

Better. Connected

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Foreword

In countries across the world, bus is the dominant mode of public transport. This is very much the case in Northern Ireland, where over 80% of public transport journeys are made by bus.

Northern Ireland has a very extensive road network, and public transport on roads means bus. Achieving public transport goals and therefore wider environmental, societal and economic benefits, depends a great deal on the success of the bus.

This document aims to inform future policies, strategies and plans, particularly in respect of land use and transport planning. It sets out the positive progress achieved and the choices that remain to be made in developing the bus system in Northern Ireland. It concludes with some recommendations on the steps that need to be taken to ensure an exceptional, successful bus transport system can be developed in Northern Ireland. At a time when we face significant challenges, including the cost of living and the climate emergency, the bus has an increasingly important role to play.

It is imperative that we embrace the opportunities that bus presents if we are to realise the benefits it can bring in achieving our goals for Northern Ireland.

Chris Conway CEO Translink







1.1 Introduction

Every week, hundreds of thousands of people in Northern Ireland need to travel. They need to get to their jobs and appointments. They need to get to school or college. They have to shop. They visit friends and family and go on day trips.

And for all of these activities, many people use the bus. The bus gets them where they need to be, for short or longer journeys, at a reasonable price and at a low cost to society and the environment.

However, many people don't use the bus very much in Northern Ireland¹, relying instead on private cars. There is a lot of potential to improve how we travel and to increase the use of bus.

Bus services enable our towns and cities to function by reducing congestion, delivering transport equality and fighting the climate crisis. Buses also provide crucial accessibility for disabled people and rural connectivity, providing access for people living far from towns and cities.

Bus services are already here, connecting people, providing wider benefits to society and supporting a wide range of government policies.

In order to understand how great bus services really could be, we must understand how they work, and the choices that we need to make to realise a change.

1.2 The Importance of Decarbonisation

Despite significant improvements in vehicle technology and emissions rates in the last few years, greenhouse gas emissions arising from transport in Northern Ireland in 2020 were much the same as they were 30 years ago in 1990². Over the same period of time, other sectors have reduced their emissions much more significantly.

Transport contributed over 16% to the total of nearly 21 million tonnes of carbon dioxide equivalent emitted (MtCO2e) in 2020, and the overwhelming source of these transport emissions was from private car trips.

In the last fifty years there has been a four-fold increase in the numbers of cars or vans in NI to more than 1 million in 2021³. This is amongst a population of just over 1.9 million people.

Carbon dioxide emissions are the main contributor to climate change, entering the atmosphere when we burn fossil fuels. The UK Climate Change Committee has made clear that we urgently need to change course to reduce our emissions.

Overuse of cars is both an urban and rural problem for Northern Ireland. While competition for road space means cars cause congestion in cities, carbon emitted anywhere threatens our climate. In both urban and rural areas, we must reduce the use of cars, and we must build cities and towns where public transport, rather than the car, is efficient to provide and easy to use. The greatest portion of our progress towards achieving this will be made by the bus.

The Climate Change Act (Northern Ireland) 2022 commits us to drastically reducing transport emissions. It will require major reductions over the next decade.

The transition to low emission private vehicles will take time. We can't afford to assume like-for-like use of our cars in the future, as this will perpetuate problems of congestion, energy supply, air pollution and the overuse of finite resources.

At the same time, Northern Ireland has a rising rural population and a concerning trend of new development in suburban and low-density forms, which are expensive to serve with public transport of any kind, and make public transport less appealing and easy for residents.

ZERO- AND LOW-EMISSION BUSES

The Northern Ireland bus fleet is transitioning away from fossil fuel-based propulsion. Already, all Translink Metro and Goldliner buses meet the Euro VI diesel engine emission standards, reducing nitrogen oxide emissions by 75%. The replacement of the Belfast and Foyle Metro fleet with zero emission vehicles is underway.

All Metro services are planned to be zero emission by 2030, and Translink intends to have no remaining fossil-fuel vehicles in its fleet by 2040. Following this plan, Translink's bus fleet will emit 61% less carbon dioxide, 90% less nitrogen oxide and 91% less particulate matter emissions by 2030, compared with emissions from the 2019 fleet. We can't carry on with our car dependent way of living, and we need to act now. The bus offers a proven, pragmatic and affordable solution for the three reasons highlighted below.

Firstly, the bus has the ability to move lots of people, with various levels of mobility, in an efficient and cost-effective manner. It is able to move large amounts of people in different directions, without congesting our limited road space.







Secondly, bus services can be added quickly, which is what we must do in Northern Ireland to meet growing demand and address the climate challenge. Buses can run on our existing streets, into the hearts of big cities and small towns alike. With better and better data about people's journeys, bus routes can be steadily improved over time.

- Add services more often to serve more people? No problem for bus.
- Run late at night to facilitate the evening economy? No problem for bus.
- Move through dense areas and historic centres where space is tight?
 No problem for bus.

When bus services are excellent, people use them, meaning they can leave their car at home or give up their car entirely. This further decarbonises the transport network and frees up space on the road network.

Thirdly, buses themselves are rapidly decarbonising, resulting in immediate reductions in emissions and

pollution. Translink is already operating over 100 electric and hydrogen buses for its Belfast Metro services, resulting in immediate emissions and pollution benefits. Zero emission Foyle Metro buses also entered service in 2023. The whole of the Metro fleet in Belfast is planned to be zero emission by 2030, with the rest of the Translink fleet being likewise by 2040. In addition to having no tailpipe emissions which will bring health benefits to cities and towns, these vehicles are quieter in operation.

The private car fleet will take many more years to transition to zero emission than the bus fleet, and the rail network requires significant investment and time to electrify.



1.3 Making Service Useful

People use public transport if it is useful and serves their fundamental needs to:

- **Travel when they want to:** with freedom to depart and arrive as they please
- **Travel as directly as possible:** rather than going around in loops
- Know that a service is always there: rather than having to memorise a timetable
- Get there on time: not have doubts about reliability
- Pay a reasonable price: feeling that they've received good value
- Easily pay their fare: without complexity or needing to plan far ahead
- Be accessible and comfortable on-board: in terms of seating, crowding, safety and amenities

The world over, these are the factors that make public transport services useful and drive high patronage⁴, not only of bus but of any public transport service. Investing in the overall service is critical.

The following chapters consider each of these factors in more detail.



GLIDER

Glider commenced operation in 2018. There are currently two routes, G1 (connecting East and West Belfast) and G2 (connecting city centre and Titanic Quarter)

Glider offers high frequency services (typically every 7 to 8 minutes) for much of the day and operates from around 0530 to midnight. Glider halts are approximately 350m apart and offer high quality shelters, real-time passenger information, CCTV for safety and security and ticket machines. Passengers purchase their tickets at a halt or using their phones, which reduces delay at halts. Extensive bus lanes protect Glider from congestion.

Patronage on the corridors increased by 70% after Glider was implemented.

Phase 2 will seek to build on the success of Glider and extend it to other busy parts of the Belfast Metropolitan Area



1.4 The Wider Social Value of Bus

Bus services benefit those who use them and also wider society.

A policy supporting bus investment is not just a transport policy but is also a health, education, employment, wellbeing and social cohesion policy. There is lots of evidence of both the direct and wider social value of bus services:

	Bus use saves people money	A recent survey ⁵ by Stagecoach suggested that UK residents who own a car and live within 15 minutes or less walking distance from a public transport stop or station found that they could save £6,000 per year by switching journeys.
RAA	Bus services are vital for lots of people	Nearly 1 in 4 people in the UK is at risk of social exclusion ⁶ and almost 1 in 4 households lack access to a car ⁷ . Department for Transport analysis shows that where local bus services are withdrawn, some passengers are unable to make alternative transport arrangements. For 1 in 5 bus journeys a practical alternative does not exist ⁸ . Bus services are vital for many disabled people.
ن 000	Bus services reduce deprivation	Econometric analysis undertaken by the University of Leeds ⁹ showed that a 10% improvement in local bus service connectivity is associated with a 3.6% reduction in deprivation . This reduction applies to all neighbourhoods, from the least to the most deprived.

	Bus services improve social outcomes	KPMG ¹⁰ estimated that wider social impacts add over 30% to the benefit- cost ratio of bus investments . There is a clear relationship between investment in bus services and improved outcomes across health, deprivation, education, income and employment. European research from the International Association of Public Transport (UITP) found that every £1 invested in public transport generates a further £4 in the total economy . ¹¹	
@``` O.@	Buses improve social mobility	The bus is a unique and effective tool of social policy because it gives people from all backgrounds access to opportunities. This can be the difference between being able to access a better, higher paying job, or to take advantage of educational opportunities that might help achieve social mobility.	
÷	The bus helps to build communities	Places that are built around the bus, walking and cycling benefit from reduced traffic volumes and liveable streets that encourage interaction and community spirit.	
Ser la	Bus services promote physical activity	The bus is an easy way for people to incorporate physical activity into their daily lives, with modest amounts of walking. Research undertaken by experts at Imperial College London found that one in five bus users hit their daily exercise target just by doing their commute ¹² .	

	Bus services improve physical health	The bus enables people to access health-promoting locations such as parks and sports centres and provides accessibility to a wider range of grocery stores which can help contribute towards healthier diets.
	Reduced emissions from switching to bus generates financial benefits.	 The Confederation of Passenger Transport found that if everyone switched from private car to bus, just twice a month, by 2050 it would generate¹³: A reduction of 15.8m tonnes of CO2; equivalent to the total emissions of the North East of England in 2019 Reductions in air quality pollution valued at £28m; enough to pay for 800 nurses for a year Health benefits worth £14.9bn; enough to build 33 new NHS hospitals Reductions in congestion valued at £29.4bn, more than the GDP of Manchester in 2019. According to the British Heart Foundation, around 900 premature deaths per year are attributable to air pollution.
e f	Public transport provision has wider economic impacts	Grant Thornton found that public transport is already delivering major economic impacts in Northern Ireland , supporting 6,300 jobs and Gross Value Added of £198 million each year ¹⁴ .

The Wider Social Value of Bus





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2.1 The Challenge

The bus will have the biggest share of the work on Northern Ireland's urban and rural transport challenges, and in reducing transport emissions.

So, what kinds of public transport attract high numbers of passengers, and move them efficently? The answer is well-established services that are frequent, direct, comfortable, and there all-day and all-week.

Whilst there has been a recent increase in public transport use in Northern Ireland, the reality is that only around 5% of the journeys made by people each year are by bus or train¹⁵. The car remains people's choice for over four out of five journeys. That ratio needs to change urgently.

Public transport in Northern Ireland is in the midst of colliding trends and goals:

- Most public transport services require subsidy to operate.
 Few services are financially viable from passenger fares alone

 this is true in many countries, not only in Northern Ireland.
- Rural population growth is outpacing urban population growth.

- Bus service in rural areas is needed to prevent rural isolation, but also, the 'per person' costs to provide bus service are higher in rural areas than urban, resulting in further pressures on budgets.
- Urban areas need an increase in public transport service in order to reduce congestion and carbon emissions.
- Taken all together, this means that at a moment when more investment is needed to meet transport goals across all of Northern Ireland, the trend of ruralisation is raising the costs to serve all residents, whilst future funding is uncertain.

Fortunately this moment also comes with opportunities and reasons for optimism:

- Public transport services in Northern Ireland are publicly owned, in contrast to most of the UK where services were privatised in the 1980s. This gives government, and through government, the people of Northern Ireland, a major say in how to evolve public transport.
- Unlike in other parts of the UK, the vast majority of public transport services in Northern Ireland are delivered as a unified system. Individual services are operated as a network, rather than as competing or unrelated parts.

- Recent initiatives to modernise services such as Glider have generated very positive benefits, encouraging further moves in that direction.
- Alignment across government policies in support of public transport has never been higher.

Public Transport Growth in Northern Ireland

With the exception of the period during the covid pandemic, both bus and rail use has grown over the last decade in Northern Ireland, reflecting the increasing convenience and popularity brought about through investment and enhancement of the public transport network.

Public transport patronage reached 84.5m journeys in 2018/19 (the year before the pandemic) – the highest for 20 years – with 2.1m additional bus journeys made compared to 2014/15.

PARK & RIDE

Driving to get the bus or train for a longer part of a journey is relatively popular in Northern Ireland. There are over 60 Park & Ride (P&R) sites currently operating, providing over 10,000 parking spaces.

These sites facilitate connectivity to the public transport network from wider areas where access on foot or by bike is difficult, enabling people to use the bus or train for the main leg of their journey. This means users avoid the stress of driving into our urban areas, reducing the need to allocate land for parking in towns and cities and reducing congestion. Usage has grown over the last decade, and Translink has an ongoing programme to deliver new and expanded P&R sites.

Funding

Public transport services in Northern Ireland are publicly owned and subsidised by government, with authority resting in the Department for Infrastructure (DfI). Bus and rail services across Northern Ireland are operated by Translink¹⁶ under a Public Service Agreement (PSA)¹⁷. The PSA describes the contractual relationship between DfI and Translink.

The aim of the PSA is to secure accessible, efficient, safe, sustainable and high-quality public transport services that contribute to Programme for Government outcomes and support wider policy objectives.

Under the PSA, Translink is required to deliver approximately 66 million kms of bus services and 5.5 million kms of rail services per annum in Northern Ireland and on cross-border services with the Republic of Ireland and Great Britain.

These public transport services require subsidy from Dfl.

This is because many services, particularly those outside of Belfast, would not be financially viable due to the relatively small number of people served, but they are socially important. The subsidy covers the costs of running services beyond what Translink can collect from passengers through fares.

In addition, there are also a number of commitments and Key Performance Indicators within the PSA that depend on capital funding from the Dfl. These commitments seek to enhance the public transport network infrastructure and services. For example, these include a commitment to improve accessibility of the network through the delivery of 'Changing Places' facilities in new/refurbished stations; a commitment to increase the number of services operated by low-floor vehicles and a commitment to increase the percentage of the fleet with audio-visual announcements.

When expectations for service increase are not matched by funding, the ability to respond is limited. **If the bus network is to fulfil objectives and meet aspirations, then sufficient, long-term funding must be provided.**

Our Geography & Development

There are geographical realities that we must contend with in Northern Ireland. Whilst the country is small, around a third of the population lives in rural areas. **Public transport costs more to operate when it must cover longer distances to serve a small number of passengers.**

In Northern Ireland, rural areas are dependent on public transport services to connect residents to local towns, schools, health services, and to bigger cities. Rural services are almost all heavily subsidised, the subsidy justified because of their social importance and because without the subsidy they would not be operable. With this mathematical reality in mind, the fact that our population is growing three times faster in rural versus urban areas, implies that the cost of providing public transport in Northern Ireland is increasing¹⁸.



NI Population Growth 2001-2017

Rapid growth in rural population presents three major challenges with respect to government transport policies:

- The need to spend more in subsidy per passenger on rural services;
- The risk of isolation of rural residents, especially the elderly, if subsidies are reduced or do not keep pace with inflation;

 The difficulty of increasing public transport use in urban areas if all new funding for service must support rural growth.

Northern Ireland therefore has choices to make about how to fund and operate bus services within its geographical and financial contexts.

This is a transport planning dilemma which originates in land use and development decisions. The fundamental issue is where development is located, in respect of the modes of transport that people are then able to utilise.

Planning and land-use policy are already supportive of new development in areas where sustainable transport is realistic. Despite these existing policies, **growth in areas where public transport requires high subsidy and generates fewer environmental benefits is outpacing growth in areas that are more efficient to serve**. Further strengthening of land-use policy must be a priority in the effort to change transport outcomes.



Our Society & Demographics

Our population is changing. There are now 1.9 million people living in Northern Ireland, having grown 5.0% between 2011 and 2021¹⁹. This is a lower growth rate than the 6.5% growth in England but higher than that seen in both Wales and Scotland²⁰.

Northern Ireland also has the lowest median age in the UK at 39.8 years. However, like many other countries the number of older people is increasing. By mid-2028, the proportion of the population in Northern Ireland aged 65 and over is projected to be 20.1%, overtaking that of children under 15 (19.6%) for the first time²¹.

Public transport becomes increasingly important for older people as car driving becomes less viable due to age and

income. It allows older people to independently meet their needs for shopping, healthcare and general wellbeing. It enables them to get about and visit family and friends and feel connected, reducing the sense of isolation.

This means that Northern Ireland will increasingly have to consider the public transport needs of older people, in terms of accessibility to services in respect of frequency²², convenience and physical access. It will also have increased funding implications for the Concessionary Fares scheme.

Disabled people tend to rely more heavily on public transport options than other people, making public transport essential to the lives of thousands of disabled people.

According to the United Nations Convention on the Rights of Persons with Disabilities (which the UK signed up to in 2009), around 15% of the world's population has a disability. In Northern Ireland almost 20% of people have a disability²³.

Proportion of the Population with a Disability





Public transport operators are obliged to make transport accessible to disabled people so that they can participate in society "on an equal basis with others"²⁴.

It is crucial therefore that public transport is accessible for disabled people, otherwise they may be left without the ability to effectively participate in society.

Transport also affects societal inequality, because it affects how people are distributed geographically and in terms of social class, and it affects how opportunity is distributed, for example access to education or jobs.

'Transport poverty' is a concept that broadly refers to the difficulty or inability to make necessary journeys due to a combination of income/cost and service availability²⁵.

Some demographic groups are at higher risk of transport poverty, including women, students and older people, and the impacts of transport poverty are worst for poorer people in rural areas.

A further development of transport poverty is that of 'forced car ownership'²⁶, in which households must own a car to meet basic needs which increases their financial distress. It's a reflection of the above factors but is something that is likely to worsen with increases in the cost of living.

This combination of factors is likely to lead to increasing demand from sections of society for public transport provision. This will require significant funding and/or difficult choices.



2.2 Policy and Guidance

Existing policy and guidance are generally favourable to investment in bus services to achieve multiple policy goals.

Bus aligns with policies on multiple fronts. These are summarised in the table below.

Further information about these policies can be found in Appendix A.

Transport & Land-use	Emissions, Air Quality & Decarbonising Transport	Overarching Policy
 Regional Development Strategy 2035. Sets out the framework for the sustainable spatial development of Northern Ireland. Ensuring a Sustainable Transport Future – A New Approach to Regional Transportation. Seeks to provide a transportation network that supports economic growth. 	 Climate Change Act (NI) 2022 Sets out legally binding targets for 2030, 2040 and 2050 for the reduction of greenhouse gas emissions. Belfast Air Quality Action Plan (AQAP) 2021-2026 Outlines the actions that Belfast City Council and other city organisations will deliver to reduce concentrations of air pollutants. 	 (Previous) Programme for Government Sets out societal outcomes that look to develop a strategic vision for the future which aims to improve wellbeing for all. Energy Strategy for Northern Ireland 2050 Sets out a long-term vision for net zero emissions and affordable energy for Northern Ireland.

- Planning for the Future of Transport
 Time for Change
 - Charts the Dfl's priorities for the future of sustainable transport.
- Strategic Planning Policy Statement
 - Sets out the Dfl's regional planning policies for the development of land under the planning system.
- Emerging Local Development Plans and Local Transport Plans
 - Will provide a blueprint to guide new development in each council area in Northern Ireland.

- Air Quality Management Plans
 - Are the monitoring process where councils review and assess a range of air pollutants against the objectives set.
- Rural Needs Act (NI) 2016
 - Introduces the responsibility that departments and councils have to consider rural needs when developing policies and strategies.
- Decarbonising Transport: A Better, Greener Britain (DfT)
 - Identifies strategic priorities in order to achieve zero emissions by 2050.

- Draft Green Growth Strategy for Northern Ireland
 - Multi-decade strategy balancing the climate, environment and the economy in Northern Ireland.

B Concepts and Choices

3.1 How does public transport succeed?

There are facts about what makes public transport efficient, or costly, or well-used. However, **to answer the question of how it succeeds we must first ask: What is its purpose? Why is it running in the first place?**

Public transport may be provided for various purposes, serving various goals. **Some of these goals are not only different from one another but are actually in tension.** Striving more for one goal means less progress towards the other.

If we want buses to be more successful, we need to be clear what "success" means. Because many goals are in tension, stakeholders need to be clear on how they are to be balanced.

This chapter sets out a number of concepts that are helpful to understand as well as the very real choices that need to be made. This will help achieve clarity about the purpose of the Northern Ireland bus system, and ultimately, through informed decision making, lead to greater success in achieving objectives.



3.2 High Patronage and Wide Coverage: Goals in Tension

There is often an assumption that high patronage is the singular goal of public transport. Certain goals of government depend on large numbers of people using public transport. For example:

- Cutting carbon emissions, by reducing private vehicle use.
- Reducing congestion.
- Supporting urban development, by using less land for roads and car parks.

These goals depend on high patronage, and most of us know this intuitively. The mere availability of a service doesn't cut carbon emissions or reduce congestion – large numbers of people must actually use the service for those good things to happen.

And yet, there are other goals which have no relation to high patronage and in fact can be achieved even when patronage is quite low. For these goals, the mere coverage of an area, the availability of public transport, or the severity of need among a few passengers, might be what matters. For example:

- Providing lifeline access for small numbers of people, especially senior citizens and those with disabilities.
- Preventing isolation in rural and low-population areas.
- Connecting people to socially-important places (such as schools, places of worship and community centres) even if few people use the connection.
- Distributing public transport service equitably among various populations, regardless of how many people use it.

In such cases, a public transport service might have low patronage, and high cost per passenger, but that isn't the point. The purpose of some services is to cover places and people, to be available. The purpose is not to move large numbers of people.

Public transport should be measured, as to whether its succeeding, according to its purpose.

Why are the goals of high patronage and wide coverage in tension? Why can't we "optimise" and accomplish both goals with the actions? Because of geometry.



Imagine you are the public transport planner for this fictional area.

The dots scattered around the map are residents and jobs

The operator has enough budget to drive 18 buses around the area, all day.

Before you can plan bus routes, you must first decide:

What is the purpose of this network? Is it maximizing patronage? Or covering everyone?

We can approach this as follows:



Maximising Patronage

All 18 buses are focused on the busiest areas. Waits for service are short. For people in less populated areas, walks to service are long. The network is simple and interchange¹ is easy. Patronage will be high, but some places will have no service.

¹ Interchange is a term used to describe users changing from one public transport service to another e.g., travelling on a local bus to interchange with an inter-urban express service.



A bus network needn't be designed to the extremes, as in this fictional example. However, within any limited budget, patronage and coverage trade-off against each other. A move towards one goal implies a move away from the other.

Key Choice:

Should public transport be concentrated into fewer, more frequent routes that will attract many passengers?

Or should it be spread widely, into infrequent routes that fewer people will find useful?

Maximising Coverage

The 18 buses are spread around so that there is a bus stop on every street. Everyone is near a stop, but waits for service are long. Interchange is difficult, and journeys are long. Few people can bear to wait so long, so patronage is low.



Illustrative Example – Bus services in Lisburn

The Ulsterbus Town Service (UTS) Route 325g in Lisburn provides an illustrative example of how circuitous, deviating, infrequent routes function to maximise coverage.

The route connects Lisburn centre, Sprucefield Shopping Centre, Balmoral Park and Royal Hillsborough. However, getting close to destinations in this car-oriented development pattern requires many deviations, as a result of which this route will feel very indirect to all passengers other than those travelling between Lisburn centre and Sprucefield Shopping Centre.



UTS Route 325g exemplifies design for high coverage: it is infrequent, circuitous, with many deviations, and the entire southern half of the route is in fact a one-way loop that requires very long return journeys. However, Route 325g does offer a consistent hourly frequency and a "pulse" connection with other UTS routes in the town centre. ©OpenStreetMap



The Lisburn network consists exclusively of infrequent routes, even in the busiest and most built-up places, exemplifying how public transport can be designed for high coverage rather than high patronage. ©OpenStreetMap

It would not be appropriate to measure this route in terms of its total patronage and certainly not to compare it to other routes on which high patronage is a reasonable expectation.

The entire Lisburn UTS bus network follows this high-coverage strategy, spreading service out to get a little bit close to many places, in circuitous and deviating patterns and large loops. The Lisburn UTS network is shown with Route 325g visible to its south.

The Lisburn UTS network is thoughtfully designed for its coverage purpose:

- All of the Lisburn routes are just the right length to offer an hourly frequency. This makes simple, easy-to-remember timetables.
- Most of the routes meet at the Lisburn Buscentre at the same time, providing a "pulse" connection so that interchanges are relatively quick between most pairs of routes.

Summary

A government needn't choose only patronage or only coverage as the goal for its public transport system. **It is normal for a system to include some services designed for high patronage, and others designed to provide coverage.**

However, it's important to understand that these goals tradeoff against one another. **Within a limited budget, a public transport operator tasked with delivering these services cannot move closer to one goal without moving away from the other.**



3.3 Service Frequency

The world over, high frequency is a strong predictor of high patronage. High frequency means your bus is always coming soon – there's no need to plan your journey around the timetable, or even learn the timetable at all. You have the freedom to travel at any time.

A high frequency public transport route is like a road or a footpath: it is always there, a permanent and dependable thing, giving you maximum flexibility in your own life.

However, high frequency is costly. The way a public transport operator generates high frequency is by concentrating many vehicles and drivers onto one route – and they cannot then spread those vehicles around to cover a large area.

This mathematics is unavoidable – whether we are considering large vehicles or small, human drivers or robots, powered by electric, hydrogen or diesel, it does not matter. **Within any limited budget, Translink cannot simultaneously concentrate service more, and spread it out more.**



3.4 Priority on the Road Network

Bus speed and reliability have obvious importance to passengers: a fast bus journey gets someone where they are going soon, and a reliable journey means that they arrive on time and don't need to "pad" their daily schedule to protect themselves against a delayed bus.

However, there is another aspect of speed and reliability which not many people know about: **it also governs operating cost**. As bus route or rail line slows down, more vehicles and drivers have to be added to it to prevent wait times from lengthening.

Faced with this dynamic, an operator can either cut frequencies or come up with additional funding – funding which could have been used to improve services but instead must be used to cover the cost of running slower services.

Translink can influence speeds by placing stops or halts farther apart, encouraging passengers to use electronic tickets (rather than pay with cash), and purchasing low-floor vehicles which are faster to board and alight. However, those only have minor effects on speed and reliability – the greatest effects come from the management of roads.

This is why bus priority and leadership from government is so essential to public transport success. In setting policy and reallocating road space to prioritise the movement of buses, government has much more control over bus speed and reliability than Translink or any other operator. The potential to improve speed and reliability using all of these tools is made visible by Glider in Belfast. Translink operates the service to be fast and reliable as far as possible under its own control: halts are placed further apart, fares are paid at the halts or electronically, and vehicles are very fast to board and alight even for those with buggies or wheelchairs.

Dedicated road space on the streets of Belfast allows Glider to bypass congestion, and signals at junctions are engineered to give Glider vehicles priority. Despite many more people boarding and alighting the Glider service than other local services, it is faster and more reliable. Patronage has grown in response to its high frequency, all-week service, faster speeds and reliable arrivals

Glider, and other Bus Rapid Transit systems elsewhere, demonstrate that bus is not inherently slow or unreliable. We generally assume that trains will be fast and reliable, because we rightly assume that they will have their own 'lane' (tracks) and will be given priority at junctions. We might assume that buses will be slow and unreliable because they are not protected from road congestion or given priority at junctions.

However, we can make bus fast and reliable, at vastly lower cost than rail. Buses can operate in their own lanes, and with priority at junctions over other movements. Buses can be nearly as long as light-rail trams, carrying huge numbers of people. Bus stops can have covered platforms, seating, ticket sales machines, real-time information and all of the other features that make a rail station feel like an important place. The resulting high patronage from these measures would justify the priority treatments and investments.

Just as high frequency requires that we concentrate and focus service on certain lines, a fast and reliable network requires the same. Exclusive lanes given over to buses can be justified by the great many people they will help to move.

In a future vision for Northern Ireland bus, major bus routes would move large numbers of people quickly and reliably around congestion, making the bus a competitive and compelling way to travel.

This would be consistent with government policy and Dfl's recent *Time for Change* publication in which public transport is specifically prioritised over private vehicle trips.





3.5 Personal Freedom and High Access

Public transport routes should not function alone, as solitary products – they should be part of a network. When routes form a network, and connections between them are made easily and quickly, the whole is more valuable than the sum of its parts.

A well-connected network improves personal freedom and access to opportunity.

People want the freedom to reach many different jobs, schools, opportunities, friends, fun, and family, both nearby and far away.

They want to spend time where they want to be, not in the car, the train or bus.

They want the freedom to change their job or change schools without having to uproot their life.

For this to be possible, without the overuse of cars, large numbers of people must live on a connected network that takes them to myriad different places, in a reasonable amount of time, at a reasonable price, all week and all year long.

The planning term for this freedom to move and travel, measured across a whole population, is "access" or "accessibility". Not only does it speak to something we all care about in our own personal lives, it is also a strong predictor of patronage and is therefore important in planning for lower carbon emissions and less congestion. Why does access matter? Because expanding access for as many people as possible:

- Brings more opportunities and services within reach for more people.
- Increases patronage potential, because more people find public transport useful.
- Reduces car use, carbon emissions and other types of pollution from roads and cars.
- Allows for growth without more congestion.
- Gives people more freedom to choose how to live their lives.

When you improve access for large numbers of people, you improve all of these things.

Key Choice:

How much space and priority will we give to buses in our towns and cities?



We can quantify, or simply show, how people's access to the places they care about would change because of changes to a single route or to the entire network.


Some of these factors are controlled by Translink; some are controlled by Government Departments and some are controlled by Councils.

Envisioning a high-access public transport system for Northern Ireland means identifying the unique, but related changes each of these parties would need to make.



3.6 How Land Use and Development affects Patronage

Public transport operators can attract more passengers by offering service that more people find useful.

However, it is beyond the control of the public transport operator to set the land use patterns and street designs, yet these have a huge impact on the number of people who can be served, and at what cost.

Five geographic factors are especially suggestive of patronage and cost:

- Density
- Walkability
- Mix of Uses
- Linearity
- Continuity

The way that development patterns affect patronage potential is a matter of geometry. Observations about these geometric facts could be taken as criticisms of certain places or certain people, but they needn't be – the fact is that every person and every area cannot be served at equal cost.

This is politically and socially difficult to acknowledge, in public transport decisions as well as in many other aspects of shared life and shared resources.

The ways these factors affect patronage and cost are illustrated here:

DENSITY How many people, jobs, and activities are near each stop?

+

Many people and jobs are within walking distance of public transport.



walking distance of public transport.

WALKABILITY

Is it possible to walk/wheel between the stop and the activities around it?

JARRETT WALKER + ADDITION



The dot at the center of these circles is a bus stop, while the circle is a 1/4 mile radius.



The whole area is within 1/4 mile, but only the black-shaded streets are within a 1/4 mile walk.



It must also be safe to cross the street at a stop. You need accessible stops on both sides for two-way travel!

MIX OF USES Do people travel in both directions, all day?



Public transport serving purely residential areas tends to be full in one direction, but empty in the other.



A mix of land uses means buses are ridden in both directions, more times of the day and week.

When these factors are not in force, a service shouldn't be expected to attract high patronage. Instead, the service may have a coverage purpose. It won't attract many patrons, and is likely to need **greater subsidy** to cover its operating cost.



LINEARITY Can transit run in reasonably straight lines?



A logical transit line is a direct path between any two destinations on it.



Destinations located off the straight path force transit to deviate, discouraging those who want to ride through and increasing cost.

JARRETT WALKER + ASSESSMENT

PROXIMITY Does transit have to traverse long gaps?



• Short distances between many destinations are faster and cheaper to serve.



Long distances between destinations means a higher cost per passenger. (Distance-based fares can compensate in part.)

JARRETT WALKER + ADDEDUTED

Illustrative Example – Density and Walkability

Simply for illustrative purposes, two neighbourhoods in the Belfast metropolitan area can be used to demonstrate contrasting examples of both density and walkability.

Developments on either side of Cregagh and Woodstock Roads are built with many connected streets, both within the neighbourhood and making connections to other neighbourhoods in all directions. As a result, walks to a bus stop on a main road are relatively short, with little out-of-direction walking required.

The Cairnshill/Four Winds area, in contrast, was designed to minimise through traffic and promote lower vehicle speeds by making most residential streets cul-de-sacs with only one way to exit the neighbourhood onto a main road.

As a result of this intentional poor street connectivity, journeys to and from many homes are circuitous and long, thereby encouraging travel by car.

Cregagh & Woodstock Roads, Belfast



Cairnshill / Four Winds, Castlereagh



Because nearly all of the homes in the Cairnshill area shown are connected to only one main road, not two, Translink must operate buses on adjacent parallel roads (as shown in the satellite image on the right) in order to get close to a fairly small number of residents. This means running parallel bus routes very close to one another.

This has cost implications, because it means supplying a lot of service in a low-density area, with not very many residents near each bus stop. It means routes are just 350m apart, a very close spacing for relatively low patronage, parallel routes. Each route exists because of the few residents who can walk to only that bit of road, and cannot walk to the other road in the other direction.

The land use decisions made in this area - and many others - have resulted in poor accessibility to public transport for residents, with service divided into more routes with poorer frequencies and greater complexity.

Key Choice:

To what extent should land use and development be forced into patterns that make for efficient, useful public transport?



Illustrative Example – Density and Continuity of Future Development in Northern Ireland

The map on the right, produced as part of research undertaken in 2019 by Ulster University shows, as blue dots, locations where new-build planning applications were submitted outside of settlement limits across all 11 NI Council areas, between 2015 and 2018.²⁷

Almost 15,000 applications were submitted overall, of which over two thirds were in greenfield locations, using previously undeveloped land. These developments are not continuous with existing settlements, and are typically at low densities, both of which tend to increase costs and decrease patronage for public transport.

This dispersed nature of the growth in Northern Ireland's populations has significant implications for the public transport system. **Even with additional investment in rural service, people who locate in more rural, isolated areas will have less access to bus stops, local town centre bus services and the inter-urban bus network. This is likely to have the effect of reinforcing private car dependency.** At the same time, increasing rural bus service is more costly than increasing urban service because of the longer distances between passengers that must be covered.



3.7 Interchange

There is a tradition of providing end-to-end or no interchange²⁸ public transport trips in Northern Ireland, and as a result few people are likely to be familiar with interchange as a normal part of a journey.

Some people may perceive that a journey that includes interchange is inherently substandard, yet at the same time they can be frustrated with the infrequency of bus routes. In reality, these two things are related.

If people can accept interchange as part of a bus network – and if both the operator and government can provide the infrastructure changes to make interchange pleasant – it can free up an enormous amount of service that no longer must be spent providing end-to-end-rides from everywhere, to everywhere. The biggest source of complexity in most bus networks is the sheer number of routes and networks designed to avoid interchange are terribly complex in this way. **A network designed with some interchange, between frequent routes, can be simple and easy-to-learn. In addition to simplicity, a network designed for some interchange can actually offer faster journey times.** The arithmetic in real towns and cities is just like the arithmetic in the following illustration:

Complex Network, Longer Journeys

Interchange, Shorter Journeys





If the public can accept some interchange as part of using public transport, that allows for higher frequency, a simpler network, and greater access to opportunity.

Key Choice:

Should public transport networks be designed in the tradition of avoiding interchange, or should they be designed to decrease journey times and increase access to opportunity?

3.8 All-Day, All-Week Service

During weekday rush hours, the number of people travelling typically peaks, as many people go to work and students go to school. It's normal for service levels to increase in response. The covid pandemic sharply reduced the size of these morning and afternoon peaks, though they have since returned to a degree across Northern Ireland.

School services present a particular challenge, creating demand for large volumes of passengers to be moved in one direction within specific time-bands.

Some public transport systems offer a great deal of extra service during the peak, either in the form of unique rushhour-only routes, or in the form of higher frequencies. Other systems offer a largely all-day network, and supplement that network in small ways during rush-hours. The system in Northern Ireland resembles the former.

Demand is growing for public transport service outside of rush hours, especially at night-time and at weekends. Many cities across the island of Ireland have observed that, relative to the service provided, patronage is no lower on Saturdays and Sundays than on weekdays. Late-night and even 24-hour services introduced in the Republic of Ireland have been met with strong patronage growth.

The marginal cost of adding service at midday, evenings and weekends is lower than the cost of adding rush-hour service, for all of the reasons given above. The cost of adding rushhour services – including school services – is higher than ever given that each new rush-hour service requires at least one additional, new bus.

A public transport network that is there all day and all week long offers people the freedom to live their lives according to their own tastes and traditions, without being limited by the bus timetable.

Key Choice:

How important are peak hour services relative to services at midday, night and at weekends?

3.9 Specialised Services

Demand-Response Services

Demand-Response (DR) Service is any service on which the route varies depending on who requests it. In contrast, "fixed route" public transport serves fixed stops, in a certain sequence, at scheduled times. Whereas fixed routes can be used by simply going to the stop, DR service requires the customer to contact the operator in advance, to request that the vehicle come to a certain place at a certain time. The customer experience of flexible service is thus more like that of a taxi or ride-share, except that other customers may be picked up or dropped off along the way and the ride may therefore not always be direct.

DR service is attractive to customers because it responds to their desire to travel when they want (rather than only when service is scheduled), and to avoid walking/wheeling to and waiting at bus stops. It is attractive to public transport operators if it can provide service to people across a greater area at a lower cost than fixed routes could, or if it can provide a socially-valuable service and help to meet the needs of disabled people.

How much responsiveness is offered by DR service dictates the number of vehicles required, and the cost.

Compared to fixed routes, DR service is, by design,

low-patronage. It is not physically possible to provide a high degree of responsiveness to individual needs and desires while also moving large numbers of people in the same vehicle.

It could not be broadly applied across Northern Ireland, and certainly not in busy towns and cities, without massively increasing the number of vehicles required, and the total operating cost.

However, DR services could help Northern Ireland to meet goals related to social inclusion by providing coverage for people with severe needs or in very low-patronage areas.

Key Choice:

In what places, and for what people, is the relatively high cost of Demand-Response Service appropriate?

3.10 Walking, Wheeling, Waiting and Accessibility

As described above, focusing service into fewer lines allows public transport to be more frequent. This can make most peoples' journeys faster, because they spend much less time waiting. It makes interchange easier and makes the overall network simpler.

However, focusing service into fewer, more frequent lines can also make for longer walks to the bus stop.

Local conditions affect people's willingness to walk: If the walk is noisy, unsafe or hilly, then people may prefer longer waits at a stop closer to them.

People in different life situations will have different abilities and preferences. Someone who is transporting multiple children, or who is elderly, may prefer a short walk or wheel, even if it means more time waiting and a longer journey.

Envisioning a higher-patronage public transport system for Northern Ireland means envisioning networks that offer shorter waits, more direct travel and overall faster journeys for most people. This means concentrating service into more frequent lines on main roads – and asking people to walk, wheel or cycle further, to new and different bus routes than those to which they are accustomed. Improvements to footpaths and crossings should make journeys to the bus stop safer and more appealing for a wider range of people. A Demand-Response service, designed for and limited to those patrons who cannot walk to a bus stop, could be an important complement to the fixed route network in some areas.

Key Choice:

Should fixed route bus be designed for short waits and faster journeys? Or for short walks?

Are there ways, other than more bus routes, that difficult walks to bus stops can be addressed?



Minimize Waiting - concentrate service into frequent routes on some roads

Even with the longer walk, the shorter wait makes many peoples' journeys faster

Average Wait: 7.5 mins. Average Wait: 15 mins. Full Wait: 15 mins. Full Wait: 30 mins. Ms. Kelly Ms. Kelly K 6 min. walk 2 min. walk Route A Route B Route B Route A Every 30 minutes Every 15 minutes Every 60 minutes Every 30 minutes То То То То City Centre City Centre City Centre City Centre

Minimize Walking - Divide service into parallel, infrequent routes on all roads

Walks to a bus stop are short, but people spend a lot of time waiting.

On average:

- + 4 mins more walking
- 7.5 mins less waiting
- = 3.5 minutes faster

Worst-case, if you just missed your bus:

- + 4 mins more walking
- 15 mins less waiting
- = 11 minutes faster



4.1 Let's Get Moving

The Opportunity

We have a brilliant opportunity with the bus to change peoples' lives and address the climate crisis. This is because:

- Buses are a proven, efficient and cost-effective way to deliver a wide range of crucial objectives for society and the environment
- Bus services are quick to deploy and scale up
- Buses are a great way to rapidly decarbonise transport

When bus networks really work, they provide freedom. People can count on the bus to be there for them, whenever and wherever they need to go, connecting them to employment, education, healthcare, entertainment and friends and family, thereby improving prosperity and well-being.

There is a need to address both the form and function of the bus network to make it truly useful, so that people respond and make use of that network.

Addressing the challenges

Whilst we currently face many challenges, the need to address the impact of transport on the climate is paramount and will require public transport usage to increase exponentially. Due to the pressing timescales associated with the climate emergency, and relatively complex and therefore lengthy period required to deliver rail improvements, **bus will need to play the leading role in achieving carbon reduction from transport over the next decade.**

The following information sets out major initiatives that are in progress, or proposed, to enhance the bus network.



Strategic Review of Bus Network

At this time, work is ongoing to determine the carbon budget (level of carbon emissions) that transport must stay within if legislated targets for reducing emissions are to be met. It is already clear that achieving these targets will necessitate public transport journeys in NI increasing from c.80 million to potentially hundreds of millions per year.

Achieving this level of growth will require significant changes to the existing bus network. To commence this process, a wide-ranging review of bus services is needed. This will have to address the requirement for greater frequencies on main corridors and enhanced connectivity utilising interchanges.

In addition to the emerging Climate Action Plans, this strategic bus network review will also take cognisance of, and align with, proposals arising from the evolving Transport Plans and Local Development Plans. By doing this, the aim would be to inform land use planning so that there is better integration of land use and public transport, thereby reducing car dependency.



Bus Priority

Development of the Glider system in Belfast has demonstrated the value and benefits of a whole system approach to the bus network, delivering bus lanes and other bus priority measures in tandem with new vehicles, a new ticketing system and halts, as well as enhanced services.

With the roll-out of new zero-emission vehicles and the new integrated ticketing system, a similar approach could be adopted, with the delivery of significantly enhanced bus priority across the network, but particularly focused in the major towns and cities. Reallocation of road space away from private car usage to public transport will be essential if we are to achieve the massive increases in bus usage that are required to meet the climate challenge.



Park & Ride

The number of journeys made, and the distance travelled by carbon-emitting cars, will have to reduce significantly.

Given the need to reallocate road space in our urban areas and limit the number of cars within them; and given the dispersed and growing rural population, Park & Ride (P&R) will play an increasingly important role in facilitating access to public transport.

An ongoing programme has delivered significant growth in the provision and use of both bus and railbased P&R facilities. There are now over 60 P&R sites providing over 10,000 parking spaces across Northern Ireland; around half of the sites are served by bus. The programme aims to increase the number of spaces by a further 20% over the next 5 years.



Decarbonised Bus Fleet



Translink's Climate Positive Strategy sets out bold ambitions to reduce carbon emissions. In tandem with the key role that Translink plays in encouraging and enabling modal shift to sustainable transport, there are plans to decarbonise the bus fleet.

The programme to replace the bus fleet with a zeroemission fleet began in 2021/22 with 103 zero-emission vehicles, including battery-electric and hydrogen fuel cell vehicles. A further 43 battery-electric vehicles added to the fleet, helping make the entire urban fleet in Derry~Londonderry zero-emission and a further 100 are on the way to be rolled out to locations across NI.

In addition to removing carbon, the zero-emission vehicles will also help to improve air quality, particularly in our towns and cities.



Integrated Ticketing System

The introduction of a new account-based ticketing system will provide a network-wide, integrated system across bus and rail, offering contactless payment options and capped fares.

The new system will transform and simplify the way in which customers use public transport. It will reduce the barriers that may deter people from trialling bus.



Belfast Grand Central Station

The station will provide local and international connectivity for millions of passenger journeys each year. Due for completion in 2025, it will significantly increase the capacity to accommodate additional bus and rail services, facilitating the improved integration of services and providing enhanced access both to and from Belfast and more widely throughout the island of Ireland. It will also facilitate improved integration of walking, wheeling, cycling and public transport.



Glider Phase 2

Glider has transformed public transport in the areas of Belfast that it serves, increasing patronage on the corridors by over 70%. However, there is a pressing need to build on this success and deliver additional Glider routes, beginning with the introduction of a north-south service across Belfast, terminating in the neighbouring Lisburn and Castlereagh and Antrim and Newtownabbey council areas respectively.

Work should commence imminently on the introduction of bus priority measures to facilitate the new Glider routes, as this will deliver benefits in the short-term to existing bus services and accelerate modal shift to sustainable transport.





Integration of Active Travel and Public Transport

People's travel patterns are becoming increasingly diverse, with this trend having been exacerbated by the covid pandemic and the associated increase in hybrid working and more local journeys.

To offer viable alternatives to the car for the growing variety of trips, it will be necessary to facilitate more multi-modal journeys through better integration of sustainable modes, particularly active travel and public transport.

Translink, in conjunction with key stakeholders and delivery partners, is currently progressing plans to provide improved cycle facilities at public transport interchanges, deliver integrated mobility hubs that provide easier interchange between modes and enhance active travel linkages to public transport facilities.

This is an area of transport planning that will need increased focus as we seek to decarbonise transport and provide people with attractive, convenient, accessible alternatives to the car.



Data and Information Management

As we seek to make much more impactful changes to how transport operates in NI, we will need to gather more data and make more use of it. Only by doing this will we fully understand the scale of change needed and the impacts that different interventions have.

In addition to providing evidence to plan and effect change, data can also be used to better inform customers. In addition to developments such as the new ticketing system and data initiatives to improve fleet and operational performance, Translink is progressing plans to expand real-time passenger information and audio-visual announcements across the bus network. This will provide a step-change in the level of bus service information for customers across NI, bringing them in line with what is already provided in Belfast.



In conclusion, it is apparent that interventions in our most populous urban areas will have the greatest impact in reducing transport emissions through modal shift to public transport, and therefore tackling the climate challenge. However, with a growing rural population, there is a requirement to develop and deliver sustainable public transport options that meet the needs of people in rural areas.

The journey to transform public transport has commenced, but the scale of the challenge ahead is enormous. **Bus has a major role to play in meeting this challenge.**



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Appendix A

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Transport & Land-Use

The government's approach to transportation, regional development and land-use is shaped by key documents including:

- The Regional Development Strategy 2035 (RDS) is a statutory document which sets out the framework for the spatial development of Northern Ireland and aims to take account of the economic ambitions and needs of the region, putting in place spatial planning, transport and housing priorities; limit environmental impact and reduce harmful emissions. It's vision for regional transportation has sustainability is at its core 'to have a modern, sustainable, safe transportation system which benefits society, the economy and the environment and which actively contributes to social inclusion and everyone's quality of life'.
- Ensuring a Sustainable Transport Future A New Approach to Regional Transportation has similar aims to the RDS to 'provide a transportation network that supports economic growth while meeting the needs of all in our society and reducing environmental impacts'.
- Planning for the Future of Transport Time for Change does not constitute new government policy, rather it aims to act as a guide to illustrate how existing policies can support sustainable transport solutions when developing transport plans and in the prioritisation of investment across the regional network.

It has a key aim to increase the percentage of journeys made by walking, wheeling, cycling or public transport and advocates a modal hierarchy where public transport is favoured and prioritised above the use of private vehicles. It advocates three primary approaches:

- Carbon reduction using existing policy tools and emerging technology
- Pro-active planning and design taking direct steps towards desired outcomes
- Integrated land-use and transport planning securing short-, medium- and longer-term changes

A key aim is to increase the percentage of journeys made by walking, wheeling, cycling or public transport. There is a particular focus on encouraging all shorter journeys to be made by these modes. A modal shift requires a new focus on the movement of people and goods rather than private vehicles.

For longer journeys this means an increased focus on public transport options, while settlements should adopt a modal hierarchy as part of their urban form putting walking, cycling and wheeling before motorised forms of transport.

Strategic Planning Policy Statement (SPPS)

The SPPS sets out the Dfl's regional planning policies for securing the orderly and consistent development of land in Northern Ireland under the reformed two-tier planning system.

The provisions of the SPPS must be taken into account in the preparation of Local Development Plans and are also material to all decisions on individual planning applications and appeals.

The policy states that successful integration of transport and land use is fundamental to the objective for furthering sustainable development. Planning has a vital contributary role for improving connectivity and promoting more sustainable patterns of transport and travel.

Emerging Local Development Plans (LDPs) and Local Transport Plans

The purpose of the emerging LDPs is to provide a blueprint which will guide new development in each council area in Northern Ireland, ensuring that there is enough land for areas of housing, employment and community facilities whilst protecting important landscape and environmental features.

Local Transport Studies have already been developed by the DFI in order to provide clarity on the transport measures that the Department expect to deliver during the LDP period.

The subsequent Local Transport Plans which will go alongside the LDPs will provide the opportunity to assess the transport needs, problems and opportunities within the plan area and to ensure that appropriate consideration is given to transportation issues in the allocation of land

for future development, including appropriate integration between transport modes and land use.

This process will identify active travel networks and provide a range of infrastructure improvements to increase use of more sustainable modes. In particular, within urban areas, providing enhanced priority to pedestrians, cyclists and public transport and an appropriate level of parking provision which is properly managed, should assist in reducing the number of cars in our urban areas.

Emissions, Air Quality & Decarbonising Transport

Climate Change Act (NI) 2022

The Climate Change Act (NI) 2022 is legislation that was enacted by the NI Assembly in 2022 and sets out targets for 2030, 2040 and 2050 for the reduction of greenhouse gas emissions. It also provides for a system of carbon budgeting and imposes duties on public bodies to report progress against targets and budgets.

The Act outlines the following emission targets for 2050 that all departments must meet:

- Ensure net emissions for the year 2050 are at least 100% lower than the baseline value.
- Ensure net carbon dioxide emissions for the year 2050 are at least 100% lower than the baseline value.

• Ensure net methane emissions for the year 2050 are more than 46% lower than the baseline value

Transport is the second highest emission source in Northern Ireland after agriculture, with the overwhelming share of the transport sector's emissions coming from private car travel. Furthermore, transport emissions have hardly reduced in the last three decades. There needs to be a huge change in societal behaviour around transportation in order to meet Climate Change Act targets.

Belfast Air Quality Action Plan (AQAP) 2021 – 2026

The AQAP outlines the actions that Belfast City Council, its Competent or Relevant Authority partners and other city organisations or bodies will deliver from 2021 to 2026 in order to reduce ambient concentrations of air pollutants and exposure to air pollution; thereby positively impacting on the human health and quality of life for residents and visitors to Belfast.

Modal shift away from the private car to active modes and public transport are highlighted as key priorities in the AQAP. Increased levels of walking and cycling, combined with improvement to public transport can reduce congestion and consequently improve ambient air quality across Belfast.

Greater levels of longer-distance sustainable transport from dormitory towns and rural areas must be facilitated.



Air Quality Management Plans

Local Air Quality Management requires district councils in Northern Ireland to review and assess a range of air pollutants against the objectives set by the Air Quality Strategy, using a range of monitoring, modelling, and other methods.

For locations where objectives are not expected to be met by the relevant target date, district councils are required to declare an Air Quality Management Area (AQMA), and to develop an Action Plan to outline measures to reduce air pollution. There are currently 19 active AQMAs in Northern Ireland.

Each Council undertakes annual screening assessments and reports progress to ensure that local and national air quality objectives will be achieved in order to protect peoples' health and the environment.

Rural Needs Act (NI) 2016

The Act introduces a duty on NI departments, district councils and other public authorities to have due regard to rural needs and undertake a rural needs impact assessment when developing, adopting, implementing or revising policies, strategies and plans, and when designing and delivering public services.

As a result of the Rural Needs Act, public authorities must give due regard to rural needs within policy making and when taking decisions, carry out the duties in line with DAERA guidance, make arrangements for monitoring and reporting on how the duty is being met and undertake annual reporting.

The Act seeks to help to deliver fairer and more equitable treatment for people living in rural areas, delivering better outcomes and making rural communities more sustainable.

Translink are not yet a designated body named in the Act, however this is due to change in the future.



Connecting Ireland

Connecting Ireland is a major public transport initiative in the Republic of Ireland developed by the National Transport Authority. Outside of major urban areas in Ireland, settlements are highly dispersed, with 30% of people living in rural areas. The initiative aims to increase connectivity, particularly in terms of rural mobility through improved connections between towns and villages by linking these areas with an enhanced regional network which connects cities and regional centres nationwide.

The initiative aims to improve public transport provision for rural communities by improving existing services; providing new services; and enhancing the current Demand Responsive Transport network which meets the transport needs of those people living in remote rural locations.

Decarbonising Transport: A Better, Greener Britain (DfT)

The UK government was the first major economy to set legally binding carbon budgets in order to end its contribution to climate change; by 2050 the UK must have net zero emissions. However, UK transport is the largest contributor to domestic greenhouse gas emissions (27% in 2019).

Decarbonisation measures must also simultaneously deliver wide ranging benefits such as improving air quality, noise, public health, reducing congestion and delivering highquality jobs and growth for society. This Plan outlines actions to decarbonise each UK transport sector by 2050 alongside timings.

The Plan identifies strategic priorities in order to achieve zero emissions by 2050, including:

- 1. Accelerating modal shift to public and active transport a net zero public transport network.
- 2. Decarbonising road transport new non-zero emission vehicles to be phased out by 2040.
- **3.** Decarbonising how we get our goods utilise zero emission technologies and more sustainable transport modes.

- 4. UK as a hub for green transport technology and innovation – will facilitate economic growth and job creation.
- 5. Placed-base solutions to emissions reduction changes to how local transport infrastructure is funded to drive decarbonisation at a local level. Local and regional organisations are often best placed to make decisions that will deliver the practical changes required.
- 6. Reducing carbon in a global economy a net zero aviation industry by 2040 and shipping industry by 2050.

Overarching Policy

Programme for Government

The Programme for Government framework outlined the Executive's commitment to developing a long-term strategic programme based on a shared and strategic vision for the future which aims to improve wellbeing for all.

The programme outlines nine societal outcomes. Transport specifically contributes to three of those outcomes as detailed below, although transport could make a significant contribution to others such as *Outcome 1: Our children and young people have the best start in life;* and *Outcome 4: We all enjoy long, healthy and active lives.*

Outcome 2. We live and work sustainably – protecting the environment. This states the need to take a 'Green Growth' approach when managing our resources, reducing carbon emissions, and achieving sustainable economic growth.

Ensuring infrastructure is integrated, efficient and sustainable, whilst also encouraging people to make environmentally responsible choices is key to achieving this outcome. The framework states key priority areas for each outcome. 'Active and Sustainable Transport' is one of the key priority areas for this outcome in which safe, active, and sustainable transport should be promoted.

Outcome 6. Our economy is globally competitive, regionally balanced and carbon neutral. This states the importance of growing the economy in a sustainable way that supports and protects the environment. The framework strives to grow the economy in an environmentally friendly way which helps tackle climate change and strives for low-carbon/zero-carbon alternatives. The need to develop physical infrastructure is stated as a key priority area for this outcome.

Outcome 9. People want to live, work and visit here. This outcome relates to retaining and attracting people to live and work in Northern Ireland whilst also providing opportunities for people to take part in the things they enjoy, in which transport plays a crucial role. Furthering sustainable development through planning is listed as a key priority area.

Energy Strategy for Northern Ireland 2050

The Energy Strategy sets out a long-term vision of net zero emissions and affordable energy for Northern Ireland. It aims to promote the highest levels of energy efficiency, helping to reduce the amount of energy needed whilst ensuring the energy that is used comes from clean, renewable sources. To deliver this, the strategy aims to deliver a 56% reduction in energy-related emissions. Transport is a key focus in two of the four key aims i.e. "do more with less" – help consumers to change how they use energy and "replace fossil fuels with renewable energy" – decarbonise transport.

The strategy sets out several complementary pathways to encourage a more proactive and interventionist approach to shaping choices in order to deliver behavioural changes at pace, including:

- Reduce vehicle numbers and journeys by maintaining flexible working arrangements, promoting home working, using digital platforms to access public, shared and private transport services to facilitate car sharing; and supplement with further measures such as parking charges, less parking availability and congestion charges.
- Create an environment in which it is easy for people to travel using public transport, walking or cycling; building on recent highlighted projects and involving reallocating road space to develop relevant infrastructure, simplifying fares and ticketing, and introducing pedestrian zones.
- Change the distance people need to travel by carefully planning and creating connected spaces that ensure the places we want to live, work, socialise and shop are located close to one another a 15-minute neighbourhood and are well served through hubs that link walking, cycling and transport infrastructure.

- Use new technologies to change travel habits. This could include innovative solutions such as mobility as a service, e-bikes/e-scooters and shared transport services that are facilitated by electronic systems and provide flexibility in real-time to passengers demands for pick-up and drop-off.
- Deliver communications to people to provide them with the necessary information to make changes alongside raising awareness of the benefits of different travel methods for their finances, health and wellbeing.

Draft Green Growth Strategy for Northern Ireland

The Green Growth Strategy is the multi-decade strategy set out by the Northern Ireland Executive that looks to tackle the climate crisis by balancing climate action with environmental and economic considerations.

The strategy looks ahead to a future where Northern Ireland transitions from a high to a low greenhouse gas emissions society to improve quality of life for people through the creation of green jobs and a clean environment.

There is a commitment to develop Northern Ireland's first Climate Action Plan and set out how it is intended to deliver the 'carbon budget' for the initial five-year plan period from 2023 to 2027. It will also outline how the overall emissions reduction targets stated in the Climate Change Act (Northern Ireland) 2022, such as the UK's net zero by 2050 ambition, will be achieved. There is however more to Green Growth than just meeting climate targets as it considers green jobs and there is an aspiration to develop a low carbon, skilled workforce. Green jobs contribute to climate action and a clean environment and will provide new opportunities for people to find different types of work, for example jobs in wind or solar technology.

An important aspect of the strategy is that it will introduce a statutory Green Growth Test so climate action, the environment and green jobs are considered in the appraisal of all policies and projects for which there are public funding implications. The Test will ensure proposals that have adverse impacts on emissions reductions and the Green Growth principles are identified and the relevant authority will have a duty to consider how these might be reduced.

It is acknowledged that the transport industry has not seen falls in emissions since 1990, and now accounts for a higher proportion of our emissions than thirty years ago. Green Growth will require new ways of doing things and the significant changes in technology the transport industry will see could present windows of opportunity to reduce emissions and ensure that our natural assets can deliver their full economic potential on a sustainable basis.

Translink Strategies

Through investment, Translink has delivered notable improvements in recent years through the introduction of the Glider, as well as the development of P&R facilities and new stations.

Better. Connected (2030) focuses on the need to set high service standards for punctuality and reliability, and to meet and exceed customer expectations. These strategies will help to improve the public transport service offering for existing customers as well as attract new customers. Better Connected outlines the steps and actions required to deliver a sustainable mobility network for NI; with a focus on climate action and air quality, it aims to put sustainability at the heart of decision making.



Delivering high service standards, meeting and exceeding customer expectations, providing high levels of public transport accessibility and identifying actions to reduce emissions are the four key objectives Translink has identified in order to successfully deliver this strategy.

Translink has committed to achieving three overarching decarbonisation targets: reducing emissions by at least 50% by 2030; achieving net zero for all Translink buses, trains and buildings by 2040; and going beyond net zero to create an environmental benefit while growing the business.

In order to achieve these targets, Translink's **Climate Positive** strategy outlines three overarching priorities and associated high level actions which focus on: achieving a greener fleet of vehicles; greener and sustainable infrastructure; and greener business which reduces emissions and protects biodiversity.

Actions to achieve net zero fleets by 2040 include replacing the existing Metro fleet with zero-emission buses and ensuring all Metro and Goldliner fleets meet Euro VI Diesel Engine Emission standards by 2022, as well as other key actions. It is anticipated that this strategy will result in Translink's bus fleet emitting 61% less CO2, 90% less NOx and 91% less PM emissions by 2030 compared with the 2019 fleet emissions.



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