

Developing system-level interventions to reduce car dependency for improved population health in Belfast

Policy mapping and socio-technical transitions



January 2023



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Key issues



- There are a large number of strategies and policies that emphasise the need to reduce car dependency, strengthen public transport, walking and cycling; and address climate change. Despite such commitments, performance on reducing car dependency overall has not changed significantly in the last decade.
- Strategic and local planning policy, transport strategies and urban regeneration (and related housing) frameworks for Belfast also emphasise the need for compact settlement forms that promote cycling and walking at the expense of the car. However, a number of key strategies, especially in active travel are still draft and have been for some time, making programme integration difficult.
- The Regional Transport Strategy in 2002 outlined an integrated investment in rolling stock, the bus fleet, staff and infrastructure and arrested decades of decline in the use of public transport as well as levels of walking and cycling. The strategy was revised in 2012 but lacked the same approach to multi-modal investment planning, especially to reduce car dependency.
- The relationship between investment-led transport planning, multi-modal strategies and a close link between spatial planning and transport was important in effecting the shift in usage patterns between 2002 and 2012. Investment in public transport, walking and cycling has continued, but not as much as for roads and not with the same financial-led approach.
- In 2017/18, public transport and rail in Northern Ireland received funding of £84 per head, the lowest of all UK regions, which is 27% of the UK average expenditure. Since 2013, Translink's funding per capita has decreased in real terms and in comparison with Britain.



- The road network also suffers from lack of investment in planned maintenance and repair. A total of £143m is required annually to maintain the road network in Northern Ireland in a steady and sustainable state but that £92m was the average annual funding spent on structural maintenance allocated over the past five years (base=2019). Moreover, the average additional funding required each year to maintain the road network in a steady state is £51m pa.

- The analysis shows that where positive policies (Regional Transport Strategy), modal investment (Glider, Urby, Belfast Bikes and so on) and area-based initiatives (Belfast on the Move) are in place, clear outcomes on car reduction can and have been achieved.

- Capital and revenue investment has been skewed to roads over walking, cycling or public transport which has created path dependence and car lock in around spending allocations. The funding model for Translink is highly reliant on fare income which makes it difficult to extend the service reach, notwithstanding the important investment made in the Glider, Urby and Weaver's Cross.



- The economic discourse in roads-based policy and how it interacts with health, social and environmental discourses is an issue that can be developed in the interviews and in the reality of transitions processes. Transitions should not imply a type of system failure but recognise there are economic interests, political weight and most important financial barriers to developing alternatives to reliance on the car.

- The investment-based planning evident in the original Regional Transport Strategy would make the allocation of resources between modes and then the outcomes over type and time more transparent. Official statistics should be published on annual investment in public transport so that output and outcome data, especially on the balance of modal travel can be better understood.

- There is a spatial disconnect in that some transport services are delivered at the Belfast Metropolitan Area and regional scale but land use planning is still focused on the local authority, separate policy structures and different modal delivery. Ultimately, there needs to be a more integrated, programme and cost-centred approach to reducing car dependence and developing walking, cycling and public transport.

1. Introduction



This paper sets out a high-level review of policies and programmes related to car dependency in Northern Ireland in general and Belfast in particular. It should, of course, be acknowledged that these policies relate to global connections and to links East-West and North-South, especially in the context of Brexit¹. The Programme for Government sets the overall policy framework and has as a central commitment ‘Active and Sustainable Transport Promotion’ which is about access to safe, ‘active and sustainable transport to encourage people to make environmentally responsible choices about transport’ (TEO, 2021, p.15). This is taken forward in a policy arena that connects transport, strategic and local planning, urban policy and community development, which are outlined in this paper. The analysis aims to provide a context for the policy interviews and the Innovation Lab around the need to reduce car dependency and how various strategies, policy instruments and projects might play a role in such an objective.

Aim of the paper

The policy paper has four aims:

1. To review the scope of the policy arena and in particular the relationship between spatial planning and transport over time;
2. To describe the key policies, programmes and investments in transportation in the Belfast Metropolitan Area;
3. To evaluate the relationship between transport, land use planning and urban policy in relation to car dependency and other modes of travel; and
4. To highlight the priorities of area-based communities on transport and connectivity as it affects their neighbourhoods.

Structure of the paper

The next section (2) sets policy in its historic and institutional context by looking in particular at the relationship between transportation and spatial planning at the regional and sub-regional levels. This is followed in Section 3 by a short analysis of investment and outputs and in particular, how capital and revenue allocations have impacted on modal use. Section 4 looks in more detail at programme delivery in Belfast, the impact of particular initiatives and community priorities, especially around connectivity. The final section (5) sets out the cross-cutting themes that provide a context for the in-depth interviews and the Innovation Lab discussion.

¹ <https://www.infrastructure-ni.gov.uk/news/ministers-announce-launch-all-island-strategic-rail-review>

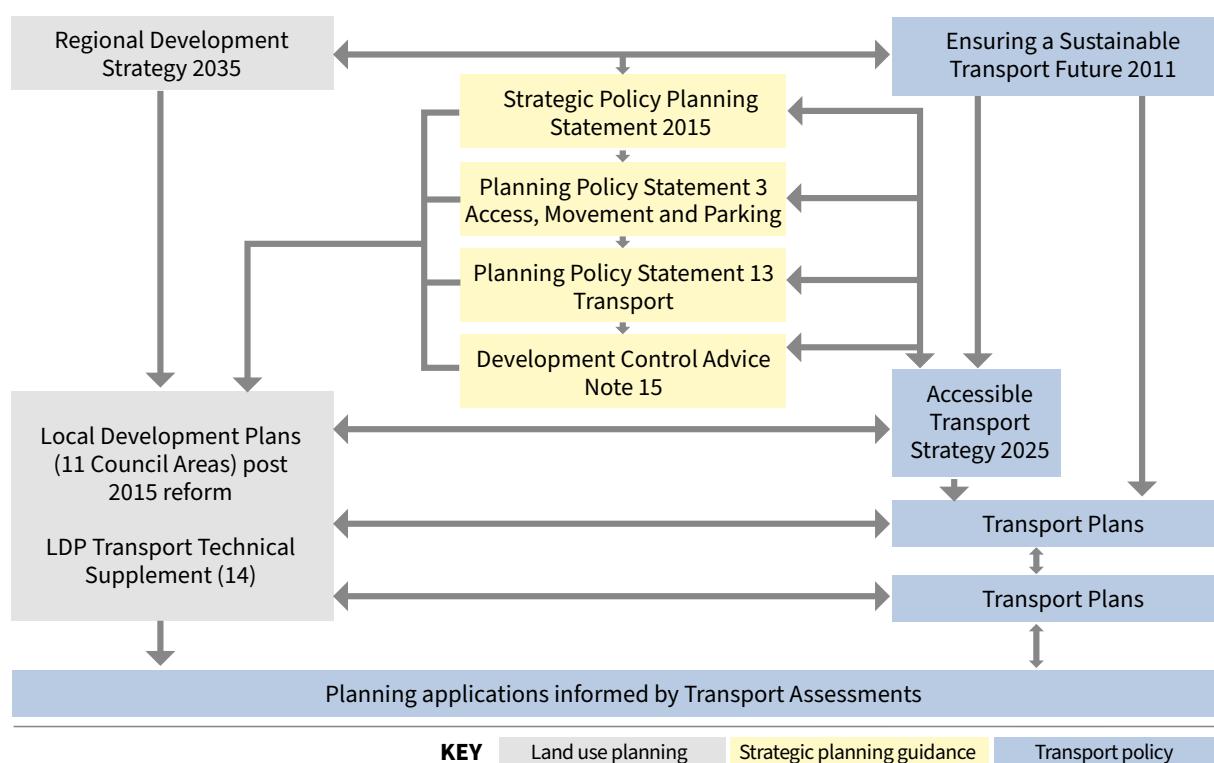
2. The transportation policy arena

This section describes the policy arena at a Northern Ireland level. In particular it looks at transport and planning policies and the relationship between them but also at a range of initiatives that have implications for reducing car dependency. These include accessible transport, active travel and urban regeneration policy.

Transport and planning interface

The policy context for transportation in Belfast relates to strategic and local planning, urban regeneration, housing and neighbourhood development strategies. The overarching *transport* policy is outlined in the diagram below which emphasises the context set by the *Regional Development Strategy 2035* (DRD, 2010); the *Strategic Planning Policy Statement* (SPPS) (DRD, 2015), *Planning Policy Statements* (PPSs 3 and 13), and *Development Control Advice Note 15*. DCAN 15 is *Vehicular Access Standards*, which covers detailed aspects of siting, design, visibility and safety of road layouts on new developments. *Ensuring a Sustainable Transport Future: A New Approach to Regional Transportation* (DRD, 2011) relates to the RDS 2035 and also provides a context for the draft *Accessible Transport Strategy 2025* (DRD, 2014) and specific transport plans and studies that also link in with the new wave of Local Development Plans (LDPs). The LDPs are in various stages of preparation by the 11 post-2015 Council areas that followed the Reform of Public Administration in Northern Ireland.

Figure 1 Policy context for transport in Northern Ireland



Source: Based on DoE(NI) (PPS 13) 2005, p.4

The Regional Development Strategy for Northern Ireland 2035

Fundamentally, the RDS (and related strategies) support the modal shift away from the car, not just in transport but in the encouragement of compact neighbourhoods, environmental sustainability and developing land within the existing urban footprint to reduce extended commuting. Specifically, the strategy recognises the importance of planning to address the consequences of climate change and the need to focus on where people live and work and how transport and energy needs are planned together. Here, the strategy emphasises through RG9 **Reduce our carbon footprint** and facilitate mitigation and adaptation to climate change whilst improving air quality by reducing greenhouse gas emissions from transport, creating more compact neighbourhoods and by increasing opportunities for walking, cycling and public transport. It also proposes more fuel-efficient options and vehicles which do not rely on fossil fuels, electric vehicles and better infrastructure (for alternatives to the car).

A key aspect of regional transport is that it is also viewed primarily as an economic and not just an environmental, let alone a health priority. SFG15 is **Strengthen the Gateways for Regional Competitiveness**, which states that an efficient economic transport system is an economic driver but that a heavy reliance on the car and associated increased congestion levels in Belfast has had an adverse impact on both journey times and emissions. As the policy review notes, this tension between economic competitiveness and environmental sustainability characterises a range of policies at different levels of the planning system.

RG2, to some extent, addresses this tension by aiming to **Deliver a balanced approach to transport infrastructure** stating that ‘to remain competitive in the global market it is important to continue to promote transport which balances the needs of our environment, society and economy’. It sets out a new approach to transport in that ‘we need to maximise the productivity of our transportation network, particularly the use of well maintained finite amount of road space. The capacity of road space can be increased by moving people in a more efficient way and by providing more attractive transport choices’ (DRD, 2010, p.35). Increasing the use of road space will, the strategy acknowledges, require an improvement in the public transport service:

Continued investment in public transport and in infrastructure such as the development of quality multi-modal facilities and park and ride sites, will encourage motorists to take the bus or train for the main part of their journey and reduce the volume of traffic on the network. (DRD, 2010, p.35)

The strategy also acknowledges that such an approach also aims to deliver better social inclusion outcomes:

This will mean seeking innovative public transport services including transport programmes focused on the user and services that meet the needs of communities. These will include Door-to-Door services, demand responsive services, Rapid Transit and services tailored to the needs of older people and people with disabilities (DRD, 2010, p.35)

The RDS specifically identifies the tension in managing the movement of freight over safety, compliance, sustainability and the potential conflict between bus priority on roads and the delivery and collection of goods from shops. ‘We need to ensure that freight transport remains competitive in a sustainable manner and that the movement of goods is undertaken in an efficient, safe and compliant way. This is essential if businesses are to be competitive in a global market place’ (DRD, 2010, p.35). The competing discourse in these strategies is an area that needs to be teased out in the interviews, especially in how they position road and economics over active travel and health.

The importance of connectivity, competitiveness and business efficiency in road-based freight, linked to the economic performance of Northern Ireland cannot be underestimated. This is reinforced in the *Northern Ireland Economic Strategy* (TEO, 2012) which states that:

Progress the upgrade of key road projects and improve the overall road network to ensure that by March 2015 journey times on key transport corridors are reduced by 2.5% (and) Improve the landscape in public areas to promote private sector investment in towns and cities across Northern Ireland. (TEO, 2012, p.12)

The primary objective is building a modern and efficient transportation system to strengthen connectivity within and between countries and regions, which is essential for moving both goods and people;

This new approach seeks to build on what has been achieved to date and suggests a better way of prioritising strategic transportation interventions. It provides for a refocusing of transport policy that concentrates on moving people and goods rather than vehicles, with a complementary focus on better maintaining our existing infrastructure and using it in a smarter way. (TEO, 2012, p.68)

Strategic planning policy

The Strategic Planning Policy Statement (SPPS) (DfI, 2015) for Northern Ireland has rationalised regional guidance and provided a stronger context for policy delivery at local authority level. The SPPS itself underscores the need to better integrate land use and transport, improve connectivity and to create a more sustainable transport infrastructure. It makes a connection between better public health and transport. Planning Policy Statements 13 (Transport and Land Use now in the SPPS) and PPS 3 (Access, Movement and Parking) remain in place until the 11 Council Local Development Plans (LDPs) are adopted.

PPS 13 was especially important in guiding the implementation of the RDS and directly challenges the regions’ traditional reliance on the car and its socio-environmental impacts:

Whilst the car brings advantages in terms of personal mobility, its use contributes to environmental problems in our cities and towns. Also, an emphasis on the car in the planning of development increases car dependency as well as influencing the built form and layout of urban areas. (DRD PPS 13, 2005a, p.8)

These commitments are strengthened within the SPPS that include specific regional strategic objectives for transportation and how it relates to land-use planning:

- Promote sustainable patterns of development which reduce the need for motorised transport, encourages active travel, and facilitate travel by public transport in preference to the private car;
- Promote the provision of adequate facilities for cyclists in new development; and
- Promote parking policies that will assist in reducing reliance on the private car and help tackle growing congestion. (DfI, 2015, pp.106-07)

Integration between land use and transport will be achieved by promoting sustainable transport choices; promoting accessibility for all; and ultimately reducing the need to travel, especially by fossil fuelled powered private car. This is connected with PPS 3 Access, Movement and Parking, which interprets these principles into more detailed guidance for development plan and development management processes. This, for example stresses:

- The need to make efficient use of road space within the context of promoting modal shift to more sustainable forms of transport;
- ensure that new development offers a realistic choice of access by walking, cycling and public transport, recognizing that this may be less achievable in some rural areas;
- ensure the needs of people with disabilities and others whose mobility is impaired are taken into account in relation to accessibility to buildings and parking provision;
- promote the provision of adequate facilities for cyclists in new development;
- promote parking policies that will assist in reducing reliance on the private car and help tackle growing congestion; and
- protect routes required for new transport schemes including disused transport routes with potential for future reuse. (DoE PPS 3, 2005b, p.10)

Transport assessments

A key policy instrument in the context of car dependency and transition are *Transport Assessments* (DRD and DoE, 2006). These require developers (public, private or the voluntary and community sector) to review the potential transport impacts of a development or re-development, with an agreed plan to mitigate any adverse consequences. Critical in this regard is exploring how a particular proposal might create more sustainable travel patterns and it should, where appropriate, propose measures designed to promote access to the site by walking, cycling and public transport, while reducing the role of car access as much as possible. The methodology for the Assessment sets out detailed analysis of travel characteristics, how the effect of the proposed development would impact on such behaviours and critically how modes including public transport, rail, bus, walking and cycling can be developed in favour of the car.

Regional transport policy

It is worth emphasising that the first *Regional Transportation Strategy* (DRD, 2002, p.35) emphasised the poor performance of transport in a sustained reduction in walking and cycling; increase in car use and especially for the school run; and declining public transport in which *Citybus* journeys fell from 25.4m journeys in 1995/6 to 20.3m in 2001. The RTS mapped on to the *Spatial Development Strategy* set out in the first RDS (DRD, 2001) and in particular emphasised the importance of connectivity within and between Belfast and other towns, the island overall and with Great Britain. The strategy aimed to spend £3,500m on transportation of which £2,181.1m (63%) was allocated to roads and £1,232.1m (35%) to public transport but as is shown, despite a considerable impact, this balance in investment has not been maintained.

The RTS was replaced (along with the new RDS, 2035) by *Ensuring a Sustainable Transport Future: A New Approach to Regional Transportation* (DRD, 2011). In reviewing the 2002 Regional Transportation Strategy, the new framework showed significant changes including an increase in freight; average traffic speeds were falling to 2007 and bus speeds were falling faster than the speeds for general traffic; there has been an increase in the average distance walked by Belfast residents but no real change across the rest of Northern Ireland; and there has been a much lower increase in cycling than the 2002 Strategy had anticipated. The revised strategy lacks the costed investment detail of the first plan but retains a complementary status with the Regional Development Strategy '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'. It has three overriding objectives including supporting the growth of the economy; enhance the quality of life for all; and reduce the environmental impact of transport. Again, there is little prioritisation to the objectives or how investments relate to particular aims (improved walking, cycling and so on) or commitments in the Programme for Government to explicitly reduce car dependency.

Accessible transport

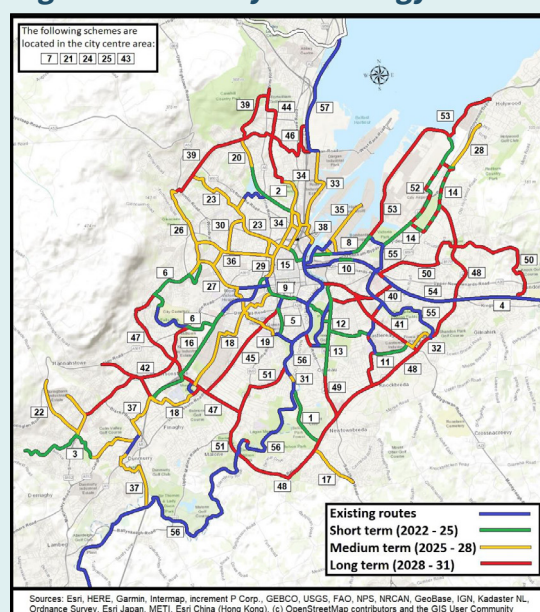
The draft *Accessible Transport Strategy 2025* (DRD, nd) recognises the particular barriers that older and disabled people face using public transport but is also relevant to a wider range of groups that have no access to a car, live in peripheral neighbourhoods or in socially disadvantaged areas. The strategy aims to enhance the accessibility of the public transport network, especially by improving access to buses, the design of bus stops and stations and improving information to open choices, especially to people with disabilities. It emphasises a collaborative stakeholder approach but does not outline costs, new investments or a time frame for the delivery of each thematic area.

Active Travel: Cycling and walking

The Department for Infrastructure has developed a wide range of multi-modal initiatives to promote active travel². The *Bicycle Strategy for Northern Ireland* (DRD, 2015) works through a three-pillar approach including building a comprehensive network for cycling; supporting cyclists; and promoting cycling as a mode of everyday travel. Further, the strategy outlines the hierarchy of users that places pedestrian, cycling, public transport, service vehicles and then private motor cars in that order (DRD, 2015, 2.6.2). Under the building infrastructure pillar, the first urban network for Belfast was launched for publication by DfI in 2022 and this is outlined in brief below (DfI, 2022).

The strategy aims over the 25 years to get to a point where over 12% of all daily trips made in the city would be made on the bicycle. The objectives are: to develop a comprehensive bicycle network; bring cycle routes within the reach of most people within the city; ensure a consistent level of service in the design of safe infrastructure; encourage use of the bicycle and promote safe cycling through increasing the amount of bicycle parking, providing more cycling education programmes. The map opposite shows the network with new routes across the city.

Figure 2 Draft Bicycle Strategy



Source: DfI, 2022

There is clearly an appetite for cycling evidenced by the extension of the Belfast Bikes scheme, which has 47 docking stations and over 300 bikes located across Belfast. In the month of March 2021, there were 28093 rentals with a strong concentration of usage in the city centre, Titanic Quarter and in particular the south of the city³. However, part of the problem with a number of these strategies is that they are still draft, despite the original consultation having taken place and it is unclear when the final plans will be produced, how they addressed the consultation responses or how they will be resourced. The lack of a strategy, a programmatic approach and in particular how and in what timeframe it will be resourced (and by whom) highlights the lack of relative status of cycling compared with road-based planning in particular.

The Department also aims to strengthen walking infrastructure, especially with through new greenway network (DfI, 2016). *A Strategic Plan for Greenways* also makes the connection between greenways, health and exercise but also to safety, connectivity especially for disadvantaged communities and local economic development. The strategy proposes 27 greenways, covering 1036 miles at a cost of £149.5m. The spatial integration of these greenways with cycling, transport nodes (such as Weaver's Cross) and strategic connectors with Metro, Glider and rail services is clearly an area that needs to be considered in greater detail.

² <https://www.infrastructure-ni.gov.uk/topics/active-travel>

³ https://www.belfastbikes.co.uk/media/Performance_Indicators_March_2021.pdf

Urban regeneration and placemaking

However, it is not just transport and planning policy that encourages a shift to public transport and walking. Urban design and housing layout guidance recognises that housing layouts need to ‘help reduce the use of cars and encourage walking and cycling, and provide links to public transport, the routes provided for pedestrians and cyclists should be laid out and designed to: be as direct as practicable in relation to local facilities, bus stops and railway halts, and provide attractive routes and accommodate conveniently and safely the numbers of pedestrians and cyclists likely to use the routes’ (DfI, 2020a, p,68).

The Department for Communities (DfC, 2020) are also reviewing their urban regeneration approach in areas of disadvantage. Here, they acknowledge that *disconnectedness* from labour markets, anchor urban institutions, education and services impact disproportionately on the poorest communities. Whilst they emphasise the importance of regenerating the internal economy of disadvantaged areas, they also recognise the vital importance of connectivity with the wider urban economy. Community based, demand responsive and informal transport options as well as more flexible alternatives to the car are critical in such strategies. This is picked up below on the *Urban Village* plans for the four sectors of the city.

3. Transport investment and performance

This section examines policy and programme investment over time and looks at the relationship between financial inputs and modal outputs in broad terms. It also describes the costs and benefits of Translink’s operation and trend data, including positive attitudes among young people to improved options for cycling and walking.

Trends in modal investment

It should be emphasised that considerable progress has been made in infrastructure investment and the development of more sustainable forms of public transport, walking and cycling. As noted earlier, the first Regional Transport Strategy (DRD, 2002) involved an investment of £3.5bn in fleet, service routes, infrastructure and railway rolling stock shifted the modal balance in a relatively short period of time and shows that policy and programme intervention does work to move toward sustainable options. The strategy outlined £1.23bn (35%) between 2002 and 2012 on public transport and £2.18bn (63%) on roads and one-quarter of the spend (£880m, 25%) in the Belfast Metropolitan Area (BMA) (DRD, 2002, p.5).

The table below shows the change on public transport performance over the life of this strategy and the progress that was made after 2012 (since the new regional transport plan was adopted). This emphasises the systematic shift in journeys, receipts and infrastructure that was achieved across the strategies. The age of the bus fleet continued to decline, aided by the introduction of the Glider service. Receipts increased by 90%, although staffing rose by 9% emphasising the efficiencies enabled by strategic investment and service provision. Performance continued to improve after the first RTS, but at a much slower rate. Receipts were one-quarter of the growth in the last decade compared with the 10-years before.

Table 1 Public transport and strategic planning

Indicator*	2002/03	2011/12	Difference %	2019/20	Difference 2011/12 2019/20
Average age of buses	9.3 years	8.8 years	-5%	8.3 years	-6%
Total buses	257	282	10%	307	9%
Staff	672	731	9%	904	24%
Bus passenger journeys	19.9m	25.9m	30%	30.4m	17%
Receipts (£)	£18.50m	£33.40m	81%	£40.30m	21%
Rail passenger journeys	6.3m	10.7m	70%	15.1m	41%

*CityBus, Metro and Glider. Source: <https://www.infrastructure-ni.gov.uk/articles/northern-ireland-transport-statistics>.

The Belfast Metropolitan Area Plan 2015 (BMAP) included Belfast and surrounding Council areas of North Down, Castlereagh, Lisburn, Carrickfergus and Newtownabbey and did support a more strategic subregional approach to transport planning that saw a connection between the city, suburban communities and extended *Travel To Work Areas*. As the Local Development Plans now relate to the 11 Council Areas, there may need to be a rethink about how transport in Belfast again relates to the city region, supporting the need for a Northern Ireland and BMA approach to the integration of labour market, housing market and transport planning.

Expenditure and performance

We can see public expenditure on roads over time and across programmes such as new construction, maintenance, lighting and so on (DfI, 2020b). It shows that in 2019-20 total expenditure was £447m, an increase of 6% from the £422m in 2014-15 (DfI, 2020b, p.14). Comparator expenditure is not shown for public transport. In the 2021 budget, public spending on *Roads Rivers and Waterways* was £475m and spending on *Bus Rail and Ports* was £319m, a difference of 32% (DoF, 2021, pp.71-72). There are, of course, different logistic, capital lock-in and longer maintenance schedules but if the balance is skewed towards road spending, the type of systemic shift away from the car is not likely to be affected in the longer term. Comparator data on expenditure and outcomes by mode of travel would help shape a more programmatic approach, as was presented in the original *Regional Transport Strategy* for Northern Ireland (DRD, 2002).

Despite the increased levels of investment in public transport in the past decade, the DRD has made little progress in shifting the balance of funding from roads towards public transport. The proportionate indicative split for budgetary planning purposes in the RTS between roads and public transport over the period 2002-2012 was 62:35. The actual outturn was 70:28 and the Audit Office use DRD's 2012 RTS monitoring report to show in the table below that actual expenditure over the 10 years to March 2012 exceeded planned expenditure by £392 million (calculated at 2002-03 prices) (NIAO, 2015). However, within this, an additional £561m was directed towards road-based schemes, while public transport received £124m less than planned under RTS. In addition, McKibben (2017) showed that in 2015/16 Northern Ireland had the lowest spend on transport (all modes) as a proportion of all public expenditure at 2.1% compared with the rest of the UK. England was 5.0%, Scotland at 4.8% and Wales at 4.0% and unlike England and Wales the allocation had reduced since 2014/15 when it was 2.5%.

Table 2 RTS planned and actual expenditure 2002/3 to 2011/12

Mode	£m 2002-03 prices	%	£m 2002-03 Prices	%
Roads	2,176.1	62.2	2,737.6	70.3
Public Transport	1,227.4	35.0	1,103.5	28.4
Walk/Cycle	86.5	2.5	50.2	1.3
All/Other	10.0	0.3	0.6	0
Total	3,500	100	3,891.9	100

Source: NIAO, 2015, p.14

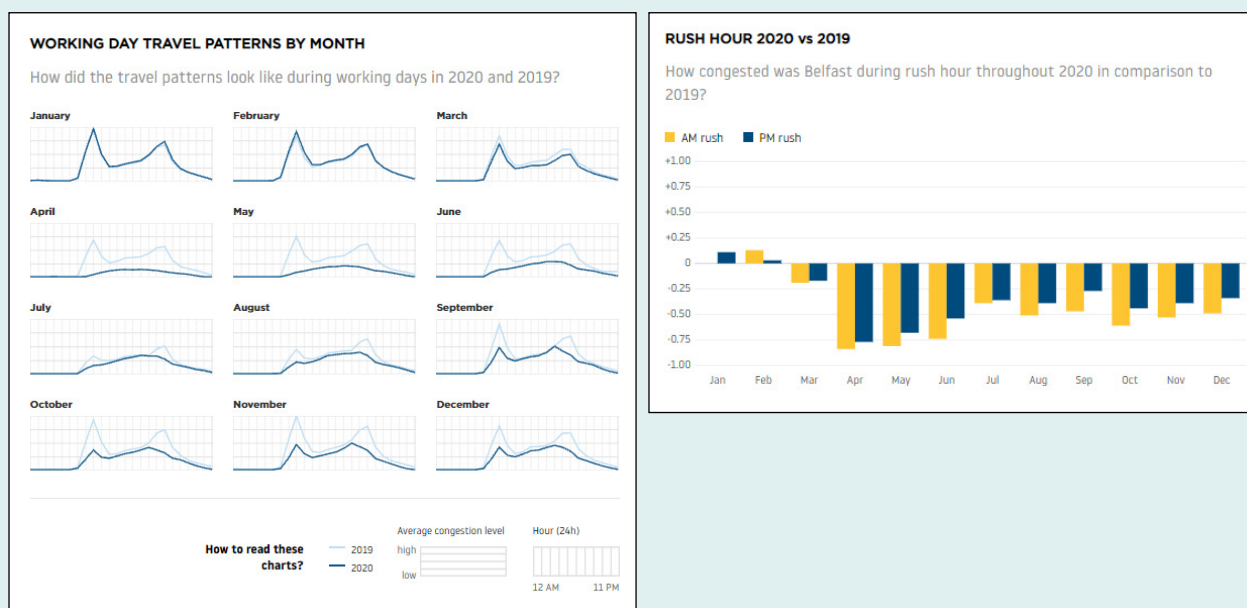
The NIAO (2015) benchmarked Translink nationally and showed that the level of service on the bus networks in Northern Ireland is comparable to Scotland and Wales but much less than England. Levels of service on the Ulsterbus network are higher than comparable regions in Britain but *Metro* service levels are less than similar city regions (NIAO, 2015, p.1). However, McKibben (2017) shows that the funding model is also different, with Translink far more reliant on earned income than direct grant. Translink total operating revenues are far more reliant on fare income (75% of total operating income) compared with 59% in England, 55% in Scotland and 48% in Wales. Ultimately, the Audit Office makes a critical recommendation that:

There remains a continuing need for transport investment to be re-balanced to ensure that public transport becomes a more attractive alternative to private car travel. We have outlined how progress in bringing about modal shift has been limited to date. (NIAO, 2015, p.19)

Road infrastructure

Lydon et al. (2021) showed that Northern Ireland is more dependent on road transport than any other region in the UK, that Belfast is one of the most congested cities in the country and that there is a lack of readiness to shift to more sustainable transport options. They surveyed 49 experts across the academic public and private sector and found ‘almost unanimous agreement that Northern Ireland is not on track to meet net-zero targets and a widespread lack of understanding of the consequences of a future carbon surplus’. The diagram below also shows that Belfast remains a heavily congested city and moved up one place to number 5 across UK cities. The congestion level is currently 25% which means that a 30-minute trip will take 25% more time than it would during Belfast’s baseline uncongested conditions.

Figure 3 Congestion levels in Belfast 2020



Source: https://www.tomtom.com/en_gb/traffic-index/belfast-traffic#statistics

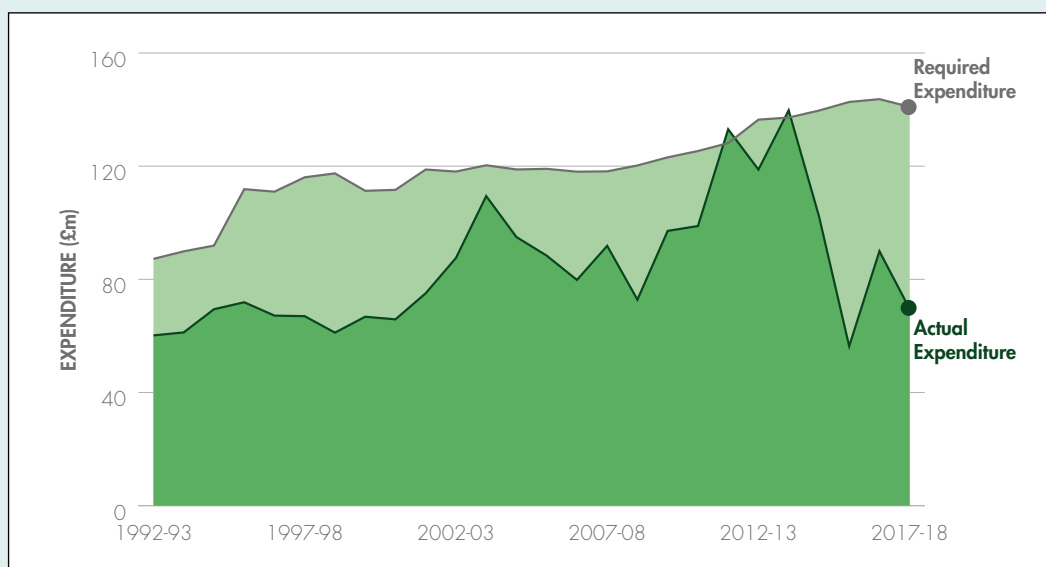
Barton (2018) makes the point that the poor condition of the road network and a failure to engage in comprehensive maintenance intensifies the problem and makes downstream or deferred costs more expensive. He identified a number of related challenges to road infrastructure and investment:

The lack of a substantial rail network means that almost all freight is transported by road in Northern Ireland compared to 76% in the rest of the UK.

- In 2015/16, transport spend in Northern Ireland, as a proportion of overall expenditure, was around half that of Wales and considerably less than half of that in England and Scotland.
- The amount that Northern Ireland spent per capita on roads (local and national combined) in 2015/16 was half that spent in 2010/11. England and Scotland both spend two and a half times that spent per km in Northern Ireland and Wales spends 40% more.
- Between 2009 and 2017 the Structural Maintenance Funding Plan (SMFP), which estimates what required to repair and maintain the road to sustainable standard, was underfunded by around £311m (2017/18 prices); however, the maintenance backlog increased by £400m from £796m to £1.2bn (2017/18 prices).

The Northern Ireland Audit Office (NIAO, 2019) also found that £143m is required annually to maintain the road network in a *steady and sustainable state* but that £92m was the average annual funding spent on structural maintenance allocated over the past five years (back from 2019). Moreover, the average additional funding required each year to maintain the road network in a steady state is £51m per annum. The diagram below shows that with the exception of two years, structural maintenance expenditure has been consistently lower than required. The Audit Office(NIAO, 2019, p.4) concluded ‘The Department needs to work with the Department of Finance to secure long-term funding options, such as ring-fenced funding, to increase budget certainty and promote better value for money’.

Figure 4 Structural maintenance expenditure versus requirements

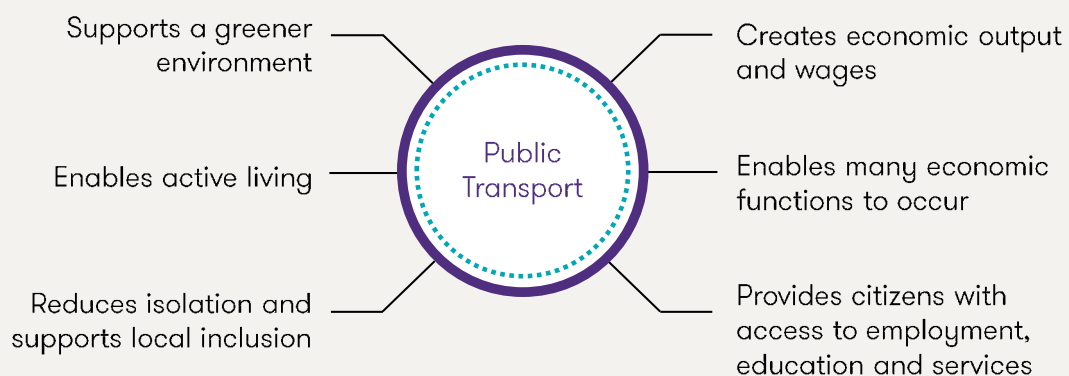


Source: NIAO, 2019, p.15

Public transport

Translink's (2016) strategy *Get on Board* is interesting because it is less concerned with operational delivery and more with the outcomes of an effective, integrated public transport system. It has 6 overarching outcomes that they relate to specific objectives in the Programme for Government, the RDS and the regional transport plan including: reducing congestion, driving economic growth, protecting the environment, creating a healthier region, supporting social inclusion and connecting communities. Grant Thornton (2019) recently reviewed the multiple economic impacts of public transport in Northern Ireland and highlighted 6 outcomes from an effective integrated transport infrastructure in the figure below. The analysis set out the economic impact of Translink's activities on these areas, including leveraging retail spend, accessing education and the labour market, reducing congestion and so on. The direct contributions generated in fares and turnover for example; indirect investments (in infrastructure) and induced multipliers such as supporting the labour market shows that in the 2019 estimate, Translink generated a Gross Value Added of £198m.

Figure 5 Public transport impact and value



Source: Grant Thornton, 2019, p.5

Translink (2019) also show significant strong activity performance across these areas. For example, passenger numbers increased by 5.8m between 2016-2019 to 84.5m per annum (the highest per annum in 20 years); 4.8m car journeys have been removed since 2016; 30m trips in Belfast alone (via Metro and Glider); and 15.8m rail trips since 2016. The new *Urby* bus that operates as an express service in the metropolitan area, linking in with Park and Ride facilities, has experienced considerable growth and underscores the importance of a city-region approach⁴. However, despite such improvements, especially in car reduction, funding on public transport still lags significantly behind the rest of the UK:

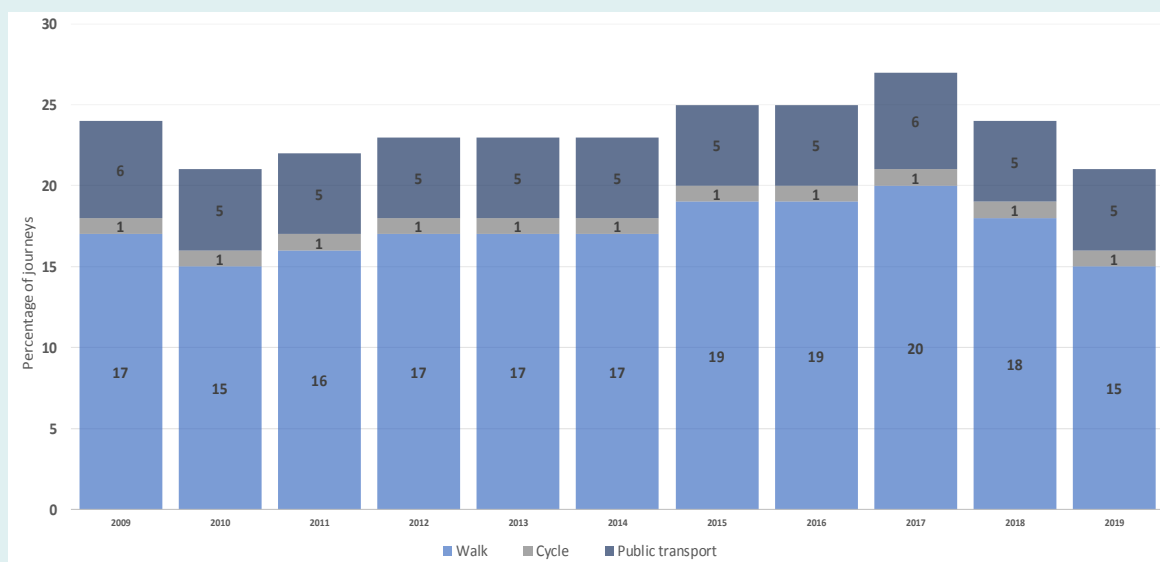
In 2017/18 local public transport and rail in Northern Ireland received funding of £84 per head, the lowest of all UK countries, and at 27% of the UK average expenditure. Since 2013, Translink's funding per capita has decreased down from £97 – which when considered in both nominal and real terms is a significant reduction in expenditure. (Grant Thornton, 2019, p.15).

4 <https://www.translink.co.uk/corporate/media/pressnews/carryduffurby#:~:text=Urby>

Alternatives to the car

To some extent, the consequences of these investment trends are reflected in modal use, despite preferences for walking and cycling expressed by a number of attitudinal surveys, especially among school age children and young people. The diagram below shows that *Indicator 25* of the draft Programme for Government (PfG) (the proportion of all journeys which are made by walking, cycling or public transport) has changed relatively little change (allowing for survey error rates) between 2014 (2015 base year) at 22% and 2019 (24%) and indeed, there has been relatively little change since 2009 (24%). Total distance by car has remained the same but average distance has increased, especially for commuting, whilst public transport and walking has remained static. Primary school children are still most likely to travel by car whilst secondary level pupils are most likely to travel by bus. There is a marginal increase in both groups walking to and from school.

Figure 6 Proportion of all journeys where car is not the main mode of travel



Source: DfI 2021a, p.8

More than two-thirds (67%) of people in Northern Ireland would not cycle and cited safety in particular, the dominance of car-based traffic as the main reason (DfI, 2021b, p.8). The solution to improving cycling options are then, to some extent, dependent on reducing car threats or providing safe and usually segregated infrastructure for cyclists. NISRA (2017) shows that bus is the most common mode of transport that pupils use for travelling to (40%) and from (47%) school. Two out of five (39%) of pupils qualify for free school transport and 76% of those pupils use free transport every day. Living closer to school (58%), better weather (37%) and not having things to carry bags (35%) would encourage pupils to walk to and from school more often. Moreover, DfI and Sustrans (2020) show that 62% of Belfast residents want to see more spending on public transport; 61% on walking; 58% on cycling; and only 35% on driving. Their analysis points out that there is only 2 miles of segregated cycle lanes in the city and that safety is the main barrier, especially among women and disabled people.

The gender issue is especially important and DfI and NISRA again used Continuous Household Survey data to explore the differences between men and women on active travel options

specifically (DfI, 2021c). More females (72%) rely on public transport than males (68%) and the figures are exactly reversed for access to a car; and 31% of men have cycled in the last 4 weeks compared with just 16% for women. Whilst 64% of males are 'satisfied with the current provision for walking and walkers in their local area', the figure for females is significantly lower (55%) with safety and poor lighting given as the main areas of concern. Similar reasons were given for the differential on cycling, although neither males (53%) or females (48%) were satisfied with cycling provision, with women more likely to say that a lack of dedicated cycle lanes and inadequate crossing points were the main problems.

4. Transport, planning and urban regeneration in Belfast

This section looks in more detail at strategies and programmes at the urban scale. It makes the case that there is a spatial disconnect in that some transport services are designed at the city region scale and even across Northern Ireland but planning is still focused on the local authority, with separate policy structures and different programmes and plans for the range of modes. The analysis also makes the case for a more integrated, programme and cost-centred approach to reducing car dependence and developing walking, cycling and public transport infrastructure via a more long-term systemic framework.

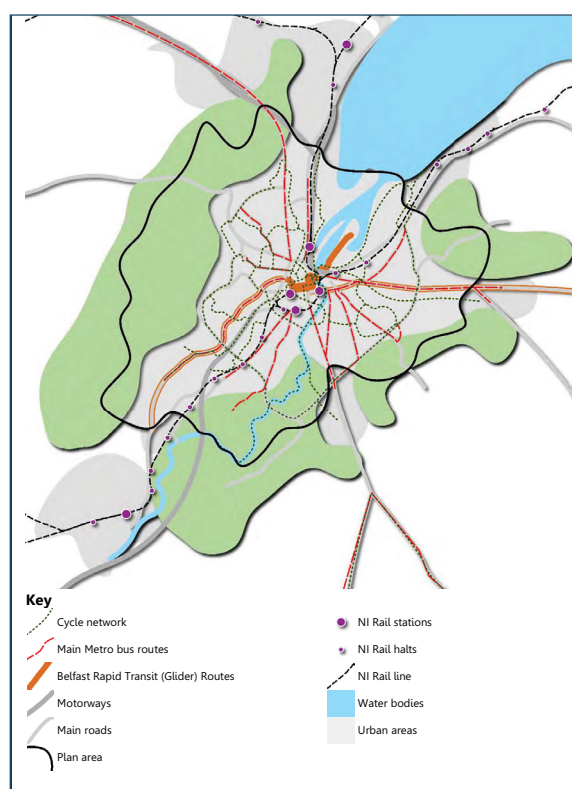
Strategic and development planning in Belfast

The Community Plan for Belfast 2015 was prepared after the Reform of Public Administration in 2015 and are designed as overarching strategies covering the development of the area and providing a context for the Local Development Plan. The *Belfast Agenda* recognised the central importance of connectivity and in particular the need to integrate infrastructure, such as the Weaver's Cross Hub, with Phase 2 of the Glider and the need to deal with traffic congestion and city centre parking.

The *Local Development Plan Belfast Draft Plan Strategy 2035* (BCC, 2020a) sets the context for planning in the city and has again prioritised the need to reduce car dependency (see the figure below for an outline). The first transport objective is **TRAN 1 Active travel to promote walking and cycling** and **TRAN 2 is Creating an accessible environment** that promotes access for people with disabilities and poor mobility generally. Again, how the modes, infrastructures and financial (capital and revenue) commitments come together, are prioritised and delivered is less clear, not least given the multiple actors and agencies involved.

The Local Development Plan recognises the problems of car dependency and especially single-occupancy vehicles for commuting, the comparatively low use of public transport and the need to encourage both walking and cycling. The transportation policy aims to:

Figure 7 Belfast's transportation network



Source: Based on BCC, 2020a, p.206

- Deliver sustainable patterns of development which reduce the need for motorised transport and prioritise active travel and travel by public transport;
- Protect routes and land required for enhancing the existing transport network and delivering future transport schemes; and
- Facilitate active travel and a modal change to more sustainable modes of travel throughout the city.

Belfast City Centre Regeneration

Vital and Viable (DSD, 2007) is the Department's good practice guide for breathing new life into cities and towns in Northern Ireland. This sets the context for a programme of public realm investment and in particular the *Streets Ahead* initiative, which involves a phased programme work to improve pedestrian crossings, bus access and a shared space approach to the public realm in Belfast city centre. The *Belfast City Centre Regeneration and Investment Strategy* (BCC, 2015) also recognises the importance of efficient transport and decongestion for a viable and thriving Central Business District, not least as two-thirds of all jobs in Belfast are located in and around the city centre. The strategy is based on several core principles, which will aim to:

- increase the employment population;
- increase the residential population;
- manage the retail offer;
- maximise the tourism opportunity;
- create a regional learning and innovation centre;
- create a green centre, accessible to cyclists and walkers;
- connect to the city around; and
- enhance shared space and social impact.

Policy interventions and impacts: Belfast on the Move

There is also evidence of policy reinforcement if not direct integration. The DSD urban regeneration policy *Vital and Viable* stressed the importance of public transport and priority for pedestrians over the car in town centre renewal:

Successful city and town centres must be truly inclusive and accessible in social as well as physical and transport terms. Their position as neutral locations can be enhanced by the creation of safe shared spaces for enjoyment by all. (DSD, 2007, p.8)

Belfast on the Move (DRD, 2014) created a traffic masterplan for the city centre to reorganise traffic management in order to facilitate a reduction in traffic levels and encourage greater walking, cycling and public transport use. It delivered: 23 new controlled pedestrian crossing points; over 2.6km of new bus lanes which also accommodate cyclists, motorcyclists and taxis; a new 2-way traffic flow on Hope Street; 340m of new dedicated service bays for businesses; 0.5km of new dedicated cycle lanes; and 37 additional dedicated disabled parking bays.

A comparison of the data from the 2011 and 2013 cordon surveys indicates the following changes in the morning peak:

- 6.7% more people entering the city centre (+2,253);
- 4.2% reduction in the number of people entering the city centre in private vehicles (-740);
- 36.6% increase in the number of people entering the city centre by train (+n=1213);
- 17.6% increase in the number of people entering the city centre by bus (+n=1201);
- 0.5% reduction in the number of people entering the city centre by taxi (-n=6)
- 12.6% increase in the number of pedestrians entering the city centre (+n=504)
- 18.9% increase in the number of cyclists entering the city centre (+n=81).

The approach demonstrates that targeted and coordinated investments in the Central Business District has significant and immediate effects on the balance of modal travel and in particular enhanced opportunities for public transport. Moreover, the effects ripple out to other areas of car congestion with the analysis showing that:

There are around 11,000 fewer vehicles in the core city centre streets each day, which is a reduction of around 16% since 2010. Morning peak traffic flow levels have reduced by around 32 % in the city centre. Traffic levels on Westlink have increased by about 6,000 vehicles per day indicating that some city centre 'through traffic' has re-routed to more strategic roads. A number of residential areas have experienced a reduction in traffic levels. (DRD, 2014, p.8)

Planning gain and transport

BCC (2018) introduced a draft framework on developer contributions that could potentially benefit public transport and community mobility. These will be dependent on the *Transport Assessment* (see above) and have in the past been used to pay for additional services and infrastructure (bus shelters, pavements, crossing points) connected with a particular development, rather than being used to cross-subsidise service pressures that might result for housing, employment or commercial developments. The approach is valuable as it identifies a source of funding to support alternatives to the car in particular.

Table 3 Sustainable transport infrastructure supported from planning gain

Physical infrastructure works	Sustainable transport
New or improved roads, cycle paths and pedestrian routes	Public transport services
Controlled junctions	Green Travel Plan
Pedestrian crossing facilities	Funding of public transport travel cards for occupants of new residential development
Cycle facilities	Improved connectivity including blue and green infrastructure
Accommodation of bus services e.g. road widenings, bus shelter and bus lay-bys	

Source: BCC, 2018, p.40

Sustainable transport and the Resilience strategy for Belfast 2020

The *Resilience Strategy for Belfast* (BCC, 2020b) sets out a range of objectives including increasing electric vehicle infrastructure and a zero-emission city bus fleet by 2030, promoting hydrogen transport and developing city centre play spaces. The strategy also aims to strengthen urban connectivity and children's use of the city and that partners should agree to provide all children and young people with access to free public transport in Belfast (by an agreed year in the next decade). It is less clear how this connects with other strategies in transport, area planning or critically funding. The arena has a large number of high-level strategies making important, reinforcing and some duplicating objectives but how it translates into a programme of deliverable work is far from clear.

McKibbon (2020) also looked at progress toward net zero targets in the sale of non-zero emission cars (vans and motorcycles) but showed that currently ultra-low emission vehicles (ULEVs) account for less than 1% of licensed vehicles in the UK. His analysis estimates that Northern Ireland will require between 30 to 35 public rapid chargers on major roads and 800 to 950 public top-up chargers to affect a meaningful shift in usage, but that the current network consists of 337 public charge points, only 17 of which are rapid chargers. Translink also aims to deliver a zero-emission bus and rail fleet by 2040 and are piloting a small fleet of Fuel Cell Electric Vehicles as well as rolling out new hydrogen buses on its Metro services. They indicate that to upscale the use of electricity and hydrogen as a bus fuel, an average annual requirement of 120 vehicles per annum is required.

This will cost £41.6m over the next ten years and the rail fleet programme will require over £40m per annum. Clearly, shifting from the car to a socially, financially and environmentally sustainable public transport system will involve major capital and revenue expenditure, alongside that needed for walking and cycling. McKibbin's analysis for the Northern Ireland Assembly ultimately argues for a threefold approach to reduce car dependency: *Push interventions* such as road user charging and a *workplace parking levy*; *Pull interventions* by developing Sustainable Travel Towns (supported by a dedicated Local Sustainable Transport Funds); and *Nudge interventions* (say by gradually making parking more costly) to effect new habits and ultimately behaviours.

Belfast Rapid Transit

The Glider is a bus rapid transit system connecting east and west Belfast with Titanic Quarter through the city centre. The, G1 route runs from east to west Belfast, while G2 operates from the city centre to Titanic Quarter). The investment at around £100m supports 32 articulated buses, employing 109 staff, on a 24.5 km route length and uses both dedicated bus lanes and mixed traffic lanes. Weekday services are designed to operate on a 7-9 minute interval, reducing to 4-6 minutes at peak times. Passenger journeys on the Glider grew rapidly from 3.7m journeys in 2018/19 to 7.7m in 2019/20 and passenger receipts also rose from £4.9m to £9.0m over the same period (DfI, 2020b, p.18).

The Belfast City Deal⁵ aims to support the Belfast Rapid Transit (BRT) Phase II programme including new dedicated bus lanes, halts and upgraded road infrastructure to improve the connection to and with the wider Glider service. A new Glider service (potentially between the Antrim Road and the Ormeau/Saintfield Roads) is also planned with a focus on the city region. Again, a city region policy framework, with costed capital and revenue programmes would help to enable a more realistic *transition* to reduced car use. Phase II of the BRT will also extend to Antrim and Newtownabbey as well as Lisburn and Castlereagh, providing cross council improvements on the transport network.

A key component of rapid transport is the Belfast Transport Hub, which is a significant investment by the Department for Infrastructure at Weaver's Cross on an eight-hectare site beside the current Europa Bus Centre and Great Victoria Street Stations and related lands (see the diagram below). This will be a multimodal facility with 26 bus stands, 8 railway platforms, cycle and taxi provision, designed to cater for more than 14m passenger journeys per annum, which is an increase from the current 8m per year. It is also important to note that major investments continue in road infrastructure, such as York Street Exchange, although here, the current Minister reviewed the scheme in order to strengthen its impact on place making, community health and wellbeing as well as on climate change⁶.

5 <https://www.belfastcity.gov.uk/belfastregioncitydeal>

6 <https://www.infrastructure-ni.gov.uk/news/mallon-announces-outcome-review-york-street-interchange-scheme>

Figure 8 Weavers Cross Belfast Transport Hub



Source: Based on Juno et al., 2017

Connectivity and sustainable communities

Urban Village strategies were produced in 2016 for: Ardoyne and Greater Ballysillan (North Belfast); Bogside, Fountain and Bishop Street (Derry/Londonderry); Colin (West Belfast); EastSide (East Belfast); Sandy Row, Donegall Pass and the Markets (South Belfast). These are based on extensive consultations with the local community, young people and key stakeholders in each area and their content was analysed for its approach to transportation which is summarised in the diagram below.

- The community in the **South of the city** clearly see the value and potential of the Weavers Cross Transportation Hub but stress the need for a more planned approach to connecting such infrastructure to alternatives to the car. For example, one initiative is to replace the land designated for the inner-ring road (not progressing) with a 'boulevard' and reduce the 'barrier' effect between local communities and the city centre.
- They also argue for what they call a new cycle greenway or 'superhighway' to connect the city centre (via the Lagan Weir and Middlepath Street), through EastSide along Ballymacarrett Road and Island Street to Hollywood Arches, from where it would meet the Connswater and Comber Greenways. This links with the concerns in **East**, where the potential to integrate greenways, rail and walking, especially with better infrastructure was highlighted.
- The **North** Belfast strategy also emphasises connectivity but with a stronger economic development focus. The use of transport in multiple forms to address the segregating effects of the interface was also highlighted, opening the potential of community-based initiatives and more flexible networks in highly contested areas.
- In **West**, isolation and loneliness has been emphasised especially in the outer city where car ownership is low and public transport services are poor. This forces many poor households to rely on single taxi trips for essential services such as health, social care and shopping. In Colin, the walking network was especially poor despite the potential to better connect residents with the Glider service.

Figure 9 Community responses to transport and connectivity

Community based strategy	Transport and connectivity priorities	Theme
East Belfast Urban Village Strategy	<ul style="list-style-type: none"> ▪ Bridge to North Belfast ▪ Linking Templemore Avenue to Sydenham Bypass ▪ Improved access to Titanic railway station ▪ Better bus-priority system to strengthen the benefits of the Glider <i>into</i> east Belfast ▪ New cycle greenway or 'superhighway' to connect the city centre and link with the Connswater and Comber Greenways 	Connectivity
North Belfast Urban Village Strategy	<ul style="list-style-type: none"> ▪ Greater Ballysillan greenway network using its rivers and other natural features. ▪ Linking to local and wider employment ▪ Improving access to surrounding sport and leisure facilities ▪ Stronger physical and mental corridors 	Natural assets
South Belfast Urban Village Strategy	<ul style="list-style-type: none"> ▪ Maximise connections to city centre, proposed Transport Hub and River Lagan ▪ Improve and increase green open spaces, linking them together ▪ Address imbalance of traffic and parking impacts on communities 	Urban infrastructure
West Belfast Urban Village Strategy	<ul style="list-style-type: none"> ▪ Transport network by capitalising on the Glider and community based feeder services ▪ Linking skills and employment opportunities and addressing physical barriers to work ▪ Safer routes and gateways, especially for walking within and outside the area 	Internal linkages

5. Critical policy themes and implications for transitions planning

This description of the policy arena demonstrates a high degree of agreement on the transport priorities for the city.

Policy commitment

- The need to reduce car dependency is a clearly established priority politically, in regional policy and in transport strategies for the city.
- The negative environmental, social and to some extent financial diseconomies of modal reliance on the car is shared across policy domains, particularly in planning and urban policy.
- Compact cities, densification that supports more viable public transport as well as walking and cycling; dedicated bicycle and walking infrastructure; support for a person-centred public realm and city centres well connected via alternatives to the car are rhetorically at least consistent claims across planning, urban policy, housing and transport itself.
- The problem with transition is that many strategies are to some extent ‘empty signifiers’ that are not supported by decisions, regulatory change and resource allocation models showing how their objectives will be achieved in practice.

Resources and programme planning

- Resources are disproportionately allocated to roads with the balance between roads and public transport not achieving the realignment planned in the Regional Transport Strategy 2002.
- The funding model for public transport is skewed toward fare income with spending lower than it is in the rest of GB.
- However, there is also a backlog of both preventative and reactive maintenance and it is estimated that £1.2bn is required over the next five years just to keep the network in a steady and sustainable state.
- Any transition plan needs to address the fundamental question of investment and how capital and revenue funding relate to performance outcomes including reducing car usage.
- Similarly, this requires a focus on a different type of transition plan in which intervention are time, resource and actor centred, rather than set out in vague aspirational policy commitments.
- Too many policies are in draft, lack operational detail or demonstrate practically how they will affect a transition to better use of public transport and active travel.

Performance and impact

- Where dedicated area-based interventions have been attempted (quality bus corridors, city centre plan and the Glider) they have had a direct and measurable change in reducing car dependence.
- There are systems in place, such as Transport Assessments to ex-ante proof policy and programme intervention for their effect on modal integration and to explore preferences to non-car alternatives.
- Transitions planning need to focus on these technologies and how they can shift development plans and decisions in more sustainable ways. The success of public transport, walking and cycling initiatives needs to be understood and shared, especially outside the non-car arena.

Discourse of competitiveness and growth

- There is also a need to acknowledge the economic dimension to transport infrastructure, freight, time and costs, internal and external connectivity and the powerful business interests that support and lock in a pro-roads approach.
- There are dominant cultures expressed in policy documents in engineering, an economic competitiveness discourse in transport policy and connectivity focusing primarily on labour market integration.
- Communities in the city experience the multiple diseconomies of car-based transport in pollution, traffic risk, congestion, car parking and environmental blight. These realities need to be at the heart of understanding the barriers and risks embedded in transition planning.

Community perspectives

- There are locally based responses in terms of community transport, walking and greenway projects, community bike schemes; and ideas about parking benefit zones that need to be replicated and scaled to affect a meaningful impact on modal use. These can be developed from the interviews, especially around examples of good practice and niche interventions.

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Public Health Policy Report of findings of a Medical Research Council funded study:

Project Title: “Developing system-oriented interventions to reduce car dependency for improved population health in Belfast”

(**Funded by:** Medical Research Council Public Health Intervention Development (PHIND) (MR/V00378X/1) and HSC Research and Development Office Northern Ireland

Keywords: systems science; car dependency; public health; complexity

Authorship and citation:

Developing system-oriented interventions to reduce car dependency for improved population health in Belfast: policy mapping and socio-technical transitions

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ISBN: 978-1-913643-18-8

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