



Comisiwn **Seilwaith**
Cenedlaethol **Cymru**
National **Infrastructure**
Commission **Wales**

in partnership with



TRANSPORT SECTOR INFRASTRUCTURE INSIGHTS

State of Play and Future Challenges

National Infrastructure Commission for Wales: Transport Sector Infrastructure Insights

This report dated 12.03.26 has been prepared for National Infrastructure Commission for Wales (the "Client") in accordance with the terms and conditions of appointment dated 19.06.25 (the "Appointment") between the Client and **Arcadis Consulting (UK) Limited** ("Arcadis") for the purposes specified in the Appointment. For avoidance of doubt, no other person(s) may use or rely upon this report or its contents, and Arcadis accepts no responsibility for any such use or reliance thereon by any other third party.

Ref: 30277500-AUK-XX-XX-RP-TC-0004-01

Table of Abbreviations

Abbreviation	Meaning
ATNM	Active Travel Network Map
AQMA	Air Quality Management Area
CVL	Core Valley Lines
CJC	Corporate Joint Committee
DMU	Diesel Multiple Unit
DRT	Demand Responsive Transport
EV	Electric Vehicle
GHG	Greenhouse Gas
HGV	Heavy Goods Vehicle
KtCO_{2e}	Kilotonnes of Carbon Dioxide Equivalent
MaaS	Mobility as a Service
MtCO_{2e}	Million Tonnes of Carbon Dioxide Equivalent
NTS	National Travel Survey
NTDP	National Transport Delivery Plan
NICW	National Infrastructure Commission for Wales
NO₂	Nitrogen Dioxide
ORR	Office of Rail and Road
PM_{2.5}	Fine Particulate Matter
RTP	Regional Transport Plan
SDG	Sustainable Development Goal
SuDS	Sustainable Drainage Systems
TfW	Transport for Wales
ULEV	Ultra-Low Emission Vehicle
UKCP18	UK Climate Projections 2018
WTS	Wales Transport Strategy
WeITAG	Welsh Transport Appraisal Guidance

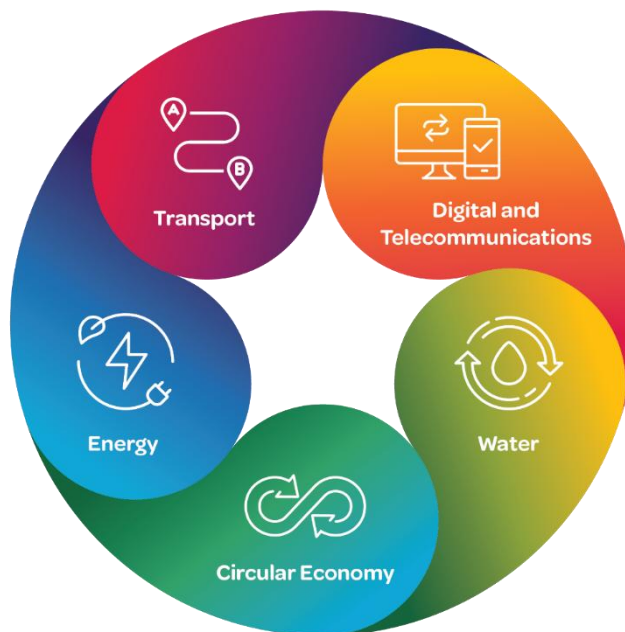
Contents

1	Introduction	1
2	Background and Context	5
3	Current State of Play	14
4	Future Vision	37
5	Future Challenges – Short Term	39
6	Future Challenges – Medium to Long Term	43
7	Key Challenges and Next Steps	46
8	Monitoring Progress	50
	Appendix A– Alignment of identified issues against the NICW framework	52

1 Introduction

1.1 Context

1.1.1 This report is one of five Infrastructure Insights reports commissioned by the National Infrastructure Commission for Wales (NICW) to consider key infrastructure needs for Wales over the next 80 years across the following sectors:



1.2 Transport Sector Overview

1.2.1 The transport sector in Wales faces several interconnected challenges, including high car dependency, rising congestion on key corridors, and persistent maintenance backlogs across ageing infrastructure. Emissions from road traffic remain a major contributor to climate and air quality concerns, while a disconnect between land use and transport planning limits opportunities for sustainable travel and efficient network design. These issues are compounded by the need to decarbonise rapidly, improve reliability, and secure long-term investment to deliver a resilient and efficient network.

1.2.2 In his context, for the purposes of this study, the state of play of transport sector in Wales will be reviewed against the following cross-cutting themes:

- Land Use Planning
- Decarbonisation and Sustainability
- Public Transport Integration and Accessibility
- Digital and Smart Transport Solutions
- Infrastructure Resilience and Climate Adaptation

- 1.2.3 These themes reflect both the key policy priorities and systemic challenges facing the transport sector, as well as the wider ambitions of the Welsh Government to create a transport system that is accessible, sustainable and efficient.¹
- 1.2.4 This review focuses primarily on land-based transport, reflecting the fact that road, rail and associated surface transport networks account for the majority of journeys, infrastructure assets, emissions, and day-to-day interactions with communities in Wales, and fall largely within devolved policy and delivery responsibilities.
- 1.2.5 Aviation and maritime transport, including ports, airports and shipping, are recognised as strategically important to Wales' economy, connectivity and supply chains and have associated infrastructure, decarbonisation and resilience challenges. However, these modes operate within distinct regulatory, market and operational frameworks, often with a greater degree of UK-wide or international control. As such, they are not considered in detail in this study, but would benefit from more bespoke, mode-specific analysis as part of a separate workstream tailored to the particular characteristics and policy levers of the aviation and maritime sectors.

1.3 Focus of this Report

- 1.3.1 Focussing on the Transport Sector, the purpose of this report is to:
- Assess and explain the current key issues impacting the transport sector in Wales.
 - Identify future needs, issues, challenges and risks and consider the potential impact or consequences of these risks to Wales (doing so through the lens of the Well-being of Future Generations Act).
 - Identify priority issues of most critical significance for Wales
 - Guide future Commissioners on the key issues and challenges they might consider as a priority for action and development within the next Senedd term.
 - Present existing data to evidence the state of water quality and water resources across Wales now and into the future, to enable future monitoring of performance across this sector.
- 1.3.2 It is important to note that this report is intended to provide a high-level overview of the issues across the sector and to highlight those which will be important for Welsh Government to consider further. The scope of the study was to provide a narrative and overview of the issues based on sector experience, readily available headline information and with targeted input from key stakeholders. The scope did not allow for primary research or detailed analysis of existing data. Research was completed during 2025, and the document presents the state of play as of then.
- 1.3.3 In line with NICW's overarching ambitions and remit, this report takes a long-term view of the transport sector. Broadly, it considers the following timescales:
- **Short term** - 5 – 15 years ahead, therefore looking beyond the next Senedd term but within the timeline of most existing plans and policies, including Future Wales: The National Plan 2040
 - **Medium term** - 15 – 50 years ahead, to enable forward planning and help shape understanding beyond current policy horizons to consider the next likely significant issues and

¹ Welsh Government (2021) – [Llwybr Newydd, The Wales Transport Strategy 2021](#)

challenges.

- **Long term** - 50 – 80 years ahead but in recognition of the difficulties and uncertainties around very long-term thinking, this is subject to a lighter focus. However, the importance of a long term perspective in helping to ensure the actions we take across the sector in the short term are suitably informed, resilient and future proof is recognised.

1.4 Stakeholder Input

1.4.1 For this overview of state of play and future challenges to be informed by the real experience of stakeholders working across the sector, an online workshop was held on the 16 September 2025. This was attended by representatives from Welsh Government as well as transport operators and transport groups.

1.4.2 Information gained from this session has informed the narrative throughout this report.

1.5 Assumptions

1.5.1 To assist with this longer-term timeframe, and to ensure that the five Infrastructure Insight reports are consistent this review has been based on a series of assumptions about what a future Wales might look like. This is based on established, published sources and is intended to provide a guide and to help frame thinking around scale of change across Wales at a high level only:

- **Climate change** will have cross cutting impacts in Wales. For example, current worst-case projections anticipate increases in temperature of 3.8 to 6.8° C in the summer by 2070; significant changes in the seasonality of weather extremes, with significant increases in heavy hourly rain anticipated;² and sea level rises of between 22cm and 28cm in Cardiff.³
- Wales has made progress towards **emissions reductions**. However, these changes are considered to have come about due to 'easy wins' in the energy and industry sector. Significant further reductions will have been achieved through the closure of the Port Talbot Steelworks in 2024. However, significant change is needed to further accelerate emissions reductions in line with Wales' Carbon Budgets, with concern identified that these changes are not taking place at a fast enough rate.⁴⁵
- **Energy use** – Welsh electricity demand is projected to at least double and potentially triple by 2050.⁶
- **Population** is anticipated to increase in Wales over the short – medium term, with a 5.9% increase projected by mid-2032 and a 10.3% increase projected by 2047.⁷ This increase will be driven by migration, with natural change being negative over the same time period.
- **Age profile** - The number of people in Wales aged over 65 is set to increase by 19.6% by 2032 in the short term and will be over 1 million by 2060.⁸

² [ukcp18_headline_findings_v4_aug22.pdf](#)

³ [Adapting to climate change - Progress in Wales](#)

⁴ [Wales' Fourth Carbon Budget](#)

⁵ [Progress Report: Reducing emissions in Wales](#)

⁶ [Energy use in Wales, third edition 2022](#)

⁷ [National population projections: 2022-based \[HTML\] | GOV.WALES](#)

⁸ [Ibid.](#)

- In terms of **economic development**, longer term forecasts identify the challenges faced by relatively weak productivity when compared to other parts of the UK. Challenges with productivity are to be exacerbated by an ageing population. Changing working patterns and emerging industries resulting from technical innovation are considered to both provide opportunities and challenges.⁹
- **Nature and biodiversity** in Wales are under threat. Changes in how we manage land in Wales combined with the effects of climate change will continue to impact nature in the future and will require transformative action to address.¹⁰

1.6 Structure of this report

1.6.1 Following this introduction, this Infrastructure Insight document takes the following structure:

- **Chapter 2** defines the scope of this review into the transport sector.
- **Chapter 3** investigates the current state of play in the transport sector, seeking to establish a baseline for the sector.
- **Chapter 4** considers what the vision for transport sector could look like.
- **Chapter 5** looks at future challenges across these sectors in the short term.
- **Chapter 6** considers medium to longer term challenges.
- **Chapter 7** summarises the key challenges and identifies important next steps.
- **Chapter 8** considers how progress can be monitored over time.

⁹ Welsh Budget 2023: Chief Economist's report

¹⁰ State of Natural Resources Report 2025

2 Background and Context

2.1 Why does this sector matter to Wales?

2.1.1 The transport sector in Wales plays a critical role in supporting economic growth, connecting communities, and enabling access to essential services. The Wales Transport Strategy (WTS) – Llwybr Newydd (2021) recognises that:

“Our transport system is one of the most important national assets we have. It connects people to one another, binds communities together and enables businesses to grow and expand. It’s one of the most powerful and dynamic tools for community cohesion, social justice and inclusive economic growth that we possess.”¹¹

2.1.2 Table 2.1 provides an overview of how the transport sector is critical to the overall wellbeing and success of Wales, with reference to seven goals set out in The Well-being of Future Generations (Wales) Act. Table 2.2 then sets out how transport contributes to the five ways of working.

Table 2.1: Contribution to Well-being Goals

Well-being goal	Contribution of this sector
A prosperous Wales	The transport sector underpins economic development by improving connectivity between regions, facilitating trade, supporting tourism, and enabling people to access education and employment. Investment in sustainable transport infrastructure can create skilled jobs and stimulate local economies.
A resilient Wales	Transport can contribute to resilience in various ways, for example by encouraging a shift to low-emission vehicles, active travel, and public transport, reducing greenhouse gas emissions and air pollution. Transport infrastructure investment can also play a role in ensuring infrastructure supports healthy natural ecosystems, is climate resilient and can withstand extreme weather events, helping to protect ecosystems.
A healthier Wales	By promoting active travel (walking and cycling) and reducing car dependency, transport can improve public health through increased physical activity. Cleaner transport options also lead to better air quality, which reduces respiratory and cardiovascular health risks.
A more equal Wales	Affordable, reliable, and accessible public transport reduces barriers to opportunity, particularly for people in low-income communities, rural areas, disabled people and those without access to a car or who face other accessibility barriers. It supports social inclusion by ensuring everyone can participate in society.
A Wales of cohesive communities	Well-planned transport links help bring communities together, improve social cohesion, and reduce isolation, particularly in rural or underserved areas. Safe, inclusive public spaces around transport hubs can also foster community identity and pride.

¹¹ Welsh Government (2021) – *Llwybr Newydd: the Wales transport strategy*

A Wales of vibrant culture and thriving Welsh language	Transport provides access to cultural events and heritage sites across Wales, including in Welsh-speaking regions. Bilingual signage and Welsh-language services on transport networks reinforce the visibility and use of the Welsh language. Transport can also be an attraction in itself, or part of a wider experience for example the Cambrian Coast Line or long distance active travel routes.
A globally responsible Wales	Wales transport policies contribute to global sustainability by reducing emissions, supporting decarbonisation goals, and sourcing materials and services responsibly in line with ethical, environmental, and human rights standards.

Table 2.2 Contribution of energy to the five ways of working

Way of Working	Contribution of this sector
Long-term	The transport sector invests in sustainable infrastructure, low-emission vehicles, and integrated transport systems to ensure a resilient, low-carbon network for future generations.
Prevention	Proactive measures such as promoting active travel, improving public transport accessibility, and reducing reliance on private cars help lower emissions, improve air quality, and prevent future environmental and health risks.
Integration	Transport initiatives are aligned with wider economic, social, and environmental objectives, including supporting local jobs, improving community well-being, and contributing to national decarbonisation targets.
Collaboration	Cross-sector partnerships with local authorities, businesses, and communities accelerate innovation, knowledge sharing, and delivery of integrated transport solutions.
Involvement	Stakeholder and community engagement is embedded in project planning and delivery, ensuring local interests and priorities are reflected in transport developments.

2.2 What shapes the sector today?

- 2.2.1 The transport sector encompasses travel modes including active travel, public transport and private vehicles as well as emerging digital and smart technologies that assist travel. The sector is shaped by both devolved and UK-wide policy levers, with the Welsh Government holding responsibility for most aspects of transport planning, delivery, and infrastructure development. However, a range of other partners and stakeholders are critical to the delivery of multi-modal transport services in Wales, as discussed in Section 2.3.
- 2.2.2 At the strategic policy level, the WTS, covering the period to 2040, sets the immediate vision for an accessible, sustainable, and low-carbon transport system. It emphasises the need to shift away from private car use towards more sustainable modes and underpins the Welsh Government’s commitment to tackling climate change, improving public health, and supporting inclusive economic prosperity:

“We will actively aim to achieve a shift away from private car use to more sustainable transport modes for the majority of journeys.

We will invest in low-carbon, accessible, efficient and sustainable transport services and infrastructure that enable more people to walk, cycle and use public transport, and low-emissions vehicles.”¹²

- 2.2.3 The WTS requires decisions around transport policy and investment to be guided by the **Sustainable Transport Hierarchy**, which prioritises walking and cycling above other modes.
- 2.2.4 Transport policy in Wales is evolving rapidly in response to climate change, economic shifts, and growing social equity concerns. Whilst the Welsh Government holds responsibility for most aspects of transport planning and delivery, the sector is also influenced by UK-wide frameworks and international commitments.
- 2.2.5 Recent policy, in particular through the WTS, has moved away from car-centric planning toward a focus on sustainable, accessible, and integrated transport systems. This shift supports wider goals such as reaching net zero by 2050, improving public health, and strengthening social and regional connectivity. The Welsh Government has promoted modal shift and improved safety through a series of measures, including setting high thresholds for new road schemes as part of the Roads Review, investing in active travel, and introducing default 20mph speed limits in urban areas.
- 2.2.6 Wales is one of the few countries to embed sustainable development in law, through the Well-being of Future Generations (Wales) Act 2015. As a result, policy provides a framework for transport to not be viewed in isolation but seen as a lever to achieve long-term societal outcomes (however, as discussed later, there are clear challenges in practice).
- 2.2.7 Table 2.3 provides a summary of the relevant legislative, policy and guidance documents shaping the transport sector in Wales.

¹² Welsh Government (2021) – *Llwybr Newydd: the Wales transport strategy*

Table 2.3: Legislative and Policy Context

Category	Legislative / Policy / Guidance Document	Relevance to this sector review	Document reference/link
International	International Paris Agreement (2015)	Commits Wales (via UK) to reduce greenhouse gas emissions, driving transport decarbonisation efforts.	United Nations Framework Convention on Climate Change (2015) – The Paris Agreement
	UN Sustainable Development Goals (SDGs)	Supports inclusive, safe, resilient, and sustainable transport as part of global development targets.	United Nations (2016) – The 17 Goals
UK	UK Climate Change Act (2008)	Legally binds Wales to contribute to UK-wide carbon budgets, including major reductions in transport emissions.	UK Government (2008) – Climate Change Act 2008
Wales	Active Travel (Wales) Act 2013	Promotes walking and cycling for everyday journeys through legal duties on local authorities.	Welsh Government (2013) – Active Travel (Wales) Act
	Air Quality Standards (Wales) Regulations 2010	Implements EU Directives (2008/50/EC and 2004/107/EC) into Welsh law—setting limit values, measurement frameworks, and action planning duties.	Welsh Government (2010) – Air Quality Standards (Wales) Regulations
	Clean Air Plan for Wales: Healthy Air, Healthy Wales	Sets a comprehensive policy strategy addressing pollutant reduction, behavioural change, local and national measures, including Clean Air Zones and guidance on domestic burning and transport.	Welsh Government (2020) – Clean Air Plan for Wales: Healthy Air, Healthy Wales
	Well-being of Future Generations (Wales) Act 2015	Legally requires transport to support long-term social, environmental, and economic well-being.	Welsh Government (2015) – Well-being of Future Generations Act
	Future Wales: The National Plan 2040 (2019)	National spatial development framework aligning land use and transport.	Welsh Government (2019) – Future Wales: the national plan 2040
	Wales Transport Strategy – Llwybr Newydd (2021)	Sets out the 2040 vision for a sustainable, inclusive, low-carbon transport system.	Welsh Government (2021) – Llwybr Newydd: The Wales Transport Strategy
	Net Zero Wales – Carbon Budget 2 (2021–2025)	Sets emission reduction targets; transport is a key focus area for change.	Welsh Government (2021) – Net Zero Wales: Carbon Budget 2

Category	Legislative / Policy / Guidance Document	Relevance to this sector review	Document reference/link
	Active Travel Act Guidance (2021)	Provides statutory guidance to local authorities on how to meet their duties under the Active Travel (Wales) Act 2013.	Welsh Government (2021) – Active Travel Act Guidance
	Electric Vehicle Charging Strategy for Wales (2021)	Outlines current charging ability in Wales and future improvements.	Welsh Government (2021) – Electric vehicle charging strategy for Wales
	National Transport Delivery Plan (NTDP) (2022–2027)	Provides the action plan for implementing the Wales Transport Strategy across all modes.	Welsh Government (2023) – National Transport Delivery Plan 2022 to 2027
	Bus Reform / Proposed Bus Bill (2025)	Aims to create a publicly controlled bus network that is reliable, affordable, and fully integrated.	Welsh Government (2025) – Bus Services (Wales) Bill Overview
	Roads Review (2021)	Aligned future infrastructure investment with Wales’ climate goals, particularly the target of reaching net-zero emissions by 2050. As a result, the government cancelled or paused most new road schemes, marking a significant policy shift.	Welsh Government (2021) - Roads Review
	Burns Report (2020)	Sets out a vision for transforming public transport in South East Wales. The Report aims to establish alternatives to a realigned M4 Motorway	South East Wales Transport Commission (2020) – Final Recommendations
	Future Regional Transport Plans (CJCs) – emerging 2025/6 onwards	Enable regional coordination of transport planning aligned with national priorities, with focus on the next five years.	Welsh Government (2025) – Regional Transport Plans: Improving Travel in your Area

Welsh Roads Review

- 2.2.8 Of particular note in Table 2.3 is the Welsh Roads review. In 2023, the Welsh Government concluded its comprehensive Roads Review,¹³ a landmark assessment of planned road-building projects across the country. The review, led by an independent panel, aimed to align future infrastructure investment with Wales' climate goals, particularly the target of reaching net-zero emissions by 2050, and with the priorities set out in the Wales Transport Strategy. As a result, the government cancelled or paused most new road schemes, marking a significant policy shift away from car-led development in favour of public transport and active travel. The review set out four new tests for future road projects: they must not increase carbon emissions, must not induce car use, must not adversely impact biodiversity, and must support modal shift. This bold approach placed environmental sustainability and demand management at the heart of transport planning in Wales.
- 2.2.9 In July 2025, Welsh Government published an updated version of its transport appraisal guidance (WeITAG),¹⁴ setting out that proposals involving new roads or alterations to roads that will significantly increase private car capacity can be considered if they demonstrably meet at least one of the following objectives:
- Support modal shift and reduce carbon emissions.
 - Improve safety through proportionate changes.
 - Adapt existing infrastructure to ensure resilience to climate change impacts.
 - Provide access and connectivity to jobs and economic centres in a way that supports modal shift.
- 2.2.10 This marks a significant evolution from the original Roads Review. The updated guidance retains the Roads Review's core intent of prioritising sustainability, modal shift, and climate resilience, but allows greater flexibility for context-specific, proportional road interventions where they support well-defined, strategic objectives.
- 2.2.11 A broader strategic question raised by the Roads Review, but not explicitly resolved, is the long-term balance between investment in maintaining existing road assets and the delivery of new road infrastructure. While the Review emphasises climate alignment and demand management, it also implicitly highlights the condition of much of Wales' existing road network and the growing maintenance and resilience challenges it faces.
- 2.2.12 In related activity Welsh Government undertook a review of maintenance on the Strategic Road Network in Wales and considered the appropriateness of the Major Asset Renewal Programme (MAR). The Lugg review,¹⁵ which reported in 2023, made 15 recommendations for future maintenance programmes focussed around ensuring that maintenance is carefully planned, in line with wider transport strategy, focussed on safety and long term integrity, and guided by clear investment criteria.

¹³ Welsh Government (2023) – [Roads Review](#)

¹⁴ Welsh Government (2025) – [Welsh Transport Appraisal Guidance \(WeITAG\)](#)

¹⁵ Welsh Government (2023) – [The Lugg review](#)

2.2.13 International approaches, such as the “fix it first” principle adopted in parts of the United States,¹⁶ prioritise maintaining and upgrading existing infrastructure before expanding networks, on the basis that this delivers better value for money, improves safety, and enhances climate resilience. In the Welsh context, this raises an important consideration: whether continued prioritisation of maintenance and adaptation of the existing road network, rather than new road construction, could provide a more effective response to climate change, asset condition, and funding constraints, provided the network is made to function better and more reliably for users.

Current key investment and initiatives

2.2.14 The Burns Report,¹⁷ commissioned in response to longstanding congestion and connectivity challenges along the Cardiff to Newport corridor, sets out a vision for transforming public transport in South East Wales. The Report aims to establish alternatives to a realigned M4 Motorway. A key recommendation of the report is the introduction of a series of new rail stations between Cardiff and the Severn Bridge, strategically located to improve access to sustainable transport options for local communities.

2.2.15 The UK Government has pledged at least £445 million over ten years to upgrade Wales’ rail infrastructure. The funding will support electrification, new stations, level crossing improvements, and line upgrades across both North and South Wales. Key supported initiatives include connections between Cardiff and the Severn Bridge, as recommended in the Burns Report, and industrial hubs in North Wales, aiming to improve commuter access, support advanced manufacturing, and address decades of underinvestment. Whilst the £445 million is essential for progressing these important schemes, there is notable research indicating that Wales is not receiving its fair share of funding for rail projects.¹⁸¹⁹²⁰ A key contributor to this is the classification of HS2 as an England-Wales project, which it is estimated will mean that Wales loses out on £845 million of funding between 2016/17 and 2029/30.²¹

2.2.16 The Metro schemes in Wales represent an ambitious programme of investment and transformation in the nation’s public transport infrastructure. The South Wales Metro Phase 1 is at an advanced stage, having delivered significant improvements to connectivity between Cardiff, Newport and the Valleys already. Building on this momentum, proposals for the North Wales Metro and Swansea Bay and West (SB&W) Wales Metro seek to extend these benefits to regions that have historically experienced poorer connectivity. By facilitating easier access to jobs, education, and services, and enabling transit-oriented development, the Metro schemes have the potential to transform how people live, work, and travel throughout Wales.

¹⁶ Transportation for America (2024) – [Fix it first in practice](#)

¹⁷ The Burns Report, South East Wales Transport Commission, 2020

¹⁸ Cardiff University (2025) – [Wales Fiscal Analysis: immediate response to rail funding announcement for Wales - Thinking Wales - Meddwl Cymru - Cardiff University](#)

¹⁹ Senedd Research (2024) – [Rail infrastructure spending in Wales: a fair deal or short changed?](#)

²⁰

Senedd Research (2025) – [What does the UK Government’s 2025 Spending Review mean for Wales?](#)

²¹ See 18 and 19.

2.3 Who is responsible?

- 2.3.1 The governance of transport in Wales operates within a devolved framework, meaning that most transport powers and responsibilities sit with the Welsh Government. This enables policy and investment decisions to reflect Wales' unique geography, social priorities, and legislative context – particularly the Well-being of Future Generations (Wales) Act 2015, which requires all public bodies to work towards long-term, sustainable outcomes.
- 2.3.2 Transport in Wales is delivered through a mix of national, regional, and local bodies, each with defined statutory and non-statutory duties, delivery roles, and strategic responsibilities. The Welsh Government sets national policy direction through strategies such as Llwybr Newydd and funds major programmes like Metro systems and active travel improvements. The Welsh Government also wholly own Transport for Wales (TfW), an arms-length non-statutory body responsible for delivery and operational coordination across modes, including rail, bus, and active travel infrastructure.
- 2.3.3 Local authorities maintain responsibility for managing highways, parking, and implementing local transport improvements. Meanwhile, newly formed Corporate Joint Committees (CJCs) are responsible for developing Regional Transport Plans to establish a coordinated approach to transport planning across regions.
- 2.3.4 Operators, regulators, and voluntary and community organisations also play critical roles. As Wales moves towards greater travel mode integration, public transport reform and regional working, these stakeholders are anticipated to evolve accordingly, with stronger collaboration, shared responsibilities, and a focus on long-term societal value.
- 2.3.5 Table 2.4 provides a summary of the key stakeholders in Wales, including details on their remit. This shows that the sector is complex, with a wide range of both UK and Wales organisations responsible.

Table 2.4: Key Stakeholders

Category	Organisation	Role
National Government	Welsh Government	Sets national transport policy (e.g. Llwybr Newydd), allocates funding for infrastructure and services, leads decarbonisation and sustainability efforts, and oversees transport-related legislation such as the Active Travel (Wales) Act 2013. Provides strategic oversight of Transport for Wales and Trunk Road Agents, coordinating with regional and local bodies to align transport planning and delivery with national priorities. Collaborates with UK Government on non-devolved and cross-border transport issues affecting Wales.
National Government	UK Government	Responsible for non-devolved transport functions affecting Wales, including oversight of the Wales and Borders rail franchises beyond devolved services. Sets UK-wide rail policy, funds and oversees Network Rail's management and maintenance of most of the rail infrastructure in Wales (except Core Valley Lines). Leads on cross-border transport issues, aviation, maritime, and road freight regulation. Works

Category	Organisation	Role
		collaboratively with Welsh Government on strategic transport investment and rail franchise management.
National Body	Transport for Wales (TfW)	Welsh Government owned arms-length delivery partner for rail services, active travel, infrastructure, and planning support. Leads Metro programmes and multimodal integration.
Regional Bodies	CJCs	Statutory regional bodies responsible for preparing Regional Transport Plans, economic strategy, and strategic land use planning.
Local Authorities	22 Welsh Local Authorities	Manage local highways, parking, road safety, and delivery of active travel infrastructure. Statutory duties under the Active Travel Act 2013, Highways Act 1980, Road Traffic Regulation Act 1984 and Traffic Management Act 2004.
Delivery Partners (UK)	Network Rail	Manage and maintain most of the rail network in Wales, except for the Core Valley lines which are managed by TfW.
Delivery Partners (Wales)	Trunk Road Agents (South Wales & North and Mid Wales)	Manage and maintain the strategic road network (trunk roads and motorways) on behalf of the Welsh Government, including maintenance, safety and emergency response.
Regulators	Office of Rail and Road (ORR) (UK-wide, with relevance to Wales)	Regulates safety and performance of the rail system, including TfW Rail and Network Rail operations in Wales.
Operators	Transport Operators (e.g. TfW Rail, Stagecoach, Arriva)	Deliver public transport services under contract or licence. TfW Rail operates Wales & Borders services, including the Valley Lines network in South Wales, while buses typically run on commercial routes. Also includes UK operators such as GWR.
Public and Third Sector	Community Transport / Passenger Advocacy Groups / NGOs	Provide transport for those with limited access and advocate for users' needs, especially rural, disabled, or low-income communities.

3 Current State of Play

3.1.1 This section sets out a baseline understanding of the transport sector in Wales, presenting the current state of play across all modes, including active travel, public transport and private transport. It brings together available data to outline key cross-cutting issues and highlight the present challenges to delivery. The focus is on identifying risks, issues and challenges and establishing a clear and factual picture of the existing conditions to inform future planning and decision-making.

3.2 Relationship with Land Use Planning

Sustainable Transport in New Development

3.2.1 Transit oriented development is a spatial planning concept which emphasises concentrating housing, work, and amenities within easy walking distance of high-quality public transport, to encourage sustainable travel between these varying destinations. Despite sustainable transport and transit-oriented development being a land use and transport planning policy priority for decades (with the importance of sustainable transport currently underpinned by the inclusion of the Transport Hierarchy in Planning Policy Wales Edition 12²² and the WTS), it is apparent that sites are **still being developed in unsustainable locations**.

3.2.2 Siting new development in locations not served by sustainable transport means that new occupiers are wholly reliant on their cars, as they are located too far away from everyday services, facilities and jobs. Urban sprawl exacerbates the problem as new housing is bolted onto historic residential led, car dominated, urban expansions. Efforts to deploy new services and facilities in these areas are unattractive to investment due to the small catchment area and limited critical mass of potential future users. Where services and facilities are proposed, they are fraught with viability issues. The limited critical mass for future users also impacts the possibility of public transport networks expanding to new development sites. This is particularly the case for bus services.

3.2.3 There is currently limited published data or reporting to substantiate this issue; however, concerns have been expressed by key stakeholders across the Welsh transport sector, and this issue was noted in the workshop held to inform this study. Stakeholders highlighted that:

- Sites continue to come forward in unsustainable locations, which rely on access by car; or
- Sites are being delivered in locations with the potential to be sustainable if transit infrastructure were developed, however, committed infrastructure is not always delivered, or delivered early enough.

3.2.4 The majority of new development is brought forward through the Local Development Plan process, which prioritises meeting housing and employment needs. Early stages of site selection in this process tends to consider transport only after the initial site identification phase, meaning **opportunities to embed sustainable transport can be secondary** rather than integrated from the outset, or a leading principle. There is currently no obligation for strategic transport planning to inform early site selection, and as such the process is often seemingly opportunity-led rather than transit-oriented.

²² Planning Policy Wales - Edition 12

- 3.2.5 As organisations like Transport for Wales expand, and with the recently adopted Regional Transport Plans,²³ (which include policies on integrating spatial and transport planning), there may be greater scope for planning policy teams to incorporate sustainable transport considerations earlier provided that an additional collaborative stage is introduced into the process.
- 3.2.6 Where transit-oriented development opportunities are identified in Local Development Plans, there is a risk that delivery of **supporting transport infrastructure is delayed until after sites are occupied, or do not come forward at all**. This risk is heightened where infrastructure delivery depends on stakeholders outside Welsh Government or Local Authority control, particularly in the case of rail, where (aside from the CVL) investment priorities are spread across England and Wales. The range of stakeholders that need to be relied upon, relating to funding and consenting may also hinder the realisation of transit-oriented development, even when such opportunities are recognised.
- 3.2.7 Conversely, other stakeholders suggested that some locations in Wales are simply not suitable to promote transit-oriented development or apply the sustainable transport hierarchy, given their rurality and or the cost of providing sustainable transport links to them. Therefore, it may be that the Transport Hierarchy is not applicable in the same way throughout Wales and particularly in the most rural areas.

Improving Provision in Existing Communities

- 3.2.8 Across Wales, many **established communities remain underserved by public transport**, limiting access to jobs, education, healthcare, and other essential services. These areas often rely heavily on private cars, which can increase social isolation for those without access to a vehicle and contribute to congestion and environmental pressures. The lack of frequent, reliable transit options can also constrain opportunities for local economic growth and regeneration and make it harder for residents to participate fully in civic life. This is illustrated in parts of rural Ceredigion, where recent reductions to bus services affecting villages such as Borth have limited access to employment, education and healthcare in Aberystwyth for residents without access to a car²⁴.
- 3.2.9 Several new train stations have been introduced over the past decade specifically to improve connectivity for existing communities. Stations such as Energlyn & Churchill Park in Caerphilly, Pye Corner in Newport, and Ebbw Vale Town in Blaenau Gwent have extended rail access to areas previously underserved by public transport, making it easier for local residents to travel for work, education, and leisure. The opening of Bow Street station near Aberystwyth has similarly restored rail service to a rural community. These investments demonstrate a commitment to addressing gaps in the rail network and promoting more sustainable travel options for established neighbourhoods across Wales. However, there are **many communities in Wales not served by rail, and the bus and active travel must be relied upon in these locations**.
- 3.2.10 The development of the Burns Report recommendations, alongside the North Wales and West Wales Metro programmes, presents significant opportunities to further improve transport connectivity in existing communities across Wales. By focusing on new and upgraded stations, enhanced service frequencies, and better integration between rail, bus, and active travel, these initiatives can bridge gaps in the current transport network and make sustainable travel more accessible to residents.

²³ Welsh Government (2025) – [Regional transport plans: improving travel in your area | GOV.WALES](#)

²⁴ BBC News (2023) – [Rural bus cuts blamed on rising costs and drop in passengers, 28 January 2023](#).

3.3 Decarbonisation and Sustainability

Emissions from the Transport Sector

3.3.1 For 2023, the domestic transport sector produced 5,644 Kilotonnes of carbon dioxide equivalent (KtCO₂e), or 16% of Wales’ total KtCO₂e (34,084 KtCO₂e).²⁵ This is below pre-COVID-19 levels (6,277 KtCO₂e in 2019) and follows the long-term trend of falling greenhouse gas emissions in the domestic transport sector. This drop-off reflects a 17.5% reduction in emissions between 2005 and 2023.

3.3.2 Transport’s share of total emissions remained steady over the long term prior to Covid-19, and transports share of all emissions has increased in this time, as shown in Figure 3.1. At 17% **transport remains a significant contributor to total emissions**, meaning that there is a need for further focus on reducing emissions and a clear need for further action if targets are to be achieved. This figure remains on the increase despite reducing emissions due to greater reductions in other sectors, and primarily the energy sector. So, whilst transport is reducing emissions, other sectors are outperforming it.

Figure 3.1 Total Domestic Transport Sector GHG Emissions (Wales) 2005-2023²⁶



3.3.3 Road transport is also a major contributor to poor air quality in Wales, particularly in urban areas and along busy road corridors. Pollutants such as nitrogen dioxide (NO₂) and fine particulate matter

²⁵ Transport for Wales (2023) – **Wales Transport Strategy: Monitoring Measures: Key Measure M6**

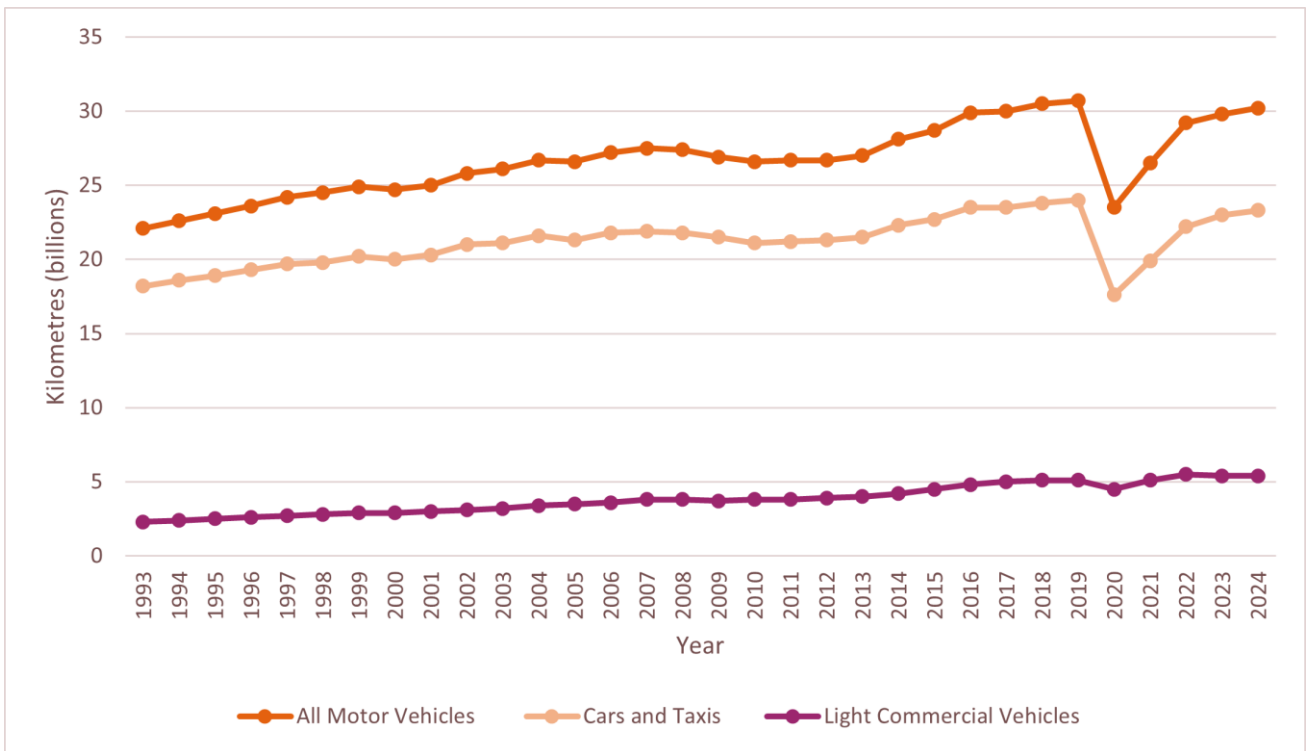
²⁶ National Atmospheric Emissions Inventory (2023) – **Greenhouse Gas Inventories for England, Scotland, Wales & Northern Ireland: 1990-2023**

(PM_{2.5}) are strongly associated with road traffic emissions, and two-thirds of urban air pollution in Wales is attributed to road transport.

3.3.4 Exposure to these pollutants is linked to increased risks of cardiovascular and respiratory disease, with Public Health Wales²⁷ estimating that long-term exposure to air pollution in Wales is equivalent to 1,000–1,400 premature deaths each year, with impacts disproportionately affecting children, older people and those living in more deprived communities. Measures to reduce vehicle emissions and car dependency therefore deliver immediate public-health benefits alongside longer-term carbon reduction

3.3.5 In Wales, a total of 30.4 billion kilometres were covered by road vehicles in 2024.²⁸ This is 1.6% lower than the pre-pandemic level of 30.9 billion kilometres in 2019. Figure 3.2 shows the total kilometres travelled on roads in Wales between the years of 1993 and 2024.²⁹

Figure 3.2: Total Kilometres Travelled (Billions) on the Welsh Road Network³⁰



3.3.6 Cars and taxis (23.3 billion km) cover the most distance of any vehicle type. The distance covered fell sharply (-26.7%) in 2020 following the onset of the COVID-19 pandemic but has since returned to its pre-pandemic levels.

3.3.7 The apparent decoupling of emissions from road usage can be partly attributed to improvements in vehicle fuel efficiency and the growing uptake of electric vehicles and other sustainable fuel sources.

²⁷ Public Health Wales (2016) – [Making a Difference Investing in Sustainable Health and Well-being for the People of Wales](#)

²⁸ Transport for Wales (2025) – [Wales Transport Strategy: Monitoring Measures – Key Measure M3](#)

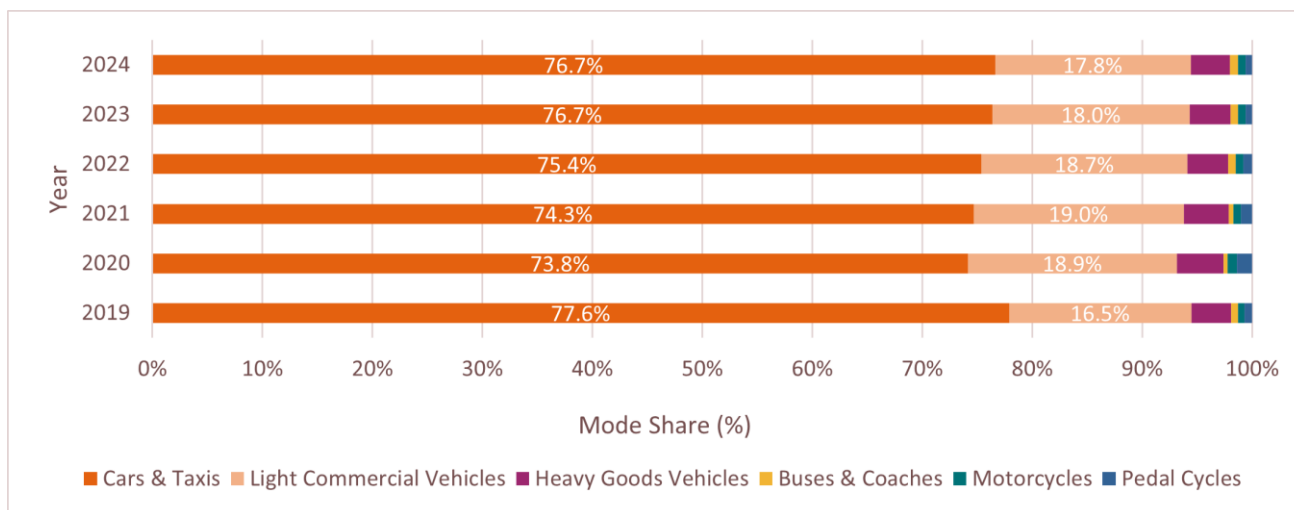
²⁹ Department for Transport (2025) – [Road Traffic Estimates \(TRA\) – TRA0206](#)

³⁰ Transport for Wales (2025) – [Wales Transport Strategy: Monitoring Measures – Key Measure M3](#)

Recent policy interventions and infrastructure investments are accelerating this transition. These factors suggest that although people are travelling similar or slightly greater distances by road, the carbon intensity of those journeys is decreasing, which reflects progress in the shift toward cleaner transport technologies.

3.3.8 Figure 3.3 shows the share of total kilometres on the Welsh road network by vehicle type.

Figure 3.3: Share of Total Kilometres by Vehicle Type (%)³¹³²



3.3.9 The graph shows that cars and taxis accounted for 76.7% of the total distance travelled on roads across mode types in 2024. Since 2019, this share has fallen 0.9 percentage points (77.6%). Light commercial vehicles (17.8%) are the next largest by share, and this has grown from 16.5% in 2019, the largest percentage point increase since the pandemic. Sustainable road vehicles (buses, coaches and pedal cycles) accounted for only 1.3% of total road kilometres in 2024.

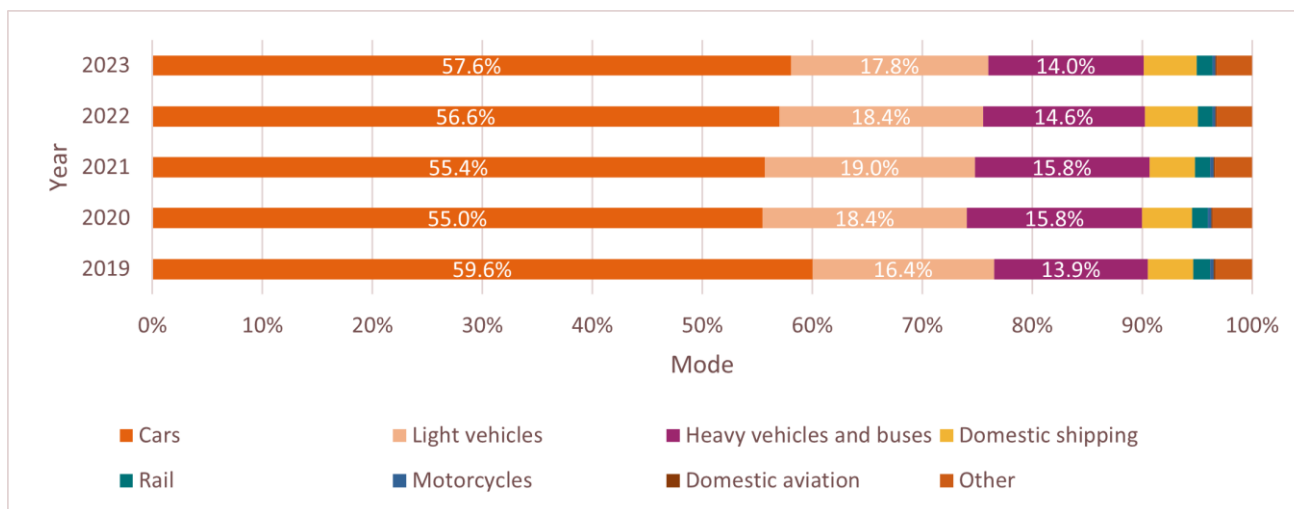
3.3.10 Despite a slight decline in car use, overall dependency remains high, and progress towards modal shift targets is proving difficult. This highlights the need for stronger interventions to encourage sustainable travel and reduce reliance on private vehicles. It also suggests that, going forward, there will be a continued need for measures to manage vehicle numbers and congestion, especially in urban areas.

3.3.11 Figure 3.4 shows greenhouse gas emissions by domestic transport mode over the last five years in Wales.

³¹ Department for Transport (2024) – TRA0206: Motor vehicle traffic (vehicle kilometres) by vehicle type, region and country in Great Britain

³² Department for Transport (2024) – TRA0413: Pedal cycle traffic (vehicle kilometres) by region and country in Great Britain

Figure 3.4: Greenhouse gas emissions by domestic transport mode in Wales (2019-2023)³³



3.3.12 In 2023, cars accounted for the majority of transport greenhouse gas emissions (57.6%), only slightly below its share in 2019 (59.6%). Total car KtCO₂ emissions have fallen by 13.0% over this period, as displayed in Figure 3.1. For all modes, only domestic shipping has seen their total KtCO₂e emissions increase since 2019. All other modes have reduced their KtCO₂e emissions from 2019 levels.

3.3.13 Despite the falling trends, **the current pace of transport decarbonisation is not aligned with the urgency of climate change**. While emissions from transport have begun to fall, the reductions achieved so far are modest and far from the scale required to meet statutory carbon budgets and net zero targets. Road traffic remains the dominant source of emissions, and progress is constrained by slow uptake of zero-emission vehicles, limited modal shift, and infrastructure delivery challenges. Without accelerated action, the sector risks continuing as one of the largest contributors to Wales and UK greenhouse gas emissions.

Freight and Logistics Decarbonisation

3.3.14 Road freight and logistics reportedly emitted around 2.0 MtCO₂e in 2022, representing 34% of total surface transport emissions in Wales.³⁴ This share is significantly higher than the UK average, reflecting Wales’ economic structure, industrial activity and geography.³⁵

3.3.15 As shown in Figure 3.4, light commercial vehicles (vans), the backbone of last-mile freight, have increased their share of total vehicle kilometres since 2019, despite overall traffic reductions. Freight demand is decoupled from passenger travel trends, meaning emissions reductions from cars risk being offset by logistics growth. Moreover, despite overall reductions in transport emissions since 2019, emissions from freight have reduced more slowly than those from cars and remain a major challenge to achieving Welsh carbon budgets and net-zero targets.

3.3.16 Rail freight offers a clear decarbonisation opportunity but remains under-utilised. Across Great Britain, including Wales, 16.5 billion net tonne-kilometres of freight were moved by rail in 2024–25, an

³³ National Atmospheric Emissions Inventory (2023) – Greenhouse Gas Inventories for England, Scotland, Wales & Northern Ireland: 1990-2023

³⁴ Zemo Partnership (2025) – Actions for Accelerating the Decarbonisation of Commercial Vehicles in Wales

³⁵ FleetNews (2025) – Pathway to decarbonising freight transport in Wales plotted in new report

increase of 5.0% year on year, with freight services achieving high levels of punctuality (around 89%), outperforming passenger rail.³⁶³⁷ Rail freight emissions per tonne-kilometre are substantially lower than road haulage, making modal shift a strategically important lever for decarbonising logistics while also reducing congestion and infrastructure wear on the strategic road network.

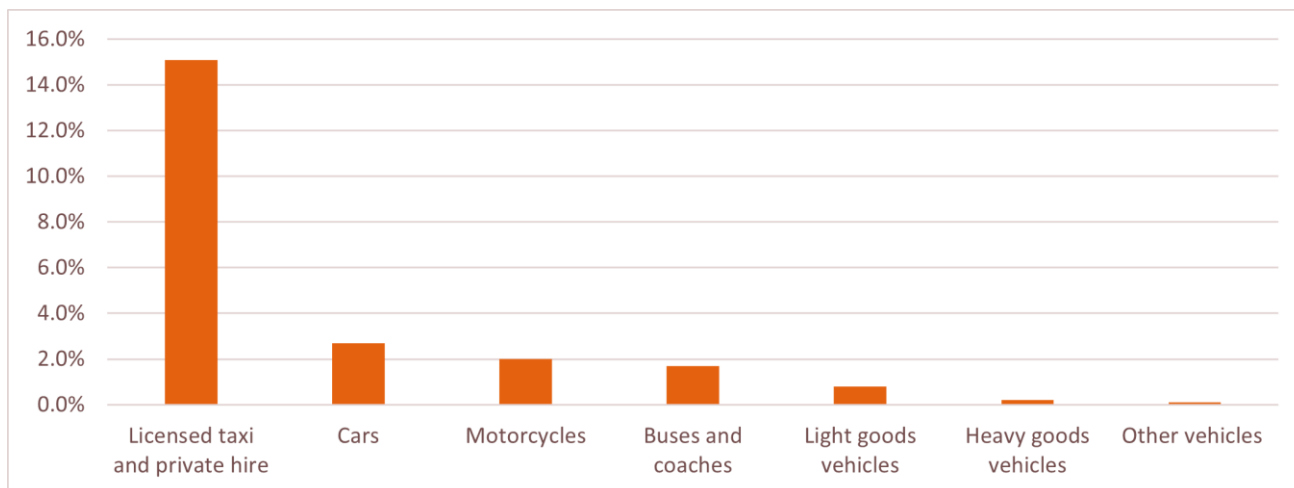
3.3.17 The Welsh Government commissioned analysis in 2025³⁸ to assess pathways to decarbonising commercial vehicles. This work identifies electrification as the primary long-term solution, supported in the short to medium term by low-carbon fuels and, potentially, hydrogen in harder-to-electrify applications. The analysis estimates that a coordinated package of ‘no-regrets’ actions could deliver cumulative savings of up to 8.4 MtCO₂e by 2050, with a benefit–cost ratio of 5.9 and significant reductions in operating costs for Welsh freight operators.

Electric and Low Emission Vehicles

3.3.18 The uptake of electric and low-emission vehicles is a crucial metric for understanding how Wales is progressing towards its sustainability and climate goals, particularly in reducing transport-related emissions. The total number of road vehicles classed as ultra-low emission was recorded at 48,488 in 2024 Q4.³⁹ Ultra-low emission vehicles (ULEVs) are vehicles that emits less than 75g of carbon dioxide (CO₂) from their tailpipe for every kilometre travelled.

3.3.19 ULEVs account for just 2.3% of total road vehicles in Wales compared to approximately 3.7% across the UK. Figure 3.5 shows the ULEV share of total road vehicles in Wales (2024).

Figure 3.5: ULEV Share of Total Road Vehicles 2024 (%)⁴⁰



3.3.20 The graph shows that presently, a total of 15.1% of taxis and private hire vehicles are ULEV, the highest for any vehicle category. For cars, 2.7% of vehicles are ULEV, whereas this share is 2.0% for motorcycles and 1.7% for buses and coaches. These shares broadly mirror England, with Taxis and private hire vehicles having a notably greater share of ULEVs.

³⁶ Welsh Government (2024) – [Decarbonisation of industry and business \(summary\)](#)

³⁷ Department for Transport (2025) – [Freight rail usage and performance: July to September 2025](#)

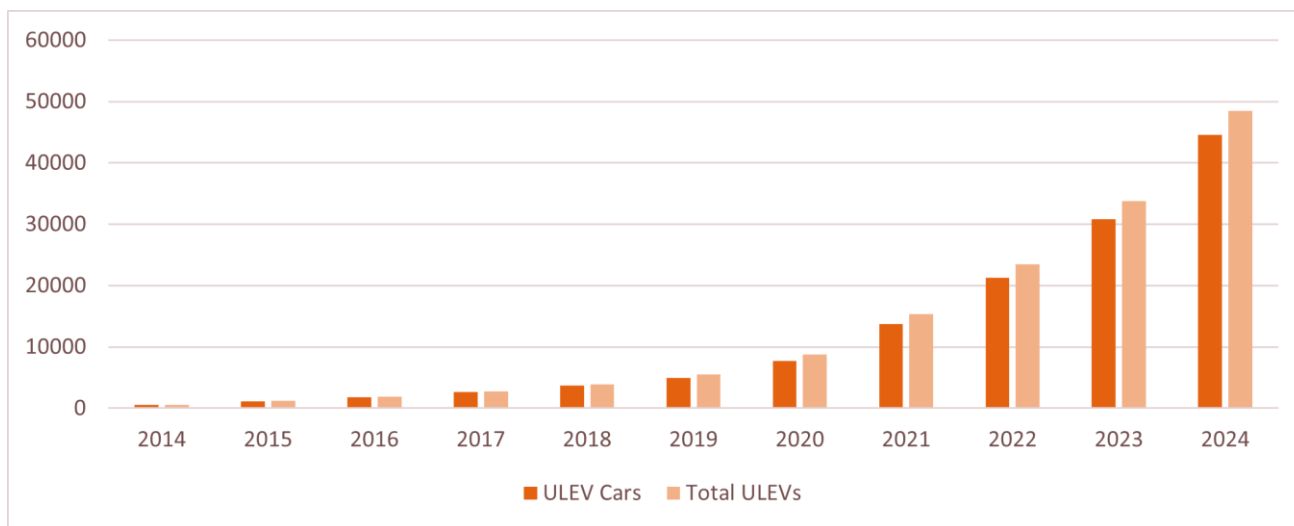
³⁸ Zemo Partnership (2025) – [Actions for Accelerating the Decarbonisation of Commercial Vehicles in Wales](#)

³⁹ Transport for Wales (2024) – [Wales Transport Strategy: Monitoring Measures: Key Measure M2](#)

⁴⁰ Department for Transport (2024) – [Vehicle licensing statistics and data tables](#)

3.3.21 The share of ULEVs is much higher for taxis and private hire vehicles in Wales because schemes like Cardiff Council’s Green Taxi⁴¹ grant, Welsh Government Try Before You Buy⁴² pilot programmes, and dedicated rapid charging points have made it easier and more attractive for operators to switch to electric vehicles, especially in urban areas where clean air and licensing policies increasingly favour low-emission fleets. Government intervention and support have played a key part.

Figure 3.6: Number of ULEVs in Wales (2014-2024)⁴³



3.3.22 The graph shows that the number of ULEVs in Wales has grown significantly since 2014. Total ULEVs have increased from 594 in 2014 (of which 537 were cars) to 48,488 in 2024 (of which 44,611 were cars). This is likely due to supportive policies, better technology, more charging points, and growing demand for cleaner vehicles. However, as shown above ULEVs still represent a very small percentage of all vehicles. By 2035, all new cars and vans sold in the UK must be zero-emission at the tailpipe, in line with government requirements and this is likely to drive EV numbers, and demand for charging, up.

3.3.23 Public electric vehicle (EV) charging infrastructure is essential for reducing range anxiety and enabling broader adoption of electric vehicles, especially among those without access to home charging. In Wales, where rural communities are widespread, public charging is particularly vital to ensure connectivity and confidence in EV use across long distances and remote regions. The number of publicly available EV charging devices in Wales is a key indicator of the transport sector’s readiness to meet growing demand for EVs and its progress towards sustainable, low-emission mobility.

3.3.24 There are 3,519 publicly available charging devices in Wales, as of July 2025⁴⁴. Of these, 753 are classified as rapid charging devices, with the remaining 2,766 being standard charging devices. Rapid chargers are crucial for enabling quick top-ups during long-distance travel and reducing wait times at public locations, while standard chargers support routine, lower-cost charging during longer stops

⁴¹ Cardiff Council (2025) [Cardiff Hackney emissions reduction grant scheme \(CHERG\)](#)

⁴² Cardiff Capital Region (2021) [Cardiff Capital Region and Welsh Government ‘try-before-you-buy’ green taxi launched today at the Cop Cymru Clean Transport South East Wales Regional Roadshow - Cardiff Capital Region](#)

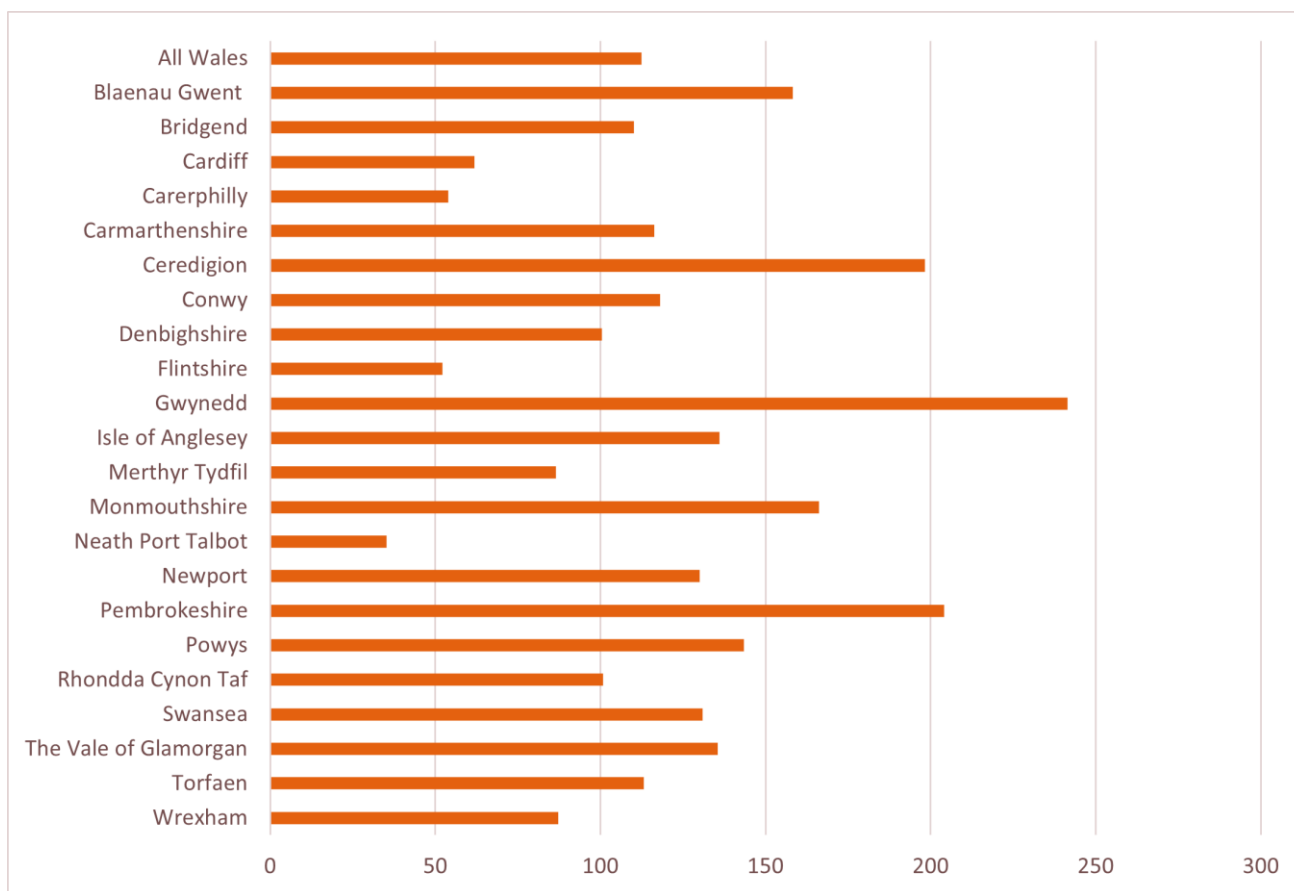
⁴³ Department for Transport (2024) – [Vehicle licensing statistics and data tables](#)

⁴⁴ Transport for Wales (2025) – [Wales Transport Strategy: Monitoring Measures – Subsidiary Measure S10](#)

such as shopping, work, or leisure activities. Based on Welsh socio-economic data, the Electric Vehicle Charging Strategy for Wales predicts that **between 30,000 to 55,000 fast chargers are needed in Wales by 2030.**⁴⁵ This projected need highlights the urgency of scaling up rapid charging infrastructure.

3.3.25 Figure 3.7 shows the number of publicly available charging devices per 100,000 population for each of the 22 local authorities in Wales.

Figure 3.7: Local Authority: Charging Devices per 100,000 population⁴⁶



3.3.26 There are 112.4 publicly available charging devices per 100,000 population across Wales as a whole. This number varies across local authorities; Neath Port Talbot has the lowest number of charging devices per 100,000 population (35.2). Despite a relatively high number of total charging devices, Cardiff has 61.8 devices per 100,000, well below the average for Wales.

3.3.27 Based on 2021 Census data, meeting the targets set out in the Electric Vehicle Charging Strategy for Wales would require deploying between 965 and 1,770 chargers per 100,000 population by 2030, underscoring the scale of the challenge.

⁴⁵ Welsh Government (2021) – [Electric Vehicle Charging Strategy for Wales](#)

⁴⁶ Department for Transport (2025) – [Electric vehicle public charging infrastructure statistics: July 2025](#)

- 3.3.28 Moreover, **ensuring adequate EV charging coverage in low-population and rural areas presents a significant challenge**, as these locations often lack the demand to make installations commercially viable. While urban centres can support higher charger density due to concentrated usage, rural communities' risk being underserved, creating potential inequalities in access to zero-emission transport. Despite this, it is rural areas where the greatest range challenges are faced and charging provision is essential.
- 3.3.29 Addressing this gap will require targeted public investment, innovative funding models, and collaboration with local authorities to overcome market limitations and deliver a network that supports the Welsh Government's decarbonisation goals across all regions. Developing a comprehensive network of EV charging devices across Wales is an essential precursor to rapidly increasing the number of EVs on the road and meeting decarbonisation targets. Currently, Wales has low EV charging density on the whole, highlighting a potential shortfall in infrastructure to meet rising demand.
- 3.3.30 **Grid constraints and capacity issues present a significant barrier** to the deployment of EV charging infrastructure, particularly in rural areas. These issues are particularly problematic for rapid chargers due to the large amounts of electricity drawn from the grid in a short period of time. In rural areas, existing electricity distribution networks already lack capacity and transmission networks are undeveloped.

Rail Decarbonisation

- 3.3.31 Rail decarbonisation could be achieved through full electrification, discontinuous electrification with battery-hybrid trains, or emerging technologies such as hydrogen. These approaches offer significant opportunities to cut emissions from passenger and freight services and reduce the environmental impact of the rail network.
- 3.3.32 **Rail electrification in Wales remains limited**, with 8.8% of the network electrified by 2025, up from 6.5% in 2023.⁴⁷ This recent increase reflects progress on the South Wales Metro programme, where significant work was completed on the Core Valley Lines, overseen by Transport for Wales. This work has enabled the introduction of new tri-mode electric trains on the five Core Valleys Lines: Aberdare, Coryton, Merthyr, Rhymney and Treherbert. Electrification now covers approximately 132 km of track, compared to 97 km the previous year, but this is a minor proportion of the total amount of track in Wales, which is 1,498km.
- 3.3.33 These upgrades form part of a wider transformation aimed at delivering faster, greener services in southeast Wales. However, beyond the Valleys network, main lines in North and West Wales are unelectrified. Whilst plans have been announced for the electrification of the North Wales Mainline, these remain at the planning stage and in March 2025 it was announced that previous U.K. Government commitments were made without funding available. In July 2017, the U.K. government also cancelled the planned electrification of the railway between Cardiff and Swansea.
- 3.3.34 Recent investment in new diesel rolling stock in Wales includes the introduction of Class 197 trains on long-distance routes and Class 230 hybrid units on the Borderlands and Conwy Valley lines, delivered as part of Transport for Wales' fleet modernisation programme.⁴⁸ These procurements extend the use

⁴⁷ Office of Rail and Road (2024) – **Table 6320 - Infrastructure on the mainline**

⁴⁸ Railway Technology (2023) – **Class 197 Diesel Multiple Unit (DMU), Wales, UK**

of diesel technology (with fleet life of new diesel vehicles expected to be around 30 years). **Going forward it will be important to consider diesel alternatives such as electric, battery, or hydrogen.**

- 3.3.35 Wales is actively investigating the potential of hydrogen-powered trains as part of its broader rail decarbonisation strategy. In 2022, the Welsh Government funded a feasibility study⁴⁹ led by Ballard Motive Solutions and Arup to assess the viability of deploying hydrogen trains on non-electrified routes. This work supports the Wales Hydrogen Pathway, which forms a key element of the Net Zero Wales 2021 to 2025 plan.
- 3.3.36 **Hydrogen technology is also being advanced** through initiatives such as the South Wales Industrial Cluster (SWIC), which is exploring hydrogen production and infrastructure across multiple sectors including transport. Although hydrogen trains are not yet operational in Wales, the UK's first hydrogen-powered train, HydroFLEX (Class 799), was approved for mainline testing in 2020.⁵⁰ Meanwhile, companies involved in hydrogen innovation are increasingly establishing a presence in Wales, contributing to the development of a green hydrogen economy.
- 3.3.37 TfW's annual report for 2024/2025 states that **31.7 million train journeys**⁵¹ were made on the network during the year, up a fifth from the previous year. This increase supports Wales' wider decarbonisation goals, as TfW continues to cut emissions per passenger-kilometre through electrification and hybrid train deployment. Whilst decarbonising rail remains important, achieving a modal shift from road to rail also remains an important focus, given rail's currently small share of overall transport. In order to encourage mode shift it is important that rail journeys compare favourably with the private car in terms of journey time, convenience and price.

Bus Decarbonisation

- 3.3.38 The Welsh Government has set an ambition for **all public service buses to be zero-emission by 2035**,⁵² with interim milestones including full decarbonisation of TrawsCymru long-distance routes by 2026 and replacing 50% of the most polluting buses by 2028. Progress to date is modest. Between 2022 and 2023, Wales had approximately 2,330 local bus and coach vehicles in operation,⁵³ as of early 2024, only 94 were battery-electric,⁵⁴ concentrated in Cardiff and Newport, where Cardiff Bus introduced 36 electric buses and Newport Transport operates 16, with plans to expand further. Electric vehicles have also begun serving TrawsCymru routes, such as the T1 Aberystwyth–Carmarthen service, and additional deployments are planned for North Wales.
- 3.3.39 **Hydrogen technology is emerging as a complementary solution** to battery-electric buses, particularly for routes with challenging terrain and longer ranges, which are more common in rural areas. Recent trials⁵⁵ in Neath Port Talbot and Bridgend have demonstrated strong performance and quick refuelling times, while the Welsh Government is planning a major pilot introducing 20 hydrogen buses in Swansea and up to 30 in Bridgend from 2025/26,⁵⁶ supported by **green hydrogen production and**

⁴⁹ Nation Cymru (2022) – **Study launched to assess viability of using hydrogen-fuelled trains in Wales**

⁵⁰ Department for Transport (2020) – **UK embraces hydrogen-fuelled future as transport hub and train announced**

⁵¹ Transport for Wales (2024) – **Annual Report 2024/2025**

⁵² Welsh Government (2022) – **Welsh Government Net Zero strategic plan**

⁵³ Welsh Government (2024) – **Public service vehicles (buses and taxis): April 2022 to March 2023**

⁵⁴ Route One (2024) – **Bus franchising in Wales is zero-emission catalyst, minister claims**

⁵⁵ Air Quality News (2023) – **A bus, using locally produced green hydrogen, starts trials in Bridgend**

⁵⁶ UK Government (2024) – **Green Hydrogen for Hydrogen Bus Pilot Scheme**

refuelling hubs. Transport for Wales also aims to deploy hydrogen buses on Swansea roads by 2027, aligning with the national target for a fully zero-emission bus fleet by 2035. These developments signal a strategic shift towards diversifying clean propulsion technologies to meet Wales' decarbonisation goals.

3.3.40 Bus patronage in Wales reached about 70 million local bus journeys in the year ending March 2025, up around 1 per cent year on year and 17 per cent higher than two years earlier.⁵⁷ Despite this recovery, usage remains below pre pandemic levels, with 91.7 million journeys recorded in 2019 to 2020. Wales' bus patronage has therefore recovered to about 76 percent of pre pandemic levels by the year to March 2025, with roughly 70 million journeys, while England is nearer 89 percent with 3.66 billion journeys.

Active Travel

3.3.41 Ensuring widespread access to high-quality, well-connected active travel routes is essential for promoting sustainable transport, encouraging modal shift and addressing climate change. Active travel in Wales is governed by the Active Travel (Wales) Act 2013, which places statutory duties on local authorities to plan, improve, and promote walking and cycling for everyday journeys. A central mechanism of the Act is the requirement for local authorities to develop and maintain Active Travel Network Maps (ATNMs),⁵⁸ which identify existing routes and set out future improvements. These maps must be reviewed and submitted to the Welsh Government every three years and are subject to public consultation.

3.3.42 The ATNMs serve as both a planning tool and a legal obligation, guiding infrastructure investment and ensuring that active travel routes are safe, coherent, direct, and accessible. Funding for these improvements is typically channelled through dedicated Welsh Government grants, and authorities are expected to demonstrate how proposed schemes align with their ATNMs and the broader aims of the Act. Currently Welsh Government focus, as set out in the consultation on revised Active Travel Act Guidance published in November 2025,⁵⁹ is on walking, wheeling and cycling and looks to utilise appropriate streets and footpaths as well as the dedicated networks which are shown on ATNMs.

3.3.43 Between 2018-19, when active travel funding became standalone, and 2023-24 the Welsh Government has invested £324,608,843 in active travel. Between 2019 and 2023, there has been an 8%.⁶⁰ increase in people living within a five minute walk of an active travel route (46.8%), suggesting that recent investment programmes may be starting to show some benefit. However, the data shows that on average, **more than half of people in Wales still do not live in suitable walking distance of an active travel route.**

3.3.44 Figure 3.8 shows that 52% of people in Wales walked or cycled at least once a week as a means of transport in the period 2022-23.⁶¹ Whilst active travel is on an upward trend, overall levels remain low.

Figure 3.8: Percentage of People in Wales who Walk or Cycle at Least Once per Week (%)⁶²

⁵⁷ Department for Transport (2025) – **Annual bus statistics: year ending March 2025**

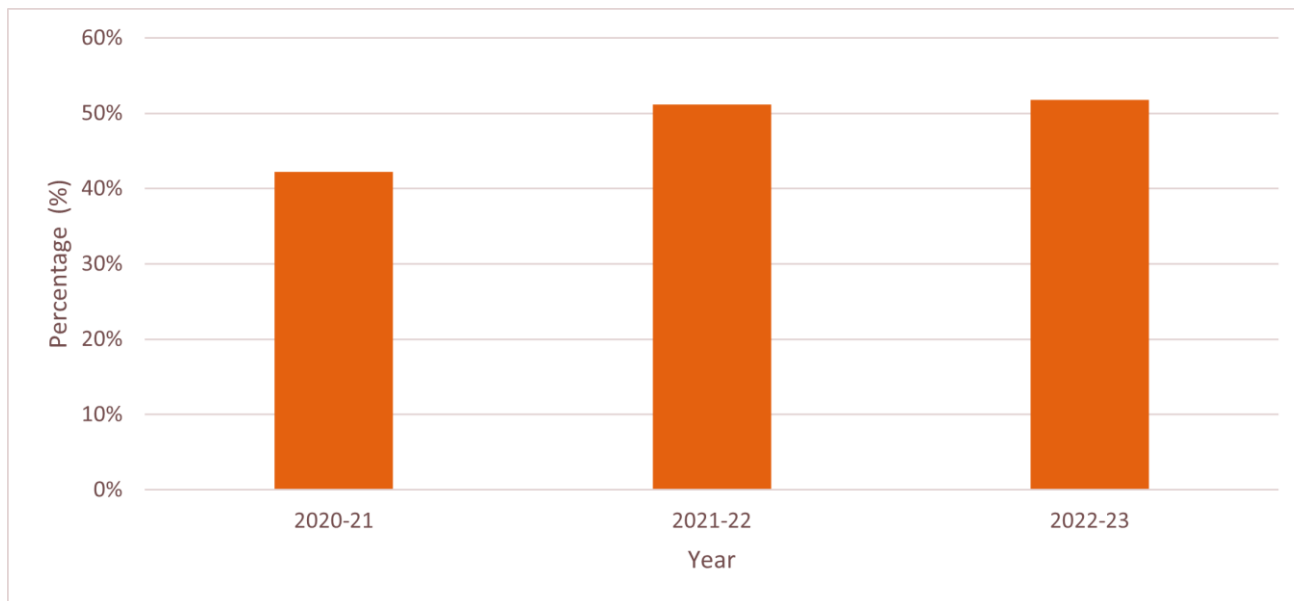
⁵⁸ DataMapWales (2022) – **Active Travel Network Maps**

⁵⁹ <https://www.gov.wales/written-statement-consultation-updated-active-travel-act-guidance>

⁶⁰ Transport for Wales (2023) – **Wales Transport Strategy: Monitoring Measures – Subsidiary Measure S3**

⁶¹ Transport for Wales (2023) – **Wales Transport Strategy: Monitoring Measures – Subsidiary Measure S4**

⁶² Welsh Government (2023) – **National Survey for Wales**



3.3.45 People living in urban areas of Wales are significantly more likely to walk for active travel than those in rural areas. Recent data⁶³ shows that 64% of urban residents walked for more than 10 minutes as a means of transport at least once a month, compared with 47% of rural residents. Daily walking rates also differ, with 20% of urban residents walking every day for active travel, compared to 13% in rural areas. These disparities highlight how **rurality influences active travel behaviour**, largely due to longer distances, limited infrastructure, and higher car dependency in rural communities.

3.3.46 The current policy and application of the sustainable transport hierarchy tends to overlook these practical issues (applying the same priorities to all areas), which are very relevant to large parts of Wales.

3.3.47 **Delivering active travel infrastructure currently faces significant challenges**, for example:

- Some active travel schemes can incur significant costs because achieving best practice design often requires extensive works, including substantial reallocation of carriageway space to achieve adequate segregation.
- Delivery of active travel improvements has often been controversial and politically challenging, particularly where these improvements result in a reduction of road capacity.
- Whilst there has been significant investment in capital schemes/infrastructure this has not been matched by investment in behavioural change. More needs to be done to encourage mode shift and to normalise walking and cycling for short journeys.
- Demonstrating value for money of active travel investment has been challenging, as traditional benefit cost analysis does not always fully capture environmental and social benefits.
- Typically, funding for active travel has also not considered the ongoing cost of upkeep and maintenance and has not factored in the need for future revenue spend.

⁶³ Welsh Government (2023) – **National Travel Survey for Wales: Active travel (walking and cycling)**

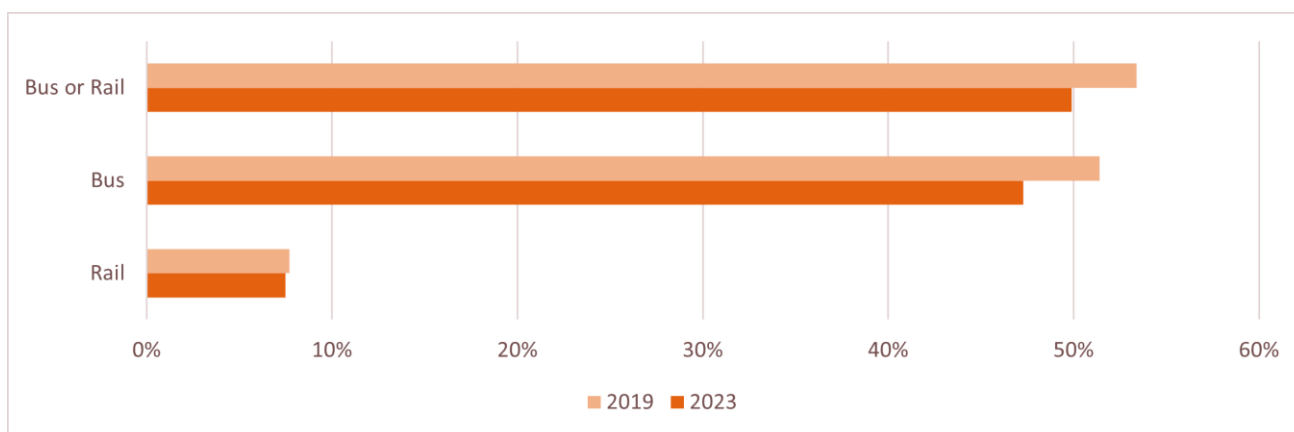
- 3.3.48 However, deliver of active travel routes brings a number of opportunities. For example, they can be an opportunity to integrate nature, planting and landscaping or sustainable urban drainage into built up areas, through sensitive design.
- 3.3.49 Under the new regional funding structure, funding will flow through consolidated settlements such as the City Region Sustainable Transport Settlements and the Transport for City Regions programme, which cover all modes including rail, bus and active travel. While the Consolidated Active Travel Fund provides dedicated capital and revenue for walking and cycling, there is potential for allocations to weaken as combined authorities gain discretion over priorities. **Large infrastructure projects risk overshadowing and displacing investment in active travel** highlighting the importance of robust value for money appraisal across all multi-modal initiatives.

3.4 Public Transport Integration & Accessibility

Accessibility to Public Transport

- 3.4.1 Accessible and well-integrated public transport that connects smoothly with other modes of transport is key to facilitating seamless journeys and encouraging sustainable travel. Welsh Governments ‘Travel for All’⁶⁴ approach recognises this and aims to improve accessibility and inclusivity on the transport network.
- 3.4.2 Figure 3.9 shows the percentage of people within walking distance of public transport. For this analysis, walking distance is defined as those within five minutes of an hourly bus service, or a ten minute walk of an hourly rail service.

Figure 3.9: Percentage of People in Wales within Walking Distance of Public Transport⁶⁵



- 3.4.3 The data shows that **public transport has become less accessible by foot**, reducing by 3.5 percentage points from 2019 to 49.9% in 2023. This change is largely driven by a fall in the number of people within walking distance of an hourly bus service (down 4.1 percentage points in 2023). Transport for Wales cite⁶⁶ that this change has been driven by a reduction in access to hourly bus services, suggesting that **reduced bus service coverage** has been the primary factor limiting easy access to public transport in recent years.

⁶⁴ Welsh Government (2025) – **Travel for All**

⁶⁵ Transport for Wales (2023) – **Wales Transport Strategy: Monitoring Measures – Subsidiary Measure S3**

⁶⁶ Transport for Wales (2023) – **Wales Transport Strategy: Monitoring Measures – Subsidiary Measure S3**

3.4.4 Public transport accessibility in Wales varies markedly between urban and rural areas due to population density and settlement patterns. Urban areas such as Cardiff, Newport and Swansea benefit from dense bus networks, frequent services and good rail connectivity, supporting higher levels of public transport use and satisfaction. In contrast, rural Wales accounts for around 80% of the land area but only one-third of the population, making frequent fixed-route services less viable and increasing car dependence, particularly for those without access to a private vehicle⁶⁷. The North Wales Transport Commission found that rural communities face persistent problems of infrequent services, short operating hours and weak connectivity to essential services, in contrast to urban and coastal corridor areas.⁶⁸

3.4.5 Importantly 'Travel for All' recognises that accessibility goes beyond frequency and proximity of services and that true accessibility depends on people being able to physically access the transport network and journey planning information and be able to afford to use transport services.

User Satisfaction

3.4.6 Data from the National Survey for Wales, published in December 2024,⁶⁹ indicates generally higher satisfaction levels among people who use bus services. Around two thirds of individuals who used the bus at least occasionally reported being satisfied. Satisfaction was highest among more frequent users, with 65% of those who travelled by bus at least once a week and 69% of those who used buses at least once a year (but less than weekly) stating they were either very or fairly satisfied. In contrast, satisfaction was markedly lower among people who did not use bus services at all, with only 38% reporting satisfaction, suggesting that perceptions among non-users are less positive than the experiences reported by users. Overall, when considering the entire adult population aged 16 and over, including both users and non-users, 52% of people were satisfied with bus services, while 23% were dissatisfied.

3.4.7 Train satisfaction varies by region and settlement type, according to findings from the National Travel Survey. The highest satisfaction levels were reported in South East Wales (59%) and North East Wales (57%), while Mid Wales recorded the lowest level at 36%. Satisfaction was higher in urban areas (59%) than in rural areas (48%), reflecting greater service availability.

3.4.8 When considering only people who reported having access to train services, this urban–rural gap narrowed (61% urban compared with 57% rural), and regional differences were reduced, with satisfaction at 62% in South East and North East Wales and 51% in Mid Wales. Overall, 55% of people were very or fairly satisfied with train services, while 18% were dissatisfied.

Rural Connectivity and Accessibility

3.4.9 **Public transport integration in rural Wales remains a core challenge**, with many areas offering infrequent or no services. The viability of rural bus routes for private operators remains economically challenging, which affects service provision and reliability. North to South connectivity is limited, for example, the T4 bus service, which previously connected Newtown to Cardiff, serving key Mid-Wales settlements along the A470 corridor, has recently been cut back and now only goes as far as Merthyr. Many journeys in parts of Wales, including North Wales, rural areas and the valleys, especially for

⁶⁷ Welsh Government (2024) – [Sustainable transport in rural areas: guidance for regional transport planning](#)

⁶⁸ Welsh Government (2023) – [North Wales Transport Commission: final report](#)

⁶⁹ Welsh Government (2024) – [Transport \(National Survey for Wales\): April 2022 to March 2023](#)

healthcare and tourism, are poorly served by public transport, leaving few practical alternatives to private car use.

3.4.10 Vehicle kilometres on local bus services (all Wales) fell from 106.7 million km in 2018–19 to 83.98 million km in 2022–23, a 21% reduction overall.⁷⁰ Moreover, it is reported that between 2018 and 2023 the public bus network in rural Wales reduced by around 45%,⁷¹ leaving many small communities increasingly isolated and with limited access to jobs, healthcare, education and social opportunities.

3.4.11 **In some rural areas the absence of bus services or a connected rail network means that private car use is often the only option**, locking in car dependency. Around a third of Wales’ population lives in rural areas⁷² and based on Census 2021⁷³ built-up area definitions, roughly two fifths live in small towns and villages with populations under 20,000, highlighting the reliance on local transport options in dispersed communities.

Reliability

3.4.12 Reliable and punctual public transport is essential for encouraging shift towards sustainable mobility and ensuring seamless integration with other modes of transport⁷⁴. 3.1 presents headline figures relating the percentage of bus and rail services that are on time in Wales. Bus timeliness is monitored by TfW through a third party; however data is incomplete, with only limited services covered within the data from 2021.

Table 3.1: Percentage of Bus and Rail Services on Time

Percentage of bus services on time (2023)	Percentage of TfW passenger rail services on time (2023-24) ⁷⁵	Percentage of freight rail services on time (2023-24) ⁷⁶
63.8%	77.3%	89.3%

3.4.13 In 2023, 63.8% of bus services were on time. This is down from 71.1% of services on time in 2022 and 81.3% of services in 2021, a fall of 17.5 percentage points since 2021.

3.4.14 For passenger rail, 77.3% of services were on time in 2023-24, a 0.1 percentage point increase from the previous year. However, TfW rail punctuality remains low, compared to the past five years. In 2020-21, passenger rail punctuality was as high as 92.1%.

3.4.15 Public transport punctuality in Wales appeared higher during 2020–21, which may have been influenced by reduced traffic volumes during COVID-19 restrictions, easing congestion and improving reliability for both bus and rail services. As travel demand has returned to pre-pandemic levels, maintaining punctuality has become more challenging, making service predictability a key concern.

⁷⁰ StatsWales (2023) – [Vehicle kilometres and passenger journeys on buses and coaches by year](#)

⁷¹ Wales Council for Voluntary Action (2025) – [The future of Welsh transport belongs to us all](#)

⁷² Welsh Government (2024) – [Sustainable transport in rural areas: guidance for regional transport planning](#)

⁷³ Office for National Statistics (2021) – [Towns and cities, characteristics of built-up areas, England and Wales: Census 2021](#)

⁷⁴ Transport for Wales (2024) – [Wales Transport Strategy: Monitoring Measures – Subsidiary Measure S9](#)

⁷⁵ Office of Rail and Road (2024) – [Table 3138 - Train punctuality at recorded station stops by operator \(periodic\)](#)

⁷⁶ Office of Rail and Road (2024) – [Freight rail usage and performance](#)

Measures to **give priority to buses and to manage congestion** to ensure buses remain reliable and bus journey times are reasonable, continue to be important.

- 3.4.16 To address this, **improving real-time passenger information and integrated ticketing is central** to the Welsh Government's strategy for a more reliable and user-friendly network. The Bus Reform Roadmap⁷⁷ explicitly commits to expanding real-time information at bus stops and interchanges and delivering integrated ticketing under the principle of "One Network, One Timetable, One Ticket". These measures aim to simplify journeys, enhance confidence in public transport, and ensure buses and trains remain competitive alternatives to private cars.

Demand Responsive Transport

- 3.4.17 Demand-responsive transport in Wales is centred around Fflecsi, operated by TfW. Demand Responsive Transport is a flexible, shared transport service that adjusts routes and schedules in real time based on passenger bookings, rather than following fixed routes or timetables, and Fflecsi follows these principles. Available in both rural and urban areas, Fflecsi allows passengers to book via app or phone, offering greater accessibility in places with limited traditional bus services. Independent evaluations have shown high user satisfaction and increased public transport uptake, particularly in underserved communities.
- 3.4.18 The Welsh Government sees demand-responsive transport as a key part of its future bus reform and rural mobility strategies,⁷⁸ with Fflecsi set to play an expanded role in connecting communities and supporting modal shift. Fflecsi has facilitated over 100,000 journeys since its launch and provides an average of 4,000 rides per week across Wales.
- 3.4.19 However, changing travel behaviour in rural and semi-rural areas remains challenging due to limited traditional public transport coverage. While demand responsive transport provides some solutions, **additional measures are essential to ensure these communities have sustainable and accessible mobility options**.
- 3.4.20 Community and voluntary transport providers play a vital role in meeting local mobility needs, particularly for isolated or vulnerable groups. Their contribution to demand-responsive services is essential, but these organisations often operate with limited resources. Sustained funding and strategic support will be critical to maintain and expand their capacity.

⁷⁷ Welsh Government (2025) – **Bus reform for Wales: our roadmap to franchising**

⁷⁸ Welsh Government (2024) – Sustainable transport in rural areas

3.5 Digital & Smart Transport Solutions

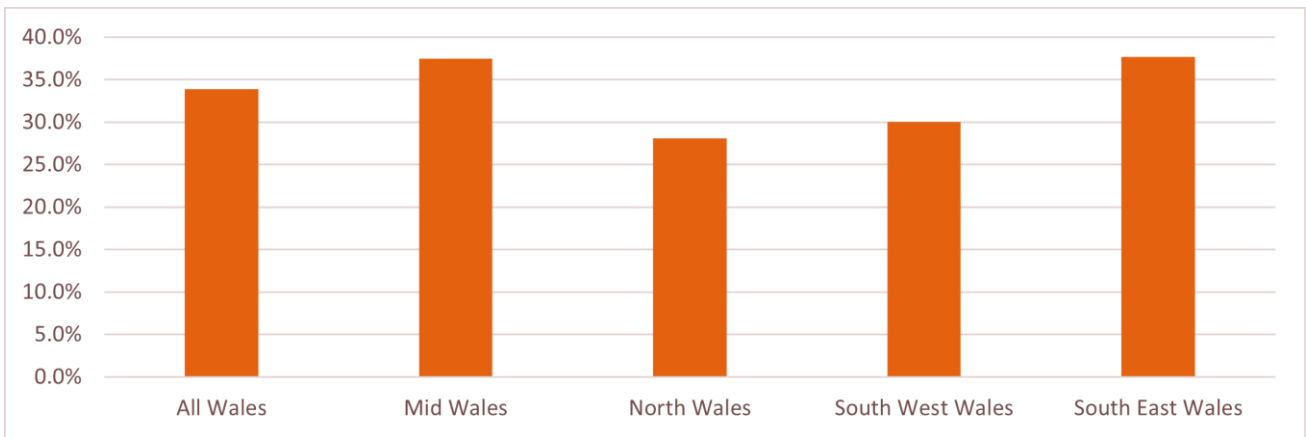
Integrated & Smart Ticketing

- 3.5.1 Recent improvements in the South Wales Metro area, including the introduction of tap-in tap-out technology at stations, demonstrate positive progress towards more user-friendly and digitally enabled transport. However, **challenges remain in achieving full integration** across modes and between operators. Fragmented ticketing systems and limited timetable coordination can still make multi-modal journeys less convenient and can have a large bearing on mode choice.
- 3.5.2 Enhancing service frequency and reliability could support better integration, though this depends on sustained investment. At present, **bus and rail services sometimes operate in competition** rather than complementarity, which can hinder seamless travel. The move towards bus franchising offers a promising opportunity to improve coordination, aligning services and ticketing to support a more coherent and connected network.

Reducing the Need to Travel

- 3.5.3 The Welsh Government has set a target of having 30% of the workforce working remotely on a regular basis⁷⁹. As telecommunications improve, it is hoped that this should reduce the need to travel, particularly at traditional peak travel times.
- 3.5.4 Figure 3.10 shows the percentage of the workforce who usually work remotely. The data collected as part of the National Survey for Wales for the period 2022-23⁸⁰.

Figure 3.10: Percentage of the Workforce who Usually Work Remotely (2022-23)



- 3.5.5 While increasing remote working has helped reduce the need to travel, challenges remain in achieving further reductions. The National Survey for Wales indicates that the overall target of 30% of the workforce working remotely has been met, but regional disparities persist. For example, North Wales has the lowest share of remote workers at 28.1%, whereas South East Wales reaches 37.7%. These variations reflect differences in job types, digital infrastructure, and economic profiles across regions. **Making sure that all areas benefit from reliable high speed internet is important** and vital for ensuring that remote working is a realistic and practical opportunity.

⁷⁹ Transport for Wales (2024) – **Wales Transport Strategy: Monitoring Measures – Key Measure M5**

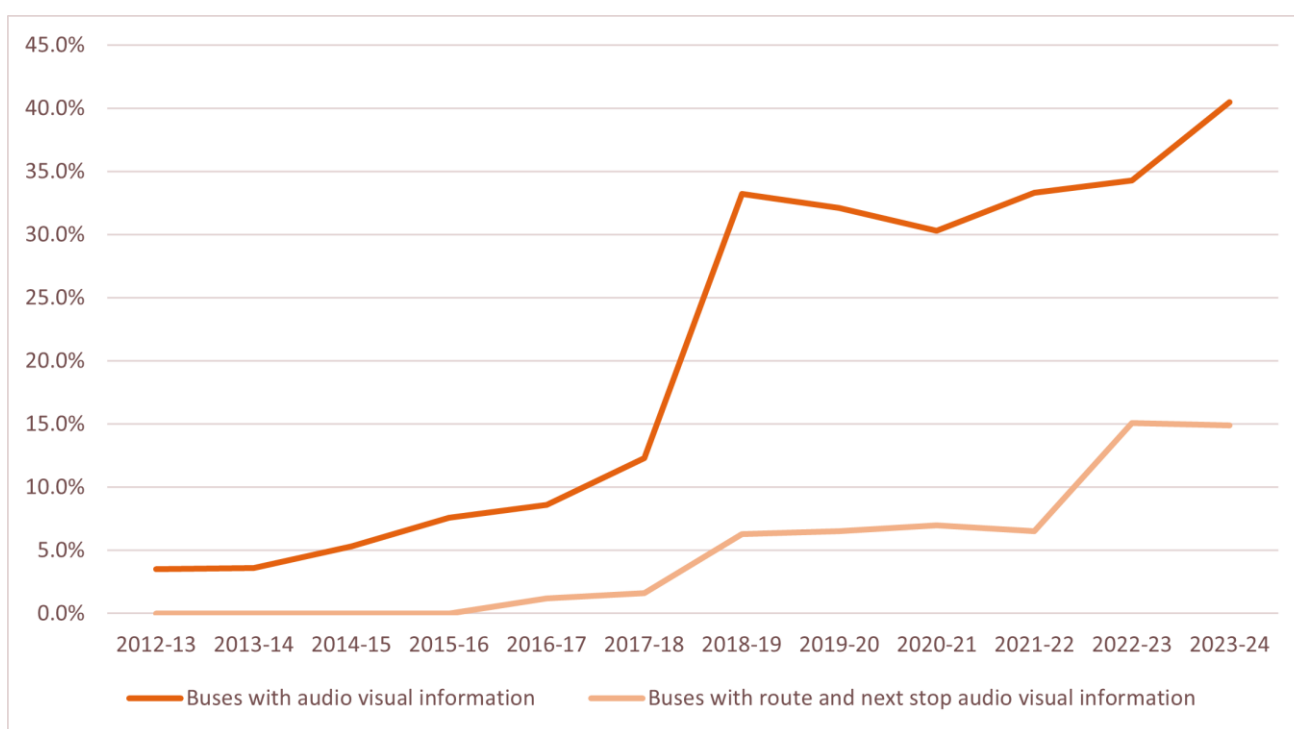
⁸⁰ Welsh Government (2024) – **National Survey for Wales**

In areas with lower remote working rates, commuting remains a necessity, limiting the potential to cut travel demand further and highlighting the need for targeted interventions to improve connectivity and support flexible work arrangements.

Digital Passenger Experience

3.5.6 As part of the shift towards intelligent and user-focused transport systems, the integration of audio-visual passenger information on buses and trains represents a key digital solution that enhances accessibility and supports a more inclusive public transport network. All of TfW’s operational trains have a public address system and audio visual information screens.⁸¹ Figure 3.11 shows the percentage of buses with audio visual information.

Figure 3.11: Buses with Audio Visual Information (%)⁸²



3.5.7 As of March 2024, 40.5% of buses in Wales have audio information to announce the next stop. There are fewer buses that provide extensive audio visual information. In 2023-24, 14.9% of buses in Wales had audio visual information for all route, direction, next stop and diversion information. Going forward, roll out of this digital functionality will help to improve user confidence and experience.

⁸¹ Transport for Wales (2024) – [Wales Transport Strategy: Monitoring Measures – Subsidiary Measure S14](#)

⁸² Department for Transport (2024) – [Vehicles Operated by Local Bus Operators \(BUS06\)](#)

3.6 Infrastructure Resilience & Climate Adaptation

3.6.1 Ensuring ongoing maintenance of the transport network is a key challenge for now and the future, particularly in the context of climate change.

Condition of Infrastructure

3.6.2 There are a significant number of assets that form part of the road and rail network across Wales. WTS Monitoring Measure S21⁸³ breaks transport infrastructure into five asset categories:

- Core Valley Lines (Maintained by TfW)
- Other Rail Track in Wales (Maintained by Network Rail)
- Structures on the Strategic Road Network (Maintained by Welsh Government)
- Pavement on the Strategic Road Network (Maintained by Welsh Government)
- Pavement on the Local Road Network (Maintained by Local Authorities)

3.6.3 Table 3.2 summarises the conditions of different assets, based on analysis published by TfW. It should be noted that several data sources have not been made public.

Table 3.2: Condition of Infrastructure in Wales by Asset Type

Percentage of rail track in good condition (Network Rail 2023-24, Core Valley Lines, 2025)	66%
Percentage of structures on the strategic road network in very good or good condition (2024)	33%
Percentage of pavement on the strategic road network in good condition (2023-24)	74%
Percentage of pavement on the local road network not in poor condition (2018-19)	90%

3.6.4 The data indicates that the majority of rail track in Wales and pavement on both strategic and local road networks are in good or acceptable condition. However, only 33% of structures on the strategic road network are rated as very good or good, highlighting a notable area of concern. **Strengthening infrastructure resilience will be essential** to address structural vulnerabilities and ensure long-term network reliability.

3.6.5 By comparison, the Office of Rail and Road reported that **96.5% of England’s strategic road network pavement was in good condition** in 2025 based on National Highways performance data⁸⁴, indicating that while Wales performs relatively well, overall road surface condition lags behind that observed in England.

3.6.6 At present, there is an **unsustainable maintenance backlog across road and rail networks**, including ageing structures such as bridges that were not designed for future climate conditions. These maintenance issues manifest in significant disruption for the transport network. For example, since

⁸³ Transport for Wales (2025) – **Wales Transport Strategy: Monitoring Measures – Subsidiary Measure S21**

⁸⁴ Office of Rail and Road (2025) – **Annual Assessment of National Highways’ performance: end of the second road period April 2020 to March 2025**

2022, acute issues have existed with the Menai Bridge, with full closures and weight restrictions having been implemented at various times. This has put strain on the transport system into and out of Anglesey, with only one Britannia Bridge available for road access at times. Maintaining the existing asset base is likely to require more resources than expanding it, and many routes rely on historic infrastructure such as old railways and canals, which demand ongoing specialist maintenance.

- 3.6.7 Maintaining transport infrastructure assets in Wales is becoming increasingly challenging due to constrained funding and the growing impact of extreme weather events. Transitioning from reactive to proactive maintenance requires **longer-term funding cycles** yet current grant structures and formula-based mechanisms hinder investment in resilience. At the same time, local authorities face severe resource limitations, restricting their capacity to plan and implement essential adaptation measures.
- 3.6.8 Currently, there is no unified approach to tracking this backlog across Wales. A consistent monitoring framework is needed. This should be **supported by digital asset management technologies** that collect, integrate and analyse condition data across the network. Working in collaboration with Local Authorities and infrastructure owners, this approach will help prioritise investment, manage risk and ensure the long-term resilience of the transport network.
- 3.6.9 A relevant comparator is England, where National Highways has adopted a digitally enabled approach to asset monitoring and maintenance through its **Digital Roads programme**.⁸⁵ Integrated digital asset management systems, real-time condition data and predictive analytics are used to understand asset condition across the Strategic Road Network and prioritise interventions more effectively. This has supported a shift from reactive maintenance to proactive, risk-based investment planning, improving network resilience, value for money and asset life, and provides useful lessons for developing a more consistent, network-wide asset monitoring framework in Wales.

Climate Resilience

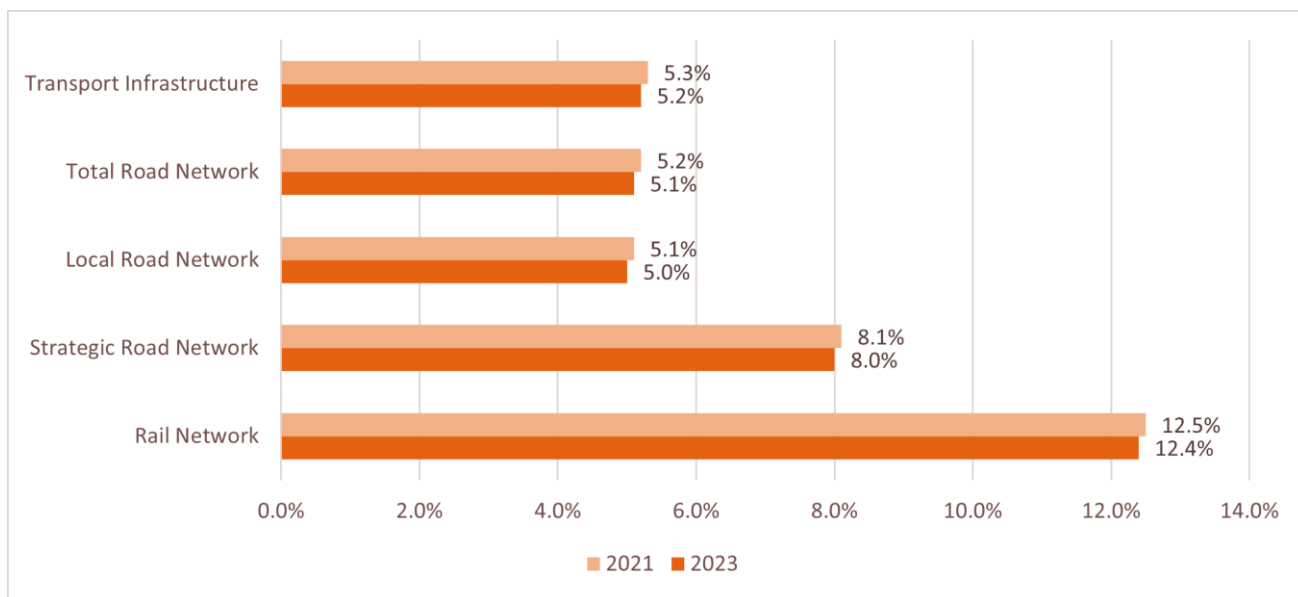
- 3.6.10 Climate change is already affecting Wales' transport network, with increased flooding, landslides, and storm damage causing major disruptions. Comprehensive data/mapping is not readily available, but there are multiple examples, for example:
- The Conwy Valley Line being closed for over 500 days in the past 10 years due to repeated storm events;
 - The River Dyfi bridge was replaced after frequent flooding left communities isolated; and
 - The B5605 road near Wrexham was closed for over four years due to a landslide caused by Storm Christoph in 2021.
- 3.6.11 Older infrastructure, especially drainage systems in the many valleys of Wales, struggle to cope with heavier rainfall. **Climate change is already disrupting Wales' transport network**, with landslides, flooding, and storm damage causing long-term closures and costly repairs. These incidents highlight the growing vulnerability of critical infrastructure across the country. The provision of safe, accessible and a well-maintained transport system is vital to ensure that the transport infrastructure is future-proofed to adapt to the challenges of climate change.
- 3.6.12 HGVs while representing a relatively small proportion of total traffic, **contribute significantly to pavement deterioration, bridge loading and whole-life maintenance costs**, accelerating asset wear on both strategic and local road networks. As climate risks intensify, heavier freight vehicles are likely to

⁸⁵ National Highways (2025) – **Digital Roads**

exacerbate damage to vulnerable assets, meaning infrastructure resilience planning must explicitly consider freight demand, targeted maintenance and opportunities for modal shift to rail.

3.6.13 Figure 3.12 shows the percentage of transport infrastructure at high or medium risk of flooding for the years 2021 and 2023.⁸⁶

Figure 3.12: Percentage of Transport Infrastructure at High or Medium Risk of Flooding (2021 and 2023)



3.6.14 The graph shows that minor progress has been made across the transport infrastructure in terms of flooding resilience, with each breakdown reducing by 0.1 percentage point. The rail network has the largest share of infrastructure at risk of flooding (12.4%), followed by the strategic road network (8%). The local road network has the lowest share that is at risk of flooding, at only 5%. Going forward a key challenge will be to ensure that the rail and road network are resilient enough to withstand flood events (which will become more frequent with climate change).

3.6.15 While flooding remains a significant climate resilience challenge for transport infrastructure, it is not the only concern. Rising temperatures also pose risks, particularly for road networks, where prolonged heat can soften and degrade asphalt surfaces, leading to rutting, cracking, and potholes. These conditions can further affect the underlying soil through expansion and contraction, increasing maintenance requirements and costs. Together, these issues highlight the need for a comprehensive approach to climate adaptation across all modes of transport and imply a need for appropriate investment.

⁸⁶ DataMapWales (2023) – Flood Risk Assessment Wales

3.7 Summary

3.7.1 Table 3.3 provides a SWOT analysis of the Welsh transport sector, drawing on the reviewed baseline performance data to highlight its current strengths, weaknesses, opportunities and threats.

Table 3.3: Transport Sector SWOT Analysis

Strengths	Weaknesses
<ul style="list-style-type: none"> - Clear national policy direction through the WTS and Net Zero Wales targets. Bold vision and strong leadership shown. - Strong legal framework for active travel. - Investment in integrated public transport (e.g. South Wales Metro). - Innovative pilots such as Fflecsi improving rural connectivity. - Overall carbon emissions from the transport sector are on a downward trend. - Increasing alignment between transport, climate, and land-use planning policies. 	<ul style="list-style-type: none"> - Continued lack of integration between transport and land use planning decisions, leading to unsustainable development patterns - Ageing road infrastructure and maintenance backlog. - Rail and bus network with reliability challenges. - Difficulty of providing genuine mode choice in rural areas. - Low EV charging point density across Wales, limiting uptake and practical difficulties of delivery. - Most of the rail network in Wales is not electrified, constraining decarbonisation and performance improvements. - Funding constraints limiting delivery of large-scale projects. - Rural areas heavily dependent on cars.
Opportunities	Threats
<ul style="list-style-type: none"> - Expansion of active travel infrastructure supported by updated ATNMs. - Digital innovation in journey planning, ticketing, asset management and freight logistics. - Accelerating EV adoption and investment in public charging networks, especially in rural areas where coverage is currently limited. - Integration of climate resilience measures into infrastructure upgrades. - Potential modal shift from WeITAG 2025 and Roads Review policies. - Emerging hydrogen fuel projects for public transport. - Rail freight offers a major decarbonisation opportunity, with much lower emissions per tonne-kilometre than road haulage. 	<ul style="list-style-type: none"> - Climate change impacts on infrastructure (e.g. flooding). - Resistance to modal shift policies from some communities and / or businesses. - Risk of underinvestment if UK or Welsh budgets tighten. - Technological uncertainty around hydrogen viability for widespread transport use.

4 Future Vision

4.1 Short Term

4.1.1 The short-term vision and aspirations for Wales' transport sector will be shaped primarily by the WTS, which sets a framework through to 2040, alongside Net Zero Wales and the principles of the Well-being of Future Generations (Wales) Act 2015. This legislation requires public bodies to think long-term and create sustainable, equitable systems that improve the social, economic, environmental, and cultural well-being of Wales. As a result, transport policies must not only reduce carbon emissions but also enhance health, reduce inequalities, and build resilient communities for generations to come. These documents fix the approach in the short term

4.1.2 The WTS vision is for:

“An accessible, sustainable and efficient transport system”

4.1.3 The Strategy's targets are ambitious and align with the direction of travel that should be followed in the short term. It includes raising sustainable travel modes to 45% of all journeys by 2045 and reducing average car miles per person by 10% by 2030. Increasing active and public transport use to 39% by 2030 will support these climate targets while promoting healthier lifestyles and improved air quality. These are key outcomes aligned with the Well-being Act's goals of a healthier Wales and a more equal society.

4.1.4 To meet these aims, Wales plans to transform its transport network by reducing reliance on private cars and expanding walking, cycling, and public transport options. Investments in the Burns recommendations, and the three Metro projects, alongside rail electrification and integrated ticketing systems, will create more accessible, affordable, and connected transport choices. These developments support the Act's emphasis on creating cohesive communities and ensuring that everyone benefits from improved services. However, achieving the ambition to treble public transport usage will require a substantial uplift in both capital and revenue funding.

4.1.5 Decarbonisation efforts will be central to this vision, including expanding electric vehicle infrastructure, rolling out zero-emission buses and trains, and exploring hydrogen technologies for heavier transport modes. These actions align with the Well-being Act's principle of a globally responsible Wales by addressing climate change while enhancing local air quality and health outcomes. Infrastructure improvements will also focus on resilience to climate impacts, ensuring that transport systems remain reliable and safe amid increasing environmental challenges.

4.2 Medium and Long Term

4.2.1 The transport sector in Wales must evolve to meet the twin challenges of environmental sustainability and economic competitiveness over the next 15 to 50 years. With climate change posing a significant threat to communities, infrastructure, and ecosystems, reducing emissions from transport is essential to achieving national and global net-zero commitments. This requires a decisive shift towards cleaner modes of travel, integrated networks, and resilient infrastructure that can withstand future climate

impacts. At the same time, technological innovation will play a critical role in shaping a more efficient and connected system. Advances in digital platforms, smart traffic management, and low-emission vehicle technologies offer opportunities to optimise energy use, reduce congestion, and improve accessibility across both urban and rural areas.

- 4.2.2 Beyond the immediate and short term and beyond the existing WTS, the vision for Wales' transport system should support its evolution into **a fully integrated, low-carbon network that prioritises resilience, inclusivity, and innovation**. The focus should shift from incremental improvements to transformative change, embedding sustainability into every aspect of mobility. This means creating seamless connections between modes, supported by smart digital platforms and real-time data, so that public transport, active travel, and shared mobility become the default choices for most journeys. Infrastructure will be designed to withstand climate impacts, ensuring reliability and safety for future generations while reducing dependency on fossil fuels.
- 4.2.3 Over the longer horizon, Wales should embrace new fuel types, emerging technologies and new models of mobility to deliver a transport system that is adaptive and future-ready. Autonomous and connected vehicles, renewable-powered freight solutions, and advanced energy storage will strengthen and extend the reach of public transport networks. Investment will also prioritise equitable access, ensuring rural and urban communities alike benefit from affordable, efficient, and sustainable travel options. By aligning innovation with the principles of the Well-being of Future Generations Act, **Wales can create a transport ecosystem that not only meets net-zero targets but also enhances quality of life, economic competitiveness, and global responsibility**.

5 Future Challenges – Short Term

- 5.1.1 Over the next 5-15 years, the transport sector in Wales must continue to make focused progress toward the goals outlined in the WTS, which sets the strategic direction through to 2040. This period should focus on implementing practical steps to reduce car dependency, improving access to public transport, and supporting more sustainable travel choices. The WTS outlines a vision for a transport system that is better integrated, low-carbon, and focused on people and communities, with an emphasis on reducing the need to travel and encouraging a shift to more sustainable modes.
- 5.1.2 Key priorities during this period include the **continued development of Metro systems** in South East, North, and Southwest Wales, designed to improve regional connectivity and make public transport more attractive and accessible, and the delivery of the Burns Report recommendations. The Bus Reform Programme will support a **more coordinated, publicly controlled bus network** with simplified fares, integrated ticketing, and more consistent service standards. Investment in active travel infrastructure will also remain central, delivered through Local Authorities under the Active Travel (Wales) Act 2013. Ensuring that these projects and schemes progress is important.
- 5.1.3 To support the shift away from fossil-fuel vehicles, the Welsh Government must continue expanding **EV charging infrastructure** in line with the EV Charging Strategy for Wales, helping to remove barriers to zero-emission vehicle adoption. This will become increasingly important as new vehicles are required to be emission free from 2035.
- 5.1.4 These efforts are aligned with the commitments set out in Net Zero Wales Carbon Budget 2, which identifies transport as one of the highest-emitting sectors and sets out a clear expectation for change. Notably, this includes a target for 45% of all journeys to be made by sustainable modes by 2040, as well as short-term measures such as the continued rollout of 20mph default speed limits, exploration of road user charging, and road space reallocation to prioritise sustainable transport.

5.2 Key issues

- 5.2.1 During this period, the transport sector in Wales will face a number of significant challenges as it works to meet the priorities set out in the WTS, Net Zero Wales, and the Well-being of Future Generations Act. The top priorities, look likely to need to be delivered within a context of **constrained budgets, rising costs, and competing demands on public investment**. The urgency of climate action means the sector has little room for delay, but major infrastructure upgrades such as metro systems, rail electrification, and widespread EV charging networks require long lead times and substantial capital and bring related challenges, such as the availability of sufficient clean electricity.
- 5.2.2 The next decade will be decisive for creating an integrated public transport system that is reliable, affordable, and inclusive. Integration of timetables, ticketing, and physical interchanges should be prioritised to **make public transport a practical alternative to private cars**. This may require governance reforms such as bus franchising and regional coordination through CJs, alongside investment in infrastructure that supports seamless connections between modes. This is likely to also require management of congestion to ensure public transport journey times are reasonable and reliable. Without these measures, rural communities risk being left behind, deepening inequalities and limiting progress toward modal shift targets.

- 5.2.3 Active travel funding in Wales is likely to face several emerging threats in this period, particularly as CJsCs begin pooling transport budgets at the regional level. While this approach aims to streamline investment and improve strategic planning, there are concerns that **active travel, especially walking and cycling infrastructure, may lose visibility and priority within broader transport portfolios**. The lack of clear ringfencing and transparency in how funds are allocated raises the risk that active travel projects could be deprioritised in favour of larger-scale road or public transport schemes. Additionally, variations in capacity and commitment across regions may lead to inconsistent delivery, undermining active travel ambitions.
- 5.2.4 If a failure to deliver sustainable transport exists, this will be exacerbated in the short term as Wales continues to grow. There is a risk that **existing patterns of car-dependent development will be entrenched**, with new communities lacking convenient access to sustainable transport. This would lead to increased traffic congestion, higher carbon emissions, and greater pressure on road infrastructure. Delays or failures in delivering transit infrastructure, particularly rail, may also result in missed opportunities for economic growth and regeneration around transport hubs. Ongoing fragmentation and limited collaboration among key stakeholders could perpetuate inefficiencies and funding challenges, making it harder to create sustainable communities.
- 5.2.5 **Securing sufficient funding and investment remains one of the foremost challenges for the North Wales and SB&W Wales Metro programmes**. Assembling the necessary capital and operational resources often requires complex coordination between the Welsh Government, UK Government, local authorities, and private partners. This can lead to uncertainties around project timelines and the scale of improvements achievable. In addition to traditional public-sector funding, potential investment opportunities could include private or development-led contributions, land value capture, joint development associated with stations, and alternative financing models. However, these sources are inherently more uncertain and can create additional risks for project delivery, including impacts on programme timescales and the scale of enhancements that can be achieved.
- 5.2.6 A key challenge will be changing travel behaviour in a country where private car use remains dominant, especially in rural and semi-rural areas with limited public transport coverage. Achieving the 39% sustainable mode share by 2030 will require both **infrastructure improvements and deep cultural change**, supported by consistent messaging and reliable alternatives. Political consensus will be critical; sustainable transport policies such as 20 mph zones and road investment reviews can be controversial and maintaining public and stakeholder support will be essential for long-term success.
- 5.2.7 The sector will also need to manage network resilience and equity. Climate change is already increasing the frequency of extreme weather events, putting roads and railways at risk of disruption. At the same time, there is a need to ensure that decarbonisation and service improvements benefit all communities, not just urban centres. This means tackling **accessibility gaps in rural areas**, ensuring affordability, and making the transition to net zero transport an inclusive process. Within the wider UK and international context, Wales must balance its own ambitious climate and well-being commitments with the realities of shared cross-border infrastructure and supply chains, ensuring its transport system is fit for purpose while contributing to the UK's overall net zero and economic resilience goals.
- 5.2.8 If Wales does not deliver the transport changes set out in the WTS, Net Zero Wales, and in line with the Well-being of Future Generations Act, the risks are both immediate and long-term. The most pressing risk is failing to meet climate commitments. Despite being on a long-term gradual decline,

transport remains one of the largest sources of greenhouse gas emissions in Wales; **without significant reductions, the country risks breaching its statutory carbon budgets**. This would undermine the Act's goal of a "globally responsible Wales" and could damage Wales' credibility in UK and international climate policy.

- 5.2.9 There is also the risk of worsening public health and inequality. If car dependency remains high and sustainable travel options do not expand, air pollution, traffic collisions, and sedentary lifestyles could continue to impact health, disproportionately affecting lower-income and vulnerable communities. This would run counter to the Act's goals of a "healthier Wales" and a "more equal Wales.", particularly where transport systems continue to implicitly favour private car use, despite significant variation in car access and ability to bear costs across different communities.
- 5.2.10 A failure to invest in resilience could leave transport networks more vulnerable to climate impacts such as flooding, heat damage, and storm disruption, increasing costs and reducing reliability. In turn, this could harm economic competitiveness, reduce access to jobs and services, and weaken community cohesion, directly opposing the Act's ambitions for "cohesive communities" and "prosperous Wales."

5.3 Opportunities

- 5.3.1 The most immediate opportunity lies in accelerating modal shift through integrated public transport and active travel networks. With the Welsh Government's commitment to bus franchising and the **"One Network, One Timetable, One Ticket"** vision, there is scope to create a seamless, affordable, and digitally enabled public transport system.⁸⁷ This includes the rollout of Mobility as a Service (MaaS) platforms, real-time data integration, and multimodal ticketing, which will make sustainable travel more attractive and convenient. Coupled with the expansion of Metro systems in South Wales and North Wales, these initiatives can significantly reduce car dependency, improve accessibility, and support economic regeneration in both urban and rural areas.
- 5.3.2 The **South Wales Metro can act as a blueprint for public transport transformation** in Wales, demonstrating the value of integrated planning, partnership working, and investment in frequent, reliable services. Its' success in connecting the Valleys to Cardiff highlights how coordinated infrastructure upgrades can deliver tangible benefits for residents, businesses, and the wider economy. As North Wales, Swansea Bay, West Wales, and areas identified in the Burns Report look to develop their own Metro schemes and new stations, the lessons learned from the South Wales Metro provide a pathway for delivering regionally tailored transport solutions across the rest of Wales.
- 5.3.3 Another major opportunity is in decarbonisation and infrastructure resilience. The short-term horizon will see growth in EV charging infrastructure, supported by the Welsh Government's EV Charging Strategy, and the improvement of key rail corridors under the UK's **£445m rail investment pledge**.⁸⁸ These upgrades will not only cut emissions but also stimulate green jobs and supply chains. Additionally, targeted investment in climate adaptation measures such as flood-resilient road and rail assets, Sustainable Drainage Systems (SuDS), and predictive maintenance using digital twins. This

⁸⁷ Transport for Wales (2025) – **Our Roadmap to Bus Reform**

⁸⁸ HM Treasury (2025) – **Press Release: Chancellor pledges at least £445 million of rail investment as part of biggest ever Welsh funding boost**

will offer a chance to future-proof critical infrastructure while reducing long-term costs. Freight decarbonisation through rail freight hubs and zero-emission logistics zones also presents a strategic opportunity to strengthen Wales' role in low-carbon supply chains.

- 5.3.4 A number of short-term “quick wins” can help accelerate progress towards the Wales Transport Strategy, Net Zero Wales, and the Well-being of Future Generations Act, while building public confidence in the longer-term vision. Upgrading small-scale infrastructure, such as bus shelters, rail station accessibility, real-time information displays, and secure cycle storage, can make sustainable travel more convenient and appealing. Low-cost, high-impact improvements active travel, including safe crossings, improved lighting, and 20 mph speed limits in urban areas, can quickly encourage mode shift and support health and equality objectives.
- 5.3.5 In addition, measures to improve bus reliability and affordability, such as increased service frequency, simplified or capped fares, and integrated ticketing across bus and rail networks, can make public transport more attractive and accessible. Bus franchising may facilitate these quick wins. Behaviour change campaigns, including public engagement programmes and e-bike loan schemes, can drive immediate change.
- 5.3.6 Collectively, these quick wins are relatively low-cost, strongly align with the Well-being Act's principles of long-term thinking and preventative action, and can deliver early benefits on climate, health, and equality while larger, structural changes are implemented.

6 Future Challenges – Medium to Long Term

- 6.1.1 This section considers the likely medium (15-50 years) and longer term (50-80 years) challenges and issues for the transport sector in Wales which the Welsh Government should seek to plan for in order to address.

6.2 Relationship with Land Use Planning

- 6.2.1 If transit-oriented development is not prioritised in the medium to long term, and existing communities continue to be underserved by public transport, **Wales risks locking in car-dependent land use patterns** that will be increasingly difficult and costly to reverse. As both new and established neighbourhoods remain disconnected from high-quality transit, opportunities to retrofit sustainable infrastructure diminish, compounding unsustainable travel habits and limiting access to greener mobility choices.
- 6.2.2 Over the next 15 to 80 years, the absence of effective transit-oriented development and improved public transport for existing communities could entrench regional inequalities in Wales, with areas lacking reliable transit increasingly unable to attract investment or retain skilled workers. Over generations, vulnerable groups may become even more isolated and excluded from opportunities, while continued car dependence would accelerate environmental decline through higher emissions and diminishing green spaces in urban areas. Collectively, these long-term trends could undermine Wales' economic competitiveness, erode social cohesion, and jeopardise progress towards enduring climate and public health goals.

6.3 Decarbonisation and Sustainability

- 6.3.1 In the medium and longer term, Wales must accelerate the transition to low-emission transport modes while embedding sustainability into every aspect of planning and delivery. This is likely to require strong **alignment between transport and land-use strategies**, ensuring new developments plan transport improvements in a way that is sensitive to the local environment (for example avoiding routes through areas of high biodiversity) and prioritise access to sustainable travel options. Governance and funding structures should **support long-term investment cycles rather than short-term allocations**, enabling large-scale programmes such as rail electrification and zero-emission vehicle infrastructure to progress efficiently. Behavioural change remains a critical challenge; without consistent messaging and practical alternatives, car dependency may persist, undermining climate goals.
- 6.3.2 Looking further ahead, the emphasis should shift from incremental improvements to systemic transformation. This could involve the **normalisation of shared mobility, active travel, and public transport as default choices**, supported by integrated planning and equitable investment across urban and rural areas. Strategic decisions taken in the next decade could determine whether the country locks in unsustainable patterns or creates a foundation for affordable, low-carbon mobility. Failure to act decisively is likely to result in escalating costs and disruptive interventions later in the century.

6.4 Public Transport Integration and Accessibility

- 6.4.1 In the medium term, Wales should build further on the ‘Travel for All’ approach and focus on consolidating and expanding integrated public transport systems to ensure resilience and inclusivity as demand grows. **Building on short-term improvements**, this phase should deliver fully integrated ticketing, comprehensive real-time travel information, and seamless connections between bus, rail, and emerging mobility services. Accessibility must go beyond compliance, **embedding universal design principles** in all infrastructure upgrades, including step-free stations, low-floor vehicles, and enhanced wayfinding. Strategic investment in regional interchange hubs and demand-responsive services will be **critical to link rural areas with major corridors**.
- 6.4.2 By mid-century, demographic changes such as an aging population and urban growth could place additional pressure on capacity and accessibility. Public transport will need to provide universal access for older and disabled users, supported by first and last-mile connections and high-quality active travel routes. Planning frameworks should seek to **embed transit-oriented development principles** to ensure housing and employment growth aligns with sustainable transport corridors. If these improvements are not achieved, Wales could lose vital opportunities to strengthen its economy and ensure equal access to transport for all communities.

6.5 Digital and Smart Transport Solutions

- 6.5.1 Digital innovation is anticipated to play a central role in shaping the efficiency and attractiveness of transport systems in the medium term. Integrated ticketing, real-time information, and user-friendly platforms should become standard to compete with private car convenience. These solutions should be complemented by Mobility as a Service (MaaS) platforms and predictive analytics to optimise operations and reduce costs. If Wales does not invest in digital infrastructure during the 2030s, the transport system may become increasingly fragmented, limiting uptake and undermining decarbonisation efforts.
- 6.5.2 Longer term, automation and smart operations may offer opportunities to improve safety, reduce congestion, and enhance user experience. However, these benefits depend on early investment in **inclusive design and rural connectivity** to avoid a digital divide. Wales should also **explore emerging technologies such as hydrogen and advanced energy storage** to support freight and heavy transport. Without proactive planning, technological advances could remain unevenly distributed, leaving vulnerable users and remote communities behind.
- 6.5.3 Moreover, reducing the need to travel could emerge as a central strategy for managing demand and supporting sustainability. Advances in digital connectivity, remote working, and virtual service delivery has the potential to allow **more activities to be carried out without physical journeys**, easing pressure on transport networks and lowering emissions. Wales should build on current trends by promoting flexible work arrangements, investing in high-quality broadband, and creating local hubs that enable people to work and access services closer to home. Over time, this approach could complement modal shift by reducing overall trip volumes, improving quality of life, and supporting the Well-being of Future Generations Act’s goals for healthier, more cohesive communities.

6.6 Infrastructure Resilience and Climate Adaptation

- 6.6.1 The resilience of transport infrastructure is expected to become a critical issue as climate impacts intensify. Wales must embed adaptation measures into renewal programmes and adopt design standards that anticipate future conditions. This includes nature-based solutions such as planting vegetation along embankments to reduce flood risk and soil erosion, modular construction techniques, and predictive maintenance using digital tools.
- 6.6.2 There may be a growing need for governance and funding structures to transition from reactive repairs to proactive investment, underpinned by cross-sector collaboration and long-term resource planning. Without these changes, cumulative weather shocks may outpace maintenance budgets, leading to frequent disruptions and escalating costs.
- 6.6.3 By mid-century, rising sea levels and more severe weather events are anticipated to threaten coastal and riverside assets, requiring strategies for managed realignment and alternative routes. Adaptive planning approaches will be essential to ensure readiness without over-investing in measures that may not ultimately be required. Failure to act could result in structural failures, loss of connectivity, and significant economic and social consequences. Wales should prioritise resilience now to safeguard its transport network for future generations.

7 Key Challenges and Next Steps

- 7.1.1 Transport is central to Wales' economy, communities, and cultural identity. It is essential to create a resilient, sustainable transport system that supports connectivity, reduces emissions, and meets the needs of people and businesses now and in the future.
- 7.1.2 This assessment provides an overview of the challenges facing the transport sector in Wales. It considers both immediate pressures and long-term trends to ensure that responses are strategic and forward-looking.
- 7.1.3 Table 7.1 identifies the most significant cross-cutting issues with the most far-reaching consequences for the sector. For each issue, it outlines pathways for Welsh Government to explore further or progress, including areas for research, policy development, and collaborative action. These pathways are designed to inform evidence-based decision-making and support the creation of a resilient, sustainable transport system for Wales.
- 7.1.4 The issues shown in Table 7.1 were assessed using a prioritisation framework which considered:
- Cross sector benefits – this considered the extent to which tackling the issue would benefit the Water, Energy, Digital, or Circular Economy infrastructure sectors also considered by this review.
 - Relevance to NICW remit – in particular looking at whether the issue identified fits within NICW's remit to consider long-term issues, and whether NICW could be able to add value/influence.
 - Contribution to/alignment with the 7 Well Being goals
 - Stakeholder acceptability, and whether the issue correlates well with feedback from stakeholders
 - Deliverability, considering whether the issue is realistically deliverable
 - Cost and benefit
- 7.1.5 The issues which ranked the highest in this prioritisation exercise are shown as first part of Table 7.1. Whilst all the issues identified in this review are important it is recommended that Welsh Government consider acting on these top priority issues
- 7.1.6 An assessment of the priorities highlighted in Table 7.1 and the wider issues identified in this report against the NICW framework is presented in Appendix A. This shows strong alignment between the findings of this report and the remit and focus of NICW.

Table 7.1: Priority issues and potential actions for the transport sector in Wales

Theme	Priority Issue	Pathway	Timeline	Current baseline	Responsibility
Top priorities					
Infrastructure Resilience and Climate Adaptation	Funding and resource constraints, particularly amongst Local Authorities, already limit maintenance and climate adaptation efforts, while the increasing frequency of extreme weather events further exacerbates these challenges. Future schemes must be designed to be resilient to climate change, and resilience specific interventions are required to adapt to its implications.	Assess both short and long-term funding needs, prioritise resilience-focused investment, and explore cost-effective maintenance strategies that have strong regard to climate risk. Explore options to strengthen local authority capacity by pooling resources, providing targeted funding, and developing shared expertise for adaptation planning.	Short, Medium & Long	Only 33% of structures on the strategic road network in very good or good condition (2024) The rail network has the largest share of infrastructure at risk of flooding in 2023 (12.4%), followed by the strategic road network (8%). There is a need for further risk assessment to capture wider climate related impacts, including heat related damage to infrastructure as well as flooding.	Welsh Government are responsible for allocating funding amongst Local Authorities, CJs and TFW. Individual Local Authorities are responsible for allocating where funding is spent and CJs will develop a role for some capital projects going forward. TFW are responsible for allocating their budget unless capital funding is directed to specific projects.
Public Transport Integration and Accessibility	Bus and rail services lack effective integration, often competing for ridership rather than being effectively integrated to deliver a seamless and complementary transport network. Limited existing utilisation of digital capabilities contributing to rural/urban divide. Public transport integration and provision in rural areas remains limited, with many areas offering infrequent or no services, contributing to increased car dependency.	Ensure bus franchising is deployed as planned and leverage it as an opportunity to improve coordination with rail, establish integrated timetabling and ticketing frameworks, and pilot joint service planning to deliver a seamless network. Explore models to improve rural public transport integration by commissioning feasibility studies, piloting demand-responsive services, and engaging local communities to identify practical solutions.	Short-Medium	49.9% of people live in walking distance of public transport (bus and rail) in 2023, according to TFW monitoring	Local Authorities, CJs, Welsh Government and TFW are responsible for improving provision. Welsh Government subsidise bus and some rail transport. Bus companies are responsible for allocating this funding to their fleet.
Decarbonisation and Sustainability	The rate of decarbonisation across the transport sector is not commensurate with the urgency of the climate emergency. Alternatives fuels for public transport are required, EV deployment needs to be accelerated to meet current targets, and active travel is facing threats to funding and criticisms of impact. Behaviour change is not taking place at a speed that matches the rate of modal shift required.	Continue to transition to the public transport fleet and investigate where this can be accelerated. Investigate how to expedite the roll-out of EV charging infrastructure and develop strategies and guidance to overcome barriers to delivery. Act immediately to ensure the pooling of transport funding as part of the RTPs does not prejudice future active travel delivery. Review the metrics for measuring the success of the deployment of active travel, with a focus on maximum impact through targeting areas with critical mass, as opposed to coverage.	Short, Medium & Long	3,519 publicly available charging devices in Wales, as of July 2025 Rail electrification in Wales remains limited, with 6.5% of the network electrified by 2024 In the 2022–23 financial year, Wales had approximately 2,330 local bus and coach vehicles in operation, 94 of which are battery-electric.	All public sector bodies with a fleet are responsible for their fleet electrification, with assistance from Welsh Government and CJs. CJs are responsible for their funding decisions in RTPs. Welsh Government, CJs and Local Authorities have levers to expedite the roll-out of EV charging, however, there is also a role to be played by the private sector.
Land use planning	There is a disconnect between strategic land use planning and transport planning, particularly regarding the connectivity of new developments to sustainable transport, and the phasing and delivery of committed schemes. Better integration is needed to support sustainable growth and sustainable economic development.	An honest review of land use planning outcomes, and the plan making system, is required to identify whether it is delivering sites in truly sustainable locations. If it is not, then work is required to understand where the failings in the system are and how these can be addressed. Alternatively, a position needs to be taken on whether current outcomes are acceptable and the transport hierarchy is appropriate across Wales.	Short-Medium	Qualitative only	Welsh Government are responsible for national planning policy and guiding how Development Plans are made. Local Authorities are, and in the future CJs will be, responsible for Plan making and allocating new development sites.
Other priorities					
Digital and Smart Transport Solutions	Efforts to improve transport integration and accessibility are undermined by fragmented ticketing systems, misaligned timetables, and gaps in digital infrastructure. In rural areas, poor mobile coverage and limited access to real-time information create a digital divide.	Build on the 'One Network, One Timetable, One Ticket' vision by accelerating integrated digital ticketing, addressing technical and governance barriers, and improving timetable alignment across modes.	Short-Medium	Qualitative only	Welsh Government have the powers over bus franchising and TFW have responsibilities in relation to ticketing. TFW and Local Authorities are responsible for bus stops and train stations. However, they would

		<p>Improve rural access to live transport information by expanding coverage and piloting low-bandwidth real-time solutions.</p> <p>Expand digital and telecoms infrastructure in line with Welsh Government priorities, promote remote working and online services, and integrate digital planning tools to reduce commuting and travel demand.</p>			likely require private sector partnerships to improve digital connectivity.
Infrastructure Resilience and Climate Adaptation	Irrespective of fuel type and exhaust pipe emissions, the transport network will continue to face pressures from congestion and delays if total vehicle numbers continue to increase.	Assess both short and long-term funding needs, prioritise resilience-focused investment, and explore cost-effective maintenance strategies that have strong regard to climate risk. Explore options to strengthen local authority capacity by pooling resources, providing targeted funding, and developing shared expertise for adaptation planning.	Medium-Long	Qualitative only	<p>Welsh Government are responsible for overall transport policy and the allocation of capital and revenue funding.</p> <p>Individual Local Authorities are responsible for allocating where funding is spent and CJsCs will develop a role for some capital projects going forward.</p>
Funding and Delivery	The Metro projects, bus reform plans and implementing the recommendations of the Burns Report are positive initiatives for achieving the future transport system Wales needs that should be prioritised. Their delivery and future expansion are threatened by uncertain and inconsistent funding.	Prioritise funding for the projects that are positive for modal shift and decarbonisation, and investigate the governance changes required to remove barriers to their delivery.	Medium-Long	Qualitative only	Welsh Government, CJsCs, TfW and Local Authorities as well as a range of other delivery partners and the U.K. Government have a role to play in ensuring that existing plans and commitments are delivered.
Control over Welsh Railways	<p>There is underfunding of Welsh rail projects by the U.K. Government.</p> <p>The Welsh Government have delivered positive network upgrades to the sections of the network that they own, whilst funding uncertainty and delay has persisted on upgrades to U.K. Government administered parts of the network.</p>	<p>Funding allocation to Wales should be underpinned by a review of the classification of HS2 as an England-Wales project.</p> <p>A review of delivery performance between parts of the rail network owned by the Welsh Government and U.K. Government is required. If shortfalls exist, means of improving outcomes, including devolution of powers, should be investigated.</p>	Short-Medium	The total loss from HS2 between 2016-17 and 2029-30 now stands at approximately £845 million. ⁸⁹	U.K Government are responsible for legislating what can be devolved to Wales.

⁸⁹ Cardiff University - [Wales Fiscal Analysis: immediate response to rail funding announcement for Wales - Thinking Wales - Meddwl Cymru - Cardiff University](#)

7.2 Cross cutting themes

7.2.1 A number of the issues identified in this transport sector review are relevant to the other infrastructure sectors being considered as part of this wider study. Including:

- Energy Sector – The transition to ultra-low emission vehicles (ULEVs) places significant demands on electricity generation and grid capacity. Coordinated planning between transport and energy sectors is essential to ensure infrastructure keeps pace with ULEV adoption, avoiding constraints that could slow progress.
- Digital Sector – Advances in digital connectivity underpin innovations such as smart ticketing, integrated travel platforms, and real-time journey information. Improvements in digital infrastructure create opportunities for more efficient, user-friendly transport systems, making collaboration between these sectors critical.
- Water Sector – Effective flood risk management and climate adaptation strategies directly influence the resilience of transport networks. Close integration with water sector planning helps safeguard transport infrastructure against extreme weather and long-term environmental changes.
- Circular Economy Sector – The transport sector can play a pivotal role in promoting circular economy principles, for example by incorporating recycled materials in construction and maintenance. Strengthening links with this sector supports sustainability goals and reduces environmental impact.

8 Monitoring Progress

8.1.1 Going forward it will be important to monitor the status of the transport sector in Wales. Table 8.1 presents a summary of currently available datasets relevant to the Welsh transport sector, offering a snapshot of existing information across different modes.

Table 8.1: Existing Data

Indicator/ data needed to demonstrate state of the transport sector	Who collects this data?	How often is this published / updated	Is this data publicly available?
Priority indicators			
CO2 Emissions from Transport	National Atmospheric Emissions Inventory	Annually	Y
Air quality levels	Local Authorities (AQMA's)	Annual status reports (though more granular data is available)	Y
EV Charging Infrastructure (number, type, location)	DfT / Welsh Government / Local Authorities	Quarterly / Annually Partially (some datasets public)	Y – some datasets public
Mode Share (proportion of trips by car, bike, walking, public transport)	National Travel Survey / Welsh Government	Annually	Y
Transport Infrastructure Resilience to Climate Change	Local Authorities / Welsh Government	Annually	Y – partial
Condition of Major Roads (pavement quality, defects)	Welsh Government / Local Authorities	Annually	Y – partial, some only published internally
Condition of Rail Network	TfW / Network Rail	Annually	Y – partial, some only published internally
Public Transport Ridership Numbers	TfW / Local Authorities	Monthly / Quarterly	Y
Accessibility to Transport Infrastructure (active travel, public transport)	TfW / Local Authorities / ORR	Periodic	Y- partial
Other indicators			
EV Adoption rates	DfT / Welsh Government	Quarterly / Annually	Y

Indicator/ data needed to demonstrate state of the transport sector	Who collects this data?	How often is this published / updated	Is this data publicly available?
Rail Network Electrification Coverage	ORR / TfW / Network Rail	Annually	Y
Kilometres Driven by Vehicle Type	DfT / Welsh Government	Annually	Y
Train Punctuality and Reliability	TfW / Network Rail / ORR	Monthly / Quarterly	Y
Bus Punctuality and On-Time Performance	Local Authorities	Quarterly / Annually	Y – partial

8.1.2 Table 8.2 outlines key data gaps within the transport sector which could enhance our understanding of its current state and inform strategic recommendations for its future development.

Table 8.2: Data Gaps

Detailed infrastructure quality and usage metrics	Local Authorities / Welsh Government	Annually or Bi-annually
Data on Transport Infrastructure Resilience to Climate Change (beyond what is currently available)	Local Authorities / Welsh Government	Annually
Bus Reliability and Punctuality (beyond what is currently available)	Local Authorities / Bus Operators in coordination with Welsh Government	Quarterly
Real-time data on EV charging infrastructure utilisation	Welsh Government in partnership with private charging network operators.	Quarterly
Rural and Remote Area Transport Infrastructure Condition and Access	Local Authorities / Welsh Government	Annually
Usage of Shared Mobility Infrastructure (bike-share, e-scooter docks)	Local Authorities / Private Operators	Quarterly or Bi-annually
Condition of Major Roads (pavement quality, defects) beyond what is available	Welsh Government / Local Authorities	Annually
Condition of Rail Network (beyond what is available)	TfW / Network Rail	Annually
Qualitative data on travel experiences -i.e how people want to travel versus the provision that is in place	Local Authorities / Welsh Government	Annually

Appendix A– Alignment of identified issues against the NICW framework

The issues and challenges identified in this report and highlighted for further consideration in Table 8.1 have been assessed, in qualitative high-level terms, against the NICW framework and remit, which includes:

- The Well-being of Future Generations Goals
- The Nature Emergency
- The Climate Emergency
- The Socio-Economic Duty
- Long-term considerations.

NICW Framework element	Assessment
Goal – Prosperous Wales	The issues and challenges identified for further consideration include the need for better integration of spatial planning and transport planning, which is essential for local growth and economic development.
Goal – Resilient Wales	This report highlights the need to further encourage behaviour change and provide infrastructure to support active travel. It also highlights the need for transport infrastructure to be resilient to our changing climate.
Goal – More equal Wales	The need for transport infrastructure improvements in all areas, of Wales, particularly in rural areas is highlighted.
Goal – Healthier Wales	The report recognises that accessibility is important for health and well being and that active travel modes can contribute positively to health.
Goal – Wales of Cohesive Communities	The need for transport to better serve rural areas is highlighted as one of the key challenges.
Goal – Wales of vibrant culture and thriving Welsh language	The need for improved transport options, to ensure accessibility to all areas of Wales, including those of cultural importance, is recognised.
Goal – Globally responsible Wales	This report has highlighted the need for transport infrastructure to be planned, designed and maintained in a way which is resilient to climate change.
Nature Emergency	The importance of carefully planning transport infrastructure to avoid negative impacts on nature, and the need to consider opportunities to enhance nature are considered.
Climate Emergency	This report has highlighted the need for transport infrastructure to be planned, designed and maintained in a way which is resilient to climate change.
Socio-Economic Duty	The socio-economic duty requires public bodies to ensure equality of outcome, rather than just equality of opportunity. We believe that our recommendations are linked to supporting this duty, through our support for community integration into the decision

making process, as well as our support for community development, partnerships, information sharing and training.

These recommendations support the intention of the Socio-Economic Duty as it promotes improved accessibility to transport options for everybody in society. It seeks to direct the Welsh Government toward a sustainable transport system, which are underpinned by access for all principles. For example, interventions such as the one timetable one ticket approach, which we recommend building upon, seek fairness and affordability in the system.

Long-term considerations

A key issue highlighted is the need for a long term improvement in the way transport planning decisions are made to ensure better alignment longer term. The report also addresses the need for long-term consistent policy and to move away from short term funding horizons.

Arcadis Consulting (UK) Limited

Suite 4D, Fourth Floor
Hodge House
114-116 St Mary Street
Cardiff CF10 1DY
T: +44 (0)29 2092 6700

arcadis.com