalities are working to address population decline and dispersed settlement patterns. The inter-municipality working, through the *Ágora* project, demonstrates the significant value of inter-municipality collaboration to 'scale-up' interventions through shared knowledge, capacity building, developing technical expertise and accessing funding.

We must consider the unintended consequences of actions and decision-making based only upon what is feasible e.g. the limits of legislation, availability of resources (economic, political support) and the competences/powers of the actors are key. For example, in Ireland, significant improvements to active travel have been made through use of S.38 of the Road Traffic Act. However, its narrow application may not support the improvement of pedestrian environments (discussed in more detail below), or the facilitation of wider, strategic communication through the decision-making process.

Implementation

The physical interventions in the case study cities are transferrable in the Irish context - we have broadly similar places in terms of urban form. The challenge is largely the process of decision-making and implementation. These need to be considered in light of our existing governance structures e.g. absence of elected local leaders with executive functions, absence of municipal police force, single mobility agency.

However, there are a variety of opportunities within Irish local governance structures, even if the conditions are not as conducive as those of the case study countries. The research suggests that regardless of governance structure, strong interdepartmental working (within local authority and across government) is required, and this features strongly during the interviews.

Potential opportunities for Ireland are discussed in the recommendations. Strongly motivated leadership and good working relationships are essential to shaping suitable, feasible and implementable interventions. This is particularly important in the Irish case where enforcement of regulatory measures could be considered more challenging as we have different policing and legislative structures e.g., absence of a municipal police force, absence of a specific purpose agency (like the Ghent Mobility Company). However, the research suggests that a single-purpose body/agency/taskforce is not unproblematic and existing structures and relationships should first be explored and further developed to achieve actions. The lessons from the case study cities illustrate the importance of police support for any significant measures employed, and the consideration of how measures will be enforced where needed, including appropriate resourcing.

In Spain, the local authority applicants for funding (for public space expansion associated with the Ágora Network) have to demonstrate how they align with the 10 principles of the Network, including ‘Safe Spaces’ (road safety) as well as provide a predefined minimum amount of public space reclamation/road space reallocation (quantified in square meters). As part of the application assessment, additional points are available for local authorities that propose higher levels of public space reclamation/road space reallocation. There are lessons for existing similar funding schemes in Ireland (and future funds), such as the Town Centre First Plans, Urban Regeneration Development Fund, the Rural Regeneration and Development Fund and Active Travel Funds etc., to not only require applicants to demonstrate how they align with key objectives and principles of each fund, but to also encourage more visionary and transformational thinking through the use of bonus points for collaborative, innovative proposals for public space reclamation/road space reallocation. There is also the potential for existing funding streams that address city, town and village centre road and public space allocation and use, as well as new funding streams, to give greater emphasis to road safety objectives than is currently the case.

Evaluation: outcome and view of success of measures

It is evident from the literature and case study cities that there are a variety of societal, economic and environmental outcomes which result from the interventions made, to reduce car traffic and thus various ways to view the success of same.

The research suggests that evaluation and monitoring of the outcomes of interventions should be integrated into the design, management and funding of projects, particularly significant, transformational, or potentially controversial projects. There is no standard approach to monitoring and evaluation, as it is context specific, although there are some key lessons from the case study cities that are recommended below.

The concept of traffic reduction, or even “traffic evaporation” as it is sometimes referred to, is a recognised effect of successfully implemented traffic management schemes. Its key point is that traffic doesn’t simply divert on to nearby streets, it reduces overall and appears to evaporate. Depending on the intervention, it can take some time for the effects of some interventions to become apparent; it can take time for other impacts to ‘settle down’ and predictions of the impact of road space reallocation are often found to be unnecessarily alarmist. With careful planning, consultation and communication the reallocation of road space can provide complimentary benefits (Cairns *et al.*, 2002). There should be an awareness of the potential for unintended consequences of some interventions, and an openness in approach to managing unintended consequences if required. Measuring the movement of people rather than focusing on cars being pushed out is also important as arguments amongst various stakeholders will focus on impact to business, impact on specific groups etc. Measuring effectiveness by counting the movement of people allows for a consistent understanding of impact and steers the discourse away from the private car (Cairns *et al.*, 2002). GHG emissions can be applied to mode share and the number of km per person travelled per day. This can highlight the level and impact of car use. There is a need for reliable, robust data which will allow for evidence-based decision and policy making. It is also clear that there is a relationship between road safety and the national culture of a country which will interplay with support for interventions and views on success (Van den Berghe, Schachner, and Sgarra *et al.*, 2020). Setting clear and transparent objectives (for example with the Ágora network) for any project/intervention is important so that these objectives can be monitored, assessed and adjusted, if needed, over time.

Collation of baseline pre-intervention data is key for comparison with post-intervention outcomes. Not all project objectives e.g. liveability will have easily identifiable metrics where data can be collated. In some cases, creative thinking and proxies may be appropriate to consider e.g. vehicular traffic volumes as a proxy for air quality, especially when combined with other evaluation methodologies that will provide a more holistic picture.

5.1.2 People

A clear insight from the case studies and stakeholder interviews is the relevance and centrality of communication for galvanising support for the outcome and for ensuring a productive policymaking process. The physical outcome of an intervention is also seen, in many cases, to communicate a message to citizens. Public investment in the public realm communicates commitment to the policy for both citizens and private investors. If the value of interventions is not communicated to people, then political and public support is lost.

Across the case study cities, the politicians are the lead stakeholders supported by the staff of the municipalities. There are then different stakeholders which input into the development and implementation of the interventions i.e. business representative groups, citizens, parents in schools, NGOs etc.

Interdepartmental working is evident in the inter-municipality working, capacity building and knowledge transfer across the cities. The case study cities have learnt from and communicate with each other. In Spain we see the advantages of strong inter-municipality collaboration across the provinces through the Ágora Network. In Brussels, the role of Brulocalis as a supporting agency for the municipalities is an advantage. In the Irish context this suggests a role for the regional assemblies and /or other national and regional networks (LGMA/IPA) to support local-authority collaboration (as per recommendations of OECD, 2022).

Interdepartmental working allows opportunity for different disciplines within a municipality (planning, engineering, community) with different but related functions to review processes and assumptions associated with the function of a street and the place for the car. It also helps in shaping interventions which are implementable. The success and extent of interdepartmental working is related to the individuals involved and interpersonal relationships. When people move departments, those productive exchanges can be lost. In Oslo, the Living Street project group are working on an online platform so that applications can be easily and consistently processed across departments.

There is limited education and training in Ireland dedicated to the area of applied 'Urban Design' (whether as a professional practice level, a tertiary education level, or for other stakeholders involved in the built environment). The design of the public realm, including road space reallocation and relationship between 'place' and 'movement' is particularly important to support pedestrian movement, pedestrian priority and road safety. This issue also existed in the Province of Pontevedra and was a key reason for the development of the Ágora Faculty in recent years. The latter developed and delivered extensive training in the area of urban design and road space reallocation/public realm reclamation for technical and political staff to support the government investment programme available. The training aims to ensure that public funds are spent in a way that reflects best practice and knowledge; and to ensure that funding is directed towards projects that aligned with the '10 principles of Ágora' including 'safe spaces'. Given the extensive investment programmes currently available in Ireland that have outcomes on the ground that impact on

road safety (including Active Travel Funds, Town Centre First Plans etc.), as well as potential future funding calls, there is a real opportunity here to align multiple objectives for road safety gain.

In addition, the Ágora Faculty runs dedicated training for local police forces on the relationship between urban design and road safety, including the Ágora principles. This is run by police officers for police officers, with an introduction by an elected leader. Topics include:

- The prevention of collision and its relationship with design of public realm
- Speed reduction techniques
- The defence of recovered public space
- Circulation plan design, car-parking reorganisation & the concept of traffic demand management
- How to achieve buy-in and collaboration from citizens.

This has some similarities in Ireland with regards to An Garda Síochána (the Irish police force) current running of their ‘Crime Prevention through Environmental Design’ (CPTED) education programme (which addresses how good urban design can reduce opportunities for crime), and there could be some existing structures to work with or build upon with regards to the potential for good urban design to improve urban road safety.

5.1.3 Package of Interventions

It is recognised that road safety is complex and that political and interdepartmental commitment is required in order to sustain change. The following recommendations as they relate to physical environments are required in tandem with recommendations relating to people and process above.

Across the case study cities there is a justification for reducing car dominance based on; climate, sustainable mobility, city liveability, city regeneration/vitality and public space as a fundamental right of citizenship. However, there is some variation across the cities in terms of how explicitly these objectives are stated in public policy and communications. The car is of course at the root of the study, and as discussed in the literature review its use is the cause of certain policy lock-ins and dependencies. The ‘framing’ of the ‘car issue’ across the case study cities is broad and intertwined with other urban policy areas, representative of a systems- approach to improving the liveability of cities, increasing safety and comfort for citizens, and promoting more sustainable mobility as discussed above.

Removing through-traffic (vehicular) from a city, town or village when combined with pedestrian priority measures is a highly effective way of improving urban road safety as well as achieving wider liveability, regeneration, and environmental objectives.

As part of the Brussels’ Good Move Plan there is an emphasis on decreasing the proportion of trips made by individual motorized vehicles (as a driver) from a third to a quarter for all trips linked to the region, with the largest reduction targeted in the 5-10km range. Spatially this translates to trialling low-traffic neighbourhoods, redirecting traffic away from high pedestrian and cyclist areas/around schools, and improving pedestrian environments with an emphasis on connecting high quality public spaces. Removing through traffic is challenging and it is evident from the research the reasons for doing this must be communicated clearly and adequately justified otherwise interventions lose support. Urban form plays a role in the ease of implementation of these types of interventions. There is also a time associated with understanding how the measures work in practicality (who has access and when) and how these rules can

be implemented (use of ANPR technology, policing). Consideration of the real/perceived benefits/burden of these types of interventions spatially is important.

Access to, and availability of car-parking is a reoccurring theme in the research. Although car-focused mobility with a lack of alternatives is fundamentally inequitable at a societal level and causes considerable negative impacts socially, environmentally, and economically, there are diverging views on the role of car parking to the economic vitality of an urban area, and it is a politically very sensitive topic.

Pontevedra and Ghent have integrated edge of centre 'Park' n' Stride' and 'Park 'n' Ride' strategies into their city plans in an effective way that have allowed for significant reductions in vehicular traffic volumes and traffic congestion within their respective urban centres. 'Necessary traffic' (reduced mobility and Blue Badge parking) is also accommodated. There is an emphasis on freeing up and maximising public space for socialisation, walking, cycling, or greater public transport priority. In Pontevedra this formed part of the new mobility hierarchy that priorities pedestrian mobility and public space reclamation and contributed to an environment that also facilitated *Vision Zero*. Park 'n' Stride can be useful within a smaller urban centre or rural service centre with limited public transport or cycling networks. Park 'n' Ride combined with high quality integrated public transport and high-quality integrated cycling networks can be a very effective option in larger centres. Both examples provided fee-free car-parking at these edge of centre locations. There are potential lessons here for an Irish context, and it is recommended that local authorities carefully consider how to reorganise, reconfigure, and manage car-parking within the town and village centres.

The scale of a settlement, its function, as well as the provision of alternatives including good public transport and active travel networks are important considerations in the management of the approach to car-parking. A particular lesson from the town and village scale of the Pontevedra Province is the potential role for the reorganisation and management of car-parking, so that car-parking is provided as an option to people, but that pedestrian mobility is always at the top of the hierarchy. What this means in practice is a push and pull approach through the encouragement of freely accessible park'n'stride 3-12 minutes' walk (depending on the scale of the centre) from the urban centres (from villages to small cities), and the discouragement of car access and car parking from the urban centre itself, freeing up space for urban activity, local trade, tourism and events etc.

Consideration for town and village centres (particularly areas with limited public transport)

The provision of car-parking in the first instance is an important consideration, as access arrangements to public and private car-parking will also impact the feasibility for other potential interventions (circulation and through traffic, pedestrian and road safety improvements). There is potential to consider the reorganisation and rationalisation of car-parking within town centres to free up space for increased public space, local trade, urban activity and events, tourism etc. The reorganisation, relocation, and rationalisation (through economies of scale and associated efficiencies) is the emphasis, not the wholesale removal of car-parking, but this should be accompanied by reduction in urban through-traffic. Reorganisation will require moving car-parking from the centre to the edge of the centre, thus freeing up road space that must be well utilised and regarded as a clear public benefit. Critically the walking environment that connects to the urban centre must contain pedestrian priority and be attractive.

There is a need for both 'push' and 'pull' approaches to reducing the demand for car parking. Parking charges can be ineffective in reducing demand (as described in Ghent and documented in the Government

of Ireland Five Cities Demand Management Study, 2021) and alternatives to the car need to be available for people. It is also important to consider the use of these spaces. Any reconfiguration of car-parking (and associated use of space) needs to have clear benefits for a place otherwise measures are at risk of losing public support (evidenced in all the case study cities). This is particularly relevant in the context of the Irish Government's Public Sector Climate Action Mandate (2023) and proposals to phase out the use of car-parking in buildings that have access to certain facilities.

In Pontevedra 'agitated traffic' looking for car parking was seen as a source of traffic congestion. Reduction in traffic congestion to improve conditions for trading and the local economy is also given as a plan objective in both Pontevedra and Ghent, and both have demonstrated a reduction in congestion as part of their plan outcomes (remaining vehicular speeds must be carefully managed in these cases). This is used as a way of garnering support with the business community. There is a need for good baseline data on business activities so that the impact of interventions on same can be understood. The business representative community can offer significant contributions in this regard.

Pedestrian Mobility, Walkability and Pedestrian Priority

An emphasis on pedestrian mobility and pedestrian priority in urban areas has a large potential (and currently the most underutilised) in terms of meeting urban road safety objectives combined with other major planning, environmental, town centre regeneration and health objectives. This can be in a form of large- or small-area full pedestrianisation, shared-surface pedestrian priority streets, and/or the redesign of 'co-existence' streets and associated infrastructure to provide better minimum standards for pedestrians. For example, both Pontevedra and Oslo have established minimum footpath widths. Irish policy (DMURS, 2019) has also recommended minimum footpath widths (1.8m-2.5m in low pedestrian activity areas; 3m in moderate to high pedestrian activity areas; 4m in high pedestrian activity areas). Further research is required to understand pedestrian infrastructure in Ireland and the application of these standards e.g. whether minimum width (1.8m in Ireland) becomes default practice even in areas with high pedestrian activity.

Vehicular Speed

Where vehicles and people on foot/wheel-chairs/bikes/scooters etc. need to co-exist, appropriate vehicle speeds are essential to reduce the likelihood of a fatality or serious injury in the event of a collision. In Spain, a default urban speed limit of 30km/hr has been in place since 2021 with the national government providing pictorial guidance including a summary video and guideline document on how to set new urban speed limits. Pontevedra enacted a 30km/hr speed limit across all roads in the municipality between 2010-2012 (a time since which *Vision Zero* has been achieved for road fatalities). Oslo utilises an urban speed limit approach that is primarily based on 30km/hr streets, but also combined with 40km/hr for neighbourhood connectors/links including streets with public transport, and a limited use of 50km/hr and above speed limits.

Interventions and actions should be considered and implemented as a holistic package and single interventions should not be looked at in isolation. The 'Package of Actions' needs to be appropriate for the scale and context of the village, town, or city (or part of) in question.

5.2 Recommendations

Theme 1: Inform, educate and work across disciplines and departments for successful implementation

Recommendation 1

What: There is scope in Ireland to further inform and communicate the link between road safety, quality of life, liveability and a culture of mutual respect (between road-users). The RSA's '30k Town' campaign is a good example of this. It is recommended that further similar initiatives are developed and promoted, and that Government explores ways this can be achieved. For example, Dublin City Council has launched a public awareness campaign calling on road users to 'Be Sound' to each other. It encourages everyone to be respectful and to prioritise safety when walking, cycling or driving on the city's streets.

Why: The case study cities demonstrated the close interrelationship between road safety, quality of life, liveability and a culture of respect across the modal user hierarchy. Information and education campaigns are an important policy instrument for implementation.

Recommendation 2

What : Urban Design principles are integral to the planning and design of urban roads and streets in the case study cities and their related road safety benefits (as well as wider societal benefits). Policing also plays a key role in the success of implementing certain interventions across the case study cities. The presence of municipal police forces means that there are established working practices and relationships within the local authority area. As detailed in the Government's Road Safety Strategy 2021-2030 'Innovation in how we design our interventions and our approach to partnership-working' is one of a number of critical success factors, dependent on stakeholders and government, that will enable our 2030 targets to be achieved. It is recommended that the RSA shares the findings of this report which forms part of their wider research reports into the Government Road Safety Strategy (2021- 2030) with An Garda Síochána (and any other relevant stakeholders) and explores the potential for capacity building in the area of urban design and transport planning as it relates to urban road safety. There is potential to review processes for engagement between An Garda Síochána and the local authorities, like their work on 'Crime Prevention through Environmental Design'.

Why: Policing plays a key role in the success of the interventions across case study cities. In Pontevedra for example, there was specific training for the police force in the urban road safety philosophy that was being promoted. This supported the police force's work with citizens to encourage and enforce safer road user behaviours in areas where interventions were employed. There may be scope for a similar approach to be explored in the Irish context and the aim of any capacity building is to increase the understanding by stakeholders of the interrelationship between road safety, urban design and the wider societal benefits, and to support, encourage and enforce safer road user behaviours in areas where interventions are employed.

Recommendation 3

What: The value of using existing established working relationships and networks is apparent in driving the interventions across the case study cities. The Government should map these in the Irish context as they relate to road safety, spatial planning and sustainable mobility to identify possible gaps and opportunities to open further dialogue between the relevant government departments and agencies. Cross-departmental consultation and collaboration is essential to identifying potential interventions, support and

means for implementation. Public consultation is also required to communicate the benefits of interventions and to galvanise support for same.

Why: Further integration of urban road safety objectives in wider policy development and associated funding streams helps prevent a single-issue approach and drives change for wider societal gains.

Theme 2 Promote the integration of *Vision Zero* and *Safe Systems* principles into spatial plan-making

Recommendation 4

What: Increase awareness of *Vision Zero* and *Safe Systems* approach amongst spatial planners, transport planners, engineers and elected representatives in the public and private sector, including local authorities and regional assemblies.

Why: Objectives for *Vision Zero* and *Safe Systems* approach can be integrated to the plan-making process across spatial scales.

Example: Training and workshops similar to those held by the Office of the Planning Regulator could be facilitated by the relevant government departments/agencies to outline the principles of *Vision Zero* and *Safe Systems* approach.

Theme 3: Data needs to be identified and mapped

Recommendation 5

What: It is recommended that the Government, and appropriate agencies undertake a road safety data identification exercise to understand what data is available, and how it can be shared and utilised effectively to inform spatial plan-making processes.

Why: There is an opportunity to improve road safety outcomes through local area planning. This requires an evidence base on road safety to inform the plan-making process (Local Area Plans, Local Transport Plans, Town Centre First Plans and Area-Based Transport Assessments etc.).

Example: The guidelines for developing and implementing Sustainable Urban Mobility Plans (2019) suggest a list of priorities for data related to road safety. Such data would also be beneficial to the local area plan-making processes.

Theme 4: Urban speed limits

Recommendation 6

What: It is recommended that greater consideration is given to the potential for 40 km/hr speed limits on national, regional, arterial and key public transport routes where exemptions to the default 30 km/hr speed limit for built-up and urban areas may apply.

Why: The case study cities demonstrate that there is a role for 40km/hr speed limits in urban areas (as well as 20km/hr, 30km/hr and 50km/hr speed limits). The DoT 'Guidelines for Setting and Managing Speed Limits in Ireland' (as an outcome to the 'Speed Limit Review') are subject to review. This presents an opportunity to incorporate the learnings from the case study cities, where relevant.

Recommendation 7

What: It is recommended that an appropriate agency/forum is identified by Government to lead a capacity building workshop(s) for elected members with regards to urban speed limits, and on the interrelationship between road safety and urban design.

Why: The Road Traffic Bill 2024 places an onus on local authorities to lead on the reduction of speed limits in their built up and urban areas and the local elected members will have a key role in this process.

Theme 5: Pedestrian Priority and (Road) Space Allocation

Recommendation 8

What: It is recommended that Government explores the potential to develop greater levels of pedestrian priority in policy, design guidance and funding streams, and associated monitoring and evaluation thereof.

Why: The case study cities demonstrated the considerable potential that cities, towns and villages with high levels of pedestrian priority and investment in the public realm have with regards to road safety (as well as other co-benefits).

Recommendation 9

What: The National Sustainable Mobility Policy Action Plan 2022-2025 contains Core Actions to develop pedestrian enhancement plans for cities, regional growth centres and key towns. It is recommended that the relevant Government departments engage with the key agencies involved to ensure that the lessons from this Road Safety Strategy Action 44 study, particularly in the area of pedestrian priority and public space reallocation/reclamation, are considered as part of the development of these enhancement plans, as well as the objectives of *Vision Zero and Safe Systems* approach.

Why: The case study cities have identified the importance of pedestrian priority and space (road space and public realm) allocation. The pedestrian enhancement plans identified as part of the SMP Action Plan are a good framework to promote these priorities.

Recommendation 10

What: : It is recommended that a 'state of play' research study is undertaken to understand the status, priority, approach to, and quality of urban pedestrian infrastructure provision in Ireland and how

schemes are evaluated in terms of pedestrian priority and the modal user hierarchy (for example in proposals for the Urban and Rural Regeneration Funds). It is recommended that the Government encourages the setting of quantifiable objectives for roads space reallocation and public space reclamation in cities, towns and villages. These objectives should be supported by funding and guidance, and subject to monitoring and evaluation.

It is understood that Government is currently working on the development of Design Manual for Urban Roads and Streets (DMURS) related guidance on road-space (re)allocation. This presents a good opportunity to encourage the incorporation of clear objectives (that can be monitored and evaluated) as they relate to road space reallocation and public realm reclamation (whilst acknowledging the relationship to Vision Zero as well as wider societal benefits).

Why: The case study cities have identified the importance of road-space reallocation and public realm reclamation and investment in the development of vibrant urban areas that also demonstrate improvements in road safety and other co-benefits. Setting clear project objectives, and the monitoring and evaluation of the quantum and outcomes of space allocation is an important part of this process.

Recommendation 11

What: Following on from the outcome of the above study or similar, review existing pedestrian related policy/guidelines/standards where needed.

Why: To strengthen standards in relation to pedestrian infrastructure, pedestrian mobility and walkability (including the pedestrian/cyclist relationship and the pedestrian/motorist relationship) and to further enact/reinforce existing policy in relation to the Modal User Hierarchy, as required.

Theme 6: Car parking - an important consideration

Recommendation 12

What: It is recommended that the Government encourage and support greater research in the area of car-access, parking and town centre regeneration.

Why: The (socio-) economics of car access, car-parking and town centre regeneration is an under-researched area within an Irish context, yet it is one of the most sensitive politically. Understanding the provision of car-parking in the first instance is important as access arrangements to public and private car-parking will also impact the feasibility for other potential interventions (e.g. circulation and through-traffic, pedestrian and road safety improvements).

Theme 7: Experience successful outcomes of policy in action

Recommendation 13

What: Case Study cities have learnt from other places by identifying opportunities for policy transfer. It is recommended that appropriate agencies particularly at a regional and national level engage in discussions

directly, including through study trips, with some of these groups (e.g., Ágora Network in Pontevedra, and Brulocalis in Brussels).

It is considered appropriate that this engagement would be by organisations that play a coordinating or capacity building role for the local authorities in Ireland.

Why: To understand and experience how these policies have been delivered in practice.

Example: The Local Government Management Agency, The County and City Management Agency, Regional Assemblies, could benefit from discussions with the Ágora Network in Pontevedra to understand how measures are being developed for smaller towns and villages across a region.

BIBLIOGRAPHY

Arora-Jonsson, S. and Björkman, L., 2022. *How Motivating Factors and Political Vision affect Car-free Initiatives A study of Stockholm and Oslo*. Master of Science Thesis, KTH Industrial Engineering and Management Industrial Management, Stockholm.

Cairns, S., Atkins, S. and Goodwin, P., 2002. Disappearing traffic? The story so far. *Proceedings of the Institution of Civil Engineers - Municipal Engineer*, 151(1), pp.13-22.

Carroll, P. and O'Sullivan, P., 2019. 47th European Transport Conference 2019, ETC 2019, 9-11 October 2019, Dublin, Ireland, Forecasting the impact of the Planning, Land Use and Transport Outlook (PLUTO) Project – a 2040 Ireland case study. *Transportation Research Procedia*, 49, pp.70-82.

Caspersen, E. and Ørving, T., 2020. BYTRANS: Effects and consequences of capacity changes in the Oslo transport system. Results for freight transport and delivery. TØI report 1766/2020.

Central Statistics Office (CSO), 2019. Press Statement Urban and Rural Life in Ireland, 2019. Available at: <https://www.cso.ie/en/csolatestnews/pressreleases/2019pressreleases/presstatementurbanandrurallifeinireland/>.

Debie, J., Maulat, J. and Berroir, S., 2020. Cars and Urban Planning: The Goals, Tools and Controversies of Public Policies in Brussels and Paris. *Flux*, 119-120(1), pp.102-120.

De Gregorio Hurtado, S., and Tomàs, M., 2022. *Country Profile Spain Fact sheet*. Available at: https://www.arl-international.com/sites/default/files/2023-11/Fact%20Sheets_regional_level_Basque%20Country.pdf

European Commission, Environment Directorate-General, 2004. *Reclaiming city streets for people: Chaos or quality of life?*. Office for Official Publications of the European Communities.

European Commission, 2022. National Road Safety Profile Ireland. Brussels: European Commission, Directorate General for Transport.

EEA (European Economic Area), 2019. Trends and projections in Europe 2019 — tracking progress towards Europe's climate and energy targets. EEA Report, 15/2019, European Environment Agency.

EPA, 2023. Available at: <https://www.epa.ie/our-services/monitoring--assessment/climate-change/ghg/transport/>.

EPA, 2023. Available at: <https://www.epa.ie/news-releases/news-releases-2023/irelands-2022-greenhouse-gas-emissions-show-a-welcome-decrease-but-much-work-remains-to-be-done.php>.

EU European Platform on Sustainable Urban Mobility Plans, 2019. Guidelines for Developing and Implementing a Sustainable Urban Mobility Plan, 2nd edition. Topic guide for urban road safety and active travel.

Feleke, R., Scholes, S., Wardlaw, M. and Mindell, J.S., 2018. Comparative fatality risk for different travel modes by age, sex, and deprivation. *Journal of Transport & Health*, 8, pp.307-320. Available at: <https://doi.org/10.1016/j.jth.2017.08.007>.

Fishman, E., Schepers, P. and Kamphuis, C.B.M., 2015. Dutch cycling: quantifying the health and related economic benefits. *American Journal of Public Health*, 10.2105/AJPH.2015.302724.

Global Designing Cities Initiative and National Association of City Transportation Officials (NACTO), 2016. *Global street design guide*. Island Press.

Khan, S., 2023. *Breathe, tackling the climate emergency*. Penguin.

Government of Ireland, 2018. National Planning Framework – Ireland 2040. Available at: <https://www.gov.ie/en/publication/daa56-national-planning-framework-ireland-2040-our-plan-npf-2018/>.

Government of Ireland, 2022. Town Centre First – A Policy Approach for Irish Towns. Available at: <https://www.gov.ie/en/publication/473d3-town-centre-first-policy/>.

Harvey, D., 1989. From Managerialism to Entrepreneurialism: The Transformation in Urban Governance in Late Capitalism. *Geografiska Annaler: Series B, Human Geography*, 71(1), pp.3-17.

Haughton, G., Allmendinger, P., Counsell, D. and Vigar, G., 2010. *New Spatial Planning: Territorial Management with Soft Spaces and Fuzzy Boundaries*. Routledge, London.

Hyder, A.A., 2022. The political and social contexts of global road safety: challenges for the next decade. *The Lancet*, 400(10346), pp.127-136.

International Transport Forum (ITF), 2016. Zero road deaths and serious injuries: Leading a paradigm shift to a safe system. Paris: OECD Publishing. Available at: <https://www.itf-oecd.org/sites/default/files/docs/zero-road-deaths.pdf>.

International Transport Forum (ITF), 2018. Understanding Urban Travel Behaviour by Gender for Efficient and Equitable Transport Policies. Discussion Paper No. 2018-01, OECD Publishing, Paris.

International Transport Forum (ITF), 2019. Road Safety in European Cities: Performance Indicators and Governance Solution. International Transport Forum Policy Papers, No. 67, OECD Publishing, Paris.

International Transport Forum (ITF), 2022. Monitoring Progress in Urban Road Safety: 2022 Update. International Transport Forum Policy Papers, No. 108, OECD Publishing, Paris.

Jann, W. and Wegrich, K., 2007. 'Theories of the Policy Cycle', in Frank Fischer, Gerald J. Miller and Mara S. Sidney (eds.) *Handbook of Public Policy Analysis: Theory, Politics and Methods*. Boca Raton: CRC, pp.43-62.

Khan, S., 2023. *Breathe, tackling the climate emergency*, Penguin.

Klanjčić, M., Gauvin, L. and Tizzoni, M., 2022. Identifying urban features for vulnerable road user safety in Europe. *EPJ Data Science*, 11, 27. Available at: <https://doi.org/10.1140/epjds/s13688-022-00339-5>.

Kingdon, J., 2011. *Agendas, alternatives, and public policies*. Upper Saddle River, NJ: Pearsons.

Kuss, P. and Nicholas, K.A., 2022. A dozen effective interventions to reduce car use in European cities: Lessons learned from a meta-analysis and transition management. *Case Studies on Transport Policy*, 10(3).

Laverty, A., Aldred, R. and Goodman, A., 2020. The impact of introducing low traffic neighbourhoods on road traffic injuries. *Findings*.

Leune, P., Steen, E., De Paepe, P. and Lyphout, C., 2021. An overview of tram tracks related cycling injuries in Ghent, Belgium. *Traffic Injury Prevention*, 22(3), pp.261-265. Available at: <https://doi.org/10.1080/15389588.2021.1888941>.

Mackinac, 2023. The Overton Window. Mackinac.org. Available at: <https://www.mackinac.org/OvertonWindow>.

Mintrom, M., 2019. So you want to be a policy entrepreneur? *Policy Design and Practice*, 2(4), pp.307-323.

Nadin, V., Stead, D., Dąbrowski, M. and Fernandez Maldonado, A.M., 2021. Integrated, adaptive and participatory spatial planning: trends across Europe. *Regional Studies*, 55(5).

Neij, L., Bulkeley, H. and McCormick, K., 2015. Cities and climate change: The great decarbonisation challenge. *Climate in Focus*, 1-5.

Newman, P. and Kenworthy, J., 1999. Costs of Automobile Dependence: Global Survey of Cities. *Transportation Research Record*, 1670(1), pp.17-26. Available at: <https://doi.org/10.3141/1670-04>.

Nieuwenhuijsen, M.J. and Khreis, H., 2016. Car free cities: Pathway to healthy urban living. *Environment International*, 94, pp.251-262.

OECD, 2022. *Redesigning Ireland's Transport for Net Zero: Towards Systems that Work for People and the Planet*, OECD Publishing, Paris, <https://doi.org/10.1787/b798a4c1-en>.

Rezende Amaral, R., Šemanjski, I. and Gautama, S., 2018. Urban Mobility and City Logistics – Trends and Case Study. *Promet – Traffic & Transportation*, 30(5), pp.613-622.

Road Safety Authority (RSA), 2021. *Our Journey Towards Vision Zero Ireland's Government Road Safety Strategy 2021–2030*. Available at: <https://www.rsa.ie/about/safety-strategy-2021-2030>.

Rupprecht Consult (ed), 2019. *Guidelines for Developing and Implementing a Sustainable Urban Mobility Plan, Second Edition*. Available at https://urban-mobility-observatory.transport.ec.europa.eu/system/files/2023-09/sump_guidelines_2019_second%20edition.pdf

Sadik-Khan, J. and Solomonow, S., 2017. *Streetfight: Handbook for an urban revolution*. Penguin.

Saeidizand, P., Fransen, K. and Boussauw, K., 2022. Revisiting car dependency: A worldwide analysis of car travel in global metropolitan areas. *Cities*, 120.

Somanathan, E., Sterner, T., Sugiyama, T., Chimanikire, D., Dubash, N.K., Essandoh-Yeddu, J., Fifita, S., Goulder, L., Jaffe, A., Labandeira, X., Managi, S., Mitchell, C., Montero, J.P., Teng, F. and Zyllicz, T., 2014. Climate Change 2014: Mitigation of Climate Change. Contribution of Working Group III

Staddon, P., 2009. Towards Safety and Sustainability: What Policy-Makers Need to Know about the Public Health Effects of Urban Traffic. *Journal of Urban Health*, 86(2), pp.234-253. Available at: <https://doi.org/10.1007/s11524-008-9317-8>.

Sustrans. 2024. *A Guide to Evidence around Low-Traffic Neighbourhoods*. Available at: [8. A guide to the evidence around low-traffic neighbourhoods - Sustrans.org.uk](https://www.sustrans.org.uk/evidence-around-low-traffic-neighbourhoods), Published: 4th May 2023.

SWECO, 2019. "Bylivsevaluering 2019 – sluttrapport " Urban life evaluation 2019 - final report. Oslo.

Thaler, R. and Sunstein, C., 2009. *Nudge: Improving decisions about health, wealth, and happiness*. Penguin.

Thorpe, N., Hills, P. and Jaensirisak, S., 2000. Public attitudes to TDM measures: A comparative study. *Transport Policy*, 7(4), pp.243-257.

Thomas, A. and Aldred, R., 2024. Changes in motor traffic inside London's LTNs and on boundary roads. *Case Studies on Transport Policy*, 15.

Tønnesen, A., 2015. Urban entrepreneurialism and car-use reduction. *Planning Theory & Practice*, 16(2), pp.206–225.

Tennøy, A., and Hagen Oddrun, H., 2020. *Reallocation of road and street space in Oslo: Measures for zero growth in urban traffic*, International Transport Forum Discussion Paper, No. 2020/14, Organisation for Economic Co-operation and Development (OECD), International Transport Forum, Paris, <https://doi.org/10.1787/6d7e9f43-en>

Transport for London, 2017. *Healthy Streets for London: Prioritising walking, cycling and public transport to create a healthy city*.

Transportation Research Board (TRB), 2021. NCHRP Report 932: A Research Roadmap for Transportation and Public Health.

Urry, J. (2004). The 'System' of Automobility. *Theory, Culture & Society*, 21(4-5), 25-39. <https://doi.org/10.1177/0263276404046059>

Van den Berghe, W., Schachner, M. and Sgarra, A., et al., 2020. The association between national culture, road safety performance and support for policy measures. *IATSS Research*, 44(3), pp.197-211.

Van den Broek, B., Aarts, L. and Silverans, P., 2023. *Baseline report on the KPI Speeding*. Baseline project. Brussels: Vias institute.

Vanderbilt, T., 2016. Revisiting The Bicycle Dividend. *Bicycle Quarterly*, 15(4), pp.3-9.

Wang, X., Yang, H. and Lindsey, R., 2020. Modeling urban car restrictions with endogenous mode choice and trip scheduling. *Transport Policy*, 94, pp.78-91.

Wegman, F., Zhang, F. and Dijkstra, A., 2012. How to make more cycling good for road safety? *Accident Analysis & Prevention*, 44(1), pp.19-29.

World Health Organization (WHO), 2013. *Global Status Report on Road Safety 2013: Supporting a Decade of Action*. Geneva: World Health Organization.

World Health Organization (WHO), 2018. *Global Status Report on Road Safety 2018*. Geneva: World Health Organization.

Younger, M., Morrow-Almeida, H.R., Vindigni, S.M. and Dannenberg, A.L., 2008. The Built Environment, Climate Change, and Health: Opportunities for Co-Benefits. *American Journal of Preventive Medicine*, 35(5), pp.517-526. Available at: <https://doi.org/10.1016/j.amepre.2008.08.017>.