
**Public Consultation by the Department of
Transport:**

**Moving Together – A Strategic Approach to
Improving the Efficiency of Ireland’s
Transport System**

**SUBMISSION BY THE WATERFORD
ENVIRONMENTAL FORUM AND ZERO WASTE
ALLIANCE IRELAND**

21 August 2024

**Zero Waste Alliance Ireland is funded by the Department of the
Environment, Climate and Communications through the Irish
Environmental Network, and is a member of**



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20 August 2024

Public Consultation Response Section,
Department of Transport,
Leeson Lane,
Dublin,
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And to: denise.keoghan@transport.gov.ie

For the attention of Denise Keoghan

Dear Denise,

Response to the Public Consultation on “Moving Together – A Strategic Approach to Improving the Efficiency of the Transport System in Ireland”

Submitted By Zero Waste Alliance Ireland and the Waterford Environmental Forum to the Department of Transport

On behalf of Zero Waste Alliance Ireland (Zwai) and Waterford Environmental Forum (WEF), we attach our submission in response to the Department’s public consultation on “Moving Together”, the Department’s draft strategic approach to improving the efficiency of the transport system in Ireland

Zwai and WEF are very pleased to have the opportunity to respond jointly to this important public consultation; and, even though our principal interests and aims are the reduction and elimination of every form of waste (Zwai), and the development and nurturing of a respectful and harmonious relationship between the people of Waterford and its environment (WEF), we recognise that the more efficient use of materials and energy, and the radical improvement of public transport are energy-saving activities, with social, economic, environmental and climate-related benefits.

It is also our strongly held view that the term “waste” should encompass not only discarded materials, but should also cover the waste of energy; linking both the

Page 1 of 2

inefficient use of energy, and the amounts of energy which can be considered as “wasted” by the current necessity to process and recycle discarded materials, and to replace these by extraction and processing of virgin raw materials.

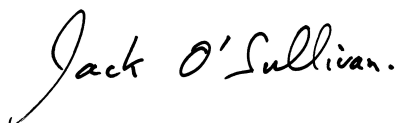
In our submission, we emphasise the critical need for a holistic approach to transport planning and policy — that not only addresses immediate challenges, but also anticipates the needs of future generations and safeguards the well-being of our natural environment. A truly sustainable transport strategy must integrate considerations of social equity, environmental preservation, and economic viability, ensuring that our transport systems support healthier and more resilient communities. By adopting forward-looking policies that prioritise resource efficiency, multi-modal integration, and ecological stewardship, we can create a transport system that reduces waste, lowers emissions, and enhances the quality of life for all citizens.

Moreover, we believe that this holistic perspective is essential for fostering a transport infrastructure that is adaptable and resilient in the face of future uncertainties. It is imperative that the final strategy not only seeks to meet current demands but also builds a foundation for long-term sustainability, ensuring that the benefits of today’s decisions will extend far into the future. This approach will help to ensure that Ireland’s transport system remains robust, flexible, and capable of evolving alongside the needs of both our society and the natural world.

In the preparation of this submission, we acknowledge the major contributions by, and the leading role played by, members of the Waterford Environmental Forum, based at **Number 7, The Terrace, Barrack Street, Waterford, X91 Y2XH**.

We look forward to your acknowledgement of the submission, and to seeing in due course the final version of the Department’s Strategic Plan for improving the efficiency of transport in Ireland.

Yours sincerely,



Jack O’Sullivan

Zero Waste Alliance Ireland



Craig Tobin-Dower

Waterford Environmental Forum



**Waterford
Environmental
Forum**



ZWAI
ZERO WASTE ALLIANCE IRELAND

Submission by the Waterford Environmental Forum and Zero Waste Alliance Ireland to the Department of Transport in response to the Department’s Public Consultation: Moving Together – A Strategic Approach to Improving the Efficiency of the Transport System in Ireland

CONTENTS

	Page
1. INTRODUCTION	1
1.1 Background to our submission	1
1.2 Our approach to this submission, and our key objectives ..	2
2. ZERO WASTE ALLIANCE IRELAND (ZWAI)	4
2.1 Origin and early activities of ZWAI	4
2.2 Our basic principles	6
2.3 What we are doing	6
3. WATERFORD ENVIRONMENTAL FORUM (WEF)	11
3.1 Our vision	11
3.2 Our strategic pillars	11
4. IMPROVING DEMAND-SIDE FACTORS	13
4.1 Captive car users	13
4.2 Framing greenways	14
4.3 Specific community and institutional network measures ..	15
4.4 Protecting existing infrastructure	15
4.5 Encouragement of more ambitious community and behaviour measures	15
4.6 Further research	17

Cont'd

CONTENTS, CONTD

		Page
4.7	Increasing the functional capacity of public transport	18
4.8	The danger of prioritising electric vehicle incentives	19
4.9	Disincentivising heavy-weight vehicles, while incentivising light weight vehicles	20
4.10	Encouraging the use of biofuels	22
5.	REDUCING NEGATIVE IMPACTS ON NATURE	25
5.1	Green corridors and spaces	25
5.2	Prioritising high-capacity, low-material-footprint transport modes	27
5.3	Setting specific targets to reduce private car usage	27
5.4	Conclusions and recommendations for reducing the negative impacts on nature	28
6.	EMPHASISING RESILIENT DEVELOPMENT	29
6.1	Establish clear guidance for conflict-avoidance	29
6.2	Clarifying the term “Efficiency”	31
6.3	Emphasising flexibility in the transport strategy amid uncertainty	33
6.3.1	Change and uncertainty	34
6.3.2	Deep uncertainty	34
6.3.3	Flexibility of thinking and design	35
6.3.3.1	<i>Flexibility of thinking</i>	35
6.3.3.2	<i>Flexibility in design</i>	36
6.3.4	Real Options Analysis (ROA) and flexibility	37
6.4	Responsibility for the policymaking pathway	38
7.	SUGGESTIONS FOR RAIL SERVICE IMPROVEMENTS AND MEASURES TO ACHIEVE NET-ZERO	40

Cont’d



CONTENTS, CONTD

	Page
7.1 Historical context	41
7.2 Limerick Junction services	43
7.3 Waterford to Rosslare	47
7.4 Waterford to Dublin Rail Services	48
7.5 Rolling stock	49
8. CONCLUDING SUMMARY OF OUR SUBMISSION	51
8.1 Specific recommendations	51
8.2 Concluding remarks	55



Submission by the Waterford Environmental Forum and Zero Waste Alliance Ireland to the Department of Transport in response to the Department’s Public Consultation: “*Moving Together – A Strategic Approach to Improving the Efficiency of the Transport System in Ireland*”

1. INTRODUCTION

1.1 Background to Our Submission

On 12 April 2024, the Department of Transport published a call for submissions on a draft transportation policy, “Moving Together”, which was developed by the Department, with the aim of making Ireland’s transportation system more efficient, and to alleviate the impacts of car-dependency and congestion on the economy, the environment and the health of our society.

As stated in the call for submissions, the Department of Transport would like to hear the views of stakeholders on the draft documents (available on the consultation website), and on the overall approach, the level of ambition, relevant concerns about the proposed recommendations and their likely effectiveness, if implemented; and responders’ views on the draft Strategy and Plan. This consultation will provide a useful opportunity for environmental NGOs such as Zero Waste Alliance Ireland and the Waterford Environmental Forum to assist in the re-shaping these documents and the draft Strategy, prior to the Minister seeking the approval of Government, and the publication of the final version of the Strategy later in 2024.

In line with binding sectoral targets under the Climate Action and Low-Carbon Development (Amendment) Act 2021, the transport sector must cut its emissions by 50% (relative to 2018 levels) by 2030. To achieve this target, the Government is supporting a large-scale transition to Electric Vehicles (EVs), higher penetration

levels of biofuels in the fuel mix and unprecedented investment in public and active travel infrastructure. However, these measures alone will not deliver the emissions reduction required for the transport sector, nor do they address issues of congestion and the associated costs of inefficient journeys to our society and the economy.

This Strategy is the final key policy component in the decarbonisation pathway for the transport sector as outlined in the Climate Action Plan, 2023-2024. As part of the process of developing the draft Strategy, the Department of Transport convened a cross-departmental and multi-agency steering group to oversee the development of the draft Strategy. Six sub-groups were established comprising a diverse range of national and international experts from government, industry, representative bodies, and academia, among others, to consider areas of particular focus and to prepare related reports, which helped to inform the development of the Strategy.

1.2 Our Approach to This Submission, and Our Key Objectives

Zero Waste Alliance Ireland (Zwai) and the **Waterford Environmental Forum (WEF)** are committed to promoting sustainable resource management and the principles of the circular economy across all sectors of society. The public consultation on “*Moving Together: A Strategic Approach to the Improved Efficiency of the Transport System in Ireland*” by the Department of Transport therefore gives us an opportunity to demonstrate how a future national transport policy and strategy can be developed in line with our combined missions and values.

Transport systems and infrastructure are among the largest consumers of resources, encompassing energy, materials, and land use. Traditional transport models often rely heavily on fossil fuels, leading to significant carbon emissions and environmental degradation. Additionally, the construction and maintenance of transport infrastructure involve substantial material inputs, many of which are non-renewable and contribute to waste when their lifecycle ends. ZWAI and WEF jointly advocate for a transport system that minimizes resource use and maximizes efficiency. By addressing the inefficiencies in the current system, such as underutilized public transport, reliance on single-occupancy vehicles, and poorly integrated transport networks, Ireland can significantly reduce its environmental footprint. A strategic approach that prioritizes resource efficiency in transport can help to conserve materials, reduce waste, and lower greenhouse gas emissions, aligning with the zero waste and circular economy principles.

We also believe that the consultation on improving transport system efficiency must be intrinsically linked to the broader goals of the circular economy, which emphasises the continuous use of resources through reuse, repair, remanufacturing, and recycling to minimize waste and environmental impact. Applying these principles to the transport sector can transform how transport systems are designed, operated, and maintained. Encouraging the use of public transport, cycling, and walking reduces reliance on private vehicles, leading to lower emissions and resource use, and public transport systems can be optimized for energy efficiency and integrated with renewable energy sources. Implementing circular economy practices in vehicle manufacturing and purchasing can extend vehicle lifecycles, reduce material consumption, and promote the use of recycled materials by encouraging smaller, lighter, non-SUV type cars, designing vehicles for easier disassembly and recycling, and developing robust systems for the reuse and refurbishment of automotive parts.

We also advocate strongly that Ireland’s transport infrastructure should be designed and maintained with sustainability as a major and primary aim, using durable, recyclable materials, implementing modular design for easier upgrading and repairability, and incorporating green infrastructure such as urban green spaces and permeable surfaces to manage water runoff and enhance biodiversity. Policies that incentivise sustainable practices such as taxes on carbon emissions, and investments in public transport infrastructure, are critical for the development of an environmentally and socially sustainable transportation system, for the good reason that such economic instruments can drive the transition towards a zero waste transport system by making sustainable choices more accessible and affordable.

In our combined submission to the Department of Transport, we are advocating for a more ambitious, people-focused transport strategy which will better address sustainable mobility and community well-being. While the Department’s draft offers broad proposals, it lacks the specificity and prioritisation which we consider are needed to fully address the challenges of moving away from car dependency. Key recommendations which we will outline include integrating greenways as multi-modal hubs, providing bike racks on buses and taxis, and enhancing cycling infrastructure to protect non-car users’ access to public spaces.

It is also our submission that the final transportation policy and strategy should also recognise how over-riding socio-economic factors, such as the housing crisis and commuter belt expansion, lock individuals into unsustainable travel patterns. Moving beyond simplistic behaviour-change initiatives, the Department’s final version of the

strategy must adopt a systems-based approach that prioritises high-capacity transport modes, sets clear targets for reducing private car usage, and disincentivises the sale of SUVs in favour of lighter, more sustainable vehicles.

As mentioned briefly above, wildlife corridors integrated with green infrastructure offer a more ambitious alternative to traditional greenways, supporting ecological preservation, biodiversity and active travel. While electric vehicles play a role, over-reliance on them risks perpetuating car dependency, requiring a more balanced focus on reducing overall car use.

Finally, without a defined framework for prioritisation, the current draft strategic approach risks conflicting outcomes. We are therefore strongly recommending that Ireland’s future transport system should be designed to be adaptable and to embrace innovative, regime-testing approaches that can better respond to future uncertainties.

2. ZERO WASTE ALLIANCE IRELAND (ZWAI)

At this point we consider that it is appropriate to mention briefly the background, aims, activities, policies and strategy of ZWAI, and to mention some of our previous submissions to the European Commission and to Irish Government departments. In the next section of this submission (section 3), we will provide information on the background, aims and activities of the Waterford Environmental Forum.

2.1 Origin and Early Activities of ZWAI

Zero Waste Alliance Ireland (ZWAI), established in 1999, and registered as a company limited by guarantee in 2004, is a Non-Government Environmental Organisation (eNGO) and a registered charity. ZWAI has prepared and submitted to the European Commission, the Irish Government and to Irish State Agencies many policy documents on waste management and waste elimination, and continues to lobby the Irish Government and the European Commission on using resources more sustainably, on promoting re-use, repair and recycling, and on development and implementation of the Circular Economy.

One of our basic guiding principles is that human societies must behave like natural ecosystems, living within the sustainable flow of energy from the sun and plants, producing no materials or objects which cannot be recycled back into the earth’s

systems, or reused or recycled into our technical systems, and should be guided by economic systems and practices which are in harmony with personal and ecological values.

Our principal objectives are:

- i) sharing information, ideas and contacts,
- ii) finding and recommending environmentally sustainable and practical solutions for domestic, municipal, industrial and agricultural waste management, and for more efficient and ecologically appropriate uses of natural resources such as scarce minerals, water and soil;
- iii) lobbying Government and local authorities to implement environmentally sustainable waste management practices, including clean production, elimination of toxic substances from products, re-use, repairing, recycling, segregation of discarded materials at source, and other environmentally and socially beneficial practices;
- iv) lobbying Government to follow the best international practice and EU recommendations by introducing fiscal and economic measures designed to penalise the manufacturers of products which cannot be re-used, recycled or composted at the end of their useful lives, and to financially support companies making products which can be re-used, repaired, recycled or are made from recycled materials;
- v) raising public awareness about the long-term damaging human and animal health and economic consequences of landfilling and destruction by mass burning or incineration of potentially recyclable or re-usable materials;
- vi) investigating, raising public awareness and lobbying Irish Government departments and agencies about our country’s failure to take adequate care of vulnerable and essential natural resources, including clean water and air, biodiversity, and soil;
- vii) advocating changes in domestic and EU legislation to provide for more ecologically appropriate, environmentally sustainable and efficient uses of natural resources; and,

- viii) maintaining contact and exchanging information with similar NGOs and national networks in the European Union and in other countries, and with international zero waste organisations.

2.2 Our Basic Principles

Human communities must behave like natural ones, living comfortably within the natural flow of energy from the sun and plants, producing no wastes which cannot be recycled back into the earth’s systems, and guided by new economic values which are in harmony with personal and ecological values.

In nature, the waste products of every living organism serve as raw materials to be transformed by other living creatures, or benefit the planet in other ways. Instead of organising systems that efficiently dispose of or recycle our waste, we need to design systems of production that have little or no waste to begin with.

There are no technical barriers to achieving a “*zero waste society*”, only our habits, our greed as a society, and the current economic structures and policies which have led to the present multiple environmental, social and economic crises.

“*Zero Waste*” is a realistic whole-system approach to addressing the problem of society’s unsustainable resource flows – it encompasses waste elimination at source through product design and producer responsibility, together with waste reduction strategies further down the supply chain, such as cleaner production, product repairing, dismantling, recycling, re-use and composting.

ZWAI strongly believes that Ireland and other Member States, and the EU as a whole, should have a policy of not sending to other countries our discarded materials for further treatment or recycling, particularly to developing countries where local populations are being exposed to dioxins and other very toxic POPs. Relying on other countries’ infrastructure to achieve our “recycling” targets is not acceptable from a global ecological and societal perspective.

2.3 What We are Doing

Our principal objective is to ensure that government agencies, local authorities and other organisations will develop and implement environmentally sustainable resources and waste management policies, especially resource efficiency, waste reduction and elimination, the promotion of re-use, repair and recycling, and the development and implementation of the Circular Economy.

As an environmental NGO, and a not-for-profit company with charitable status since 2005, ZWAI also campaigns for the implementation of the **UN Sustainable Development Goals**, including (but not limited to) Goal 12, Responsible Consumption and Production; Goal 6, Clean Water and Sanitation (having particular regard to the need to avoid wasting water, and to wasting nutrients contained in our wastewater); and Goal 15, to protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, to halt and reverse land degradation and to halt biodiversity loss.

In responding to many public consultations, members of ZWAI have made submissions and given presentations on:

- How Ireland, the European Union and the Irish food industry should address the problems of single-use plastic packaging and plastic waste (March & Nov. 2019);
- Transforming the construction industry so that it could become climate-neutral (instead of being a major emitter of greenhouse gases & toxicants);
- Observations on the general scheme of the Irish Government’s Circular Economy Bill (October 2021);
- Several observations and submissions addressing the need for recovery and reuse of the phosphorus and nitrogen content of wastewater (2019 to 2023);
- Observations to the European Commission on a proposed revision of the EU Regulation on Shipments of Waste (January 2022);
- Feedback to the European Commission on a proposed Directive on Soil Health – Protecting, Sustainably Managing and Restoring EU Soils (March 2022);¹
- Submission in response to a public consultation on the review of Ireland's security of energy supplies (October 2022);²

¹ <https://www.zwai.ie/resources/2022/protecting-sustainably-managing-and-restoring-eu-soils/>

² Submission to the Department of the Environment, Climate and Communications in Response to the Public Consultation on a Review of the Security of Energy Supply of Ireland’s Electricity and

- Submission in response to a public consultation on Ireland’s Fourth National Biodiversity Action Plan (November 2022);³
- Submission in response to a public consultation on Ireland’s National Bioeconomy Action Plan 2023-2025 (January 2023);⁴
- Submission in response to a public consultation on Ireland’s draft Waste Management Plan for a Circular Economy (July 2023);⁵
- Submission in response to a public consultation on the problem of disposable vaping devices (July 2023);⁶
- Observations and recommendations on the rapidly increasing European and global problem of waste electronic & electric equipment (WEEE, Sept. 2023);⁷
- Observations to the European Commission on a Proposed EU Directive on Soil Monitoring and Resilience (November 2023);⁸
- Observations on the Irish Government’s draft Green Public Procurement Strategy & Plan (November 2023);⁹

Natural Gas Systems; <https://www.zwai.ie/resources/2022/public-consultation-on-a-review-of-the-security-of-energy-supply-of-irelands-electricity-and-natural-gas-systems/>

- ³ <https://www.zwai.ie/resources/2022/submission-to-the-department-of-housing-local-government-and-heritage-in-response-to-the-public-consultation-on-irelands-fourth-national-biodiversity-action-plan-nbap/>
- ⁴ <https://www.zwai.ie/resources/2023/zwai-submission-on-irelands-national-bioeconomy-action-plan-2023-2025/>
- ⁵ Submission to the Regional Waste Management Planning Offices on the draft Waste Management Plan for a Circular Economy; ZWAI, 05 July 2023: <https://www.zwai.ie/resources/2023/submission-on-the-draft-waste-management-plan-for-a-circular-economy/>
- ⁶ Submission to the Department of the Environment, Climate and Communications in Response to the Department’s Public Consultation on Disposable Vaping Devices; ZWAI, 27 July 2023: <https://www.zwai.ie/resources/2023/submission-to-the-decc-on-disposable-vapes-and-why-they-should-be-banned/>
- ⁷ Submission by ZWAI to the European Commission on Waste from Electrical and Electronic Equipment — Evaluating the EU Rules; ZWAI, 22 September 2023. <https://www.zwai.ie/resources/2023/waste-from-electrical-and-electronic-equipment-weee-evaluating-eu-rules/>
- ⁸ Observations and Feedback to the European Commission on the Proposed EU Directive on Soil Monitoring and Resilience; ZWAI, 03 November 2023. <https://www.zwai.ie/resources/2023/submission-on-the-proposed-eu-directive-on-soil-monitoring-and-resilience/>
- ⁹ <https://www.zwai.ie/resources/2023/submission-to-the-decc-on-the-draft-green-public-procurement-strategy-and-action-plan/>

- Observations and feedback to the European Commission on the proposed revision of the EU Waste Framework Directive (November 2023);¹⁰
- Observations & feedback to the European Commission on revision of Directives 2000/53/EC & 2005/64/EC on End-of-Life Vehicles (December 2023);¹¹
- Submission by ZWAI to the Department of the Environment, Climate and Communications in response to the Department’s public consultation on proposed amendments to the Access to Information on the Environment (AIE) Regulations 2007-2018 (January 2024);¹²
- Response to the first Public Consultation by the Department of the Environment, Climate and Communications on Ireland’s draft National Energy and Climate Plan (March 2024);¹³
- Submission by ZWAI to the European Commission in response to the Commission’s public consultation on the evaluation of the Nitrates Directive (91 / 676 / EEC) on Protection of Waters against Pollution caused by Nitrates from Agricultural Sources (March 2024);¹⁴
- Response to the second Public Consultation by the Department of the Environment, Climate and Communications on Ireland’s updated draft National Energy and Climate Plan (June 2024);¹⁵ and,
- Submission by ZWAI to the European Commission in response to the Commission’s public consultation on proposed ecodesign and ecolabelling requirements for computers (July 2024).¹⁶

It will be clear that ZWAI is concerned with the very serious issues of discarded substances, materials, water and energy, whether from domestic, commercial or

¹⁰ <https://www.zwai.ie/resources/2023/observations-and-feedback-to-the-european-commission-on-the-proposed-revision-of-the-eu-waste-framework/>

¹¹ <https://www.zwai.ie/resources/2023/end-of-life-vehicles-observations-and-feedback-to-the-european-commission/>

¹² <https://www.zwai.ie/resources/2024/submission-to-the-decc-on-the-proposed-amendments-to-the-access-to-information-on-the-environment-aie-regulations-2007-2018/>

¹³ <https://www.zwai.ie/resources/2024/submission-by-zwai-to-decc-on-irelands-national-energy-climate-plan-necp/>

¹⁴ <https://www.zwai.ie/resources/2024/submission-by-zwai-to-the-eu-public-consultation-on-the-evaluation-of-the-nitrates-directive/>

¹⁵ <https://www.zwai.ie/resources/2024/draft-update-of-irelands-national-energy-and-climateplan-necp-submission-by-zwai-to-decc/>

¹⁶ <https://www.zwai.ie/resources/2024/ecodesign-and-ecolabelling-requirements-for-computers-zwai-submission-to-eu-commission-ecodesign-and-ecolabelling-requirements-for-computers/>

industrial sources, how these become “waste”, and how such “waste” may be prevented by re-design along ecological principles. ZWAI is also very concerned about the effectiveness and appropriateness of Irish and EU policies, legislation, programmes and plans which are the principal determinants of how these “wastes” are managed, controlled and monitored for environmental and societal benefits.

In-depth examination and analysis of national policies have made us very aware of the many disconnections and conflicts between economic, environmental, land-use planning and social policies, frequently resulting in a national failure to implement changes which would appear to be very necessary. While making the submissions listed above, we have welcomed many proposed policy changes; but at the same time we have also considered that it was very necessary to evaluate forensically all such proposals in the context of what is best for the environment and society.

ZWAI is represented on the Irish Government’s Water Forum (An Fóram Uisce), is a member of the Irish Environmental Network and the Environmental Pillar, and is funded by the **Department of the Environment, Climate and Communications** through the **Irish Environmental Network**.

ZWAI is also a not-for-profit company limited by guarantee (Company registration number **394205**), and a registered charity (CRN number **20057244**). Membership is less than 50 individuals, and the company’s affairs and activities are supervised by a 6-person Board of Management (Directors), some of whom are regular contributors to submissions, or make presentations at conferences.

In 2019 ZWAI became a full member of the **European Environment Bureau (EEB)**; and a member of the **Waste Working Group** of the EEB. Through the EEB, we contribute to the development of European Union policy on waste and the Circular Economy. In November 2021, the EEB established a **Task Force on the Built Environment**; ZWAI is a member of this group, and we contribute to continuing discussions on the sustainability of construction materials, buildings and on the built environment.

3. WATERFORD ENVIRONMENTAL FORUM (WEF)

Waterford Environmental Forum was established in early 2024, and we have been a member of the Waterford PPN since April 2024 under the Environmental Pillar. Our aim is to develop and nurture a respectful and harmonious relationship between the people of Waterford and its environment, both natural and built. The vision we hold for Waterford is that of a leading sustainable hub not only in Ireland but in Europe. We believe that Waterford as a community should lead by example and act as a responsible steward for both the environment and for future generations. Through this, we also aim to improve the long term welfare of not only Waterford citizens but also of Waterford ecosystems. This can be done through innovation, collective action and collective responsibility.

3.1 Our Vision

Our approach to achieving our vision is through local and national policy advocacy. Using local specialist knowledge and expertise, we focus on improving and informing policy decisions. We focus on solutions that take into account the welfare of future generations and the long-term welfare of Waterford citizens. In doing so, our work prioritizes leaving the world (both natural and built) in a better condition than we come to find it in today so that future generations can continue to thrive and flourish for years to come.

3.2 Our Strategic Pillars

The strategy of WEF is structured around five key pillars, which are derived from the principles established by the *International Council for Local Environmental Initiatives* (ICLEI). The first pillar, *NetZero Emissions Development*, emphasizes the necessity of balancing the emissions produced by various activities, such as construction, production, and transportation, with the restoration and maintenance of healthy ecosystems. This approach encourages the adoption of low-emission alternatives like public transportation and cycling over the use of private vehicles. Furthermore, it promotes the diversification of energy sources, reducing reliance on imports and enhancing energy security through sustainable and natural renewable resources.

The second pillar, *Nature-Focused Development*, underscores the critical role of nature in human welfare. It advocates for development practices that prioritize the preservation and integration of biodiversity and ecosystem health within urban environments. This approach seeks to balance human needs with environmental

sustainability, encouraging the incorporation of green and blue spaces within cities to reconnect people with nature. The third pillar, *Equitable and People-Focused Development*, aims to create inclusive and community-driven urban environments that address issues of poverty, disparity, and disempowerment. By ensuring access to essential resources like clean water, nutritious food, and sustainable energy, this approach fosters socially and culturally vibrant communities where diversity is celebrated, and social cohesion is strengthened.

The fourth pillar, *Resilient Development*, involves creating strategies that enhance the ability of communities to withstand and recover from various shocks and stresses, whether environmental, technological, or social. This approach emphasizes the importance of building resilient infrastructure, services, and systems to deal with the polycrisis we face today.

Lastly, the fifth pillar, *Circular Development*, advocates for a shift from the traditional linear model of production and consumption to a circular economy that prioritizes recyclability, resource regeneration, and waste reduction. This approach not only mitigates environmental impact but also promotes economic prosperity by fostering local economies rooted in principles of resource exchange, preservation, and sustainability. Through these five pillars, WEF aims to create a sustainable, equitable, and resilient future for all.

4. IMPROVING DEMAND-SIDE FACTORS

This section offers proposed revisions to enhance the demand-side components of the strategic approach proposed by the Department of Transport.¹⁷ It addresses key elements such as social practice theory, framing, and behaviour change, while also identifying areas for further research related to the strategy. A summary of these suggestions is provided in the final section of this submission.

4.1 Captive Car Users

The “captive car users” category¹⁸ could be better informed through aligning with a body of theory and research on energy demand that comes from the school of “Social Practice Theory”.¹⁹ An increasingly popular approach to understanding the everyday embeddedness of energy demand, it recognises the captive nature of the car as part of how everyday practices are configured and continue to configure our everyday lives. This can lead to ‘lock-in’ to certain practices – for example, for many people how they live their lives becomes tied to the car. While the Department’s draft strategic approach touches on quite a bit of what leads to lock-in, such as the absence of alternatives, this deeper approach uncovers the embedded nature of the transport mode in the lived experience.

This approach shows from an analysis of time-survey data that the car is heavily bound up with a multitude of other practices through its cargo-function as car drivers go shopping, ferry children to school, take the dog to a place to walk, drive the family’s waste to waste disposal areas, etc. Any shift to supplant the car with public transport and active travel needs to factor in this cargo-function and better facilitate the function in non-car modes (for example, cargo-bikes, panniers) and bring

¹⁷ Moving Together – A Strategic Approach to the Improved Efficiency of the Transport System in Ireland. Department of Transport, Dublin, April 2024.

¹⁸ Moving Together – A Strategic Approach to the Improved Efficiency of the Transport System in Ireland; Captive Car Users, page 112. Department of Transport, Dublin, April 2024.

¹⁹ Shove, E., Pantzar, M. and Watson, M. (2012) *The Dynamics of Social Practice: Everyday Life and how it Changes*. London: SAGE Publications Ltd. Available at: <https://books.google.ie/books?id=L-ILf3b9P-AC>.

changes to the cargo nature of the embedding practices (e.g., the Department’s draft does suggest changes to shopping through the use of micro consolidation hubs).²⁰

The cargo function would also need to be considered in any attempts to develop integration and synergy across public transport and active travel modes. However, the draft and its recommendations are very much lacking in specifics of such synergy. For example, the draft should comment on whether bike racks on buses and taxis – which exist in other countries – should be implemented. There should also be a major increase in secure cycle parking at public transport stations – which has been shown in many studies to be effective in bike-transit integration.²¹ A visitor to any major city or town in nearly all other EU Member States will see extensive (and usually well-filled) cycle parks at the railway stations which connect these cities and towns by rail.

4.2 Framing Greenways

The Departments’ draft strategy needs to be more upfront about the important specific contributions to active travel that can be made from Greenways. Communication recommendations would do well to shift emphasis from portraying these routes as mere leisure opportunities for tourism to key parts of suburban and satellite town commutes as well as crucial safe spaces for (re)developing cycling skills.

The importance of safety in encouraging take-up was visible during Covid car restrictions.²² Greenways also provide locations where cycling is not a strange and insecure exception but a legitimated mode which again can encourage take-up. Greenway connections need to be developed to hubs, catchment areas, schools, satellite towns where possible. Greenways need to be extended into city areas as

²⁰ Mattioli, G, Anable, J & Vrotsou, K. (2016). ‘Car dependent practices: Findings from a sequence pattern mining study of UK time use data’, ‘Transportation Research Part A: Policy and Practice’, 89, p. 56-72, ISSN 0965-8564, available at: <https://doi.org/10.1016/j.tra.2016.04.010>

²¹ Kosmidis, I. and Müller-Eie, D. (2024) The evolving role of mobility hubs in sustainable urban transport. *Transport Reviews*, 44(1), pp. 15-35. <https://doi.org/10.1080/01441647.2023.2222911>

²² Greene, M. et al. (2022) ‘Practicing culture: exploring the implications of pre-existing mobility cultures on (post-) pandemic practices in Norway, Ireland, and the United States’, *Sustainability: Science, Practice and Policy*, 18(1), pp. 483–499. Available at: <https://doi.org/10.1080/15487733.2022.2091328>.

with the Bilbery to Waterford City Centre link. Such connections should be supported by provision of secure parking facilities.

4.3 Specific Community and Institutional Network Measures

While supporting and resourcing local authorities (LAs) and encouraging sustainable travel practices amongst staff of organisations is important,²³ there is a large community and institutional network towards which recommendation and implementation measures could be more specific – e.g., offering funding and support for Tidy Town groups, GAA, Residents Associations, etc.

4.4 Protecting Existing Infrastructure

While developing new infrastructure for active travel is crucial, protecting the current infrastructure requires prioritising – especially council maintenance of road lining used to distinguish cycling lanes, as faded lanes heighten the dangers for already vulnerable cyclists. They are also likely contribute to further conflicts over rights to public space.²⁴ The proposed draft strategy should also look further into ensuring the protection of rights to public space for non-car users as research shows this is a key concern for cyclists in Ireland.²⁵

4.5 Encouragement of more Ambitious Community and Behaviour Measures

Measures focused on communication and behaviour must be more ambitious. An example of low ambition communication can be found in the digital renderings of the Sustainability Bridge in Waterford. These images show a handful of walkers and cyclists as though the bridge is not a serious effort at modal change but some casual leisure activity for tourism. Communication and project-promoted change must work

²³ Moving Together – A Strategic Approach to the Improved Efficiency of the Transport System in Ireland; Encourage Sustainable Transport Through Information and Promotion, page 97. Department of Transport, Dublin, April 2024.

²⁴ Egan, R. and Philbin, M. (2021) ‘Precarious entitlement to public space & utility cycling in Dublin’, *Mobilities*, 16(4), pp. 509–523. Available at: <https://doi.org/10.1080/17450101.2021.1913067>.

²⁵ Egan, R. and Philbin, M. (2023) “It’s not disrespect – it’s putting you at risk”: when right meets risk in the field of cycling research & policy’, *Health, Risk & Society*, 25(5–6), pp. 199–215. Available at: <https://doi.org/10.1080/13698575.2022.2138278>.

to develop a new discourse that speaks of future mobility landscapes as ‘walkable cities’ or ‘cycling cities’. Such ideas need time to gestate in the current car-centric Irish mind and order.

Quality of life dimensions of cycling cities should be emphasised – e.g., the ambiance of a city where you can sit out and breathe fresh air. Something many Irish people have already experienced abroad in the cycling cities of most other EU Member States in mainland Europe. The narrow interpretation of ‘Traffic’ in public discourse as car-traffic must also be strongly challenged in all communications. This is to reinforce the idea that more cycling is not actually another rush hour obstruction for ‘traffic’ but actually a reduction in car-traffic in favour of ‘cycling traffic’.²⁶

Recognition of political, spatial, infrastructural, interconnecting and interdependent dimensions of what constitutes demand is a good leap beyond the atomising and individualising days of the negligible and wasteful ‘*Power of One*’ campaign. Awareness of unintended consequences also shows maturity. However, the dangers of individualising responsibility, which fails to inform practical specifics, nor to enable or empower, still exist in such campaigns as ‘*Your Journey Counts*’. While the campaign acknowledges investment, it still places onus on the individual, regardless of the diverse and complex social contexts that people find themselves in such as feeling/being locked-in to unsustainable travel via the housing crisis and expanding commuter belt.

The survey cited to legitimate the campaign also needs to take account of the ‘value-action gap’ and inaccuracies of self-reported behaviours. Perhaps a greater emphasis – as has been recommended by the former EPA-funded all Ireland ConSenSus research project – would be to offer more details that are specific to the nature of sustainable practices themselves as well as ongoing collective dimensions and acknowledgement of diverse obstacles that some might face.

Rather than treat attitudes and behaviours as something separate and voluntaristic on behalf of the individual, *Practice Theory* recognises how people become recruited by the practice and often locked-in to unsustainable practices. Their attitudes and beliefs too are part of the practice itself and is based on how they see the practice from a distance or experience it directly. Therefore, how the practice is configured across society has huge effects on how they come to relate to it. For example cycling

²⁶ Egan, R. and Caulfield, B. (2024) ‘There’s no such thing as cycle traffic: A critical discourse analysis of public opposition to pro-cycle planning’, *Journal of Cycling and Micromobility Research*, 2, p.100014. Available at: <https://doi.org/10.1016/j.jcmr.2024.100014>.

in Ireland and Britain is often seen as only a sporting activity, in contrast to the situation in Denmark and Holland where it is predominantly casual. This difference has huge knock-on effects on peoples’ ideas about body, clothing, fitness, and gender as they relate to doing the practice, and can feed into other high-energy activities such as showering. That is why providing workplace amenities of shower rooms as suggested in the draft strategy should come with a caveat.²⁷

Recognising that individual beliefs and behaviours are bound up with, and indeed part of what constitutes the practice, and that people change through the practice, offers a much more accurate and informative approach to changing so-called ‘attitudes and behaviours’. Large amounts of the strategy document are already aware of the massive importance of spatial and infrastructural dimensions to practices but could do with tying these more individualistic elements into the holistic framework and *Practice Theory* offers useful conceptual tools for doing that.

4.6 Further Research

The draft makes note of time use surveys of car use. Any such surveys and analysis should be more area-specific in order to understand local spatial and infrastructural effects as well as the particular configuration of practice environments in which people are embedded.

A major omission from the document is the temporal dimensions of transport practices and activities. This is strange, as congestion clearly occurs usually at easily identifiable periods of the day – morning and early evening – and is tied to the scheduling of everyday practices of work and education. We therefore strongly recommend the commissioning of further research on the temporal ordering of everyday travel in relation to everyday practices. The framework for conducting such research already exists in ‘Practice Theory’ literature.²⁸ Detailed research also needs to be conducted on the effects of Greenway cycling practice and experience on the daily cycling use of greenways.

²⁷ Moving Together – A Strategic Approach to the Improved Efficiency of the Transport System in Ireland; Encourage Sustainable Transport Through Information and Promotion, page 98. Department of Transport, Dublin, April 2024.

²⁸ Southerton, D. (2020) Time, Consumption and the Coordination of Everyday Life. London: Palgrave Macmillan.

4.7 Increasing the Functional Capacity of Public Transport

Increasing the capacity of public transport does not reduce demand, in fact it is likely to increase demand, and therefore we recommend that transportation modes with higher capacity and less material footprint per person (trains, buses, trams) should be given a higher status of importance in this strategy. This suggested change will, we advocate, decrease the adverse environmental impacts of transport as a whole.

It is our submission that specific targets for the implementation of a public transport based transit system must be set in order to efficiently and effectively reach our climate goals. While completely eliminating the use of private cars might be out of reach, Government should be aiming to provide an environment system whereby a majority of all trips under 15 minutes in cities can be done by walking. The concept of the 15-minute city is not a specifically transport focused strategy but one of city planning. If all goods and services could be reached within 15 minutes by urban dwellers in Ireland we would see major reductions in emissions related to short trips.

On the other hand, for rural Ireland, where the goal of all services being attainable by walking is not possible, specific targets around connectivity between a majority of population centres should be a major component of the State’s transportation policy, with interconnection of modes of transport at its core. If a person in rural Ireland could commute to work by public transport hubs in their towns and villages, many would do so. A poll conducted in Ireland in 2022 showed that 52% of people want to see improvements in high capacity public transport networks (Rail/Bus) versus 33% for road improvement, while the remainder of those polled want improvements in cycle lanes.²⁹ This finding, when considered along with the finding that people living in Dublin city, suburbs and greater area are more satisfied with their current networks, provides a clear mandate for public investment in public transport.

Strategic targets are therefore required to attain the goals that the population want to see implemented. If government set and reach specific goals it would perceive a three-fold benefit:

1. Reduction of car use and therefore in transport-related emissions;
2. Reduction in waste and environmental damage caused by the crushing, transportation and management of end-of-life vehicles (see, for example, observations and feedback by Zero Waste Alliance Ireland to the European

²⁹ <https://www.thejournal.ie/train-polling-bus-car-5514329-Aug2021/>

Commission on revision of Directives 2000/53/EC & 2005/64/EC on End-of-Life Vehicles;³⁰ and,

3. Renewed citizens’ confidence in the Government’s ability to implement large-scale infrastructure projects.

4.8 The Danger of Prioritising Electric Vehicle Incentives

We also want to draw attention to the dangers inherent in certain currently-prioritised (green economy) policies, such as electric vehicle incentives, as these may reinforce car dependency, further locking the country into a system that fosters growing car use and emissions by design;

Despite the obvious advantages of electrification, there is a major flaw in hedging all our bets on electric vehicles. If we place all of our trust in electric cars, we will still have a system based entirely on passenger cars. If all current car drivers were to switch to electric cars, we would still have the same problem of deficient public transit infrastructure, leaving this inheritance to future generations and governments.³¹

With the monetary cost of driving being much higher for the individual than robust public transit networks, we would essentially be subsidising car manufacturers in the process of decarbonising our transport networks. Electric vehicles are also incredibly resource intensive because of the precious and rare earth materials found in their battery packs. The supply chains for these units are vast. They are heavily polluting and also dangerous for the workers extracting the cobalt and lithium required to manufacture the core of the battery pack. This can and should be seen as a waste of human capital and limited resources, by creating vehicles which will lock us into a new cycle of car dependency. Policy decisions that lead us in this direction, despite being well meaning, are misguided. They reinforce the current model of extraction and use of Earth’s resources without a clear vision for end-of-life reuse and treatment of those same resources.

Efficient and resource-sustainable public transport, is a tried and true model which we know that we can maintain, and will serve us a double dividend of future transport

³⁰ Observations and feedback by ZWAI to the European Commission on revision of Directives 2000/53/EC & 2005/64/EC on End-of-Life Vehicles (December 2023)
<https://www.zwai.ie/resources/2023/end-of-life-vehicles-observations-and-feedback-to-the-european-commission/>

³¹ <https://rmi.org/the-ev-battery-supply-chain-explained/>

needs and reduced environmental impact, a dividend which increases when the public transit network is increased. That is why we are advocating that the policy of electrification should be reviewed and integrated into mass transit plans in order that we come to a place where the primary means of transit in Ireland is large scale mass transit and private vehicles are the second option for a large part of the population.

The Government-promoted switch to using electric vehicles is an important part of Ireland's environmental policies; but we must raise the concern that the current emphasis on making the switch to electric vehicles will perpetuate Irish society's dependence on privately owned vehicles rather than utilising sustainable modes of transport. The approach in encouraging privately owned electric vehicles does not negate nor address the issue of a private-vehicle-dependent society. This focus is limiting as it fails to confront the larger picture of transitioning to high-capacity, low footprint modes of transport.³²

To counter this, we suggest that the focus of the strategy should be shifted slightly to ensure that the emphasis on electric vehicle sales does not overshadow public transport needs. We have to significantly reduce the numbers of private vehicles on the road, rather than simply replacing traditional cars with electric ones.

4.9 Disincentivising Heavy-weight Vehicles, while Incentivising Light-weight Vehicles

At the current levels of public transport service in Ireland we must be realistic in achieving the goal of a majority of journeys being taken by bus, tram or train within the present decade. This being the case, and the population being confined in the cycle of car dependency until public works are conducted to improve our mass transit network, we must at a minimum reduce the waste of our current and future car stock.

That is why the dis-incentivisation of heavy vehicles (SUV's & trucks) in favour of smaller less resource-intensive and more fuel efficient light vehicles (city cars and motorbikes/mopeds) should become a priority in any future transportation strategy and policy. The reasons are twofold:

³² Budde, H., Seuring, S.P. and Hartmann, M., 2021. Electrification of urban transport: The role of electric vehicles and public transport in improving urban air quality. *Sustainable Cities and Society*, 64, p.102576. DOI: 10.1016/j.scs.2020.102576.

1. The pollution and waste caused by the use of heavy vehicles is naturally higher than that caused by the use of lighter vehicles; and,
2. There is a safety benefit attached to the use of lighter vehicles.

According to a study conducted by UK-based environmental charity “*Possible*”, SUV’s emit 226gCo₂/km versus small hatchbacks which range between below 100 and 140 gCo₂/km driven.^{33 34} The sale of SUVs is also increasing in Ireland; the most widely sold car in Ireland last year being the Hyundai Tucson, a medium sized SUV; despite the fact that sales of electric vehicles also increased. This trend was also seen in the previous year where the Tucson was also on top of the leaderboard.

The trend of heavy emitting SUV’s being the most purchased cars in the country cannot continue if we are to meet our climate goals. Disincentives such as heavier import tariffs on point of entry, or higher road tax should be placed on these vehicles with incentivisation given for the purchase of smaller vehicles. Once again it must be noted that the ideal solution to this problem would be a more robust public transit network and dis-incentivisation of car use once we have achieved a network that is workable for the majority of the population.

In our cities there should be a more concerted effort to reduce car trips as much as possible, given that cities such as Paris and London³⁵ have already come up with solutions. For example, London introduced an “entry fee”, similar to a toll, for cars entering the city, while Paris is introducing its *Crit’air* sticker.³⁶ The Paris model requires cars entering the city to have paid an emissions tax depending on the size of the engine. Such a model could be considered for Dublin where public transport, despite not being perfect and having gaps in service, is available to a sufficient level whereby the majority of the population can realistically get around without having to use cars. These stickers would also be made more expensive for SUV’s, acting as a disincentive on their purchase and use.

A further and related problem is that the use of SUVs (heavy-weight vehicles) significantly contributes to the environmental impact of transportation, as these vehicles are generally less fuel-efficient than smaller/ light-weight cars. Also, the production of SUV’s requires more raw materials such as steel, aluminium, and

³³ <https://www.sciencedirect.com/science/article/pii/S2214629623003626#s0030>

³⁴ <https://www.wearepossible.org/our-reports/tractor-attack>

³⁵ <https://tfl.gov.uk/modes/driving/ultra-low-emission-zone>

³⁶ <https://www.france.fr/fr/article/vignette-critair-ca-marche/>

plastics compared to smaller cars. This leads to higher energy consumption and greater environmental damage during extraction, processing, and transportation of these materials. Implementing higher taxes and/ or registration fees for SUVs and other heavy weight vehicles to disincentivize the unnecessary sale of these vehicles should be considered. The additional taxes and revenue generated from this could then be allocated back into funding sustainable and public transport initiatives.³⁷

In Waterford, we suggest that offering a rebate or reduction for the purchase of smaller, and more fuel-efficient vehicles could encourage residents to pick a more environmentally conscious option. For this suggestion to be effective, a public awareness campaign is necessary to ensure that people know the environmental differences between heavy-weight vehicles and lighter-weight vehicles. Highlighting the successes of other cities that have reduced SUV usage could be an effective method to indicate how positive results could be achieved.

4.10 Encouraging the Use of Biofuels

During the intervening period, until public transit attains a sufficient level of service and volume of passengers, we need to find a solution to the climate-damaging practice of using fossil-based fuels such as petrol and diesel to fuel our transport needs. This is where Biofuels such as biodiesel and ethanol come into the picture, and should be a component of any future transportation strategy.

Biodiesel is a fuel composed of long chain fatty acids and plant residues that have been chemically converted into a usable fuel for appropriate engines. Biodiesel can be blended with regular diesel, helping to reduce the carbon emissions of the fuel type depending on the ratio of biodiesel to regular diesel. Biofuels can be produced in Ireland from plant material or from the thousands of tonnes of waste animal fats and oils, most of which are currently discarded, incinerated, or exported. Therefore, by developing and implementing a targeted policy for the widespread use of biofuels we could begin to reduce the emissions and fossil fuel dependency of Ireland's existing car dependant transport network.

Dublin Bus has already begun the roll out of city buses which run on alternative fuels, primarily hydrogen, while we understand that a small number of electrically-powered

³⁷ Nässén, J. and Holmberg, J., 2009. The environmental impact of SUVs: Can taxes and regulation reduce the environmental footprint? *Energy Policy*, 37(3), pp.1231-1237. DOI: 10.1016/j.enpol.2008.10.016.

buses are operating in Athlone. The pilot-scale project in Dublin has proved to be successful, and should be expanded across the nation's bus network; while some rail services could also be powered by biofuels (see section 7.5 below). Incentives for biofuel use could consist of lower prices to reflect their environmental benefits and shorter supply chains, and possible lower road taxes for cars that run on them also. Disincentives on using fossil fuels could also be a good interim solution while public works are needed to enable cheap, widespread and reliable mass transit.

We also suggest that some portions of our public transport system, for example, local bus services, could be powered by another type of biofuel, which could also be produced in Ireland. The Department may find it relevant to know that Ireland was a bio-fuel leader for several decades during the 20th century, when alcohol (ethanol) was produced, using potatoes as a raw material. The alcohol was added to what was then termed “motor spirit”, but which we now know as “petrol”, in a proportion determined by the relevant Government minister, and all companies producing or selling “motor spirit” were required to purchase the necessary amount of alcohol from a state company, Chemicí Teoranta, at a price determined by the Minister.³⁸

Ireland was therefore an early leader in using biofuel to displace fossil fuel, even though the primary purpose of the legislation and the establishment of Chemicí Teoranta in 1938 was to utilise potatoes, in order to provide for Irish farmers a market for their potatoes at a time when the British government had closed its border to this Irish crop. The company built five plants for the production of alcohol (at Cooley, Co. Louth; Carrickmacross, Co. Monaghan; Carndonagh, Co. Donegal; Labbadish, Co. Donegal; and at Corroy, Co. Mayo); alcohol production commenced in 1938;³⁹ these plants functioned very efficiently for many decades, until Ceimici Teoranta went into voluntary liquidation in 1986; and the Cooley plant was bought in 1987 by Mr John Teeling who converted it to the currently operating Cooley whiskey distillery. The other four plants had been closed down earlier.

Another source of alcohol for use as a biofuel to power public transport (and local delivery vehicles) could come from the growing of sugar beet to provide a raw material, though this was not done when sugar beet was widely grown in Ireland, and sugar was successfully produced. Sugar and other carbohydrates in sugar beet

³⁸ Industrial Alcohol Act, 1934, number 40 of 1934. It is not generally known that the original name of the state company was Monarchana Alcóil na hÉireann Teoranta, and it was changed to Ceimicí Teoranta in 1947.

³⁹ Oireachtas Committee Reports; Joint Committee on Commercial State-Sponsored Bodies; Report No. 05 - Ceimicí Teoranta, 1979.

are easily converted to alcohol, with many potential uses, and the beet crop yields more sugar, and therefore more alcohol, per hectare than sugar cane.⁴⁰

Sugar beet alcohol is very commonly used in Europe; especially in France, which is an important producer of beet and is the present leader of agro-ethanol production from the crop. In fact, the chemical composition of sugar beet makes this raw material an attractive feedstock for ethanol fermentation,⁴¹ and its use as a fuel for motor vehicles was suggested in Ireland in 2006,⁴² citing research carried out in the Institute of Technology, Carlow, now part of the South East Technological University.

But long before alcohol from sugar beet was being suggested as a renewable fuel, beet growing was introduced 91 years ago by the establishment of Comhlucht Siúicre Éireann, Teoranta in 1933, following a decision by the Government to create a national sugar industry capable of meeting the country’s total requirements from domestic output. It was a very successful industry; sugar production quickly reached approximately 200,000 tonnes per annum; beet was a cash crop; the Irish Sugar Company provided seed, harvesting assistance and transport, and farmers were paid in advance, which was of vital importance to small-scale farmers. The company also researched sugar extraction from the crop, examined the soil requirements of sugar beet growth, and Ireland soon became a leader in this bio-industry.

An unfortunate decision was made by the company management to close two of the sugar plants (see also section 7.3. below), followed by a further damaging decision in 1991 when the Irish Sugar Company was floated on the stock market under the name of Greencore, reflecting the ideology of privatisation which became prevalent in the 1980s; and, in 2006, all sugar production ceased, together with the potential for biofuel (ethanol) production, an industry that today would be seen as a sustainable bio-industry, possibly serving public transport fuel requirements.

⁴⁰ Chavanne, Xavier, and Sadones, Patrick, 2015. Ethanol from Sugar Beet. Book chapter, 28 pp. https://www.researchgate.net/publication/298034401_Ethanol_from_sugar_beet/link/

⁴¹ Cristina Marzo, Ana B. Díaz, Ildelfonso Caro and Ana Blandino, 2019. Status and Perspectives in Bioethanol Production From Sugar Beet. Published in “Bioethanol Production from Food Crops – Sustainable Sources, Interventions, and Challenges”. Academic Press, 2019, Pages 61-79. ISBN 978-0-12-813766-6. <https://doi.org/10.1016/B978-0-12-813766-6.00004-7>

⁴² Irish cars could run on sugar beet ethanol mix. Irish Examiner, 04 February 2006. <https://www.irishexaminer.com/business/arid-30243103.html>

5. REDUCING NEGATIVE IMPACTS ON NATURE

The Department of Transport’s ‘*Moving Together*’ public consultation presents the Waterford Environmental Forum with an important opportunity to delve into transport systems in Waterford, and to reimagine Waterford’s transport through the Forum’s 5 strategic pillars. This section of our joint submission with Zero Waste Alliance Ireland focuses on nature-focused development, advocating for a strong consideration of nature and the natural living environment in future transportation policies, strategies and development. The core concept of nature-focused development within this strategy emphasises reducing the material footprint of transportation.

Our primary recommended strategies are to prioritise higher capacity transport modes, to set specific targets to reduce private car usage, to reevaluate currently prioritised (green economy) policies and efforts to disincentivise the unnecessary sales of Sports Utility Vehicles (SUVs) and similar heavy-weight vehicles in favour of lighter weight vehicles which are more sustainable (see section 4.9 above).

Learning from the ‘*Moving Together*’ public consultation, the final strategy should analyse where Waterford’s public transport system can be enhanced to create more sustainable and efficient public transport systems. This could result in Waterford becoming a model for decreasing Irish transport emissions by integrating these measures at a local level, in accordance and compliance with national goals. Other significant considerations include promoting green infrastructure, and integrating land-use planning with transport development.

Furthermore, the ‘*Moving Together*’ draft strategy emphasises the significance of reducing car dependency and increasing the efficiency and focus on sustainable transport networks; and it is vital that our recommendations for Waterford show that these local priorities are effectively aligned with the national strategy.

5.1 Green Corridors and Spaces

One of the key issues to be considered in all transport developments is to ensure the existence and creation of wildlife corridors adjacent to our roads and paths, as this practice can be used to reduce fragmentation between habitats, giving wildlife opportunities to move around with less risk of deaths by collision with motor vehicles.

Green corridors, or wildlife corridors, are designated spaces and areas within urban environments that prioritise ecological connectivity and sustainability. These

corridors can also include green infrastructure such as cycle lanes, pedestrian pathways and public transport routes, ultimately reducing reliance on private cars.

For example, Waterford showcases a great example of green infrastructure with the Waterford greenway. While the greenway does show some effort, the scope of potential for Waterford’s green infrastructure could be improved. Even though greenways are used mostly for recreational activities, they can equally well be used “for non-recreational trips – shopping, education, and work/business”.

Unfortunately, the draft strategy does not adequately emphasise the marketing and utilisation of greenways as functional components of a city’s urban infrastructure; this aspect is only briefly mentioned. Marketing greenways as functional tools as well as recreational facilities would help them to contribute to the goal of reducing private car usage, yet their recreational value more emphasised than their functional significance.⁴³ In addition, increasing the density of trees along city and town streets and in urban green areas in Waterford would improve the city’s visual appeal while also helping to reduce emissions and improve overall air quality.

Green corridors are a key component of this submission to ensure Waterford’s urban area has connection to nature and natural landscapes through parks and green spaces. These corridors also have the possibility to provide habitats for urban wildlife while encouraging more sustainable transport modes.⁴⁴ Waterford City is directly connected to the greenway from the Quays, this connection encourages residents of the city to use sustainable methods of transport, such as walking or cycling, rather than driving to a natural open space in which to walk. The city also has many other green spaces, notably ‘The Peoples Park’ and ‘Top of the City Gardens’, which help to create more walkable neighbourhoods (draft strategy, pages 72 & 73).

Therefore, important issues to be considered in the final version of ‘Moving Together’ should be prioritisation of green spaces and corridors, as well as a guarantee that these areas will be managed to safeguard the crucial components of green spaces for wildlife, as well as the public’s well-being and health, ultimately promoting sustainable, walkable neighbourhoods and cities.

⁴³ Searns, R., 2023. Beyond Greenways: The Next Step for City Trails and Walking Routes. American Trails. Available at: <https://www.americantrails.org/resources/beyond-greenways-the-next-step-for-city-trails-and-walking-routes>

⁴⁴ Journal of Urban Ecology, “Green Corridors and Their Role in Urban Planning and Biodiversity Conservation,” 2022. Available at Oxford Academic.

5.2 Prioritising High-Capacity, Low-Material-Footprint Transport Modes

Waterford’s current transport system and the habits of its citizens are heavily reliant on the use of private cars. Waterford is limited by its public transport options, for example in its size and scope of bus and rail networks. This limitation has led, in the course of time, to high private car usage in Waterford. As pointed out in ‘*Moving Together*’, a reduction in reliance on private car use is urgently needed, along with the desired aim of encouraging and improving Waterford’s public transport network, to achieve the goal of high-capacity, and low material footprint modes of transport in the county.

The bus network in Waterford has seen improvements in recent years, with upgrades being made to routes such as the Waterford to Tramore bus (Route 360/360A), which has become more frequent and reliable. A common complaint about Irish bus services is the unreliability of the services and frequent untimeliness of the buses.⁴⁵ Improving this untimeliness by implementing dedicated bus lanes to areas without them, such as in Waterford, will ensure that buses will be able to efficiently operate.

It is important, when implementing these changes, to create a campaign to make sustainable transport methods more attractive and accessible for Waterford residents.⁴⁶ Improvements in both rail and bus services are predicted to significantly reduce the usage of private cars which in turn will result in lower emissions and overall contribute to a decrease in both Waterford and Ireland’s material footprint.

5.3 Setting Specific Targets to Reduce Private Car Usage

As discussed above, Waterford and the many other areas in Ireland largely depend on the use of private cars for commuting, which ultimately leads to excessive emissions, pollution and resource consumption.⁴⁷ This car dependency is not

⁴⁵ McLoughlin, E., & Caulfield, B. (2020). "Analysing the Performance of Public Transport Services in Dublin: An Accessibility-Based Approach." *Case Studies on Transport Policy*, 8(3), 952-961. DOI: 10.1016/j.cstp.2020.05.002.

⁴⁶ Morrissey, E., Caulfield, B. and Ghosh, B., 2018. Commuting trends in the Republic of Ireland: A comparative study of the Dublin and Cork metropolitan regions. *Transportation Research Part A: Policy and Practice*, 114, pp.161-175. DOI: 10.1016/j.tra.2018.04.001.

⁴⁷ Morrissey, E., Caulfield, B. and Ghosh, B., 2018. Commuting trends in the Republic of Ireland: A comparative study of the Dublin and Cork metropolitan regions. *Transportation Research Part A: Policy and Practice*, 114, pp.161-175. DOI: 10.1016/j.tra.2018.04.001

sustainable and, if it continues, will lead to further detrimental impacts on the environment and public health.⁴⁸ Ireland's climate targets are not being met, with resulting negative economic impacts, as Ireland continues to pay more fines when targets are not achieved.⁴⁹ Stricter, more specific time-constraining targets must be established and enforced to effectively reduce and monitor the time spent using private cars as a preferred travel method.

In addition to enforcement, and to provide the necessary data, a monitoring programme should also be implemented, to observe progress which could enable the strategies to be more easily adjusted during implementation. Our suggestion for monitoring is that progress reports should be created and published,⁵⁰ allowing data to be more easily accessed and followed by the public, state bodies, and local authorities. These reports would also increase engagement with the public and would increase environmental awareness about the benefits of using public transport where possible, while also assisting the Department’s transparency policy.

5.4 Conclusions and Recommendations for Reducing the Negative Impacts on Nature

Waterford transport system has the potential to become an example of sustainability and nature integration, setting a standard for other Irish counties. By aligning local initiatives with the “*Moving Together*” strategy’s objectives, Waterford can achieve significant environmental and social benefits, including reduction of the material footprint of transport in Waterford, and contributing to a more sustainable, and resilient community. By prioritising and improving high-capacity, low-material-footprint transport modes, setting specific targets to reduce private car usage, reevaluating electric vehicle incentives, and disincentivising the sale of SUVs, Waterford can lead the way in sustainable transport development.

⁴⁸ Ogur, E.O. and Kariuki, S.M., 2014. Effect of car emissions on human health and the environment. *International Journal of Applied Engineering Research*, 9(21), pp.11121-11128.

⁴⁹ Scally, G., & Ferrie, J. (2018). "Climate Policy and Ireland: A Delayed Response." *Environmental Science & Policy*, 85, 17-25. DOI: 10.1016/j.envsci.2018.03.004.

⁵⁰ Marsden, G., Anable, J., & Docherty, I. (2020). "Achieving Net Zero: Car Use in a Zero-Carbon Future." *Transport Policy*, 91, 1-2. DOI: 10.1016/j.tranpol.2020.04.016.

6 EMPHASISING RESILIENT DEVELOPMENT

6.1 Establish clear guidance for conflict-avoidance

The “*Moving Together*” Transport Strategy should establish a clear hierarchy of intentions to prevent conflicts arising during future transport planning and decision-making processes. It is imperative that the strategy delineates which principles hold the highest priority and provides comprehensive guidance for decision-makers when these principles inevitably come into conflict. While the strategy's broad array of suggestions represent a positive step forward, it lacks a defined framework for prioritisation, which could lead to contradictory outcomes as projects are implemented.

The intention for this strategy to act as a guide is best highlighted by Minister Eamon Ryan during the Joint Committee on Transport and Communications debate on 03 July 2024 who said; “*At a local level, the strategy looks to ensure that the necessary guidance is in place for local authorities and local council representatives to develop demand management plans for their own areas, plans that are tailored to best suit the bespoke needs of each individual community*”.⁵¹ Additionally, the strategy outlines that it is guided by four key principles; “*Just Transition, Accessibility and Inclusion, Rural Recognition, and Economic and Financial Sustainability*”.⁵²

In order to act as a guidance tool, the strategy should specify which principles — such as accessibility and inclusion, sustainability (Just Transition) (Economic and Financial Sustainability), time efficiency, and community development (Rural Recognition) — take precedence over others in the case of a conflict arising. And we would emphasise that such policy conflicts are not infrequent – as we have pointed out in section 2.3 above, the experience of Zero Waste Alliance Ireland has been that, as a result of carrying out many examinations and analyses of national policies, ZWAI has become very aware of the many disconnections and conflicts between economic, environmental, land-use planning and social policies, frequently

⁵¹ This information was made available in a meeting of the Joint Committee on Transport and Communications 03/07/2024, available in transcript here: https://www.oireachtas.ie/en/debates/debate/joint_committee_on_transport_and_communications/2024-07-03/

⁵² *Moving Together – A Strategic Approach to the Improved Efficiency of the Transport System in Ireland*;, page 12. Department of Transport, Dublin, April 2024.

resulting in a national failure to implement changes which would appear to be very necessary or desirable.

For instance, on a broad scale, accessibility might be prioritised over sustainability or vice versa. On a more granular level, reducing private car use might conflict with increasing electric vehicle use or promoting active travel. If the goal is to enhance accessibility for the greatest number of people, expanding road infrastructure and increasing nearby parking facilities might seem beneficial. However, this could conflict with sustainability goals, as it promotes private car use and potentially poor land-use planning. Conversely, pedestrianising more shopping areas to improve sustainability might reduce accessibility, as consumers would need to park further from shops, thereby increasing their travel time.

These examples, while simplified, illustrate the necessity for the strategy to establish a hierarchy of priorities. For example, in cases where sustainability conflicts with accessibility, the strategy should clarify which principle should prevail. This hierarchical guidance would ensure consistent decision-making and align all stakeholders towards common goals. Therefore, the strategy must explicitly outline the precedence of its core aspects to effectively manage potential conflicts and guide public authorities, especially local authorities, towards making coherent and aligned transport decisions.

The need for this hierarchical prioritisation becomes even more apparent on a smaller, more focused scale. For instance, when considering the goal of reducing emissions, it may appear that prioritising electric vehicles (EVs) over traditional internal combustion engine vehicles is a useful and even a desirable approach to lowering relative emissions. However, this approach conflicts with the intention to reduce the overall material footprint in transport, as public buses, trains, or trams have much higher capacities and lower material footprints per person compared to private cars. Furthermore, promoting active travel, such as walking or cycling, is even more beneficial, as it requires minimal emissions and a significantly reduced material footprint. Consequently, from the perspectives of both emissions and material footprint reduction, active travel projects appear to be the optimal solution.

However, this creates a potential conflict with other intentions of the strategy, such as ensuring accessibility to essential services, jobs, and amenities within a 15-minute timeframe. For example, promoting active travel may be feasible in urban areas with dense infrastructure, but it poses significant challenges for long-distance journeys or in rural areas where services are more dispersed. Similarly, while

encouraging the use of public transport aligns with sustainability goals, it might not be as effective in areas lacking adequate public transport infrastructure, thereby hindering accessibility.

The strategy must address these conflicts by clearly defining which intentions should take precedence in various contexts. For example, in urban centres, prioritising active travel and public transport might be the best approach, whereas in rural areas, a focus on improving accessibility through a balanced integration of EVs and public transport could be more appropriate.

In addition, consider the example of urban planning in a city such as Waterford. If the priority is to reduce traffic congestion and promote sustainability, the strategy might recommend pedestrianising more city centre areas and improving cycling infrastructure. However, this could conflict with the need to maintain accessibility for elderly or disabled individuals who rely on cars. In such cases, the strategy should provide guidelines on how to balance these competing interests, possibly by ensuring that pedestrianised areas are complemented by accessible public transport options and designated parking for those with mobility issues.

By explicitly outlining the hierarchy of priorities and providing concrete examples of potential conflicts and their resolutions, the “*Moving Together*” draft Transport Strategy can offer clear guidance for decision-makers. This approach will help align various stakeholders towards a common goal, ensuring that transport projects are developed in a coherent and consistent manner. Such clarity is essential for avoiding both policy conflicts and conflicts of interest, and ensuring that the strategy's implementation effectively addresses the diverse needs of the community while achieving the overarching objectives of sustainability, accessibility, and efficiency.

6.2 Clarifying the term Efficiency

Following this critique, the “*Moving Together*” draft Transport Strategy must offer a more detailed clarification of what is meant by "efficiency." The term "efficiency" is referenced on 155 pages in the strategy, with references to improving energy efficiency, fuel efficiency, promoting greater transport efficiency, and promoting efficient sustainable transport. The most explicit definition provided appears on

pages 12-13 , where the strategy outlines a "*Strategic Approach to the Improved Efficiency of the Transport System in Ireland*".⁵³

This approach aims to make the transport system more efficient for everyone and to mitigate the impacts of car dependency on the economy, environment, and societal health. It is guided by four key principles: Just Transition, Accessibility and Inclusion, Rural Recognition, and Economic and Financial Sustainability. However, improving the efficiency of transport can encompass various aspects. Similar to the points raised in section 6.1 above, while this broad use of the term likely aims to allow flexibility and adaptability to unforeseen changes, its lack of precision in this instance may instead hinder the strategy's effectiveness as a policy and decision-making tool. To illustrate this problem, consider energy efficiency versus transport efficiency. Enhancing energy efficiency might focus on promoting EVs, which use less energy per kilometre compared to traditional vehicles.

In contrast, transport efficiency could prioritise modes of transport that move the most people with the least resources, such as buses or trains. While both approaches contribute to efficiency, they may lead to different policy recommendations and outcomes. Another example is the concept of time efficiency versus fuel efficiency. Time efficiency might involve developing high-speed rail networks to reduce travel time between major cities, whereas fuel efficiency could emphasise slow-moving, fuel-efficient public transport options within urban areas. These differing interpretations of efficiency could result in conflicting priorities unless a clear hierarchy is established.

Therefore, to provide adequate guidance, the strategy must specify what kind of efficiency is prioritised in certain contexts. To illustrate on a basic level; when a decision is being made about getting a group of people or goods from point A to point B with efficiency as its key driver, should decision makers choose material efficiency, time efficiency or fuel efficiency as its priority? It seems clear that if given the choice to improve all three aspects in the name of efficiency that such a decision would be taken.

However, there is no clear guidance mechanism outlined to inform decision-makers who may only be able to choose two out of the three aspects of efficiency. By defining efficiency more clearly and hierarchically, the strategy can better align its various goals and provide clearer direction for policymakers. This clarity will help avoid the

⁵³ Moving Together – A Strategic Approach to the Improved Efficiency of the Transport System in Ireland; page 12-13. Department of Transport, Dublin, April 2024.

pitfalls of vague terminology and ensure that all stakeholders can work towards a common set of objectives. Such specificity is essential for the strategy to serve as an effective tool in guiding transport policy and decision-making, ultimately contributing to a more sustainable, accessible, and efficient transport system in Ireland.

6.3 Emphasising Flexibility in the Transport Strategy Amid Uncertainty

Planning fundamentally aims to create a better future, transcending mere prediction.⁵⁴ However, conventional tools used to understand uncertainty and predict future states often rely on current understandings of cause-and-effect relationships. An analysis of 210 projects across 14 countries reveals that forecasters frequently underestimate the demand for transportation infrastructure.⁵⁵

An example of this was raised by Minister Eamon Ryan and An Leas Chathaoirleach Gerry Horkan at the Joint Committee on Transport and Communications Debate on 03 July 2024 when discussing the negative forecasts that surrounded both the DART services and Luas services prior to their implementation.⁵⁶

Uncertainty should be viewed as an opportunity rather than a threat, provided that transport policy makers recognize their role in shaping future society proactively rather than reactively. In light of this, the growing body of literature on scenario planning emphasises its value in addressing uncertainty.⁵⁷ This approach advocates for shifting from a 'regime-compliant' to a 'regime-testing' mindset in policymaking and investment decisions. As we face change marked by our limited understanding of cause and effect, the future of car travel remains uncertain, with scenarios ranging from significant increases to significant decreases in vehicle kilometres travelled. To

⁵⁴ Myers, D., Kitsuse, A., 2000. Constructing the future in planning: a survey of theories and tools. *J. Plan. Educ. Res.* 19, 221–231.

⁵⁵ Flyvbjerg, B., Holm, M.K.S., Buhl, S.L., 2006. Inaccuracy in traffic forecasts. *Transport Rev.* 26 (1), 1–24.

⁵⁶ This information was made available in a meeting of the Joint Committee on Transport and Communications 03/07/2024, available in transcript here: https://www.oireachtas.ie/en/debates/debate/joint_committee_on_transport_and_communications/2024-07-03/

⁵⁷ Davidson, C., 2014. Future Demand – Insights into the Scenario Planning Methodology. New Zealand Ministry of Transport, Wellington, New Zealand, November.

address such uncertain changes, we must incorporate flexibility in our thinking, systems, and infrastructure design.

According to Lyons and Davidson (2016),⁵⁸ flexibility in transport planning is crucial as it is accessibility, rather than mere mobility, that underpins economic and social welfare. Effective planning must consider the Triple Access System, which integrates transport, land-use, and telecommunications, to ensure people can reach goods, services, and opportunities efficiently

6.3.1 Change and Uncertainty

Predictions of future change often stem from our understanding of past changes, using historical experiences as a basis for foresight. Seidl and van Aaken (2009)⁵⁹ describe this reliance on historical experiences as the 'cultural-cognitive limitations of perception'.

These limitations highlight that the rate and nature of change across various drivers can be highly variable. Change can occur suddenly and unexpectedly, as in the case of natural disasters, or it can be so gradual that its cumulative impact is only noticeable over an extended period, such as in ageing or land use changes. These gradual accumulations can either reinforce the status quo or lead to significant transitions towards new regimes.

6.3.2 Deep Uncertainty

Our ability to anticipate future change is inherently linked to our understanding of cause-and-effect relationships.⁶⁰ Walker et al. (2010) and Marchau et al. (2013) provide a taxonomy of uncertainty, categorising it into four levels: Level 1 – 'A clear enough future'; Level 2 – 'Alternative futures (with probabilities)'; Level 3 – 'A multiplicity of plausible futures'; and Level 4 – 'Unknown future,' also known as 'deep

⁵⁸ Lyons, Glenn & Davidson, Cody. (2016). Guidance for transport planning and policymaking in the face of an uncertain future. Transportation Research Part A: Policy and Practice. 88. 104-116. 10.1016/j.tra.2016.03.012.

⁵⁹ Seidl, D., van Aaken, D., 2009. Anticipating critique and occasional reason: modes of reasoning in the face of a radically open future. In: Costanzo, L.A., Mackay, R.B. (Eds.), Handbook of Research on Strategy and Foresight. Edward Elgar Publishing Limited, pp. 48–89.

⁶⁰ Walker, W.E., Marchau, V.A.W.J., Swanson, D., 2010. Addressing deep uncertainty using adaptive policies: introduction to Section 2. Technol. Forecast. Soc. Chang. 77, 917–923

uncertainty’.⁶¹ While Levels 1 and 2 uncertainties can often be managed with current analytical and scientific techniques — through improved information gathering and statistical analysis — higher levels of uncertainty, particularly Levels 3 and 4, present more significant challenges.

Deep uncertainty is characterised by a lack of consensus on the best models to relate actions to consequences or predict future events.⁶² Many of the critical policy issues facing transport today fall into this category, where traditional tools and methodologies are insufficient. Current transport demand forecasting and strategic policymaking tools are not adequately equipped to address the deep uncertainty prevalent in the 21st century, particularly regarding transport. This period of profound uncertainty necessitates a more flexible and adaptive approach to transport strategy, moving beyond conventional predictive models to embrace more robust and resilient planning frameworks.

6.3.3 Flexibility of Thinking and Design

6.3.3.1 Flexibility of Thinking

Decision-making in transportation planning occurs within a broader context of professional debate and public opinion, necessitating an awareness of the diverse preconceptions held by those involved in the process. These preconceptions, or ‘frames’,⁶³ significantly influence the examination of future scenarios and the decision-making process. The ‘futures cone’ taxonomy⁶⁴ categorises these outlooks into:

- **Predicted:** Extrapolated future trends, such as growth in transport demand, which may provide a false sense of confidence.

⁶¹ Marchau, V., Annema, J.A., Walker, W., van der Waard, J., 2013. Transport futures research. In: van Wee, B., Annema, J.A., Banister, D., (Eds.). *The Transport System and Transport Policy: An Introduction*. Chapter 13, pp. 305–328, Edward Elgar.

⁶² Lyons, Glenn & Davidson, Cody. (2016). Guidance for transport planning and policymaking in the face of an uncertain future. *Transportation Research Part A: Policy and Practice*. 88. 104-116. 10.1016/j.tra.2016.03.012.

⁶³ Schon, D., Rein, M., 1995. *Frame Reflection: Toward the Resolution of Intractable Policy Controversies*. Basic Books, New York.

⁶⁴ Bland, J., Westlake, S., 2013. *Don’t Stop Thinking about Tomorrow: A Modest Defence of Futurology*. Nesta, London, May.

- **Presumed:** Probabilistic and instinctive future scenarios without concrete proof, like the rise of electric and self-driving cars.
- **Practical:** Future perspectives aligned with immediate needs, such as expanding transport infrastructure to support economic recovery.
- **Plausible:** Potential future possibilities based on current knowledge, like the decline of the motor age.
- **Preferred:** Desirable futures, value-laden, such as the increase in cycling and walking to promote healthy urban environments.

The concern is that these preconceptions are often not consciously acknowledged or declared, potentially skewing decision-making. Lyons and Davidson (2016) critically reflect on the state of planning, noting persistent issues such as regression towards prediction over vision, complicit support of practical outlooks, and a lack of confidence in articulating plausibility without hard data.⁶⁵ They further highlight how biases influence expert judgments and assumptions in forecasting.

Acknowledging and exposing these outlooks can foster flexibility of thinking and open-mindedness when dealing with uncertainty. Failure to do so risks allowing powerful actors to distort knowledge.⁶⁶ Instead, fostering shared outlooks can strengthen knowledge, and enable more robust decisions, particularly in complex environments characterised by uncertainty. In such settings, individuals are prone to decision-making biases, including the bandwagon effect, confirmation bias, escalation of commitment, and the imaginability bias.⁶⁷ Recognizing and mitigating these biases is crucial for sound decision-making in the face of uncertainty.

6.3.3.2 Flexibility in Design

In addition to flexible thinking, flexible design is essential to accommodate uncertain changes. Designing transport systems and infrastructure with adaptability in mind ensures they remain functional and relevant amid evolving conditions. This approach

⁶⁵ Lyons, Glenn & Davidson, Cody. (2016). Guidance for transport planning and policymaking in the face of an uncertain future. Transportation Research Part A: Policy and Practice. 88. 104-116. 10.1016/j.tra.2016.03.012.

⁶⁶ Owens, S., 2005. Commentary: making a difference? Some perspectives on environmental research and policy. Trans. Inst. Brit. Geogr. 30 (3), 287–292.

⁶⁷ Carter, C.R., Kaufmann, A.M., 2007. Behavioural supply management: a taxonomy of judgement and decision-making biases. Int. J. Phys. Distrib. Logist. Manage. 37 (8), 631–669.

includes modular designs, scalable infrastructure, and the integration of emerging technologies. By prioritising flexibility, transportation strategies can better respond to unexpected changes, whether they arise from technological advancements, shifts in public behaviour, or environmental challenges.

In conclusion, embracing flexibility in both thinking and design is vital for effective transport strategy in the face of deep uncertainty. By recognizing and addressing the biases and preconceptions that influence decision-making, and by designing adaptable systems, policymakers can better navigate the complexities of future transport demands and create resilient, sustainable infrastructure.

6.3.4 Real Options Analysis (ROA) and Flexibility

Real Options Analysis (ROA) offers a strategic framework for decision-making in uncertain environments.⁶⁸ Similar to financial options, real options pertain to physical infrastructure, granting the right — but not the obligation — to undertake specific actions in the future under certain circumstances.⁶⁹ This approach allows policymakers to build flexibility into infrastructure projects at the design stage, thereby accommodating potential future developments that a more rigid design would not support. Although incorporating such flexibility may incur higher initial costs, the potential benefits — if the uncertain future scenario arises — can be substantial. For instance, designing a parking structure to support future vertical expansion⁷⁰ or constructing a bridge capable of carrying trains⁷¹ exemplifies the long-term value of flexible design.

Traditional economic appraisals often overlook the value of flexibility, favouring less adaptable designs based on assumed future conditions. In contrast, ROA evaluates the value of flexibility amidst uncertainty, potentially making more expensive but flexible solutions more attractive investments.⁷² ROA mitigates the risk of costly

⁶⁸ Miller, L.T., Park, C.S., 2002. Decision making under uncertainty – real options to the rescue? Eng. Econ.: J. Devoted Probl. Capital Investment 47 (2), 105–150.

⁶⁹ De Neufville, R., Scholtes, S., 2011. Flexibility in Engineering Design. The MIT Press, Massachusetts, USA

⁷⁰ Zhao, T., Sundararajan, S.K., Tseng, C.-L., 2004. Highway development decision-making under uncertainty: a real options approach. J. Infrastruct. Syst. 10 (1), 23–32.

⁷¹ De Neufville, R., Scholtes, S., 2011. Flexibility in Engineering Design. The MIT Press, Massachusetts, USA.

⁷² ACIL Allen Consulting, 2014. Adaptive Investment Management – Using a Real Options Approach in Transport Planning, Australia.

lock-ins and turns future uncertainties into financial opportunities.⁷³ The process involves three phases: identifying relevant uncertainties, considering flexible design options, and continuously monitoring how uncertainties evolve to inform future decisions.⁷⁴

Despite its advantages, ROA can be complex when used quantitatively, as it requires assumptions about future scenarios where flexibility proves valuable.⁷⁵ This complexity might introduce heuristics and decision biases. Therefore, combining ROA with scenario planning for a qualitative approach can help decision-makers better navigate uncertainty and flexibility. This approach shifts the focus from a 'predict and provide' model to a more adaptive strategy, reducing the risk of policy failure.⁷⁶

6.4 Responsibility for the Policymaking Pathway

Despite significant interest in uncertainty within transport policy and planning since the 1990s, methods to incorporate it effectively into policymaking are still evolving. The need for policymakers to address uncertainty has intensified, though changes in approach are likely to be gradual.

Two primary pathways can be identified: the regime-compliant pathway and the regime-testing pathway. The regime-compliant pathway relies on the continuation of the existing transport regime, particularly the dominance of automobility.⁷⁷ This pathway emphasises evolution within the current system, using historical trends and cause-effect relationships to legitimise policy decisions, thus concealing uncertainty. In contrast, the regime-testing pathway embraces uncertainty, recognizing that the current regime may be weakening and that signs of transition are emerging. This pathway does not preclude the continuation of the existing regime but guards against

⁷³ ACIL Allen Consulting, 2014. Adaptive Investment Management – Using a Real Options Approach in Transport Planning, Australia.

⁷⁴ De Neufville, R., Scholtes, S., 2011. Flexibility in Engineering Design. The MIT Press, Massachusetts, USA

⁷⁵ Grimes, A., 2011. Building Bridges: Treating a New Transport Link as a Real Option. Motu Working Paper 11–12, Motu Economic and Public Policy Research, December. 2011.

⁷⁶ Marchau, V.A.W.J., Walker, W.E., van Wee, G.P., 2010. Dynamic adaptive transport policies for handling deep uncertainty. Technol. Forecast. Soc. Change 77, 940–950.

⁷⁷ Geels, F., 2012. A socio-technical analysis of low-carbon transitions: introducing the multi-level perspective into transport studies. J. Transp. Geogr. 24, 471–482.

reliance on it, promoting a proactive stance that views uncertainty as an opportunity to shape the future.

These pathways are not linear or mutually exclusive but represent a spectrum of approaches to policymaking. An array of pathways exists, potentially combining elements from both. As Scott and Baehler (2010) suggest, these pathways should be seen as flexible learning aids rather than strict algorithms.⁷⁸ Policymakers must critically assess which pathway is most appropriate for the circumstances, remaining adaptable and open to alternative techniques, such as Dynamic Adaptive Policy Pathways (DAPP) or Robust Decision Making (RDM).⁷⁹

The key is to question and tailor the chosen pathway to effectively address the uncertainties we face. As mentioned by Minister Eamonn Ryan, “*if we look at a map of Dublin in the 1910s or 1920s, we can see it probably had the most extensive public transport network of any city in the world. It was rail-based by and large, specifically trams. The number 11 was a tram, as were the numbers 15 and 14. We all know this. We have shown we can do it. For a city with a very small population, which back then was probably only 300,000 or 400,000, it was able to function with a public transport-based system*”.

We urge the strategy to encourage regime-testing in the face of uncertainty. The strategy should take into account the unreliability of predict-and-provide-models and lean into testing innovative methods where possible.

⁷⁸ Scott, C., Baehler, K., 2010. Adding Value to Policy Analysis and Advice. UNSW Press, Australia.

⁷⁹ Lyons, Glenn & Davidson, Cody. (2016). Guidance for transport planning and policymaking in the face of an uncertain future. Transportation Research Part A: Policy and Practice. 88. 104-116. 10.1016/j.tra.2016.03.012.

7. SUGGESTIONS FOR RAIL SERVICE IMPROVEMENTS AND MEASURES TO ACHIEVE NET-ZERO

In contrast to Ireland’s other regional cities, rail services in Waterford are limited to a single train station. Plunkett Station, skirting the boundaries of the county, finds itself directly connected to both Dublin and Limerick Junction. Given the lack of railways within Waterford, these services largely serve to get people ‘out of’ rather than ‘into’ the county. However, this has not always been the case. Waterford has a strong railway heritage, evidenced today in the successes of the Waterford Greenway, and further that of the Waterford Suir Valley Railway.⁸⁰ This review will look to this heritage in sketching a more optimistic future for rail travel in Waterford.

In order to achieve this, the goals of this review are twofold. Firstly, while one might decry the gradual erosion of the rail lines in Waterford, there will be no call here for sprawling routes across the county, or the reinstatement of the long ago Waterford-Mallow line. Such recommendations, while they might satisfy public attention, are neither helpful nor realistic. Instead, the purpose of this document is to outline achievable, and thus realistic, improvements to existing infrastructure that will benefit the people of Waterford.

Secondly, we must recognise that all public transport options serve a dual purpose. On the one hand they exist to provide access, but, on the other, they aim to reduce emissions. Taken in unison these interests serve to inform transport policy and thus a key aim of this review is to aid Ireland in meeting its climate commitments. Ireland has pledged itself to a 51% reduction in emissions by 2030.⁸¹ In understanding this context we must be cognisant of the fact that transport alone accounts for 20% of Ireland’s overall emissions profile, second only to agriculture.⁸² Due to agreements signed by the State, the country is likely to incur heavy financial penalties should it

⁸⁰ Waterford Greenway: <https://greenwaysireland.org/waterford-greenway/>, Waterford Suir Valley Railway: <https://www.wsvrailway.ie/>

⁸¹ Climate Action and Low Carbon Development (Amendment) Act, 2021, Number 32. <https://www.irishstatutebook.ie/eli/2021/act/32/enacted/en/html?q=Climate+Action+and+Low+Carbon+Development>

⁸² Environmental Protection Agency, ‘Transport Sector Share in 2022,’ updated May 2024. https://www.epa.ie/our_services/monitoring--assessment/climate-change/ghg/transport/

fail to meet these targets.⁸³ This is to say nothing of the real costs of ignoring climate change, which are as dire as they are apparent.

7.1 Historical Context

Waterford’s terminus station, now known as ‘Plunkett Station,’ has a long and winding past. Dubbed initially ‘Waterford North Station,’ and opened on 26 August 1864, it was neither Waterford’s first nor last train terminus to be constructed (although it would prove its most enduring). Manor Street Station, which served the Waterford and Tramore Railway, opened its doors as early as 1853, some eleven years prior to Waterford North, making it the first station to be built in the city, although little can be said of its remains today.⁸⁴

‘Waterford South Station,’ located in Gracedieu, served as the original terminus for the Waterford, Dungarvan, and Lismore railway, operating from 1878. The station was never intended to be a terminus and plans were in place to tunnel through Bilberry Rock to bring the station towards the junction of Bridge Street and Mary Street. These plans never materialised and the terminus was eventually closed in 1908. Its services were moved to Waterford North via the Suir Railway Bridge.

At its peak, Waterford was serviced by six separate rail lines, operating two routes to Dublin (either via Kilkenny or New Ross), alongside services to Cork, Limerick Junction, Wexford, and Tramore. Such a variety of connections put Waterford on par with any of Ireland’s regional cities and, it could be reasonably argued, was the best serviced of all of them.⁸⁵ Of these rail lines, only those to Dublin and Limerick-Junction survive today.

Waterford North Station was ultimately demolished in 1966 and replaced by a newly built ‘Plunkett Station,’ named in honour of Joseph Plunkett, one of the executed leaders of the 1916 Easter Rising. The new design signalled the arrival of a modern Ireland that had respect for its past while desiring an alternate future. Within that

⁸³ Kevin O’Sullivan, ‘climate targets overshoot raises risk of legal actions and massive financial penalties,’ *The Irish Times*, June 23, 2023. <https://www.irishtimes.com/environment/climate-crisis/2023/06/10/climate-target-overshoot-raises-risk-of-legal-actions-and-massive-financial-penalties/>

⁸⁴ The station was located on what is now ‘railway square,’ and the line itself was incorporated into flood defence works. It will serve as the basis for the eventual construction of the Waterford-Tramore urban greenway.

⁸⁵ Cork proving a possible exception.

future was a heavy reliance on the private car, and, indeed, during Plunkett station’s construction, a step-change was occurring in car ownership across the island. Increasingly, the future of rail services became uncertain, as did the financial situation of the railway operator.

It followed that in December 1960 the Waterford-Tramore rail line was permanently closed. The line had operated for 107 years and reached a peak in services as recently as 1952. In contrast to the closures that followed, passenger uptake had been markedly high on this route. Somewhat ironically it was not passengers but trains that put an end to this service, as Waterford Corporation simply did not have the funds to invest in replacement carriages for the then aging sets. The route was replaced with a bus service.

Next on the chopping block was the Waterford-New Ross service, which closed to passenger traffic in 1963. This line had only been operational (as far as Waterford) from 1904, having originally been built as an extension from the existing New Ross-Dublin route, providing an alternate journey to Dublin. Of all lines, this was perhaps the least commercially viable to revive, and, indeed, made limited sense even when it was initially built.

The closure that exists closest in the consciousness of Waterford people today was that of the Waterford-Mallow rail line. The line closed to passenger traffic in 1967, only a year after the construction of the existing Plunkett Station. This would see the end of services for the County of Waterford (rather than the city) and the route today operates as the Waterford Greenway, providing an attraction for tourists and locals alike.

Coming to the present, a significant number of works are in the pipeline for Waterford’s rail network. Chief among these is the relocation of Waterford’s Plunkett Station, rising now to its third iteration. Its current location, echoing 60s automobile fervour, is easiest to access by car. Travellers seeking to commute to the station are met by a maze of crossings that make travel to the station hazardous. Furthermore, there are no bus links, making the car the only feasible means of access for most commuters.

The new station will vastly improve the situation and create a new bus/rail interchange, closer to the city centre, and with dedicated pedestrian access via a new sustainable transport bridge. The station is due to be commissioned for use by the second quarter of 2026. It will feature two platforms, an increase from the current

one, and will create a vital link between the Waterford Greenway and the South East Greenway currently under construction. As part of this scheme, flood defence works are being carried out downstream to prevent the intermittent flooding experienced at the current station, alongside further rock stabilisation works.

7.2 Limerick Junction Services

The Waterford and Limerick Railway was completed, following six years of construction, in 1854. It is one of the oldest railways in Ireland and was the first to be authorised by the UK parliament. Despite the historic importance of the rail line it has been plagued by a combination of limited services and minimal passengers, issues that have followed it from its very opening.

The *National Rail Census Report 2022* highlights the scale of the issues.⁸⁶ The below table highlights the daily boardings for each of the stations on the Waterford-Limerick Junction line, excluding the two termini. The reality is rather stark, with limited daily patronage along the route, putting these stations amongst the least used of all those on the network.

Daily Boardings	2022	2021	2019	2018
<i>Carrick-on-Suir</i>	13	7	4	13
<i>Clonmel</i>	40	27	22	27
<i>Cahir</i>	6	5	1	5
<i>Tipperary</i>	11	3	11	12

Source: <https://www.nationaltransport.ie/wp-content/uploads/2023/05/NTA-National-Rail-Census-Report-2022-Final.pdf>

However, seemingly in spite of these realities, Iarnród Éireann has remain steadfast in its commitment to this line. There have been numerous opportunities for them to close this branch. For example, the Cahir viaduct was significantly damaged following an incident in 2003. While closure was on the cards, Iarnród Éireann instead renewed the viaduct at a cost of €2.6 million. When the line was reopened in 2004 the company introduced new rail cars on the service and increased

⁸⁶ ‘National Rail Census Report 2022,’ *National Transport Authority*, May 2023. <https://www.nationaltransport.ie/wp-content/uploads/2023/05/NTA-National-Rail-Census-Report-2022-Final.pdf>

frequency up to three journeys in each direction on weekdays.⁸⁷ This was a greater service frequency than the line has seen in most of its history, although it has since been paired back again to two services. The COVID-19 pandemic saw a period when the line closed entirely and there were fears it would be mothballed, however, it would ultimately re-open.

According to Mr Jim Meade, CEO of Iarnród Éireann, the company plans to increase services to Limerick Junction to a two hourly service from late 2026 or early 2027. The date for this is subject to new battery-electric trains being commissioned for use in Dublin, cascading the existing Diesel Commuter Fleet out to the rest of the network (as operates to Drogheda, for example). According to the CEO, until these additional trains are made available, any improvement in services is unlikely.⁸⁸

Iarnród Éireann’s insistence on keeping this line open is not an act of charity on their part. The Waterford-Limerick Junction is of key strategic importance to the wider rail network in Ireland. Taken as a whole, the route from Waterford to Athenry/Galway (via Limerick) is the only significant cross-country rail link that does not radiate from Dublin or Belfast. The line presents significant opportunities for rail freight, which is being increasingly emphasised throughout Europe for its contribution to the need for decarbonisation of goods transport. Currently, five freight trains a week operate from Ballina or Westport to Belview Port.⁸⁹ With a potential re-opening of the line to Rosslare Europort, freight is only predicted to grow on this line.

Iarnród Éireann remains heavily committed to freight, as evidenced by the € 104 million re-opening of the Limerick to Port of Foynes rail line. Nonetheless, Iarnród Éireann’s Rail Freight Strategy seemingly excludes the Port of Waterford from its investment programme, focusing instead on Ireland’s other cities.⁹⁰ The reasoning

⁸⁷ ‘Waterford to Limerick Junction rail link restored,’ *The Irish Times*, September 23, 2004.
<https://www.irishtimes.com/news/waterford-to-limerick-junction-rail-link-restored-1.1158794>

⁸⁸ This information was made available in a meeting of the Joint Committee on Transport and Communications 24/01/2024, available in transcript here:
https://www.oireachtas.ie/en/debates/debate/joint_committee_on_transport_and_communications/2024-01-24/2

⁸⁹ Iarnród Éireann Freight Fleet Information: https://www.irishrail.ie/en-ie/about-us/iarnrod-eireann-fleet/freight_fleet

⁹⁰ ‘Rail Freight 2040 Strategy,’ Iarnród Éireann, available at:
<https://www.irishrail.ie/Admin/getmedia/> It could be argued that this is because little more needs to be done with the Port of Waterford from a rail perspective. We would nonetheless argue that the port should feature more prominently in the company’s freight strategy than is currently the case.

behind this decision requires some probing given that the Port of Waterford is the only port in Ireland, outside of Dublin, actively operating rail freight. In repatriation for its efforts, Waterford has been rewarded with a sixteen year investment hiatus, locking it out of future development.

Waterford-Limerick Junction has found itself in a similar situation. Large sums were spent on upgrading the track to continuously welded rail, allowing for much faster speeds than currently travel on the line. Due to a lack of investment in signalling, average speeds are lower than 60 km/hr. Discounting transfers, the current time it takes to reach Limerick City from Waterford is some 2 hours and 9 minutes (this is closer to three hours including the transfer). With a re-signalling of the line as far as Limerick Junction this time could be nearly halved. If timetables were rebalanced to allow reasonable connections, journey times from Waterford to Galway could equal the current time it takes solely to get to Limerick. Such a shift would outpace competing road services and provide meaningful regional connections nationally, boosting local economies and re-balancing the attractiveness of the regional cities. The required signalling upgrade is recommended in the All-Ireland Strategic Rail Review.⁹¹

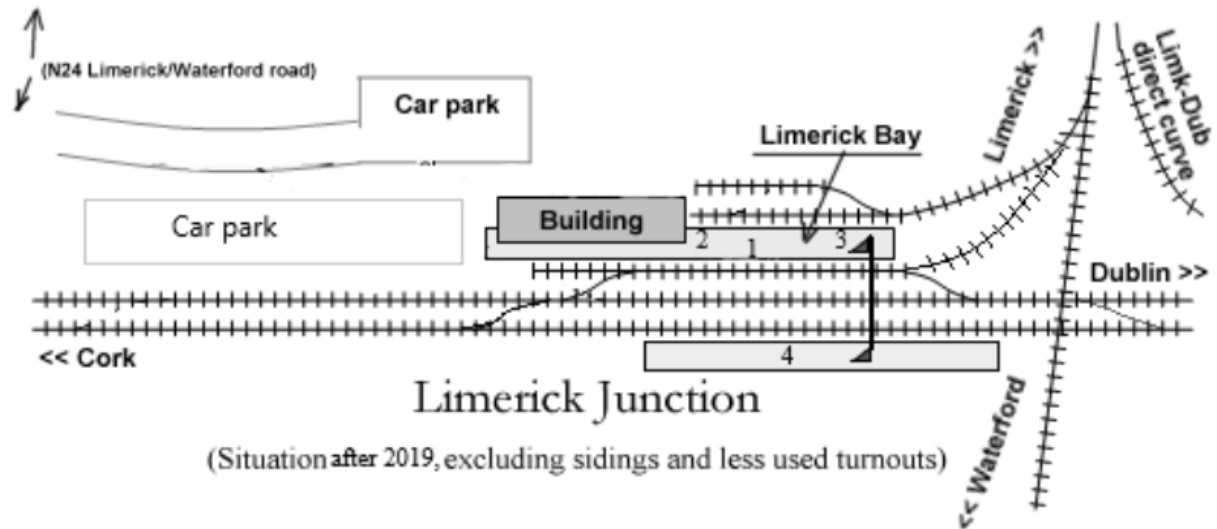


Figure 7.2 Limerick Junction from 2019 (simplified). Copyright Zoney and licensed for fair use under this Creative Commons License.

⁹¹ All-Ireland Strategic Rail Review, available here: <https://www.google.com/url?sa=t&source=web&rct=j&opi>

transportation are often not accountable or measurable in currency terms. Improving connections between people and places has a significance that goes beyond the financial, and we would stress that public transportation should not operate as a for-profit enterprise, but rather as an essential public utility.

7.3 Waterford to Rosslare

Waterford-Rosslare was a historically important freight corridor in its time. The infrequent nature of passenger services served as a symptom of the successful freight operation. This section of rail transported some 150,000 tonnes of sugar beet annually prior to the industry’s unfortunate sale to private investors and to its eventual collapse in 2006⁹⁵ (see section 4.10 above). Passenger services had been cut over time in order to accommodate the freight traffic, with only one service in each direction daily (with none on Sundays). Over-reliance on freight operations meant that their collapse eventually doomed the rail line, forcing its closure in 2010.

Fourteen years on it seems increasingly clear that the Waterford-Rosslare rail line will be re-opened. Having closed relatively recently the reinstatement costs are limited, making re-opening feasible. In 2024 the European Parliament approved the new TEN-T Plan, which includes the Waterford-Rosslare line, opening up funding opportunities for the project.⁹⁶

While this news is positive, and the line is shovel-ready, the Barrow Bridge is in need of significant repair work. The bridge was struck by two vessels in February 2022, causing significant damage. Iarnród Éireann is currently liaising with the ships’ insurers in order to establish costs for the repair work, and the CEO, Mr Jim Meade, has further stated the company’s desire to automate the Barrow Bridge for its use when operational. If the line is to re-open, these works are pivotal, as the Barrow Bridge remains the longest rail bridge in Ireland and is a strategically significant piece of national infrastructure.

In signalling support for re-opening, Mr Jim Meade has also stated Iarnród Éireann’s desire to build a rail loop from Killinick. This would provide direct services to Wexford Town via bypassing Rosslare Europort. This would be hugely beneficial to both

⁹⁵ ‘Wexford farmers face increased haulage costs,’ *Irish Independent*, January 20, 2005.
<https://www.independent.ie/regionals/wexford/new-ross-news/wexford-farmers-face-increased-haulage-costs/27471534.html>

⁹⁶ *Seanad Éireann* debate - Thursday, 23 Feb 2023, Vol. 292 No. 5:
<https://www.oireachtas.ie/en/debates/debate/seanad/2023-02-23/12/>

Waterford and Wexford respectively. Due to limitations on the Rosslare to Dublin line the All-Ireland Strategic Rail Review mentions that services could run from a new station south of Wexford O’Hanrahan before heading onto Dublin via Waterford. This could be done following an upgrade to the Waterford-Dublin line and would reduce existing journey times from Wexford by about an hour.

This would prove important in linking together the SETU campus in Wexford town to Waterford’s campus. Given SETU’s commitment to expanding the Wexford campus it is a no-brainer to have these campuses connected to each other by sustainable transport. Carlow, for example, is already served by a rail connection to Waterford via the Dublin line.

7.4 Waterford to Dublin Rail Services

Services to and from Dublin account for a significant plurality of Ireland’s passenger rail traffic. The situation is no different in Waterford. A recent announcement has seen the addition of a much needed slightly later train from Dublin to Waterford (departing at 20:20 p.m.). In conjunction, a new later train will now leave Waterford for Dublin at the same time (Monday-Saturday). Sunday services are also extended with an additional trip running in each direction.

Iarnród Éireann’s *Strategy 2027* proposes an hourly all-day service from Waterford to Dublin.⁹⁷ This is possible only with the commissioning of the new DART fleet which will be completed in stages from 2026-2027. While dual tracking the line is highly desirable, capacity on the line is limited, above all, by the station in Kilkenny. The original station was opened in May 1848, featuring two through platforms, two now defunct rail lines, and a third bay facing the Waterford-Dublin route. However, much of the original platform was closed off in 1997 when the station was moved further up the track. Due to this reduction in platform length, the entire Waterford-Dublin line is artificially constrained to six carriages, even though Kilkenny is the only station along the route that has this limitation. Every other stop is capable of accommodating a full eight-carriage train. Furthermore, the old train shed, which remains fully in CIÉ ownership, sits idle to the back of the existing station, waiting to be brought back to life.

Outside of capacity improvements (via larger trains or more services) the long-term viability of the line depends on its ability to compete with the private car. Journey

⁹⁷ Iarnród Éireann Strategy 2027: <https://www.irishrail.ie/Admin/IrishRail/media/Content/AboutUs/IE-Strategy2027>

times along this corridor are currently slightly longer than competing road services. Upgrading track speed to get train services operating faster than road journeys would significantly increase the viability of this option for Irish commuters. Furthermore, prior to double-tracking, passing loops should be built into the Kilkenny-Waterford section. As things stand, commuters are forced to wait in Kilkenny if departures are delayed in Waterford as there is nowhere for trains to pass each other on this route. There are currently no plans to do this, and double tracking is a long way off for this rail line.

7.5 Rolling Stock

Ireland’s intercity rolling stock is made up primarily of 22000 Class Diesel Multiple Units (DMUs). From Waterford, these trains service the routes to Limerick Junction and Dublin, in three and six car train sets, respectively. Having entered service between 2007 and 2012 these vehicles are among the newest on the network. As a result, the purchase of a whole new set of trains makes little financial or environmental sense in comparison to retrofitting these vehicles for environmental efficiency.

This work is already underway, albeit initially at a very small scale. For example, Iarnród Éireann has recently replaced the gearboxes in a sample of its commuter fleet, resulting in an immediate 20% saving in atmospheric emissions.⁹⁸ As fitted, these vehicles came with only two gears, resulting in significant fuel consumption when stopping and starting. The new gearboxes come with six gears, improving both fuel consumption and rider comfort as the trains no longer jump loudly when changing gear. Iarnród Éireann has ordered some 41 engines that are fitted with these improved transmissions, which began arriving in 2023.⁹⁹

Hybrid drives are likewise being trialled for the engines, converting the energy created during breaking into battery power, allowing trains to drive in and out of stations solely on battery. This would significantly cut the emission of exhaust fumes at stations, improving air quality for passengers and reducing noise. The emissions savings would come in at around 10%, with nine such engines being trialled from

⁹⁸ Rolf Behrens, ‘mtu-powered Irish Rail train is on a mission to cut emissions,’ *mtu Solutions*, December 16, 2020. <https://www.mtu-solutions.com/eu/en/stories/rail/mtu-powered-irish-rail-train-is-on-a-mission-to-cut-emissions.html>

⁹⁹ Claudia Dalby, ‘To cut fuel use and pollution, Irish Rail adds new transmissions and batteries to its trains,’ *Dublin Inquirer*, March 1, 2023. <https://dublininquirer.com/2023/03/01/to-cut-fuel-use-and-pollution-irish-rail-adds-new-transmissions-and-batteries-to-its-trains/>

2024.¹⁰⁰ However, should such a scheme be extended to the entire fleet, costs would be around € 250 million for full hybrid adoption. For reference, the original cost of the trains themselves was some € 400 million. While this is a significant investment, Iarnród Éireann has committed itself to the adoption of this technology by 2030, albeit subject to results from the ongoing trials of the technology.¹⁰¹ The company has further committed itself to operating all diesel fleets with at least a 35% biofuel or Hydrotreated Vegetable Oil (HVO) blend within the same timeframe, a goal which seems much more achievable. The use of renewable biofuels in transport, as alternatives to fossil fuels, is discussed in section 4.10 above.

In the long-term, however, it is clear that electrification is required in order to produce an environmentally sustainable network. The distances are such that overhead wires are the only realistic solution for Waterford-Dublin. Battery-electric technology is not at the point where battery storage can cover intercity networks, although it does offer an excellent solution for shorter-distance commuter services. For example, the development of a metropolitan rail service for the south-east could be implemented at relatively minimal financial cost by employing a fleet of battery-electric trains. Such a service could connect the towns of Clonmel, Carrick-on-Suir, Carlow, Kilkenny, Wexford, and Waterford city.

In contrast to the significant expense of erecting overhead wires, all that would be required here would be the provision of charging infrastructure and the necessary trains (and a depot to house them). Such a move would connect all of the existing SETU campuses and provide real commuter services for those living in the region. Most tantalising of all, however, is the relative low cost of instituting such a service. A framework order already exists with Alstom in order to provide these trains should funding be delivered. Battery electric operations will be commencing within Dublin in the next few years, with a rollout to follow in Cork. Lessons learned from these developments could thus be implemented within the south-east region.

¹⁰⁰ *Ibid.*

¹⁰¹ ‘Iarnród Éireann ‘Climate Action Plan 2023-2030,’ 2023.
https://www.irishrail.ie/IrishRail/media/Content/Sustainability/climate_plan_FINAL.pdf

8. CONCLUDING SUMMARY OF OUR SUBMISSION

As stated in our introduction (section 1.2 above) to this jointly prepared submission to the Department of Transport, **Zero Waste Alliance Ireland (ZWA)** and the **Waterford Environmental Forum (WEF)** are committed to promoting sustainable resource management and the principles of the circular economy across all sectors of society and the economy, including transportation. We have therefore welcomed the public consultation on “*Moving Together: A Strategic Approach to the Improved Efficiency of the Transport System in Ireland*”, as it has given us an opportunity to demonstrate how a future national transport policy and strategy can be developed in line with our combined missions and values, with the protection of the natural environment as a core objective.

In this final section, we summarise the principal conclusions and recommendations arising from, or proposed in, the previous sections of this submission. Points 1-21 are derived from section 4 above, points 22-24 from section 5, points 25-33 from section 6 and points 34-46 from section 7 above.

8.1 Specific Recommendations

Improving Demand-Side Factors

1. Prioritise the removal of ‘lock-in’ factors that perpetuate the captive nature of the car as part of everyday practices and living.
2. Address measures related to supplanting the car with public transport and active travel that factor in the cargo-function of private cars and facilitate the function in non-car modes (e.g. cargo-bikes, panniers).
3. Increase secure cycle parking at public transport stations to encourage synergy and multi-modal integration.
4. Implement bike racks on buses and taxis.
5. Shift communication efforts from Greenways as leisure opportunities to frame Greenways as a key parts of suburban and satellite town commutes as well as crucial safe spaces for (re)developing cycling skills.
6. Encourage the implementation of Greenway connections between hubs (catchment areas, schools satellite towns) where possible.

7. Develop specific measures for protecting existing public transport and active travel infrastructure and ensure the protection of rights to public space for non-car users.
8. Prioritise ambitious communication and behaviour measures around transport to encourage serious efforts at model changes and future mobility landscapes as ‘walkable cities’ or ‘cycling cities’.
9. Emphasise the quality of life dimensions of cities where cycling is the preferred and normal mode of daily personal mobility (e.g. ambiance, space, clean air).
10. Challenge the narrow interpretation of traffic in public discourse as car-traffic in all communications.
11. Shift transport communications from placing the onus on the individual, and recognise the diverse and complex social contexts that people find themselves in such as feeling/being locked-in to unsustainable travel via the housing crisis and expanding commuter belt.
12. Recognise that individual beliefs and behaviours are bound up with, and indeed part of what constitutes, the normal practice and that people change through the practice, and that this offers a much more accurate and informative approach to changing so-called ‘attitudes and behaviours’.
13. Prioritise transport modes with higher capacity and less material footprint per person.
14. Aim to provide well-planned neighbourhoods in cities and towns whereby a majority of all trips under 15 minutes can be done by walking.
15. Create specific targets around connectivity between a majority of population centres for rural Ireland with interconnection of modes of transportation at its core.
16. Address the dangers of prioritising electric vehicle incentives
17. Incorporate measures to ensure that public transport or active travel will be prioritised over electric vehicles when possible to avoid the continuation of the captive nature of private cars.
18. Establish large scale mass transit as the primary means of transit and relegate private vehicles as the secondary option of a majority of the population.
19. Dis-incentivise heavy vehicles (SUV’s & trucks) in favour of smaller less resource-intensive and more fuel efficient light vehicles (city cars and motorbikes/mopeds).

20. Implement higher taxes and / or registration fees for SUVs and other heavy weight vehicles to disincentivize the unnecessary sale of these vehicles.
21. Develop and implement targeted measures for the widespread use of biofuels to reduce emissions and decrease the fossil fuel dependency of Ireland’s existing car dependant transport network.

Reducing Negative Impacts on Nature

22. Integrate wildlife and green corridors with transport planning to protect wildlife, reduce carbon & material footprint, and implement the transport policy and strategy’s plan for more walkable neighbourhoods.
23. Reimagine the promotion of greenways, market them as functional spaces (e.g., for commuting) as well as for their recreational attraction, not only to protect wildlife, but also to decrease transport emissions.
24. Establish reliable public transport which connects a broad scope of areas, which ultimately increases public use of public transport and decreases reliance and dependence on private cars.

Emphasising Resilient Development

25. Establish a context-specific and clear guidance structure for conflict-avoidance in decision making.
26. Strengthen the Transportation Strategy as a key decision-making tool by providing a detailed clarification for the term “efficiency” in relation to transport.
27. Address uncertainty in transport planning and decision making by emphasising flexibility in transport planning, as part of an overall shift to flexibility in thinking and design.
28. In areas of deep uncertainty, prioritise “vision” over “prediction” in decision making.
29. Encourage measures to acknowledge and address biases in transport decision making and planning.
30. Facilitate the inclusion of adaptability in transport infrastructure particularly; modular designs, scalable infrastructure and the integration of emerging technologies.
31. Incorporate “Real Options Analysis” in transport planning.

32. Prioritise regime-testing pathways over regime-compliant pathways in transport planning.
33. The strategy should take into account the unreliability of predict-and-provide-models and lean into testing innovative methods where possible.

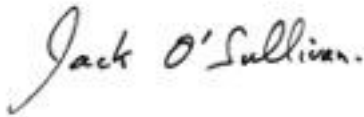
Suggestions for Rail Service Improvements and Measures to Achieve Net-Zero

34. Increase in services from Waterford to Dublin to an all-day hourly service.
35. Increase in services from Waterford to Limerick Junction to an all-day two-hourly service, with the addition of a more limited Sunday operation.
36. Decarbonise the rail fleet via hybrid-battery adoption on 22000 class DMUs.
37. Re-open the Waterford to Rosslare rail line, with a loop at Killinick providing direct services to Wexford, bypassing Rosslare Europort, and the provision of a two-hourly service to Waterford along this route.
38. Develop a new station south of Wexford O’Hanrahan, allowing for Wexford-Dublin rail journeys via Waterford, significantly cutting journey times for Wexford passengers (following upgrades to Waterford-Dublin journey times).
39. Station upgrades along the Waterford to Limerick Junction line.
40. Improvement of train speeds along the Waterford-Dublin rail corridor to provide faster journey times.
41. Double tracking of the Waterford-Dublin rail line.
42. Upgrade signalling along the Waterford to Limerick Junction line.
43. Construct a curve at Limerick Junction to allow for direct Waterford-Cork services.
44. Resolve the restricted platform length problem at Kilkenny MacDonagh rail station.
45. Complete the full electrification/decarbonising of Ireland’s railways.
46. Implement a South East metropolitan rail network, serviced by battery electric trains (relevant planning for such a network would need to be completed within the medium term).

8.2 Concluding Remarks

In response to the Department of Transport's draft transportation policy "Moving Together," our submission emphasises the need for a more ambitious, people-focused strategy that aligns with the principles of sustainability and the circular economy. While we commend the draft's efforts to address car dependency and promote active travel, we believe it lacks the specificity and prioritisation required to effectively tackle the challenges facing Ireland's transport sector. Our recommendations focus on removing systemic barriers to sustainable transport, enhancing infrastructure to support multi-modal integration, and reframing public discourse around transportation to emphasize quality of life and environmental stewardship. We also stress the importance of addressing socio-economic factors that lock individuals into unsustainable travel patterns and call for a shift towards higher-capacity, low-impact transport modes. Furthermore, our submission highlights the need for resilient and adaptable infrastructure planning, integration of green corridors, and targeted measures to reduce the negative impacts of transportation on nature. Through these recommendations, we aim to contribute to a transport strategy that not only meets Ireland's climate goals but also fosters a healthier, more equitable society.

Jack O’Sullivan



Zero Waste Alliance Ireland

Craig Tobin-Dower



Waterford Environmental Forum

This submission was researched and written by Craig Tobin-Dower MSc (ZWAI member and director, and member of WEF), Jack O’Sullivan (ZWAI founder member and director); Cormac Forlot (ZWAI member); Dr. Emmet Fox (SETU) (WEF member); Sean Dunne (WEF Member); Faye White (WEF member); Carmel-Ann Daly (WEF member), and was edited by Órla Coutin (ZWAI administrator and researcher), Mia White MSc (WEF researcher), Craig Tobin-Dower and Jack O’Sullivan (final editing), with the assistance of Dalia Smelstoriūtė who prepared the contents pages.