



Belfast
City Council

Air quality

Belfast City Air Quality Action Plan 2021-2026

In fulfilment of the Environment (Northern Ireland) Order
2002- Local Air Quality Management

1st November 2021

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Executive Summary.

This Air Quality Action Plan (AQAP) has been produced as part of our statutory duties required by the Local Air Quality Management framework. It outlines the actions that the Council, our competent or relevant authority partners, and other city bodies or organisations will take to improve ambient air quality in Belfast during the years 2021-2026. This AQAP succeeds the previous Action Plan, which covered the period 2015-2020. The Air Quality Action Plan 2015-2020 for the city drew upon all forms of ambient air quality and transport planning activities, including sustainable transport options as well as engineering solutions.

Projects delivered, which contributed to the previous Action Plan, included:

- Development of a new Belfast multi-modal transport model;
- The Belfast Rapid Transit System (BRT1: East – West and to Titanic Quarter);
- Development and enhancement of Park and Ride facilities;
- Bus fleet improvements and public transport commitments from Translink;
- Just Eat Belfast Bikes;
- Belfast City Council fleet improvements;
- Development of a Belfast City Council Active Travel Plan.

Progress on implementing individual measures within the 2015-2020 AQAP was reported in the Council's Air Quality Progress Report 2020¹.

Whilst the previous AQAP delivered improvements in ambient air quality within our AQMAs and across the city, a limited number of transport related nitrogen dioxide (NO₂) hotspots remain. Moreover, fine particulate matter (PM_{2.5}) has emerged as an additional air pollutant of concern. The aim of this AQAP is therefore to continue reducing emissions from transport sources and to promote and enable a shift onto more sustainable modes of transport to achieve compliance with the air quality objectives for nitrogen dioxide. In addition, the aim of the Plan is also to identify, develop and implement mitigation measures, where necessary, to address concentrations of PM_{2.5} across the city.

¹ BCC Air Quality Progress Report 2020 (source: https://www.airqualityni.co.uk/assets/documents/dc-reports/BCC_AQ_Progress_Report_2020.pdf).

It should be noted that whilst Directive 2008/50/EC of the European Parliament and of the Council of 21st May 2008 on ambient air quality and cleaner air for Europe has introduced a series of target and limit values for fine particulate matter (PM_{2.5}), these are not presently in regulation for the purposes of local air quality management. Moreover, the World Health Organisation² (WHO) has recently published updated global air quality guidelines for particulate matter (PM_{2.5} and PM₁₀), ozone, nitrogen dioxide, sulphur dioxide and carbon monoxide. The WHO has advised that whilst the guidelines are not legally binding standards, they do however provide WHO Member States with an evidence-informed tool that they can use to inform the development of ambient air quality legislation and policy.

This Air Quality Action Plan therefore contains actions under a number of broad themes including:

- Initiatives to promote greater levels of walking and cycling within Belfast;
- Initiatives to encourage increased public transport patronage within Belfast;
- Initiatives to promote better vehicle fleet management (e.g. cleaner and more efficient fleets);
- Initiatives to manage the demand for private vehicles commuting to Belfast City Centre and to hence encourage modal shift;
- Initiatives to encourage large organisations to consider greener energy options;
- Implementation of policies that contribute to lower air pollution levels;
- Engineering, highway and road improvements that contribute to lower air pollution levels and;
- Delivery of a Detailed Air Quality Assessment project to provide information on emissions and concentrations of PM_{2.5} across the city in order to assist Belfast City Council and its partners in the development and prioritisation of abatement and mitigation policies and measures.

Air pollution is associated with a number of adverse health impacts. It is recognised as a contributing factor in the onset of heart disease and cancer. Additionally, air pollution particularly affects the most vulnerable in society; children and older people, and those with heart and lung conditions. There is also often a strong correlation

² World Health Organisation, Global Air Quality Guidelines - Particulate matter (PM_{2.5} and PM₁₀), ozone, nitrogen dioxide, sulfur dioxide and carbon monoxide, 2021.

between air pollution and inequality because areas with poor air quality are often less affluent areas³.

The annual health cost to society of the impacts of particulate matter alone in the UK is estimated to be around £16 billion⁴. Belfast City Council is therefore committed to reducing the exposure of people in Belfast to poor air quality in order to safeguard and improve health.

Within this AQAP, Belfast City Council and its partners have outlined how we plan to effectively tackle ambient air quality issues within our control. However, we recognise that there are a large number of air quality policy areas that are outside of our direct responsibility (such as vehicle emissions standards, agreed at a European level), but for which we may have useful evidence. Accordingly, we will continue to work with regional and central government on policies and issues beyond Belfast City Council's and our partners' direct influence or control.

Responsibilities and Commitment.

This AQAP was prepared by the City and Neighbourhood Services Department of Belfast City Council (BCC). In producing this Action Plan, Council Officers have worked in partnership with those organisations represented on the Belfast Air Quality Action Plan Steering Group, as detailed below:

- Department of Agriculture, Environment and Rural Affairs (DAERA);
- Department for Infrastructure (DfI);
- Belfast Planning Service;
- Translink;
- Sustrans and;
- Belfast Harbour Commissioners;

Progress with implementation of the new Action Plan will be reviewed at least on an annual basis in order to comply with government reporting requirements, including via Progress or Annual Status Reports, and it will be updated at least every five years in

³ Air quality and social deprivation in the UK: an environmental inequalities analysis, 2006.

⁴ Defra, Abatement cost guidance for valuing changes in air quality, 2013.

order to achieve prompt compliance with UK Air Quality Strategy Objectives, as well as reducing the overall impact of ambient air pollution on public health and the environment.

Public Consultation Process.

Belfast City Council consulted on a draft version of this Air Quality Action Plan from the 12th May to 3rd August 2021. The 12-week consultation exercise was completed via the council's online consultation hub, *Your say Belfast*. The consultation process was promoted via the Council's various social media channels and through the summer 2021 edition of the Council's, '*City Matters*' magazine that was sent to all households in Belfast. We have also consulted with those organisation or bodies identified in Schedule 2 Air Quality: Supplemental Provisions. Consultation Requirements of the Environment (Northern Ireland) Order 2002.

If you have any comments on this Air Quality Action Plan 2021-2026, please send them to Air Quality Officers at:

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1 Introduction.

This Air Quality Action Plan (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 the quality of life for residents and visitors to Belfast.

This Plan has been developed in recognition of the legal requirements on Northern Ireland Local Authorities to work in pursuit of the Air Quality Strategy (AQS) objectives under Part III of the Environment (Northern Ireland) Order 2002 and to comply with the requirements of the Local Air Quality Management (LAQM) statutory process.

This Plan will be reviewed at least every five years and progress on the various measures set out within this Plan will be reported upon annually within Belfast City Council Air Quality Progress Reports or Annual Status Reports.

2 Summary of Current Air Quality in the Belfast City Council Area.

The UK Air Quality Strategy and Part III of the Environment (Northern Ireland) Order 2002 place a duty on Northern Ireland councils to periodically review and assess ambient air quality within their districts against a series of health-based objectives.

Belfast City Council completed its first review and assessment of ambient air quality for the city in 2004 and concluded that areas surrounding four of the city's main arterial road transport routes were variously exceeding the government's air quality objectives for nitrogen dioxide (NO₂) and particulate matter (PM₁₀). Source apportionment at that time revealed that the principal source of the NO₂ and PM₁₀ exceedances was road transport emissions. The four areas were subsequently formally declared by Order as Air Quality Management Areas (AQMAs). These AQMAs are:

- M1 Motorway / A12 Westlink corridor;
- Ormeau Road from its junction with Donegall Pass to the former Belfast City boundary at Galwally;
- Cromac Street to the junction with East Bridge Street and then from East Bridge Street to the junction with the Ravenhill and Albertbridge Roads and Short Strand; and the
- Upper Newtownards Road from the North Road junction to the former Belfast City boundary at the Ulster Hospital.

Once an AQMA has been declared, Regulations and Local Air Quality Management Policy Guidance require that the Council should develop an Air Quality Action Plan (AQAP) and seek actions from relevant 'Competent Authorities'. Competent Authorities are defined in the Air Quality Regulations (Northern Ireland) 2003 and broadly include Northern Ireland government Departments, district councils, the Northern Ireland Authority for Energy Regulation and the Northern Ireland Housing Executive.

The Council published its first AQAP for the city in 2006 and at the conclusion of this first Action Plan, 90% of the Action Plan components had been completed, with 6% of actions ongoing and 4% still to be commenced.

This Action Plan led to general and specific improvements in ambient air quality across the city and in mid-2012, the Council commenced development of a new Air Quality Action Plan for the city to address the remaining NO₂ hotspots. Concentrations of PM₁₀ were complying with annual and daily mean objectives at this time within the M1 Motorway / A12 Westlink corridor AQMA.

The Council published a second AQAP for the city in 2015, which concluded at the end of 2020. A final review of the implementation of various mitigation measures included within 2015-2020 AQAP was undertaken and reported by the Council to the Department of Agriculture Environment and Rural Affairs (DAERA) as part of the Council's 2020 Air Quality Progress Report¹, submitted to DAERA in June 2020.

Whilst previous AQAPs have delivered improvements in ambient air quality across the city, a limited number of nitrogen dioxide (NO₂) hotspots remain. Moreover, fine particulate matter (PM_{2.5}) has emerged as an additional ambient air pollutant of concern for the city.

Accordingly, the aim of this Air Quality Action Plan 2021-2026 is to continue to reduce NO₂ emissions from transport sources and to promote and enable a shift towards more sustainable modes of transport in order to achieve compliance with UK Air Quality Strategy objectives for NO₂. Where necessary, an additional aim of this Action Plan is to identify, develop and implement mitigation measures to address concentrations of fine particulate matter (PM_{2.5}) across the city.

A review of monitoring data for Belfast indicates that there have been some recent improvements in NO₂ concentrations across the city (Figure 2.1). As a result, Belfast City Council considers that there may be an opportunity for revocation of the AQMAs along the Ormeau Road and Upper Newtownards Road, where monitoring data demonstrates recent sustained improvements in annual mean nitrogen dioxide concentrations, with levels consistently below the annual mean objective.

Accordingly, the Council will liaise with the Department of Agriculture, Environment and Rural Affairs, Department for Infrastructure and other Competent Authority partners concerning the revocation process.

There have been no monitored exceedances of Air Quality Strategy Objectives for any other ambient pollutant in recent years across the city, and no significant new sources of air pollution have been identified, which would have the potential to alter the current understanding of ambient air quality across the city.

However, the Council is aware of recent evidence from national studies indicating that domestic solid fuel burning contributes more than previously thought to particulate emissions⁵. The contribution of solid fuel combustion to PM_{2.5} concentrations has also been recognised within the UK Clean Air Strategy 2019⁶. Moreover, the National Atmospheric Emission Inventory (NAEI), ‘Air Pollutant Inventories for England, Scotland, Wales, and Northern Ireland 1990-2017’ publication highlights that for Northern Ireland in 2017, residential, commercial and public sector combustion accounted for 52% of overall PM_{2.5} emissions, and that this sector was dominated (82%) by emissions from residential combustion⁷.

Belfast City Council and DAERA have therefore decided to undertake a detailed assessment for the city, for PM_{2.5} and NO₂ pollutants. This project commenced in February 2021 and will report in early 2023.

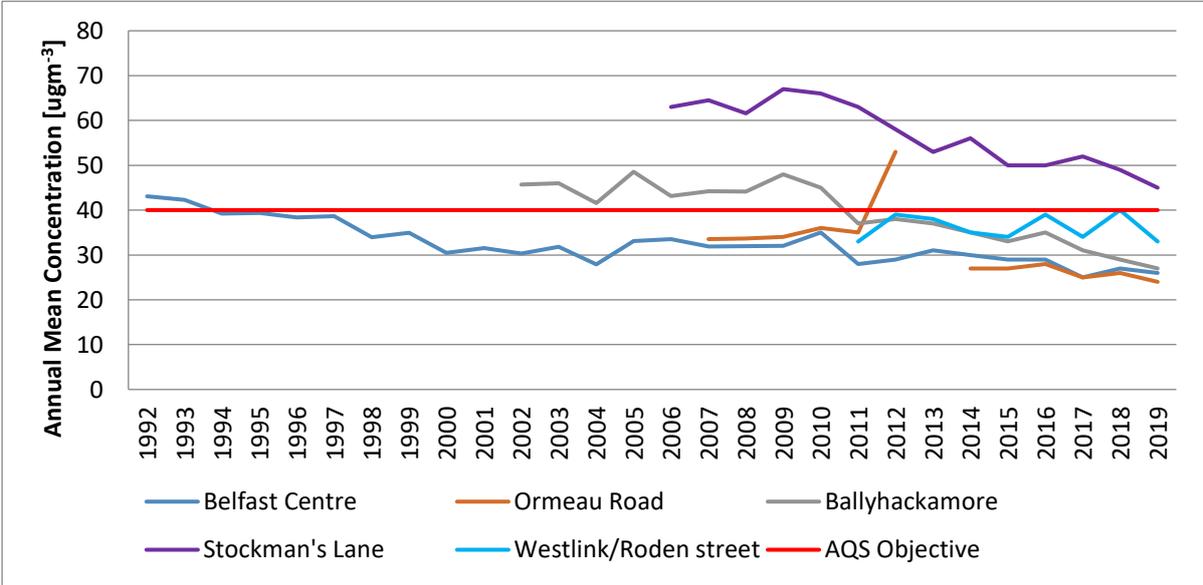


Figure 2.1 - Trends in Annual Mean NO₂ Concentrations Measured at Automatic Monitoring Stations.

⁵ King's College London, Airborne Particles from Wood Burning in UK Cities, 2017.
⁶ Defra, Clean Air Strategy, 2019.
⁷ National Atmospheric Emission Inventory (NAEI), Air Pollutant Inventories for England, Scotland, Wales, and Northern Ireland 1990-2017, 2019.

3 Belfast City Air Quality Priorities.

3.1 Planning and Policy Context.

Whilst this Belfast City Air Quality Action Plan has been developed in recognition of the legal requirement on Northern Ireland councils to work towards Air Quality Strategy (AQS) objectives, in accordance with the requirements of Part III of the Environment (Northern Ireland) Order 2002 and relevant Regulations made under that Part, in order to meet the requirements of the Local Air Quality Management (LAQM) statutory process, there has also been significant input at a local level in the form of encompassment of existing Plans and Strategies in place within Belfast and Northern Ireland as a whole, to which this Air Quality Action Plan aligns. Accordingly, preparation of this Air Quality Action Plan has involved a review of existing plans, policies and strategies in place within the Belfast City area, which relate to, or aim to tackle ambient air quality issues for the city. This review has facilitated the development of a robust and meaningful Air Quality Action Plan, which links with and builds upon existing Strategies, to ensure a well-rounded and multi-faceted approach to tackling ambient air quality issues for Belfast.



3.1.1 The Belfast Local Development Plan⁸ – currently at Draft Plan Strategy stage pending outcome of statutory Independent Examination process.

The Local Development Plan (LDP) sets out strategic and operational policies as to how sustainable development can be achieved within Belfast city, by guiding future investment and development decisions. It follows the Development Strategy 2035⁹ and the Strategic Planning Policy Statement¹⁰ to provide the spatial representation of Belfast's Community Plan, The Belfast Agenda. The Local Development Plan will help to shape the direction of future change within Belfast by ensuring that new applications submitted for development are in accordance with the provisions and requirements of the Plan.

A key challenge within the Local Development Plan is to provide for increased accessibility into and throughout the city and to accommodate projected growth in travel demand, whilst also discouraging single occupancy private car use for commuting purposes. The Plan Strategy will therefore facilitate future transport initiatives for the city, including promoting walking and cycling, modal change and supporting public transport measures through the integration of land use and transportation planning.

The Local Development Plan will support development of an efficient integrated transport network offering travel choice that minimises congestion and air pollution. In addition, the Plan will encourage the expansion of green infrastructure networks for walking and cycling across the city to encourage active travel, improve ambient air quality and promote increased use of public transport, whilst retaining suitable provision for cars.

Through Strategic Policy SP3, which seeks to support development that maximises opportunities to improve health and wellbeing, development will not be permitted where it will result in significant harm to life, human health or wellbeing. Moreover, the development of sustainable neighbourhoods, with good access to a range of local facilities and services, will encourage walking and cycling. The provision of good

⁸ Belfast City Council, Local Development Plan, 2021 (source: [https://www.belfastcity.gov.uk/Planning-and-building-control/Planning/Local-development-plan-\(1\)](https://www.belfastcity.gov.uk/Planning-and-building-control/Planning/Local-development-plan-(1))).

⁹ Department for Infrastructure, Regional Development Strategy, 2010 (source: <https://www.infrastructure-ni.gov.uk/sites/default/files/publications/infrastructure/regional-development-strategy-2035.pdf>).

¹⁰ Department for Infrastructure, The Strategic Planning Policy Statement, 2015 (source: <https://www.infrastructure-ni.gov.uk/sites/default/files/publications/infrastructure/SPPS.pdf>).

quality green open space, linked to a green and blue infrastructure network, will improve ambient air quality and create health benefits. Improving connectivity between residential and employment areas, which are well served by a range of sustainable travel modes, will encourage active lifestyles and reduce air pollution.

Strategic Policy SP6 Environmental Resilience will support development where such development helps to reduce greenhouse gas emissions and the development is adaptable in a changing climate to build environmental resilience.

Strategic Policy SP7 Connectivity will support connectivity to and within the city by sustainable transport modes, such as public transport, walking and cycling. Land for sustainable transport infrastructure projects will be safeguarded and opportunities to protect and enhance existing provision will be maximised.

Operational policies on transport address active travel, creating an accessible environment, transport assessments, travel plans, new transport schemes, and access to public roads, access to protected routes, car parking, standards and design.

Other operational policies that support this Air Quality Action Plan in improving ambient air quality are renewable energy development (policy ITU 4), ENV1 Environmental quality, GB1 Green and blue infrastructure network policy, OS1 Protection of open space policy and TRE1 Local Development Plan policy on trees.

Through operational policy TRAN 5, the Local Development Plan will safeguard land required to implement new transport schemes or planned improvements to the transportation network as identified in the Department for Infrastructure's extant transport plan, the Belfast Metropolitan Transport Plan, 2015¹¹, which encompasses the Belfast City Council area. This includes proposals for new and improved walking and cycling routes, enhanced or new public transport services and park and ride proposals, all of which will encourage a shift from private vehicle use, thus aiding the AQAP in its goal of reducing nitrogen dioxide and particulate matter emissions from road transport activities. Through operational policies TRAN 1 and TRAN 4,

¹¹ Department for Infrastructure (formerly Department for Regional Development), Belfast Metropolitan Transport Plan, 2015 (source: <https://www.infrastructure-ni.gov.uk/sites/default/files/publications/drd/04%20-%20Belfast%20Metropolitan%20Transport%20Plan%202015%20-%20Chapter%203%20-%20An%20overview%20of%20the%202015%20Plan.pdf>).

significant generating uses will require a travel plan and to make appropriate provision for shower and changing facilities.

3.1.2 Belfast Metropolitan Transport Plan 2015.

The Belfast Metropolitan Transport Plan (BMTP) 2015 is the current extant Transport Plan. It was developed to deliver an integrated transport network, improving opportunities for interchange between different modes of transport and providing real travel choices, particularly in the Belfast Metropolitan Area's main transport corridors. In general, most of the key elements of the Transport Plan have been delivered or are under review. A new Belfast Metropolitan Transport Plan is currently under development to integrate with the Belfast Local Development Plan. The new Transport Plan is expected to include transport projects which will improve air quality in the city.

Whilst not explicitly listed within BMTP 2015, the Department for Infrastructure has continued to take forward a number of high-profile transport projects. These include the Belfast Transport Hub, Belfast Rapid Transit Phase 2 (if confirmed as part of the final Belfast Region City Deal), Park and Ride facility expansion, improved active travel interconnectivity and general public transport route improvements. Delivery of these projects will contribute to this Action Plan's goals of reducing NO₂ and PM_{2.5} emissions from transport activities.

3.1.3 Belfast City Centre Regeneration and Investment Strategy.

The *Belfast City Centre Regeneration and Investment Strategy*¹² outlines a framework of how the Council aims to grow and regenerate the city core and its surrounding areas. Eight policies for the city centre provide a vision for eight areas of intervention considered most essential to Belfast's success, several of which set out aspirations to create a green, walkable, cyclable city centre and integrating shared spaces and connectivity throughout the city. Such examples include the development of the Lagan River corridor as a recreational spine for the city. Moreover, the Belfast City Council Car Parking Strategy and Action Plan, one of the key strategic projects of the Regeneration and Investment Strategy, also aims to manage the number and type of parking spaces in the city in order to reduce commuting to the city centre in

¹² Belfast City Council, Belfast City Centre Regeneration and Investment Strategy, 2015 (source: <https://www.belfastcity.gov.uk/Documents/Regeneration-and-investment-strategy>).

single occupancy private cars and hence encourage sustainable travel modes. The Strategy also supports access by public transport, cycling and walking. These objectives provide a direct link to this AQAP, by not only promoting greener development, but also catalysing the implementation of proposed actions within this document, thereby aiding in the reduction of NO₂ and PM_{2.5} emissions from transport activities, whilst encouraging a healthier city as a whole.

3.1.4 Belfast Green and Blue Infrastructure Plan.

The *Belfast Green and Blue Infrastructure Plan*¹³, is inter-connected with the AQAP through its proposals for creating a strategic framework for green and blue infrastructure, i.e. a green space network and a blue infrastructure network interconnected by strategic connections. For example, Belfast has a growing number of greenways and community paths linking across the city. Greenways are dedicated movement corridors, free of motor vehicles, which provide a safe environment for walkers, runners and cyclists to move around the city. Where segregation from other road users is impossible, the Council has developed community paths with a strong identity to help users navigate efficiently across the city. These links help connect green spaces and often run parallel to blue infrastructure. As well as helping to develop a new sustainable approach to travel, they provide an excellent opportunity for urban greening to enhance the green space network. The Green and Blue Infrastructure Plan also highlights opportunities for integration of green walls into buildings, bridges and supporting walls within AQMAs, where there may be space constraints. There may also be opportunities for increased planting of street trees along, or in the areas surrounding AQMAs. In addition, improved ambient air quality will be supported through the promotion of more active modes of transport such as walking and cycling.

3.1.5 Belfast Open Spaces Strategy.

The *Belfast Open Spaces Strategy*¹⁴ supports the shared growth component of the *Belfast Agenda* and *Local Development Plan*. As Belfast aims to deliver significant inclusive growth and opportunity, the Strategy aims to have a well-connected network of high-quality open spaces by 2035. The seven strategic principles outline the goals

¹³ Belfast City Council, Belfast Green and Blue Infrastructure Plan, 2020 (source: <https://www.pacni.gov.uk/sites/pacni/files/media-files/BCC-AD-GBIP.pdf>).

¹⁴ Belfast City Council, Belfast Open Spaces Strategy, 2019 (source: <https://minutes.belfastcity.gov.uk/documents/s77241/Appendix%201.pdf>).

of the Strategy, many of which supplement the objectives and actions of this AQAP as follows:

- 🌳 SP1: Provide welcoming shared spaces;
- 🌳 SP2: Improve connectivity;
- 🌳 SP3: Improve health and wellbeing;
- 🌳 SP4: Support place-making and enhance built environment;
- 🌳 SP5: Increase resilience to climate change;
- 🌳 SP6: Protect and enhance the natural environment;
- 🌳 SP7: Be celebrated and support learning.

Whilst all of the principles are inter-connected, principles SP2, 3, 4 and 5 relate directly to ambient air quality and will therefore support this AQAP in achieving its objective actions.

SP2 is however most closely linked with ambient air quality. As the greatest proportion of nitrogen dioxide emissions across the city comes from road transport, by providing alternative active travel routes throughout Belfast City, this strategic principle will help to promote the required modal shift away from private vehicle use towards active travel, needed to reduce NO₂ road transport emissions.

SP3 advises that the Council will explore ways to improve ambient air quality, specifically within the identified AQMAs and across the City through the use of open spaces and vegetation to help absorb pollutants. This strategic principle will therefore aid in the reduction of air pollution emissions throughout the Belfast urban area.

SP4 will ensure that the inclusion of open spaces and active travel routes are at the forefront of planning policy, to ensure that as the city grows and develops, sustainable modes of transport will be at the forefront of development¹⁵, thus assisting this Action Plan in achieving its objective actions.

Finally, given that nitrogenous gases play an important role in global climate change, the inclusion of green spaces and promotion of a modal shift to active travel (as

¹⁵Belfast City Council, Belfast Local Development Plan: Draft Plan Strategy, 2021 (source: https://www.belfastcity.gov.uk/getmedia/1314db21-0fd8-4221-9c1f-b9e884575e77/SD006_DPS_ConRep.pdf).

described in SP5) will aid in the reduction of these pollutants from road transport sources¹⁶.

3.1.6 Bolder Vision for Belfast.

The '*Bolder Vision for Belfast. Reimagining the Centre*'¹⁷ document also sets out how a green, walkable, cyclable network of streets and places will improve health for all, revitalise the City's economy and restore a sense of collective pride in the centre of the City by the communities located within and around it. The document highlights that too many journeys are made by car, often with only one person in the car, and that even with significant investment in public transport, car journeys are forecast to grow by 2030. As a consequence, bold changes are required to make space for prioritising walking, cycling and public transport by repurposing surface car parks and road space to halt significant congestion and improve ambient air quality.

3.1.7 Action on Climate Change.

In October 2019, Belfast City Council declared a climate emergency and agreed that urgent action was needed to prepare for climate change, agreeing to take forward its adaptation and mitigation plans in tandem in order to expedite the process. Since then, Belfast City Council has formed the Belfast Climate Commission in partnership with Queen's University of Belfast, and the Belfast Resilience and Sustainability Board and a group of city stakeholders, which sits within the Belfast Community Planning Partnership structures. Within Belfast City Council, an All-Party Working Group on the Climate Crisis has been established, and an internal officer group, the Climate Plan Programme Board oversees internal progress. Through the Belfast Climate Commission and working with PCAN (Place Based Climate Action Network) a Net Zero Carbon Roadmap for Belfast has been produced, which will inform future actions.

3.1.8 Belfast Resilience Strategy.

The Council's climate plans form part of the *Belfast Resilience Strategy*, which sets out the city's ambitious aims to transition Belfast to an inclusive net zero-emissions economy within a generation.

¹⁶ IPCC, Atmospheric Chemistry and Greenhouse Gases, 2018.

¹⁷ Belfast City Council, Bolder Vision for Belfast – Re-imagining the Centre, 2020 (source: <https://www.belfastcity.gov.uk/news/a-%E2%80%98bolder-vision%E2%80%99-for-belfast>).

Belfast City Council is committed to:

-  Becoming a carbon-neutral organisation as urgently as possible;
-  Producing an action plan setting out how we will become a carbon-neutral organisation;
-  Working with partners across Belfast and with central and devolved government to seek to ensure that Belfast district's net carbon emissions are reduced by 80% compared to 2005 levels as quickly as possible.

Currently, the Council is working towards publishing a climate adaptation and mitigation plan. When published in 2021, the plan will aim to deliver the vision set out in the draft *Belfast Resilience Strategy* - to transition to an inclusive net zero-emissions economy in a generation. The Plan is being developed in consultation with a number of cities as part of Belfast's membership of the Resilient Cities Network.

The climate plan will focus actions that can be taken as a Council in relation to:

-  Climate adaptation - actions taken to prepare for the effects of climate change, such as building flood defences;
-  Climate mitigation - processes associated with preventing or alleviating the impacts of climate change, such as reducing greenhouse gas emissions by reducing our carbon footprint.

As noted previously, given that nitrogenous gases play an important role in global climate change, the *Belfast Resilience Strategy* will form a key role in reducing such emissions, thus aiding this AQAP in its goals.

3.1.9 Translink Climate Positive Strategy.

Following on from the Council's climate and resilience objectives for the city, the forthcoming *Translink Climate Positive Strategy*¹⁸ aims to achieve at least a 50% reduction in the organisation's current greenhouse gas emissions by 2030, in line with its 'Climate Action Pledge'. The Strategy aims to place Translink at the forefront in the journey towards zero emission public transportation, and for all its buses, trains and buildings to be net zero by 2040. The main goal of the Strategy is for Translink to become Climate Positive by 2050, going beyond achieving 'net zero' to create an environmental benefit by removing additional carbon dioxide (CO₂) from the

¹⁸ Translink, Climate Positive Strategy, 2021.

environment while allowing growth in the business. It is anticipated that this step change in reducing Translink's environmental impact will be supported by the measures set out in the Strategy and will seek to maintain Translink's leadership position within a rapidly evolving climate change framework. To achieve these aims, a climate positive philosophy will be applied across the whole range of Translink's operations. This includes the transport fleet, buildings, estate and all associated aspects. Having an aspirational Climate Positive Strategy aims to further improve local ambient air quality, help to keep the population active and moving, and help to rebuild the economy to be fit for a low emissions future.

3.1.10 Belfast Harbour Air Quality Strategy.

In January 2020, Belfast Harbour Commissioners published a Statement of Intent¹⁹ to provide an Air Quality Strategy for the Belfast Harbour Estate. The aspiration is that people, who live in, work in and visit Belfast Harbour, should be able to enjoy an environment that is clean and safe, with air quality that is not harmful to human health. The Statement of Intent outlines a consistent approach and key actions that are required to improve ambient air quality across the Harbour Estate and to go beyond the Commissioners' statutory duties. The Air Quality Strategy for the Belfast Harbour area will be created through an analysis of a baseline emissions inventory, which will consider all relevant emissions generated on site, and under the control or direct influence of Belfast Harbour, including road movements, operation of port equipment, pilot and work boat operations, energy usage, workshop operations and emissions from vessels at berth. Given that Belfast Harbour is a key Stakeholder within this Action Plan, it is considered that actions within this AQAP and the Harbour's own Strategy are closely inter-linked, thereby assisting the Council to improve ambient air quality and deliver the air quality objectives for the city.

3.1.11 Belfast Cycling Network.

In addition to various above-mentioned Strategies, the *Belfast Cycling Network* was published on 4th June 2021²⁰. The Belfast Cycling Network provides a blueprint for developing a coherent, connected and safe infrastructure for everyday cycling in the city over the next ten years. It delivers on a key commitment in '*Northern Ireland Changing Gear – a Bicycle Strategy for Northern Ireland*', published by the former

¹⁹ Belfast Harbour Commissioners, Air Quality Strategy – Statement of Intent, 2020 (source: file:///C:/Users/CoreyR/Downloads/Air%20Quality%20Statement%202020%20(3).pdf).

²⁰ Department for Infrastructure, Belfast Cycling Network 2021 (source: <https://www.infrastructure-ni.gov.uk/publications/making-belfast-active-city-belfast-cycling-network-2021>).

Department for Regional Development in August 2015. The Bicycle Strategy itself outlines the three pillars of 'Build', 'Support' and 'Promote' and highlights the importance of other measures such as promoting the 'Cycle to Work' scheme to employers and the creation of high quality infrastructure that provides equal priority for cycling, active travel hubs and secure cycle parking where it is required. The Team have also previously highlighted the need for frequent and clear public awareness campaigns similar to the, 'Take 5 Steps to Wellbeing²¹' health and social wellbeing initiative, adding that initiatives of this type should be informed by behavioural change approaches and supported by practical schemes such as cycle to work incentives.

3.1.12 World Health Organisation European Healthy Cities Network – Phase VII Priorities (2019-2024).

Belfast has been a member of the World Health Organisation (WHO) European Healthy Cities Network for more than 30 years and recently received re-designation status as a city included within Phase VII of the Network. WHO Healthy Cities is a global movement, which works towards putting health high on the social, economic and political agenda of city and regional governments, with the vision that *'Healthy cities are places that deliver for people and the planet. They engage the whole of society, encouraging the participation of all communities in the pursuit of peace and prosperity. Healthy cities lead by example in order to achieve change for the better, tackling inequalities and promoting good governance and leadership for health and well-being. Innovation, knowledge-sharing and health diplomacy are valued and nurtured in healthy cities.'*

There are three overarching goals within Phase VII of the Healthy Cities Network:

- 🌱 Goal 1: Fostering health and well-being for all and reducing health inequities;
- 🌱 Goal 2: Leading by example nationally, regionally and globally; and
- 🌱 Goal 3: Supporting implementation of WHO strategic priorities.

Moreover, there four additional priorities that are specific to Belfast; the first of which, Promoting Healthy Transport, is of particular relevance to Belfast's efforts to improve ambient air quality:

²¹ Public Health Agency, Take 5 Steps to Wellbeing, 2020 (source: <https://www.publichealth.hscni.net/publications/take-5-steps-wellbeing-english-and-11-translations>).

- 🌳 **Promoting Healthy Transport** (strengthening partnership and coherence): the overall goals are to increase physical and mental well-being through promotion of good quality active travel infrastructure; and to generate the evidence to support car reduction, improving air quality and increasing the use of public space for improved health.
- 🌳 **Greening the City:** intersectoral partnerships for healthy places. The overall goals are to develop and deliver healthier and more equitable urban environments for all citizens and to generate global influence.
- 🌳 **Community Prosperity:** these are caring places that enhance health and well-being and reduce health inequalities. The overall goal is to change public policy to include interventions to generate prosperity in left behind communities, strengthen community assets, create caring places and reduce health inequalities.
- 🌳 **Inequalities Training:** building public health capacity at the local level. The overall goal is to increase capacity at operational and strategic levels across sectors for the greater leadership for health and well-being and to support organisations to shape policy and deliver action that will improve health and well-being for all and reduce inequalities.

Belfast's membership of the WHO European Healthy Cities Network is facilitated by Belfast Healthy Cities, which leads on the development and implementation of actions associated with each of the Phase VII priorities.

Belfast Healthy Cities is an independent partnership organisation, governed by a Board of Directors, elected annually and representing the public, university, voluntary and community sectors. It is funded by a range of partners including Belfast City Council, the Public Health Agency, Belfast Health and Social Care Trust and the Northern Ireland Housing Executive.

3.2 Source Apportionment.

Source apportionment studies allow local authorities to identify the extent to which different key sources of ambient air pollution contribute to the air quality exceedances that have been identified within their areas. Consequently, source apportionment studies assist local authorities to correctly target the most important pollution sources and to focus principal measures within an Air Quality Action Plan²².

As previously highlighted within this Action Plan, the main pollutant of concern for Belfast is nitrogen dioxide (NO₂) and although we do not currently monitor exceedances in relation to any other ambient air pollutants, this AQAP focuses also on particulate matter; especially the fine particulate matter (PM_{2.5}) fraction, as a result of emerging recent public health concerns around the health disbenefits of this pollutant.

Consequently, the following source apportionment studies relate to these two pollutants. The purpose of these source apportionments is to also demonstrate how pollution sources have changed over time, especially since 2014 when the previous source apportionment study was completed as part of the development of the 2015-2020 Air Quality Action Plan.

3.2.1 Emission Sources by Activity Sector.

The Council does not presently maintain a detailed local emissions inventory database for the city. The below analyses have therefore been based on recent UK National Atmospheric Emission Inventory (NAEI) reports and associated interactive emissions maps²³. NAEI data are frequently used as a starting point in the compilation of local emission inventories, which may then be used to assess the status of current and future air quality. The Council would advise that the development of a local emissions inventory for the city will form part of the Detailed Assessment project for PM_{2.5} and NO₂, which commenced in February 2021.

The NAEI compiles emissions data for several sectors, producing a detailed estimate of emissions across the UK. Details of the various sectors are provided below:

²² Air Quality Hub, 2021 (source: <https://www.airqualityhub.co.uk/advice-note/source-apportionment/>).

²³ UK NAEI Interactive Map, 2020 (source: <https://naei.beis.gov.uk/emissionsapp/>).

1. Combustion in Energy Production and Transformation;
2. Combustion in Commercial, Public & Agriculture;
3. Combustion in Industry;
4. Production Processes;
5. Extraction and Distribution of Fossil Fuels;
6. Solvent Use;
7. Road Transport;
8. Other Transport and Mobile Machinery;
9. Waste Treatment and Disposal;
10. Agriculture and;
11. Nature, Land Use Change and Other.

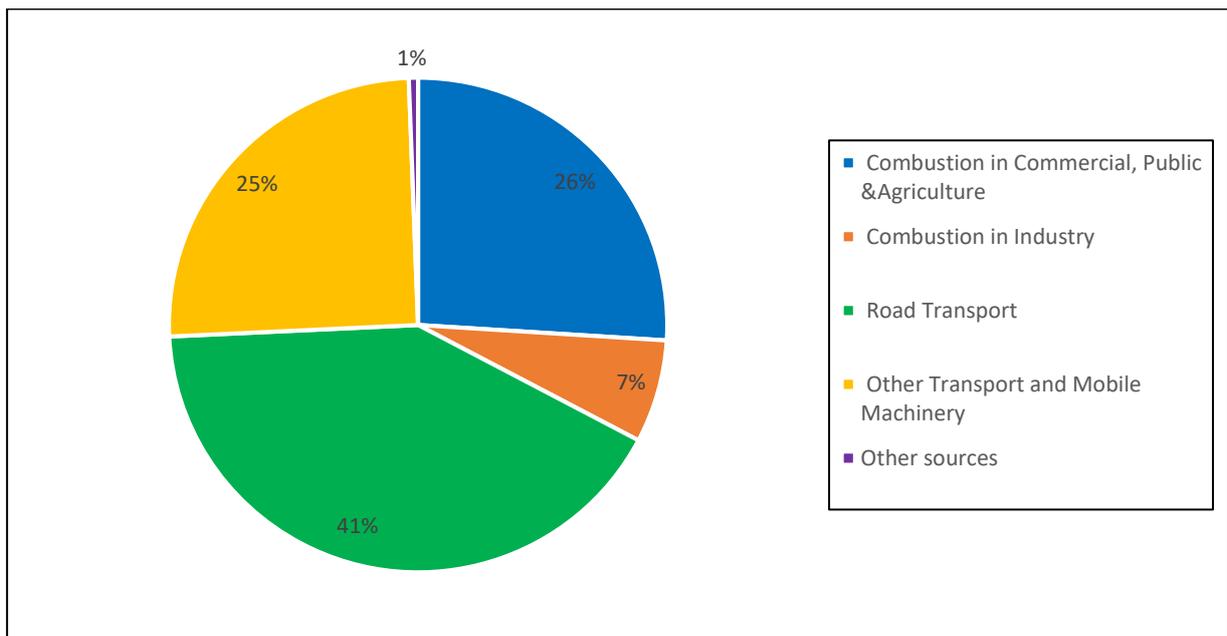


Figure 3.1 - Sources of NOx Emissions in Belfast.

Figure 3.1 demonstrates that the main source of nitrogen oxides (NOx) emissions within Belfast remains road transport (41%), followed by combustion sources (26%), predominantly comprised of domestic combustion. Other transport and mobile machinery sources make up a further 25% of total NOx emissions, where the principal source of emissions within this sector is shipping. Combustion in Industry accounts for 7% of total NOx emissions. The other sectors listed above (Waste Treatment and Disposal, Agriculture, Nature, Land Use Change and Other,

Combustion in Energy Production and Transformation, Production Processes, Extraction and Distribution of Fossil Fuels, Solvent Use) collectively contribute approximately 1% of total NO_x emissions.

Although, road transport remains the principal source of NO_x emissions within Belfast, there has been a noticeable downward trend in emissions from road sources, which is not unique to Belfast itself, but is also observed across Northern Ireland as a whole, as illustrated within the *Air Pollutant Inventories for England, Scotland, Wales, and Northern Ireland: 1990-2018*²⁴ report.

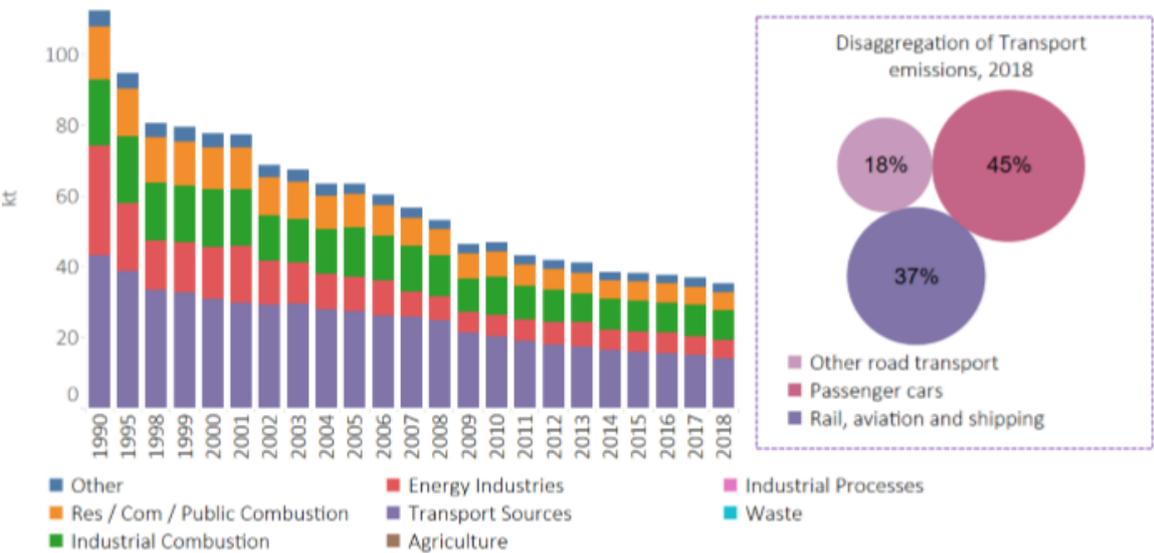


Figure 3.2 - Nitrogen Oxides Emissions in Northern Ireland (source - *Air Pollutant Inventories for England, Scotland, Wales, and Northern Ireland: 1990-2018*).

The inventory report advises that ‘NO_x emissions have declined by 69% since 1990, partly due to changes in transport sources. This decline is driven by the successive introduction of tighter emission standards for petrol cars and all types of new diesel vehicles over the last decade. Since 2008, emissions from passenger cars have further decreased, which is mainly driven by improvements in catalyst repair rates, resulting from the introduction of regulations controlling the sale and installation of replacement catalytic converters and particle filters for light duty vehicles. However, the increasing number of diesel cars offsets these emissions reductions, because diesel cars have higher NO_x emissions relative to their petrol counterparts. Energy

²⁴ NAEI, Air Pollutant Inventories for England, Scotland, Wales, and Northern Ireland: 1990-2018, 2020 (source: Report: Air Quality Pollutant Inventories for England, Scotland, Wales and Northern Ireland: 1990-2018 - NAEI, UK (beis.gov.uk)).

industries have also had a notable impact on the trend with implementation of abatement technology and reductions in the amount of coal used’.

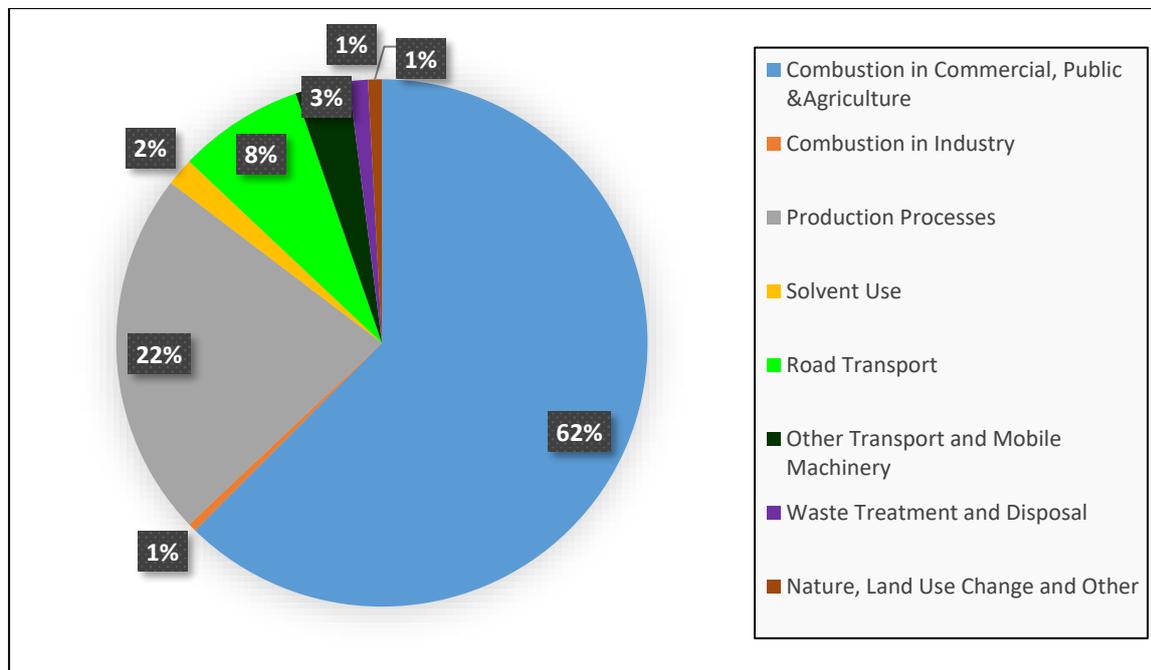


Figure 3.3 - Sources of PM₁₀ Emissions in Belfast.

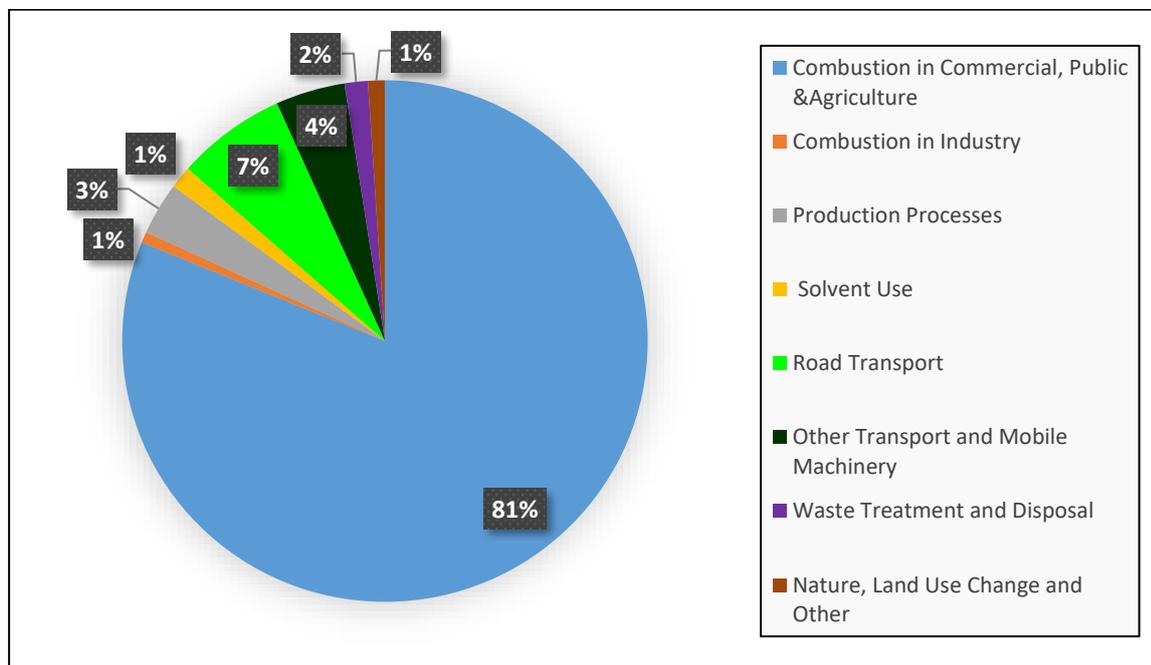


Figure 3.4 - Sources of PM_{2.5} Emissions in Belfast.

Figures 3.3 and 3.4 show that in Belfast, the *Combustion in Commercial, Public & Agricultural* sector is the main source of PM₁₀ and PM_{2.5} emissions. Within these sectors, the principal emissions arise predominantly from domestic combustion

sources. Road transport accounted for 8% (PM₁₀) and 7% (PM_{2.5}) of primary emission sources of particulate matter.

As illustrated in figure 3.5, there is a downward trend in particulate matter emissions from road transport and increases in emissions from residential, commercial and public sector combustion observed across the whole of Northern Ireland, as presented within the recent, *Air Pollutant Inventories for England, Scotland, Wales, and Northern Ireland: 1990-2018* report.

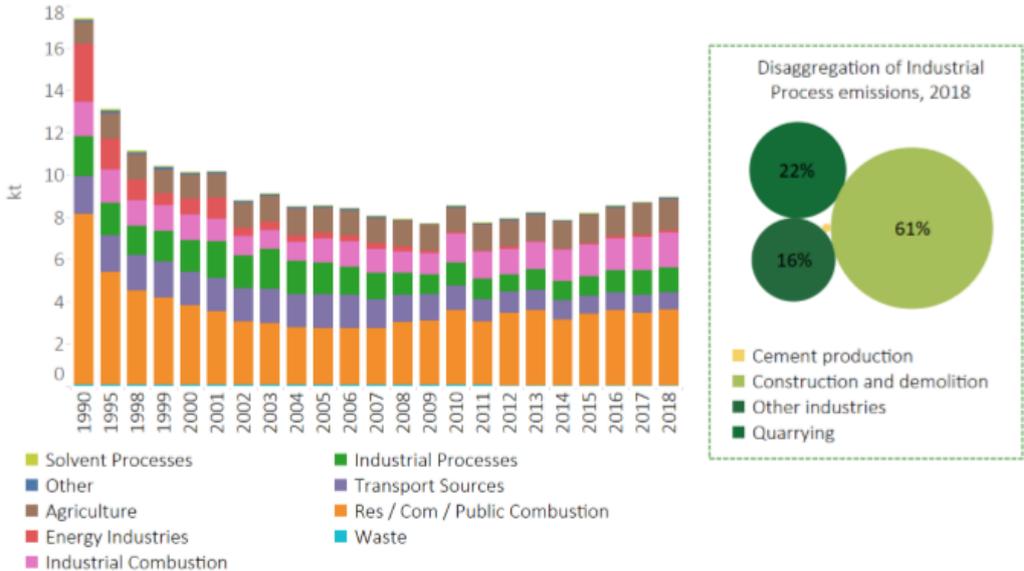


Figure 3.5 - PM₁₀ Emissions in Northern Ireland (source - Air Pollutant Inventories for England, Scotland, Wales and Northern Ireland: 1990-2018).

The inventory report further highlights that, ‘Emissions of PM₁₀ have declined by 49% since 1990, with the major decrease observed between 1990 and 2004. The decreasing trend was defined by emissions from residential, commercial, and public sector combustion, with a reduction in the use of peat and coal and fuel switching across many economic sectors from coal and oil to natural gas. PM₁₀ exhaust emissions from vehicles have also been decreasing due to the successive introduction of tighter emission standards over time, while non-exhaust PM₁₀ emissions from vehicles have been increasing due to increasing traffic activity. In recent years, emissions from residential, commercial, and public sector combustion have primarily increased coincident with increasing wood fuel use in the residential sector (BEIS, 2019a)’.

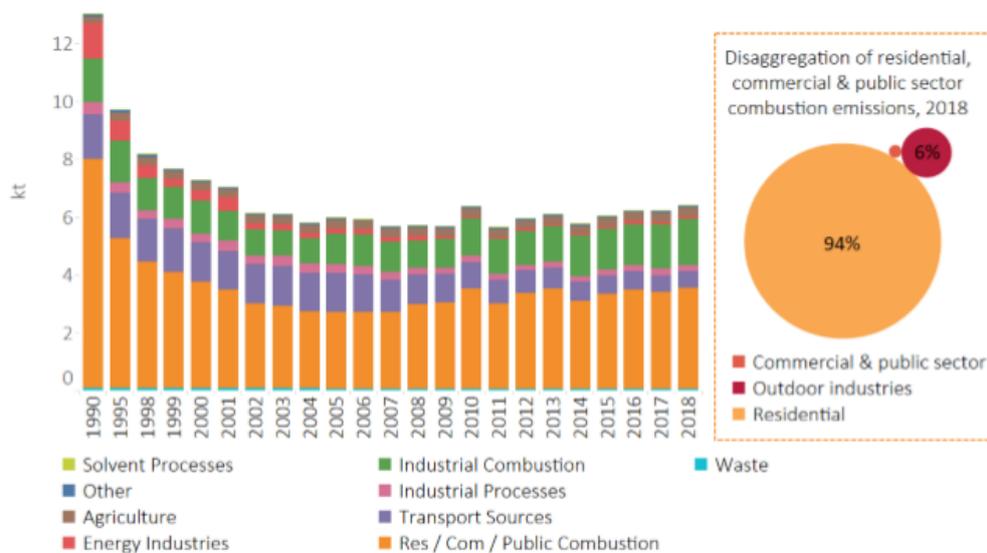


Figure 3.6 - PM_{2.5} Emissions in Northern Ireland (source - Air Pollutant Inventories for England, Scotland, Wales and Northern Ireland: 1990-2018).

Figure 3.6 shows that within Northern Ireland, ‘Emissions of PM_{2.5} have declined by 51% since 1990, with the major decrease observed between 1990 and 2004. As with PM₁₀, PM_{2.5} emissions have a large number of significant sources. However, process emissions tend to produce coarser PM fractions and as such, combustion emissions are of greater importance for PM_{2.5} compared to PM₁₀. For PM_{2.5}, residential combustion accounted for 51% of 2018 emissions. The primary drivers for the decline in emissions since 1990 are the switch in the fuel mix used in electricity generation away from coal and towards natural gas, particularly in the early time-series, and later reductions in emissions from the transport sector due to the introduction of progressively more stringent emissions standards through time. Since 2005, declines in emissions have been offset by increases in emissions from the residential sector, and in particular, the combustion of wood’. It should however be noted that the majority of the Belfast City Council area has been declared as a series of smoke control areas and that within smoke control areas, wood can only be used within an exempted appliance.

However, it is worth noting that in addition to these direct (primary) emissions of particles, PM₁₀ and PM_{2.5} can also be formed from chemical reactions in the atmosphere of gases such as nitrogen oxides (NO_x) and sulphur dioxide (SO₂); these are called secondary particles. Secondary particle sources make a considerable

contribution to the overall mass of PM_{2.5} in Belfast, accounting for around 37% of total background PM_{2.5} concentrations within the city, as shown below in Figure 3.7.

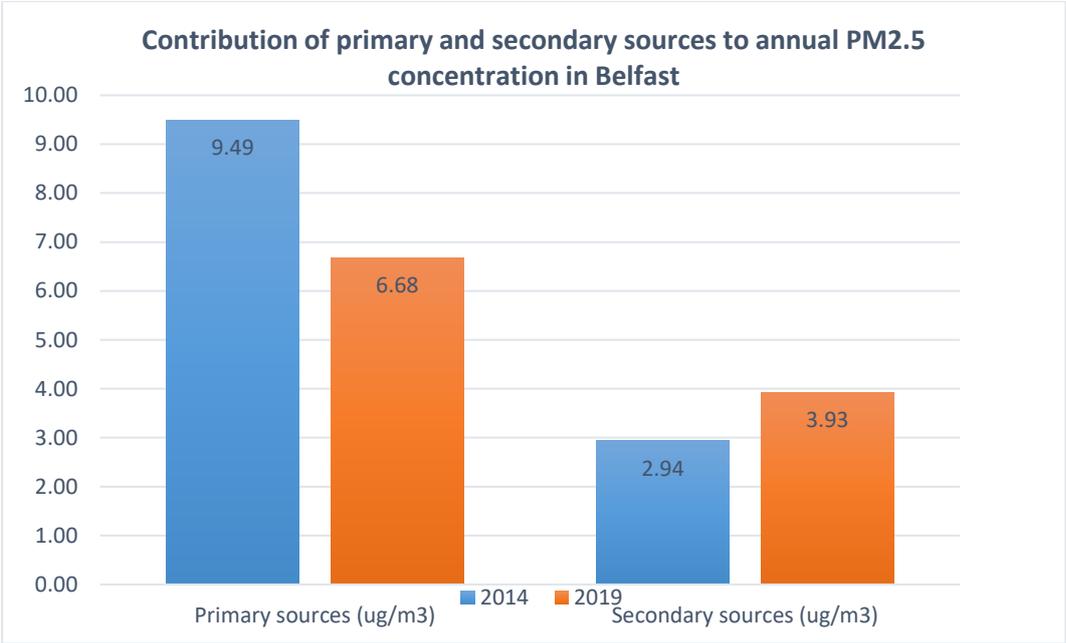


Figure 3.7 - Contribution of Primary and Secondary Sources to Annual PM_{2.5} Concentrations in Belfast.

NO_x emissions, predominantly from road transport sources, are a significant source of secondary particulate matter. Therefore, measures to reduce the emissions of these precursor gases are often beneficial in reducing overall particulate matter concentrations. Residual sources (including coastal marine salt sources) are also major contributors to PM_{2.5} concentrations across Belfast (22-24%).

3.2.2 Changes in NO_x and PM_{2.5} concentrations since implementation of the previous 2015-2020 Air Quality Action Plan.

Defra background pollution concentrations maps²⁵ are provided to assist local authorities in support of Reviews and Assessments of ambient air quality.

The main purpose of the background maps is to provide estimates of background concentrations (average concentrations for 1x1 km areas) for specific ambient pollutants. These can also be used in air quality assessments to better understand the contribution of local sources to overall pollutant concentrations. They also provide

²⁵ Defra, Background Mapping for Local Authorities, 2020 (source: <https://uk-air.defra.gov.uk/data/laqm-background-home>).

information on how pollutant concentrations change over time across a wide area and an estimated breakdown of the relevant pollution sources.

Council officers have undertaken an analysis of the background concentrations (NOx and PM_{2.5}) for two areas within Belfast; the city centre area and the M1 Motorway / A12 Westlink AQMA (in the vicinity of the Stockman’s Lane monitoring station), to examine how background pollution sources have changed between 2014 (prior to implementation of the previous 2015-2020 AQAP) and during 2019.

Figure 3.8 - Changes in NOx Background Pollution Sources in Belfast between 2014 and 2019.

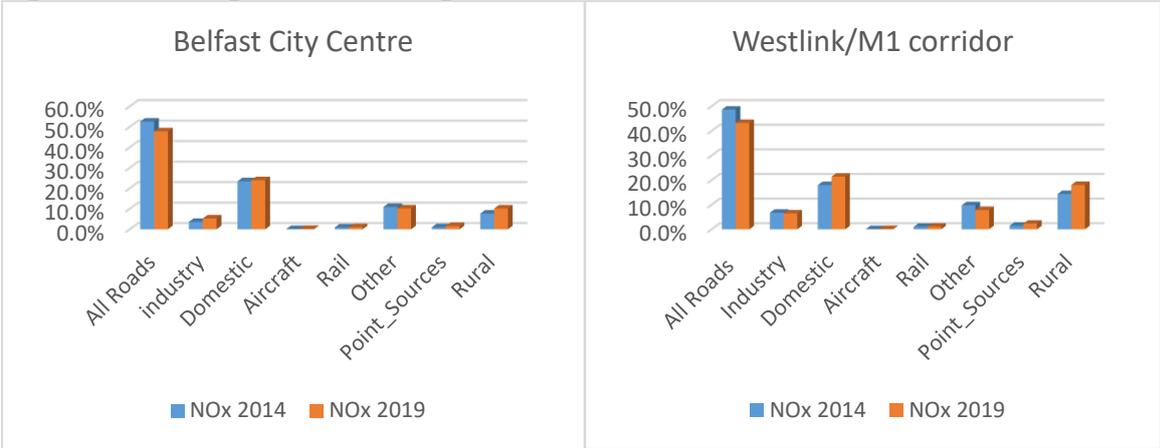
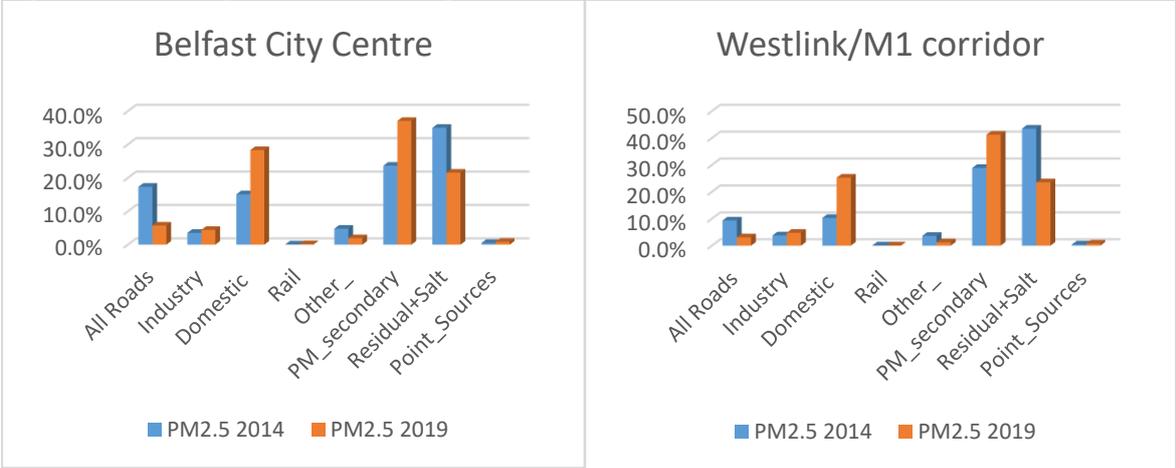


Figure 3.9 - Changes in PM_{2.5} Background Pollution Sources in Belfast between 2014 and 2019.



Based on analyses of background concentrations in Belfast, road transport is still the principal source of NOx background concentrations in Belfast; however, concentrations from road transport have fallen by over 20% between 2014 and 2019 across the city.

It is worth mentioning however that these analyses refer to background concentrations, which are average concentrations for 1x1 km areas across the city. Therefore, road transport will account for significantly higher proportions of NO_x concentrations at locations close to busy roads.

Contributions from domestic sources to background PM_{2.5} concentrations have increased significantly since 2014 and it is estimated that background PM_{2.5} concentrations from domestic sources have doubled in some parts of the city.

Road transport was a significant source of background PM_{2.5} in 2014 within the city centre and accounted for some 17% of PM_{2.5} background concentrations. However, this source of PM_{2.5} background pollution has decreased significantly over recent years due to stricter vehicle emissions standards, to the extent that road transport currently accounts (2019 data) for only 7% of total PM_{2.5} background concentrations in Belfast.

Secondary sources make a considerable contribution to the overall mass of PM_{2.5} in Belfast, accounting for around 37% of the background total PM_{2.5} concentrations in the city centre. 'Secondary PM_{2.5} particles' are formed by the chemical reaction of gases such as SO₂ and NO_x comprised of nitric oxide (NO) and NO₂.

3.2.3 Vehicle Fleet Composition and Emissions.

Tackling the problem of NO₂ concentrations near to arterial road routes into and out of the city is still the most immediate air quality challenge for the city. Accordingly, the annual mean objective for nitrogen dioxide is the only ambient air quality objective that is currently not being achieved within Belfast.

Although NO_x emissions have fallen across the city since the introduction of the previous AQAP, road transport remains the main source of NO_x emissions with Belfast, accounting for over 40% of emissions within the city centre during 2019.

Therefore, as road transport emissions are of principal concern, Council officers have undertaken an analysis of the percentage contribution of different vehicle classes to overall NO_x emissions.

Although road transport presently accounts for only a small percentage of overall PM_{2.5} and PM₁₀ primary emissions in Belfast, an analysis has also been undertaken for particulate matter. Transport emissions have been calculated for four arterial roads located within AQMAs, using the latest Defra Emission Factor Toolkit²⁶ and road traffic data provided by the Department for Infrastructure (DfI). However, the Council would draw attention to the relatively limited traffic data available for use in this assessment.

Unfortunately, due to a reduction in traffic census points across Northern Ireland over recent years, some roads have had to be assessed on the basis of historical traffic counts and fleet composition data, dating from between 2010-2015. Moreover, due to the gradual introduction of a revised vehicular classification system, some fleet composition assumptions have been employed within the analyses.

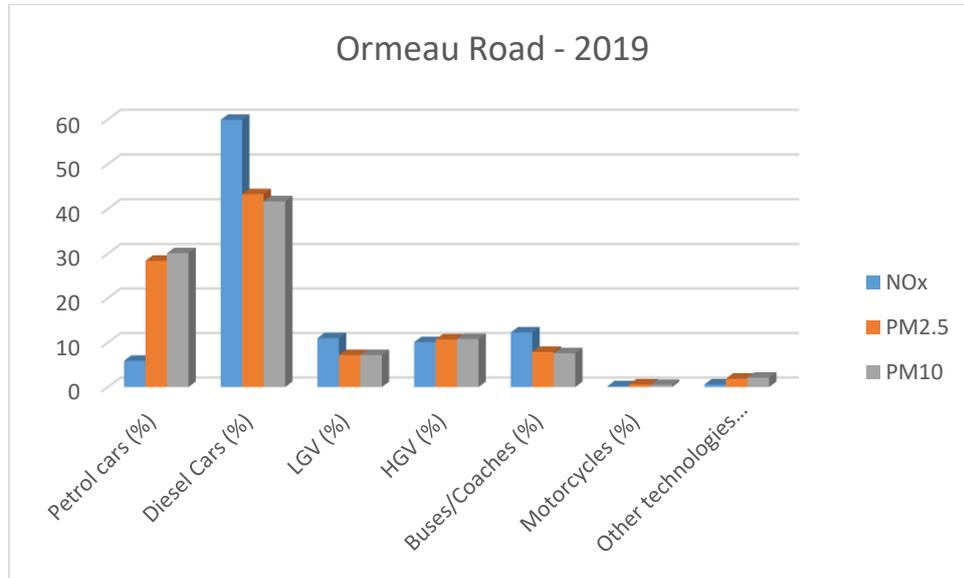
Whilst it is impossible to draw detailed conclusion, due to the historical nature of the data and the need for assumptions, the following key points can be drawn from the information presented in Figure 3.10:

- by far the biggest contributors to NO_x emissions are diesel cars;
- diesel and petrol cars are by far the biggest contributors to PM_{2.5} and PM₁₀ emissions;
- LGVs, HGVs and buses / coaches contribute approximately equally to NO_x, PM_{2.5} and PM₁₀ concentrations across the surveyed locations and;
- The contribution from HGVs is significantly enlarged along the A12 Westlink.

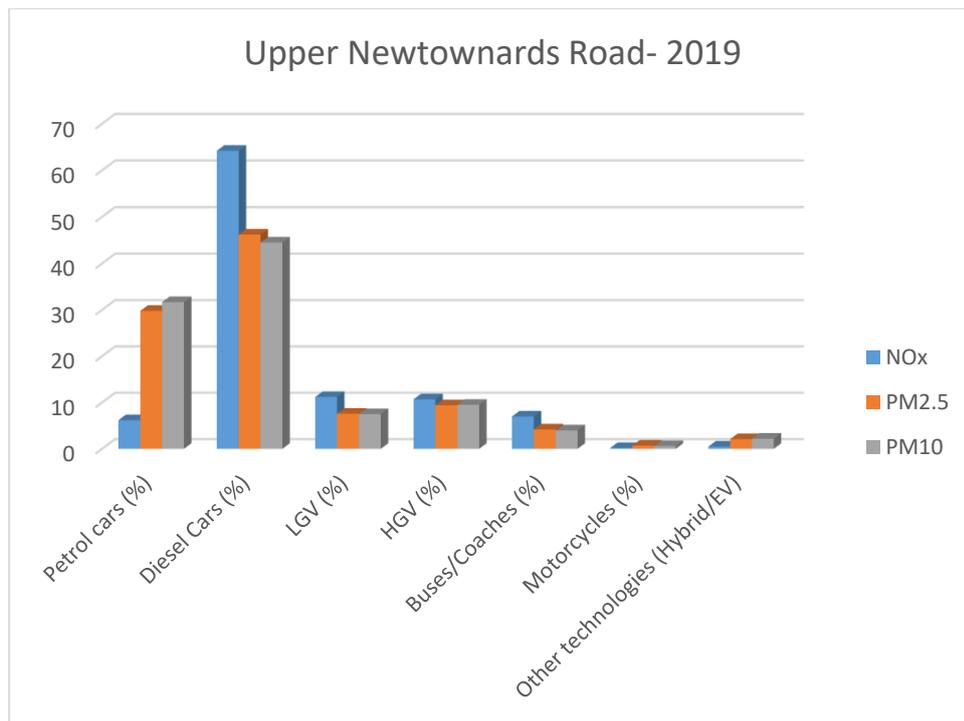
²⁶ Defra, EFT 10.1, 2020.

Figure 3.10 - Contribution of Different Vehicle Types to Total NO_x, PM₁₀ and PM_{2.5} Road Emissions in Belfast AQMAs.

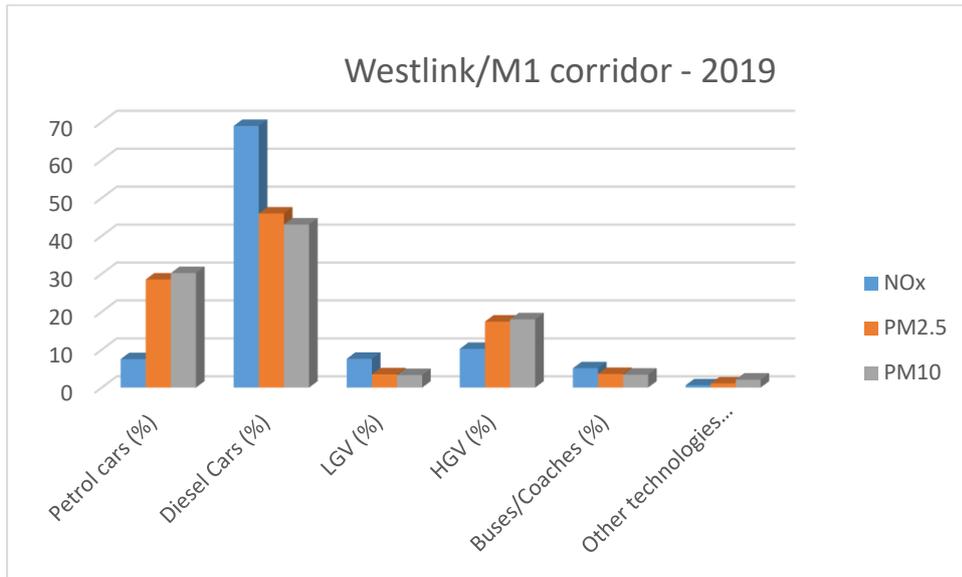
Ormeau Road AQMA



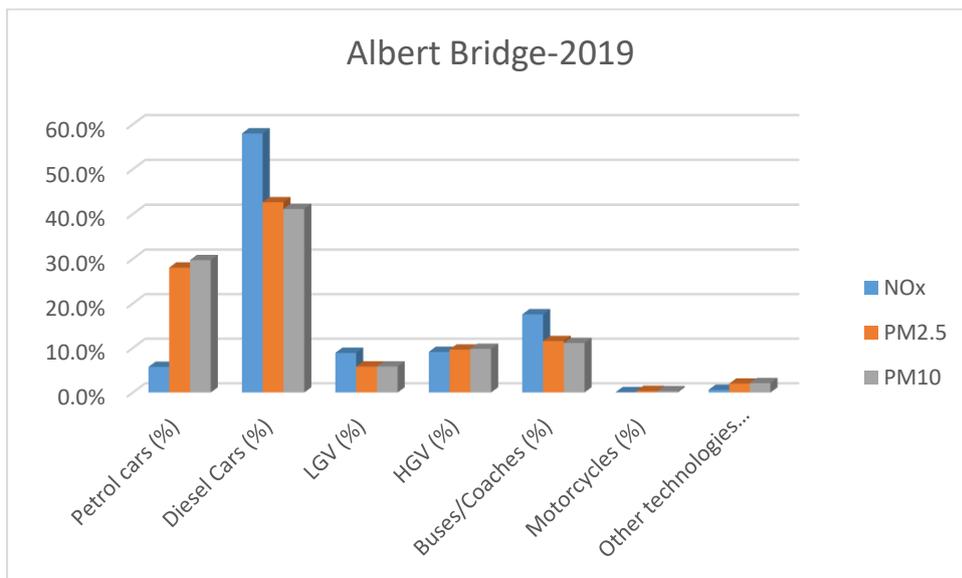
Upper Newtownards Road AQMA



M1/Westlink AQMA



Cromac Street and Albertbridge Street AQMA



3.3 Required Reduction in Emissions.

There have been no monitored exceedances of Air Quality Strategy Objectives for any other ambient pollutant in recent years across Belfast. Therefore, only the reductions in NO_x emissions required to meet the annual mean objective for NO₂ have been considered in this section.

Annual mean exceedances (above 40 µgm⁻³) during 2019 occurred at following roadside monitoring locations: Black's Road (42 µgm⁻³), Great George's Street (45 µgm⁻³), Stockman's Lane (45 µgm⁻³), opposite the Westlink AQMS at Mulhouse Road (45 µgm⁻³) and at Henry Place (53 µgm⁻³). All are located within the existing M1 Motorway / A12 Westlink AQMA and have been the subject of mitigation measures for some time.

Moreover, it is worth noting that these 2019 exceedances occurred at roadside locations (0.5 – 4 m distance from the road) and not at relevant human health receptor locations; generally taken to be the façade of a residential property. It is generally accepted that nitrogen dioxide concentrations decline rapidly with distance over the first 20m from the kerb. Accordingly, when the abovementioned 2019 NO₂ annual mean concentrations were corrected in accordance with local air quality management technical guidance to take account of the separation distance to the nearest residential properties, the results indicated that NO₂ concentrations were below the 40 µgm⁻³ annual mean objective at all residential premises located in the vicinity of the Blacks Road monitoring site, at Great George's Street and at the closest residential properties, located at Roden Street and Blackwater Way, to the Mulhouse Road monitoring site. Distance corrected nitrogen dioxide annual mean concentrations were around 42 µgm⁻³ at a residential receptor location at Stockmans Lane during 2019. Whilst distance-corrected 2019 nitrogen dioxide concentrations were below the 40 µgm⁻³ annual mean objective at all residential premises located in the vicinity of Henry Place and Carlisle Road, calculations suggest that some properties on the opposite side of the Westlink, located some 6m from the kerbside, may have experienced nitrogen dioxide annual mean concentrations of around 42 µgm⁻³ during 2019. Moreover, some residential properties located at Little George's Street and Southwell Street, adjacent to the signalised junction of the A12 Westlink and York Street are located a similar distance (7m) from the A12 Westlink kerb. Belfast City Council has since established monitoring sites at these two additional

locations in order to accurately assess ambient nitrogen dioxide annual mean concentrations.

It should be noted that during 2017, Belfast City Council engaged with the DAERA and Defra in order to evaluate Pollution Climate Model (PCM) national atmospheric dispersion modelling that had been undertaken for the Belfast Metropolitan Urban Area as part of the development of the government's 2017 '*Air Quality Plan for tackling roadside nitrogen dioxide concentrations in Belfast Metropolitan Area (UK0028)*'. Measures referred to within the government's Plan document included many that were drawn from the 2015-2020 Belfast City Air Quality Action Plan, including for example, development of the Belfast Rapid Transit system, development of the Belfast Transport Hub, enhanced bus priority on Metro routes and improved car parking controls, promoting the use of electric vehicles, promoting active travel in order to encourage walking, cycling and use of public transport, instead of the private car and investing in public transport, cycling and pedestrian infrastructure to encourage greater use of these transport modes.

National modelling undertaken on behalf of Defra and DAERA, using the Pollution Climate Model (PCM) for roadside nitrogen dioxide, suggested that the A2 Sydenham Bypass, stretches of the A55 road at Kennedy Way, Stockmans Lane, the Upper Knockbreda and Knock Roads and the A12 Westlink corridor were predicted to exceed the annual mean objective for nitrogen dioxide in 2015, but would likely all achieve compliance by the end of 2022 and be maintained thereafter²⁷. As a component of the evaluation process, Belfast City Council completed a comparison of this national modelling using '*in house*' atmospheric dispersion modelling software, Cambridge Environmental Research Consultants (CERC) Atmospheric Dispersion Modelling Software (ADMS-Urban), local road geometry and local transport data provided by the Department for Infrastructure. The outworkings of the Council's evaluation study indicated that there were no predicted exceedances of the nitrogen dioxide annual mean objective at relevant receptor locations on the A55 Upper Knockbreda and Knock Roads and along the A2 Sydenham Bypass during 2015 and thereafter. The study did however suggest that there were likely to be exceedances of the nitrogen dioxide annual mean objective at relevant receptor locations along

²⁷ Defra, Air Quality Plan for tackling roadside nitrogen dioxide concentrations in Belfast Metropolitan Urban Area (UK0028), 2017 (source: https://uk-air.defra.gov.uk/assets/documents/no2ten/2017-zone-plans/AQplans_UK0028.pdf).

sections of the A12 Westlink corridor in 2015 and 2020 but compliance might be achieved at the end of 2021; potentially one year in advance of that predicted by the government's modelling. The Council's modelling therefore predicts that by 2022, exceedances of the nitrogen dioxide annual mean objective will only be expected to occur within the carriageway confines of the A12 Westlink corridor and not therefore at relevant human health receptor locations.

These revised and refined predictions relating to achievement of the nitrogen dioxide annual mean objective were accepted by DAERA and Defra and referred to by DAERA in its November 2020, '*A Clean Air Strategy for Northern Ireland – Public Discussion Document*'. In the Public Discussion document, the Department acknowledged however that the M1 Motorway / A12 Westlink corridor is perhaps the most difficult stretch of road on which to tackle NO₂ exceedances, given its role as a key transport corridor that is central to Northern Ireland's strategic road network.

Accordingly, in view of the outworkings of the government's and Belfast City Council's nitrogen dioxide modelling predictions for the city for future years, it is considered that the actions commenced via the previous Belfast City Air Quality Action Plans and continued and extended through this Air Quality Action Plan, covering the period 2021-2026, will help to ensure that the nitrogen dioxide annual mean objective and equivalent EU limit value are achieved at all locations across the city by the end of 2022 at the latest.

Belfast City Council has nevertheless undertaken calculations of the extent of road NO_x emissions at the above-mentioned monitoring locations, to estimate the scale of emissions' reduction required to achieve the annual mean objective for NO₂ of 40 µgm⁻³. The required reductions in emissions have been calculated in line with Chapter 7 of the Defra Local Air Quality Management Technical Guidance document LAQM.TG(16)²⁸.

²⁸ Defra, Local Air Quality Management Technical Guidance (TG16), April 2021.

Table 3.1 - Required Reduction in Emissions of Road NOx to Meet Objectives.

Monitoring Site Location	Measured NO ₂ Concentration 2019 (µgm ⁻³)	Road NOx Concentration (µgm ⁻³)	Required Road NOx Concentration (µgm ⁻³)	Percentage Required Reduction
Black's Road	42	43.18	38.7	10%
Great George's Street	45	43.76	32.57	26%
Stockman's Lane	45	50.05	38.7	23%
Mulhouse Road opposite Westlink AQMS	45	50.05	38.7	23%
Henry Place	53	62.78	32.57	48%

Calculations demonstrate that there needs to be a reduction in road NOx of around 48% at the worst-case scenario location (Henry Place - Westlink canyon) in order to achieve compliance with the annual mean air quality objective for NO₂ at this location.

This new AQAP covers the period 2021-2026. Therefore, additional calculations using available local traffic data (DfI) and the Defra Emission Factor Toolkit v10.1 were undertaken to demonstrate anticipated changes in road emissions between years 2019-2026 for the area of the A12 Westlink corridor, where the greatest emissions reductions are required. Local fleet composition data, aggregated by Euro standard, was not available for the purposes of this calculation. Accordingly, a distribution of road vehicle classes was obtained from the Defra Emissions Factor Toolkit (EFT) v10.1. Results suggest that by 2026, on the basis of changes in fleet composition and vehicle age alone, NOx road emissions will decrease about 50% along the Westlink corridor, which is the approximate amount required to achieve compliance with the nitrogen dioxide annual mean UK objective at the worst case scenario location (Table 3.2). Furthermore, whilst not reflected within the following table, the Toolkit (EFT) v10.1 also assumes that there will be an increase in vehicles powered by other technologies (e.g. EV, Hybrid, Hydrogen etc.).

Table 3.2 - Estimated Reduction in Road NO_x, PM₁₀ and PM_{2.5} Emissions Between 2019-2026 Along Westlink Corridor (source: Emission Factor Toolkit v10.1).

	All Vehicles (g/km/s)	Petrol Cars (g/km/s)	Diesel Cars (g/km/s)	All HDVs (g/km/s)	LGVs (g/km/s)	Buses/Coaches (g/km/s)
NO _x	49%	6%	50%	73%	54%	75%
PM _{2.5}	14%	0%	36%	16%	25%	31%
PM ₁₀	9%	0%	31%	11%	21%	22%

Note: It should be noted that these calculations are designed to provide an indication only and include several assumptions, including no increase in traffic volume.

The measures proposed within this AQAP (Table 5.1) are mainly based around reducing vehicle emissions and encouraging other modes of travel in order to reduce the use of private vehicles on Belfast roads. Therefore, with the abovementioned predicted emission reductions and the continuing introduction of ultra-low or zero emission vehicles, principally as a result of the introduction of more stringent Euro emission standards and the UK government’s commitment to end the sale of new petrol and diesel cars in the UK by 2030, coupled with the proposed mitigation measures contained within this Action Plan, it is predicted that Belfast should achieve compliance with NO₂ annual mean UK objective even at ‘worst case’ roadside locations during 2026.

3.4 Key Priorities.

3.4.1 Active Travel

The required modal shift away from private vehicle use towards more sustainable forms of transport, including active travel (walking and cycling), has the potential to significantly improve ambient air quality by reducing the number of vehicles on the roads and thus causing an associated reduction in nitrogen dioxide and particulate matter emissions from transport sources. Moreover, when reviewing the following information concerning modes of travel in Northern Ireland, obtained from the *Travel Survey for Northern Ireland Reports* (2014-2016, 2016-2018 and 2017-2019) published by DfI²⁹, it is clear that a focus on shorter journeys of less than 5 miles in length, which could reasonably be achieved through walking or cycling, is the most feasible approach to achieving the required modal shift.

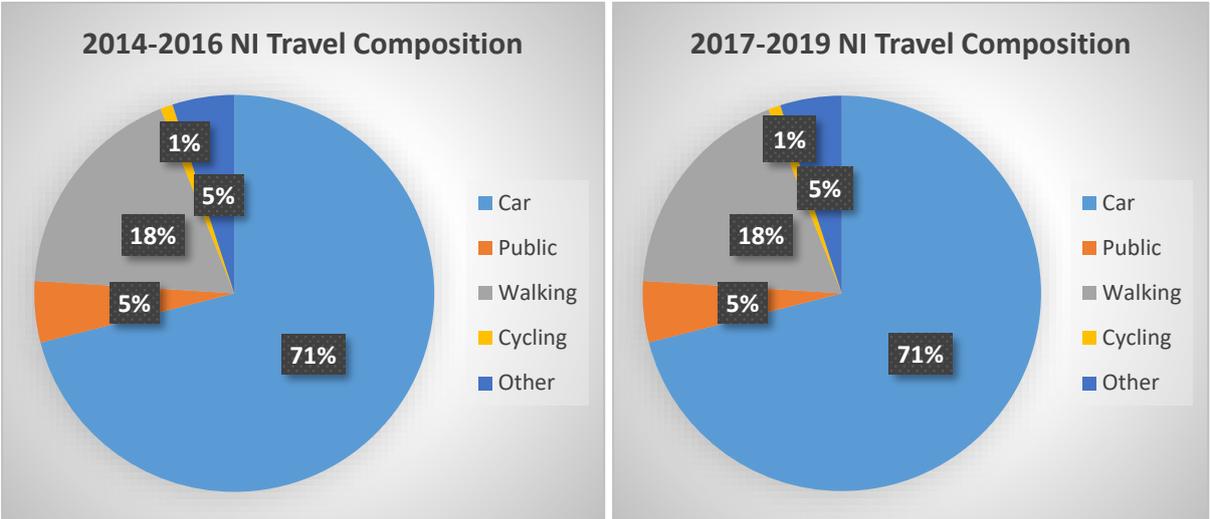


Figure 3.11 - Comparison Charts of Journey Composition in 2014-16 and 2017-19.

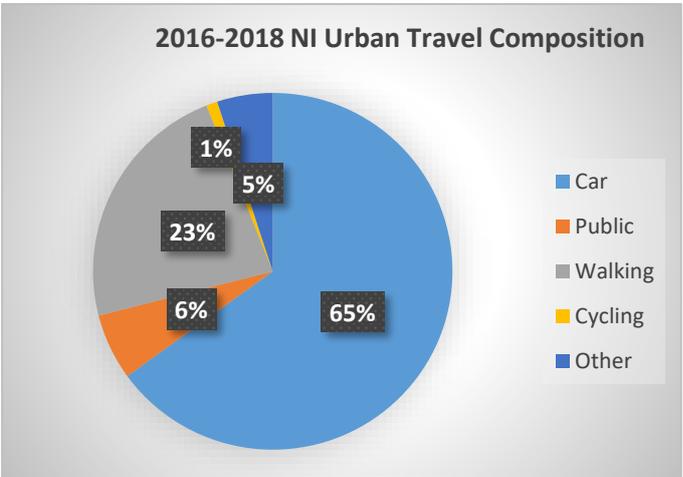


Figure 3.12 – Journey Composition for Urban Areas in Northern Ireland 2016-18.

²⁹ DfI, Travel Survey for Northern Ireland Reports (2014-2016, 2016-2018 and 2017-2019).

Figure 3.11 above illustrates that journey composition has not altered over recent years in Northern Ireland, with only 19% of all journeys made by active travel means. Although this figure is slightly increased for Belfast, with a total of 24% of journeys made by active options (Figure 3.12), this is still a lower proportion than might be expected, given the distribution of journey distances, as demonstrated in Figure 3.13.

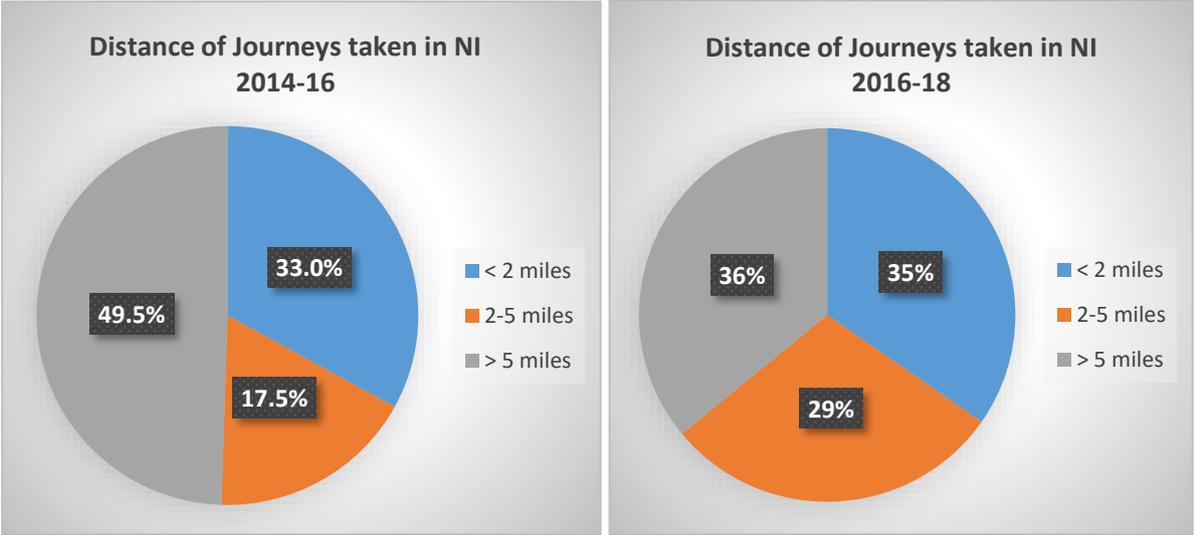


Figure 3.13 - Percentage Composition of Journey Distance in Northern Ireland.

On average, each individual within Northern Ireland makes an estimated 906 journeys per year. This statistic, similar to the journey type, has not altered significantly since 2014. However, as can be seen above, there appears to be a marked increase in the percentage number of ‘shorter’ journeys made within NI between 2014 and 2018. Previously, just over half of all journeys made were less than 5 miles, but *Northern Ireland Travel Survey 2016-2018 Report* indicates that approximately 64% of all journeys made are now less than 5 miles. With this in mind, it is perhaps surprising that the uptake of active travel does not demonstrate a similar trend.

As Belfast City grows, there is a risk that busy roads will become increasingly congested. Over half of commuters move through the city by private vehicle but without an alternative, planned growth could add a further 100,000 vehicle trips to peak hours. In addition to the pressure that this would add to the road network capacity, the additional emissions would have air pollution and climate change impacts. As such, finding alternative routes through the city that accommodate more

sustainable and healthy walking and cycling is imperative^{30,31}. Moreover, the benefits of more active modes of transport extend beyond physical health such as reduced risk of cardiovascular or respiratory diseases; they can improve overall wellbeing, with those walking or cycling recognised as being some of the happiest commuters when compared with those driving or taking the bus³².

3.4.1.1 Impact of Previous Action Plan Measures.

The 2015-2020 Air Quality Action Plan contained a range of measures proposed by DfI to encourage modal shift, including committing towards improving and extending the cycle network in Belfast City Centre through introduction of a network of parallel routes including contra-flow cycle lanes and shared use bus and cycle lanes. The Department stated that it would provide secure cycle parking and promote cycle to work and public bike hire schemes. In addition to these, other measures from the previous plan included the Belfast Bikes Hire Scheme and the implementation of an Active Travel Plan headed by Belfast City Council.

There has been some progress with regard to actions relating to the *Bicycle Strategy for Northern Ireland*, with an increase in the number of cycle lanes within Belfast City between 2014 and 2020 installed at the following locations:

-  Alfred Street,
-  Upper Arthur Street,
-  Durham Street,
-  College Square North,
-  College Street,
-  Middlepath Street,
-  Comber Greenway improvements (Dundonald Ice Bowl Bridge, widening, resurfacing),
-  Connswater Community Greenway.

³⁰ Belfast City Council, Green and Blue Infrastructure Plan, 2020 (source: <https://www.pacni.gov.uk/sites/pacni/files/media-files/BCC-AD-GBIP.pdf>).

³¹ Government Office for Science, Future of the Mobility Transport System, 2019 (source: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/780868/future_of_mobility_final.pdf).

³² Martin et al., Does active commuting improve psychological wellbeing? Longitudinal evidence from eighteen waves of the British Household Panel Survey, 2014.

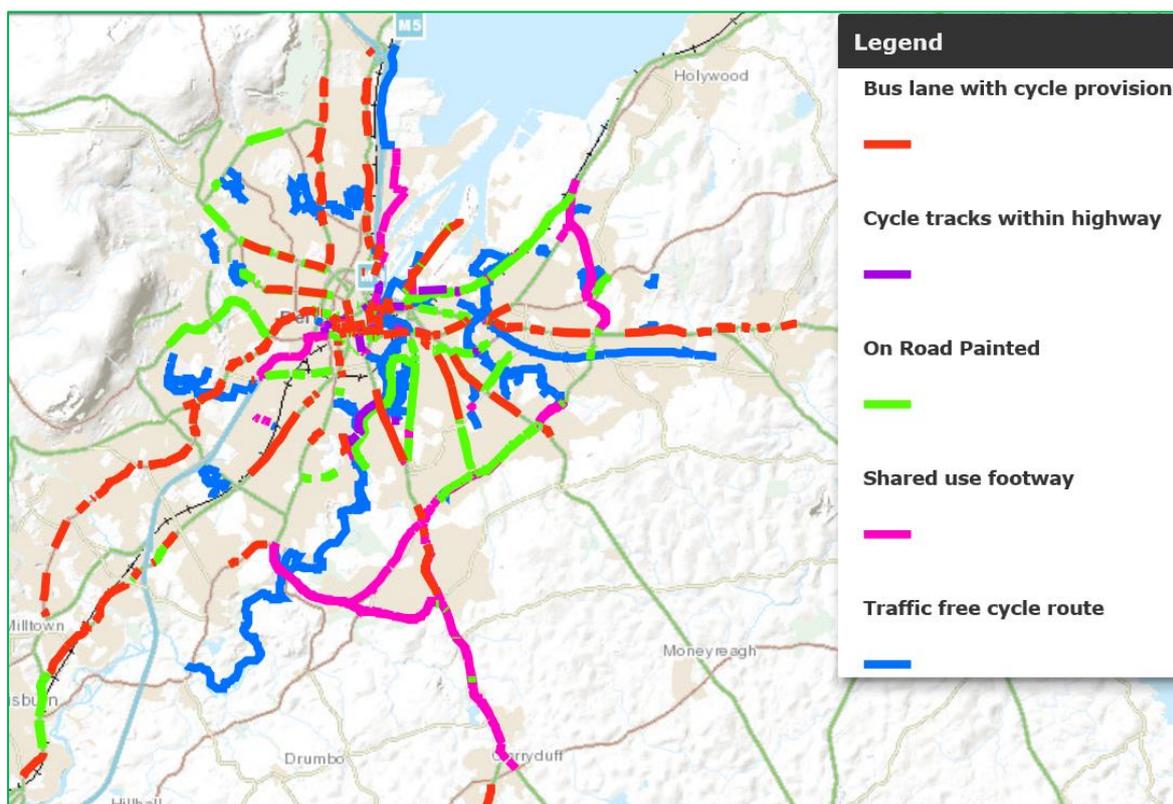


Figure 3.14 - DfI Belfast Cycle Map, Illustrating Cycle Infrastructure within Belfast City Area.

Source: [DfI Belfast Cycle Map \(arcgis.com\)](https://arcgis.com)³³

In the past year, the Covid-19 pandemic has also provided an opportunity to introduce a number of ‘pop-up’ cycle lanes and associated infrastructure throughout the city, including routes on the Dublin Road, Donegall Road and Grosvenor Road, whilst existing lanes on the Crumlin and Oldpark Roads have been improved. The new routes are designed to improve access into the city centre, as well as provide easy access to Belfast’s hospitals. As these routes were introduced after the *Travel Survey Report* was released, data is not yet available to show how these measures have impacted upon cycling statistics within Belfast City. There is however still room for further improvement regarding connectivity and accessibility of these active travel routes throughout the city, to ensure that everyone has access. The redesign of complex junctions between the routes illustrated above is one option that will allow safer connectivity and assist the movement of active travellers throughout the city.

In contrast, the Belfast Bikes Scheme has over-achieved on its goals to provide 300 bikes and 30 docking stations to the public for hire. Currently, there are now over 350 bikes in operation, with over 47 docking stations located throughout the city for ease

³³ Department for Infrastructure, Belfast Cycle Map, 2021 (source: DfI Belfast Cycle Map (arcgis.com)).

of access. Moreover, during December 2020, 450 'SMARTbike 2.0' bikes were rolled out across the docking stations, replacing the previous model of bike. At the height of its use, the Belfast Bikes Scheme generated 19,807 rentals in July 2015 and 15,350 rentals in July 2019. It is noted however that use of this scheme can be influenced by the weather, and so there can be seasonal and monthly fluctuations in patronage. Although the Scheme continues to be successful, even with a slight drop in rental numbers over recent years, the Covid-19 pandemic appears to have played a significant role in 2020's reduced rental statistics, with 3,462 bike rentals in November 2020. It is unclear at this stage how the pandemic will impact upon long term scheme uptake, rental numbers and trends in usage³⁴.

Following on from this, the *Active Travel Plan* interconnected an array of actions, including both the *Belfast Bike Scheme* and infrastructure improvements, along with other active travel promotions, such as the *Active School Travel Programme*³⁵. The aim of this Plan was to promote and encourage walking, cycling and the use of public transport within Belfast, with a goal of moving individuals away from private car usage, where other active travel means were feasible.

Infrastructure improvements included development of the Connswater Community Greenway, the Ormeau Park Bridge and extension to the Lagan Weir and Lookout. There have been some encouraging movements in these areas; for example, the Connswater Community Greenway now has over 9km of linear park through east Belfast, which serves 40,000 residents and 23 schools. The project has so far created 16km of foot and cycle paths, as well as 26 new and/or improved bridges that cross the river. This is highly beneficial to the promotion of active travel, as it provides a clean and aesthetically appealing route option to the residents of east Belfast³⁶. Furthermore, plans were approved in early 2021 for the creation of the Ormeau Park Bridge for use by both walkers and cyclists.

The *Active School Travel Programme* is currently serving over 400 schools in Northern Ireland, with the aim of encouraging walking and cycling as students' main form of transport. In the schools where Sustrans works, *the Active School Travel*

³⁴ Just Eat Belfast Bikes Performance Indicators, 2015, 2019 and 2020 Reports.

³⁵ Sustrans Active School Travel Programme, <https://www.sustrans.org.uk/our-blog/projects/2019/northern-ireland/active-school-travel-in-northern-ireland>

³⁶ Connswater Community Greenway, <https://www.connswatergreenway.co.uk/project/about-connswater-community-greenway>.

Programme has made a difference, however success is compromised by infrastructure limitations around many schools. Some have no footpaths whilst others have 60 mph speed limits in operation outside of the school gates.

Sustrans has reported increases in active travel uptake in participating schools, as detailed below:

Active School Travel Programme Results (2018-2019):

-  Active travel increased from 35% to 53% at participating schools.
-  At the same time, car use fell from 58% to 41%.
-  Cycling increased from 3% before engagement to 6% at follow up.
-  The proportion of pupils walking increased from 27% to 31%.
-  More pupils reported travel by park and ride/ stride, scoot journey rising from 5% to 13%.

The *Active School Travel Programme*, jointly funded by DfI and the PHA is a good example of cross-departmental working, and could link with:

-  Infrastructure improvements, and;
-  Cycle skills training for all P6 pupils (currently fewer than 4% of children receive this – only 16 children per participating school, and only in the first year of that school's involvement in the programme).

However, despite the *Active School Travel Programme* being in operation over several years, national statistics indicate a drop in active travel by school students. When comparing DfI's *Travel to and from School by Pupils in NI 2014/15 and 2019/20* reports³⁷, there appears to be an increase in primary school students utilising the private car as their main source of transport, increasing from 61% in 2015 to 68% in 2019/20 and from 30% to 33% for post-primary students. However, many post-primary students still use the bus as their main mode of transport to and from school (48% of the survey respondents in both 2015 and 2019). Walking also follows a negative trend, dropping from 29% in 2015 to 19% in 2019 for primary school students and from 19% to 17% for post-primary school students. With these statistics in mind, it indicates that previous actions regarding active travel in schools

³⁷ DfI, *Travel to and from School by Pupils in NI 2014/15 and 2019/20 Reports*.

have not entirely fulfilled and sustained their goals. Therefore, given that such a large proportion of rush-hour traffic is associated with school travel (reportedly 1 in 5 vehicles are short school runs), it is all the more important to focus on achieving a modal shift from private vehicle to active travel for this sector as part of this Action Plan.

3.4.1.2 Attitudes to Active Travel.

With these actions in mind, it is important to note that the attitudes to walking and cycling within Northern Ireland are an important consideration when determining how modal shift towards active travel can be achieved. In 2015, the *Cycling in Northern Ireland* report noted that in relation to attitudes of cycling, 54% of all respondents were in the ‘*no way, no how*’ group, i.e. not interested in cycling at all. This has increased somewhat in the most recent 2019/20 report, which cites 67% of all respondents in this group – an increase of 13%. Furthermore, there have been decreases in the ‘*enthused and confident*’ and ‘*interested, but concerned*’ groups, dropping from 18% and 25% in 2015 to 14% and 16% in 2019/20 respectively. The percentage of individuals who described themselves as ‘*strong and fearless*’ also followed the same trend, however insignificant, dropping from 4% in 2015 to 3% in 2019/20. These results are a worrying trend, as although cycling has been encouraged in recent years, it appears that promotions and incentives are unlikely to have had a positive impact given peoples’ ingrained reservations concerning the safety of cyclists on Northern Ireland roads³⁸.

In contrast to the *Cycling in Northern Ireland* report, which covers all of Northern Ireland, the *Belfast Bike Life* report³⁹, which covers Belfast specifically, presents a somewhat more optimistic picture. The 2019 report puts the figure of those in Belfast that do not cycle and do not want to cycle at 44%, with those that do not cycle but would like to cycle at 31%. The remaining 25% of the population currently do cycle to a greater or lesser degree.

There is a significant disparity in confidence in cycling between men and women, with a higher proportion of male respondents describing themselves as ‘*strong and fearless*’ (5%) and ‘*enthused and confident*’ (20%), while females have responded

³⁸ DfI, *Cycling in Northern Ireland 2015 and 2019/20 Reports*.

³⁹ Sustrans, *Belfast Bike Life Report, 2019* (source: <https://www.sustrans.org.uk/bike-life/bike-life-belfast>).

with 1% and 7% respectively. By comparison, 55% of all cycling trips in the Netherlands are made by women. This gender imbalance in Northern Ireland needs considerable focus. Sustrans have implemented women's cycling courses to help encourage females to cycle more. However, given the lack of change in Northern Ireland statistics between 2015 and now, more concerted actions may be required to bridge this gender gap.

Looking deeper into reasons for the lack of increase in active travel use, the *Attitudes to Walking, Cycling and Public Transport in NI* report⁴⁰ illustrates that the major reasons why people choose not to cycle are down to 'no cycle lanes', 'too much traffic' and 'traffic goes too fast'. These reasons have not altered in the last few years. Ironically, if people chose to cycle more, then there would likely be less traffic on the roads and cyclists might not be so heavily impacted by traffic numbers. However, given that the biggest reason (~70%) for people not cycling is 'no cycle lanes', it is clear that more needs to be achieved regarding Belfast's cycling infrastructure, in order for people to feel more comfortable using cycling as an active form of transport.

This point is supported by the Belfast Bike Life reports. The 2019 report indicates that traffic-free routes, away from roads and cycle tracks along roads that are physically protected from motor traffic and pedestrians (i.e. separated infrastructure), are key to providing people with the freedom and confidence to cycle for everyday journeys.

In relation to walking, levels of satisfaction have remained relatively similar over recent years. The *Attitudes to Walking, Cycling and Public Transport in NI* report noted that 64% of respondents were satisfied with the current situation of walking in 2017/18. In the 2019/20 report, the figure had reduced to 59%. As was highlighted however, respondents from urban areas were more likely to be satisfied with walking, with Belfast City Council's response rate at 65%; virtually unchanged from 2017/18. The main reasons for dissatisfaction have also remained relatively steadfast, with the main three reasons noted as 'poor lighting at night', 'traffic goes too fast' and 'poor footpath conditions' in both the 2017/18 and 2019/20 reports. As some of these

⁴⁰ DfI, *Attitudes to Walking, Cycling and Public Transport in NI 2017/18 and 2019/20 Reports*.

concerns coincide with cycling attitudes, it would be worthwhile to focus upon infrastructure improvements that benefit both forms of active travel.

3.4.1.3 How Will New Measures Help to Achieve a Modal Shift?

As noted above, the main reason for respondents not utilising active travel options is down to a lack of 'safe' infrastructure, i.e. segregated cycle lanes, street lighting etc. With this in mind, the new actions proposed within this document focus more on infrastructure improvements to help facilitate a modal shift from private vehicle use to active travel options. Such actions include ongoing delivery of the *Belfast Cycling Network* (which requires a Delivery Team and budget allocation, in order to deliver it as a single project), green recovery, traffic management (i.e. traffic reduction strategies such as one-way systems, closing rat-runs and prioritisation of pedestrians and cyclists), Active Travel Hubs and greater inter-connectivity with public transport. Behaviour change programmes to promote active travel and public transport are essential to achieve modal shift. Projects like the Active Travel Hub in east Belfast, funded by DAERA, have proved very successful in providing information and offering skills training to get more people walking and cycling. It is anticipated that these measures will enable active travel to become central to individual's travel choices, thereby enabling the required behavioural changes to be achieved and significantly reducing NOx and PM emissions from road transport sources.

In addition, over the course of this AQAP period, it is expected that the new Local Development Plan and Belfast Metropolitan Travel Plan will come into effect. Whilst their contents cannot be assumed in advance, both Plans are expected to include substantial demand management measures to restrict the use of private cars in the city centre and for commuting purposes in particular. The documents will build upon the Council's Car Parking Action Plan⁴¹, which seeks to reduce uncontrolled long stay parking on the edge of the City Centre in association with the Department for Infrastructure.

3.4.2 Public Transport.

Public transport is an essential public service, vital to the economic, social and environmental well-being of our society. Increasing the proportion of journeys undertaken by public transport has the potential to reduce the number of private

⁴¹ Belfast Car Parking Strategy and Action Plan, <https://www.belfastcity.gov.uk/business-and-investment/regeneration/car-parking-strategy>

cars on our roads, reduce harmful emissions, deliver air quality standards and tackle the climate emergency.

Moreover, public transport plays a key role in encouraging active travel. Translink, the primary provider of public transport in Northern Ireland, is collaborating with key stakeholders including the Department for Infrastructure (DfI), Sustrans and local councils to improve integration of public transport and active travel.

As indicated within the Chapter 3.4 Active Travel, recent statistics indicate that most journeys within Northern Ireland are undertaken by private car. There has been no significant change in modal choice for many years. In 2017-2019, 48 public transport journeys were made per person per year. This equates to 5% of all journeys made, the same proportion as during 2014-2016 (5%). See figure 3.15 below.

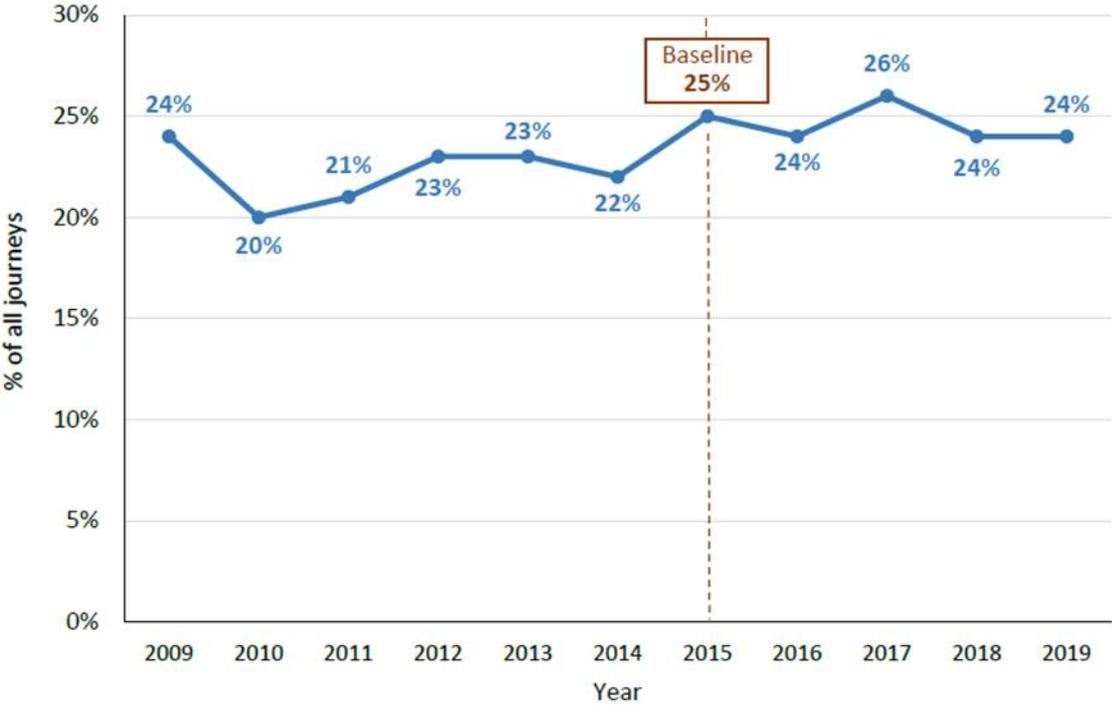


Figure 3.15 - Proportion of all journeys where the main mode of travel is walking, cycling or public transport: 2009 to 2019.⁴²

However, public transport in Northern Ireland has been growing in popularity over recent years, with more commuters attracted by efficient, modern services. In 2018/19, Translink recorded over 84.5 million passenger journeys made by the public transport network, the highest such figure in the past 20 years. This included

⁴² Department for Infrastructure, Travel Survey for Northern Ireland (TSNI) headline report 2017-2019. (<https://www.infrastructure-ni.gov.uk/publications/travel-survey-northern-ireland-tсни-headline-report-2017-2019>).

over 15 million journeys on NI Railways and over 600,000 journeys every week on the Metro and Glider services within Belfast.

Whilst passenger numbers have decreased as a result of the Covid-19 pandemic, an opportunity exists to rebuild and restore services in the months ahead. Evidence from the first lockdown during spring 2020 is clear, in that there was a marked global reduction in transport related air pollution (nitrogen dioxide), whilst public transport continued to operate.

As we emerge from the pandemic, it is vital that widely used public transport networks return to their essential role of providing greener, healthier and more active travel options for a better economic recovery.

As Belfast City is seeking to increase the city's population by 66,000 to over 400,000 by 2035, there is a risk that busy roads will become more congested. Moreover, as over half of all commuters still move through the city by private vehicle, engendering and supporting modal shift away from the private car onto more sustainable forms of transport is imperative.

Whilst it has been previously acknowledged that walking and cycling can cater for some shorter journeys, if Belfast is to have clean air and reduced congestion, as well as to continue to be the regional economic driver for NI, then it must facilitate greater levels of longer-distance sustainable transport from dormitory towns and rural areas by public transport.

Public transport also has a huge role to play in the economy reaching net zero. Translink have developed a Climate Positive Strategy for the organisation, setting out ambitions for them to be net zero by 2040. Translink introduced the first hydrogen-powered buses to the Belfast Metro fleet in December 2020. This project, which is partially funded by the Office for Zero Emission Vehicles (OZEV) and DfI, has seen the introduction of the first hydrogen powered double-deck fleet on the island of Ireland. By mid-2022, 100 Zero Emission buses will be operating in Belfast. Moreover, all Belfast Metro services will be operated by zero-emission vehicles by 2030.

To make public transport more attractive, Translink offer integrated travel solutions that are attractive, sustainable and good value for passengers. Other Translink initiatives include the introduction of a new integrated, account-based ticketing system and real-time passenger information as well as full integration between services, in relation to both journeys and fares.

In addition, Translink is working with the Department for Infrastructure to promote and extend bus priority schemes, including bus lanes. These measures are vital to maximise the effectiveness of new zero / low-emission fleet and to maximise the benefits to the environment and ambient air quality.

Other Department for Infrastructure and Translink initiatives that can help to influence change towards more sustainable forms of transport include further development of Park and Ride sites and the development of Phase 2 of the Belfast Rapid Transit project (BRT Glider), if confirmed as part of the final Belfast Region City Deal, and providing a new integrated Transport Hub for Belfast.

Changes towards more sustainable transport behaviour are already evident, as Translink has delivered unprecedented growth in public transport across Belfast, with over 40,000 additional passengers using the Glider corridors each week since the service started. It is estimated that there has been an 8% modal shift on the routes served by the Glider service, which was introduced to Belfast in September 2018⁴³. Moreover, the Glider vehicles are delivering a 90% reduction in nitrogen oxides and particulate matter emissions relative to the oldest vehicles in the Metro fleet.

Currently, the Glider provides fast and reliable services connecting east and west Belfast, Titanic Quarter and other key locations of economic and social activity within the city centre and along the Glider corridors. DfI is leading on the development of a second, north-south Belfast Rapid Transit Glider route, which will encompass Belfast city centre and the Ormeau Road Air Quality Management Area. This is being taken forward for consideration as one of three infrastructure projects within Belfast Region City Deal.

⁴³ Department of Agriculture, Environment and Rural Affairs, A Clean Air Strategy for Northern Ireland – Public Discussion Document, 2020.

It is also worth highlighting that the Belfast Rapid Transit Glider project (BRT1) has been recognised as a ‘good practice’ public transport project within the National Bus Strategy for England⁴⁴.

Since the previous 2015-2020 Air Quality Action Plan, the Department for Infrastructure and Translink have introduced a range of other initiatives encouraging modal shift. Accordingly, measures included in this 2021-2026 Air Quality Action Plan and detailed in Table 5.1 will further promote public transport over private car travel.

In addition, the Belfast City Council Local Development Plan will set out strategies and proposals supporting a shift towards more sustainable and low emission modes of travel, as well as reducing the proportion of car-based travel throughout the city. The Plan Strategy will facilitate future transport initiatives for the city, including promoting walking and cycling, modal change and supporting public transport measures through the integration of land use and transport planning.

⁴⁴ Department for Transport, Bus Back Better, 2021 (source: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/980227/DfT-Bus-Back-Better-national-bus-strategy-for-England.pdf).

3.5 Impact of the Covid-19 Pandemic.

Ambient air quality improvements have been a key consideration for government and local councils over recent years. As an addition, it is considered that we now have an opportunity to achieve and sustain cleaner air as Belfast City continues to recover from the Covid-19 pandemic.

There is no doubt that Covid-19 has had significant and long lasting impacts on our society. Figure 3.16 below illustrates the overall percentage change in traffic numbers during 2020 as compared to 2018/2019 pre-lockdown data⁴⁵. The graph demonstrates an initial drop-off of approximately 70% in traffic numbers at the height of the first lockdown in March 2020. Figure 3.17, which illustrates provisional monthly NO₂ mean concentrations at each automatic air quality monitoring station (AQMS) within Belfast, also follows a similar trend, depicting a significant drop-off in NO₂ concentrations at all AQMSs, except the A12 Westlink site during the same period, which is likely due to the A12 Westlink's function as an arterial route through Belfast from western and southern regions of Northern Ireland. The same trends are depicted during the second lockdown, with a correlation between the reduction in traffic on Belfast's roads and monitored NO₂ concentrations.

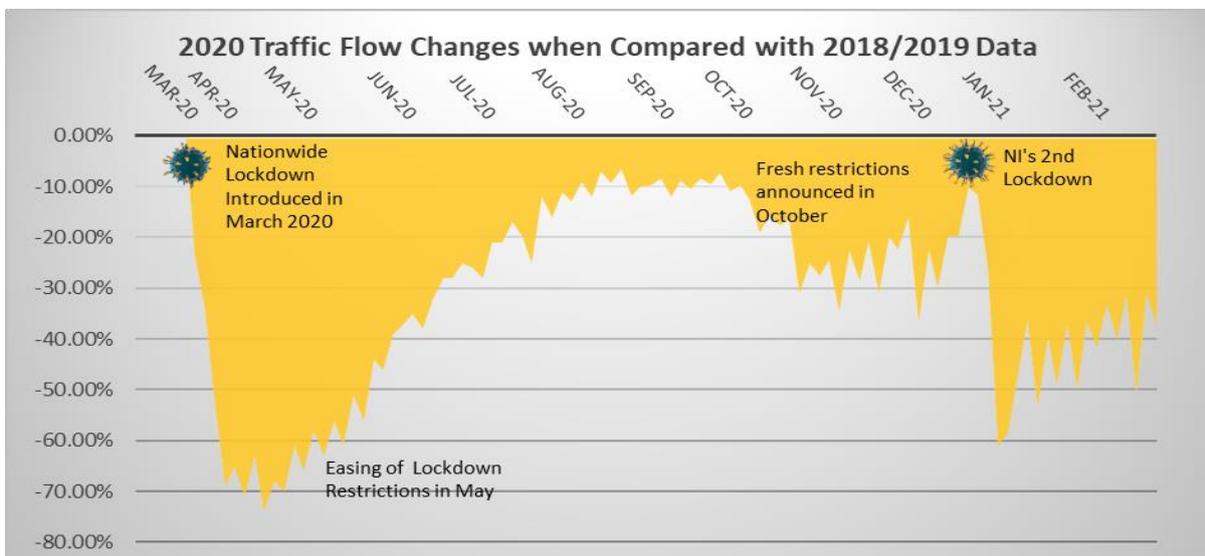


Figure 3.16 - DfI Published Covid-19 Traffic Flow Figures Comparison for 2020/21.

⁴⁵ DfI, Published Traffic Flow Figures 2021 (source: <https://www.infrastructure-ni.gov.uk/publications/traffic-flow-figures>).

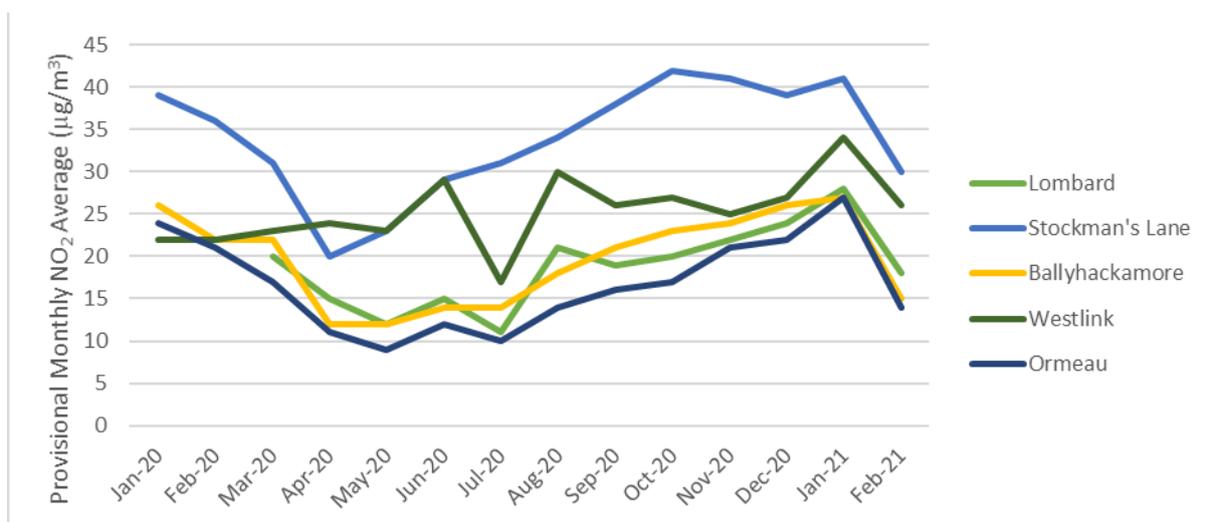


Figure 3.17 - Belfast AQMS Provisional Monthly NO₂ Averages during Covid-19 Pandemic.

Whilst both graphs demonstrate the established link between road traffic and ambient NO₂ concentrations, they also show that when restrictions were eased in the summer and autumn months of 2020, road traffic did not fully return to normal levels, instead averaging off at around 90% of original levels. It remains unclear when, or even if pre Covid-19 traffic levels will return. As the past year has confirmed that some businesses are able to 'work from home', it is also unclear whether some businesses might maintain this manner of working, even after restrictions have been finally lifted. If this is the case, the reduced levels of traffic depicted in Figure 3.16 may well be the new 'normal' and in turn, be beneficial to ambient air quality across Belfast City.

A significant portion of the traffic flow reduction may also be associated with reduced public transport timetables, which were introduced at the beginning of the first lockdown in March 2020. Given the need to stay at home and reduce close contact with individuals as much as possible, it is unsurprising that public transport use within Northern Ireland was significantly impacted. Figure 3.18 below illustrates the impact of the pandemic on public transport use. The graph shows that use of NI Railways, Metro and Ulsterbus services reduced to less than 50% of pre-lockdown levels⁴⁶.

⁴⁶ Northern Ireland Assembly, Decarbonising Transport in Northern Ireland research paper, 2020.

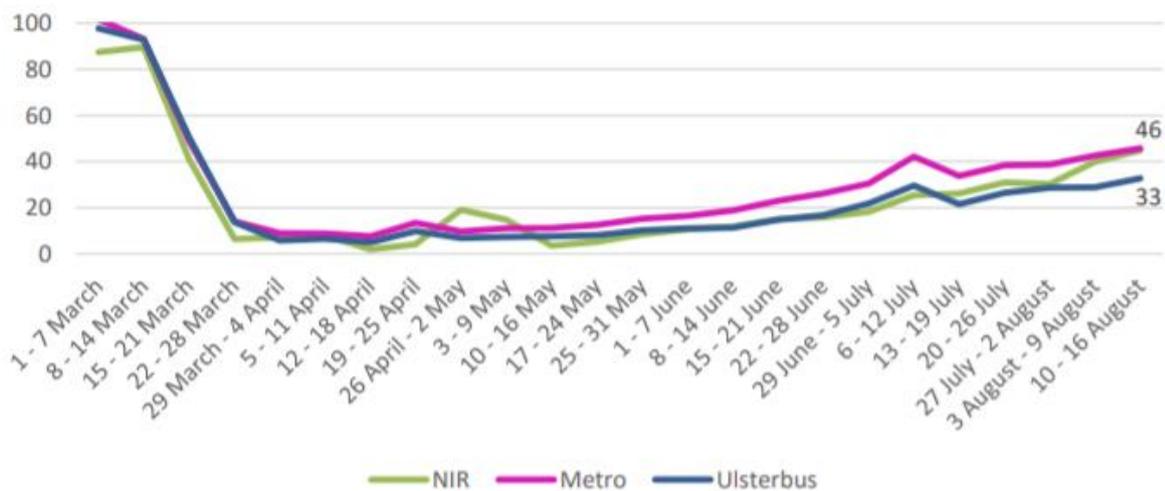


Figure 3.18 - Patronage (%) NIR, Metro and Ulsterbus 1st March – 16th August 2020, as compared with 2019.

The challenges of maintaining safety and social distancing on public transport, and by extension the usage of this mode of transport, have been an unfortunate consequence of the Covid-19 pandemic, which is likely to play a role in determining how effective proposed public transport actions outlined within this Air Quality Action Plan may be. It is unclear whether businesses will maintain their new ‘work from home’ arrangements after Covid-19 restrictions have been finally removed and how long public transport usage will therefore take to return to pre-lockdown levels.

Although public transport use has been significantly reduced in the past year, it should be noted that when restrictions were relaxed, patronage levels on some services, such as the Glider in West Belfast, recovered very quickly to over 70% of pre-Covid levels. This demonstrates the importance of this type of investment and how important public transport is to key workers and people in areas of higher deprivation.

Furthermore, there is also some evidence that the pandemic has actually initiated an increase in the use of active travel in some cities. Manchester has, for example, recorded a 22% increase in cycling when compared with pre-lockdown levels. This has boosted walking and cycling to the extent that it now accounts for 33% of all journeys within that city. Liverpool and Cardiff have also noted similar modal shifts in travel through 2020, while anecdotal evidence suggests that bike sales have also soared. Belfast has also experienced a similar improvement in the use of active travel, with usage of the Comber Greenway up by more than 75% between April

2020 and March 2021, when compared with pre-lockdown levels in the same period during 2019/20, comprised of around 55% cycling and 45% walking. With this in mind, this Action Plan should seek to encourage and hasten active travel improvements, using the pandemic recovery process as a catalyst to further improve levels of walking and cycling within Belfast. However, Covid-19 has also resulted in the emptying of the city centre, as many people have been working from home. Therefore, when planning for cycling infrastructure, including pop-up cycle lanes, consideration should be given to new routes, including within suburban areas, to allow easy access to active travel routes from peoples' homes.

It is worth noting, however, that active travel tends to be more susceptible to poor weather, and so drop-offs in cycling and walking numbers are also typically reported during the colder, wetter winter months⁴⁷. Hence, a multi-modal approach is likely to be much more achievable in terms of sustainable travel, to provide individuals' with the option of moving to public transport when weather conditions worsen and vice-versa.

DAERA⁴⁸ formally commissioned Ricardo Energy & Environment consultants to undertake an, '*Investigation of Effects of Covid-19 Restrictions on Air Quality in Northern Ireland*' and to that end, the consultants investigated the effects of the first Covid-19 'lockdown' restrictions in the spring and early summer of 2020, on ambient air quality across Northern Ireland. The resultant report consequently focuses on the period from the 1st January 2020 to 31st May 2020, spanning the early weeks of the pandemic, the onset of social distancing measures on the 16th March 2020, the beginning of the 'lockdown' period on the 23rd March 2020, through to the end of May 2020, when some easing of the restrictions had begun.

The consultants identified that emissions from industrial processes were likely to have decreased, though it was not possible to quantify this. They noted however that electricity demand statistics for the lockdown period indicated that any reduction in emissions from the power generation sector was likely to be small: probably less than 1% of the Northern Ireland total, in the cases of both sulphur dioxide (SO₂) and oxides of nitrogen (NO_x).

⁴⁷ Next Bike, Just Eat Belfast Bikes Rental Statistics, 2021 (source: <https://www.belfastbikes.co.uk/en/belfast/statistics/>).

⁴⁸ Ricardo, Investigation of Effects of Covid-19 Restrictions on Air Quality in Northern Ireland, Report for DAERA. April 2021 (https://www.airqualityni.co.uk/documents/technical-reports/Nl_Covid_Report_Issue2.pdf)

Ricardo Energy & Environment further identified that traffic count data from 14 locations showed that the lockdown caused dramatic decreases in road traffic, with vehicle numbers (particularly cars) falling sharply when social distancing began on the 16th March 2020. Vehicle numbers had typically dropped to around one third of usual levels by early April 2020. As road vehicles usually account for some 30% of Northern Ireland's total NO_x emissions, the lockdown restrictions were estimated to have resulted in a short-term reduction of 20% in the region's emitted NO_x during the first few weeks of lockdown. At most locations, traffic numbers then gradually began to recover steadily through the rest of April, May and June 2020 but by the start of July 2020, vehicle numbers had still not returned to pre-lockdown levels, suggesting a longer-term reduction in vehicle numbers. Flights and rail services also demonstrated dramatic decreases during the lockdown period.

In terms of the impact of the lockdown on ambient air quality concentrations, Ricardo Energy & Environment identified that measured ambient NO_x and NO₂ concentrations fell substantially during lockdown. On average, over the period from the beginning of lockdown to the end of June 2020, nitrogen dioxide concentrations were 44% lower than under normal conditions; corresponding to an absolute average reduction of 13µg_m⁻³. The Belfast Stockmans Lane monitoring site, which had exceeded the 40 µg_m⁻³ annual mean objective for nitrogen dioxide in recent years, had a mean concentration of less than 30 µg_m⁻³ during the lockdown period (31 µg_m⁻³ in March 2020, 20 µg_m⁻³ in April 2020, 23 µg_m⁻³ in May 2020 and 29 µg_m⁻³ in June 2020).

Ricardo Energy & Environment advised that an analysis of the impact of the Covid-19 pandemic and associated lockdown on ambient concentrations of particulate matter (PM₁₀) was more challenging, as particulate matter pollution tends to be dominated by regional background levels rather than local primary emissions. Accordingly, the consultants concluded that trends were less clear for PM₁₀ than for other ambient pollutants, with some NI monitoring sites showing an increase and others showing a decrease. They therefore concluded that on average, there was a small increase (<1µg_m⁻³) in PM₁₀ concentrations over the lockdown period when compared to normal conditions.

In summarising, Ricardo Energy & Environment advised that notwithstanding the clear reduction in emissions and ambient concentrations of NO_x, it would be an over-simplification to state that overall ambient air quality in Northern Ireland had improved during the lockdown.

4 Development and Implementation of Belfast City AQAP.

4.1 Consultation and Stakeholder Engagement.

In developing this new 5-year Air Quality Action Plan, Belfast City Council have consulted with a wide range of relevant organisations, stakeholder groups and members of the public at various stages of the process.

The council has also fulfilled the various statutory consultation requirements in relation to the development of the Action Plan as detailed within Schedule 2 Air Quality: Supplemental Provisions of the Environment (Northern Ireland) Order 2002, the Air Quality Regulations (Northern Ireland) 2003 and the Air Quality Standards Regulations (Northern Ireland) 2010. We have therefore consulted with following authorities, organisations, bodies or persons:

- a) the Department (DAERA);
- b) each district council whose district is contiguous to the council's district;
- c) such competent authorities exercising functions in, or in the vicinity of, the council's district as the council may consider appropriate;
- d) such bodies or persons appearing to the council to be representative of persons with business interests in the district to which the review or action plan in question relates as the council may consider appropriate;
- e) such other bodies or persons as the council may consider appropriate.

In May 2020, relevant '*Competent Authority*' partners were invited by Belfast City Council to participate in the Steering Group tasked with the development of this new 5-year Air Quality Action Plan for Belfast.

As part of the consultation process, the Council has also undertaken a 12-week public consultation exercise into a draft version of the new Air Quality Action Plan from the 12th May 2021 to the 3rd August 2021 inclusive. The consultation process comprised of an online questionnaire, delivered via the council's Your say Belfast consultation hub, and the provision of four online information events provided for consultee groups. The consultation exercise was publicised via the council's various social media channels, through email and via the Summer 2021 edition of the Belfast City Council '*City Matters*' residents' magazine, which is provided to every Belfast

household. Consultation emails were sent to those interest groups specifically identified for engagement by the council's People and Communities Committee, i.e.

- Adjoining Councils;
- Belfast Health and Social Care Trust;
- British Heart and Lung Foundation;
- Belfast Healthy Cities;
- Belfast Chamber of Commerce;
- Friends of the Earth;
- Belfast Taxis and;
- Trade Unions.

As development of this new Air Quality Action Plan and the associated consultation process took place during the Covid-19 pandemic, the Public Health Agency was unable to participate, given health prioritisation measures. However, Public Health Agency representatives have been advised of the development of a new Air Quality Action Plan for Belfast and have been invited to engage with the Air Quality Action Plan Steering Group throughout the implementation and administration of the new Action Plan.

As Covid-19 pandemic regional restrictions have been implemented across Northern Ireland, no '*in person*' public consultation events were undertaken.

Belfast City Council would advise that the majority of consultation responses were received as formal submissions to the online consultation process. Further comments were also received at online events, with some consultation comments submitted by email directly to the Council.

4.2 Public Consultation Results.

In total, 59 individuals and 5 organisations provided formal submissions as part of the consultation process by completing the online questionnaire provided via the council's Your say Belfast consultation hub, or by providing their comments directly to the council.

To capture feedback related to the draft Air Quality Action Plan, consultees were asked to comment on the importance of the priority actions for each of the below themes:

- Public transport;
- Active travel;
- Sustainable energy and fuels and;
- Assessment and reporting of air quality.

For each theme, consultees were also invited to provide comments on the draft Air Quality Action Plan priorities and to provide recommendations for new or additional actions to be included within the final Air Quality Action Plan.

The results of the public consultation were, in general, supportive of the key priority areas of intervention and air quality actions contained within the Air Quality Action Plan. Headline statistics for the consultation process indicated that:

- 95% of consultees agreed with the aims of the Action Plan;
- 88% of the consultees agreed that the proposed actions contained within the Air Quality Action Plan will improve air quality within Belfast.

Figures 4.1, 4.2, 4.3 and 4.4 below confirm that the majority of consultees consider the proposed actions within the Plan as being either 'important' or 'extremely important'.

Figure 4.2 - Responses in reference to survey question, 'This question focuses on actions relating to public transport. How important or unimportant are the following proposed actions?'

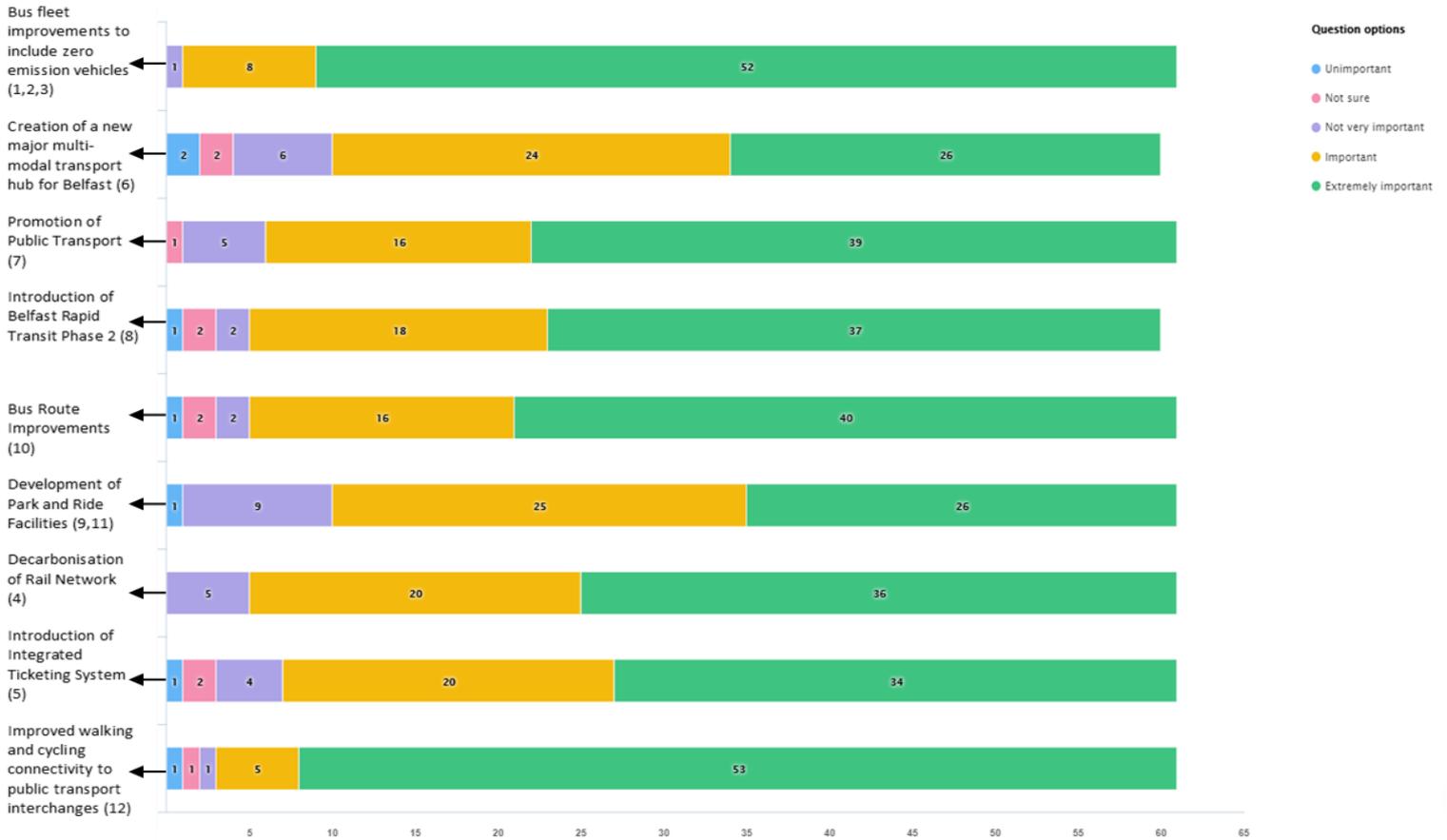


Figure 4.1 - Responses in reference to question, 'This question focuses on proposed actions relating to active travel. How important or unimportant are the following proposed actions?'

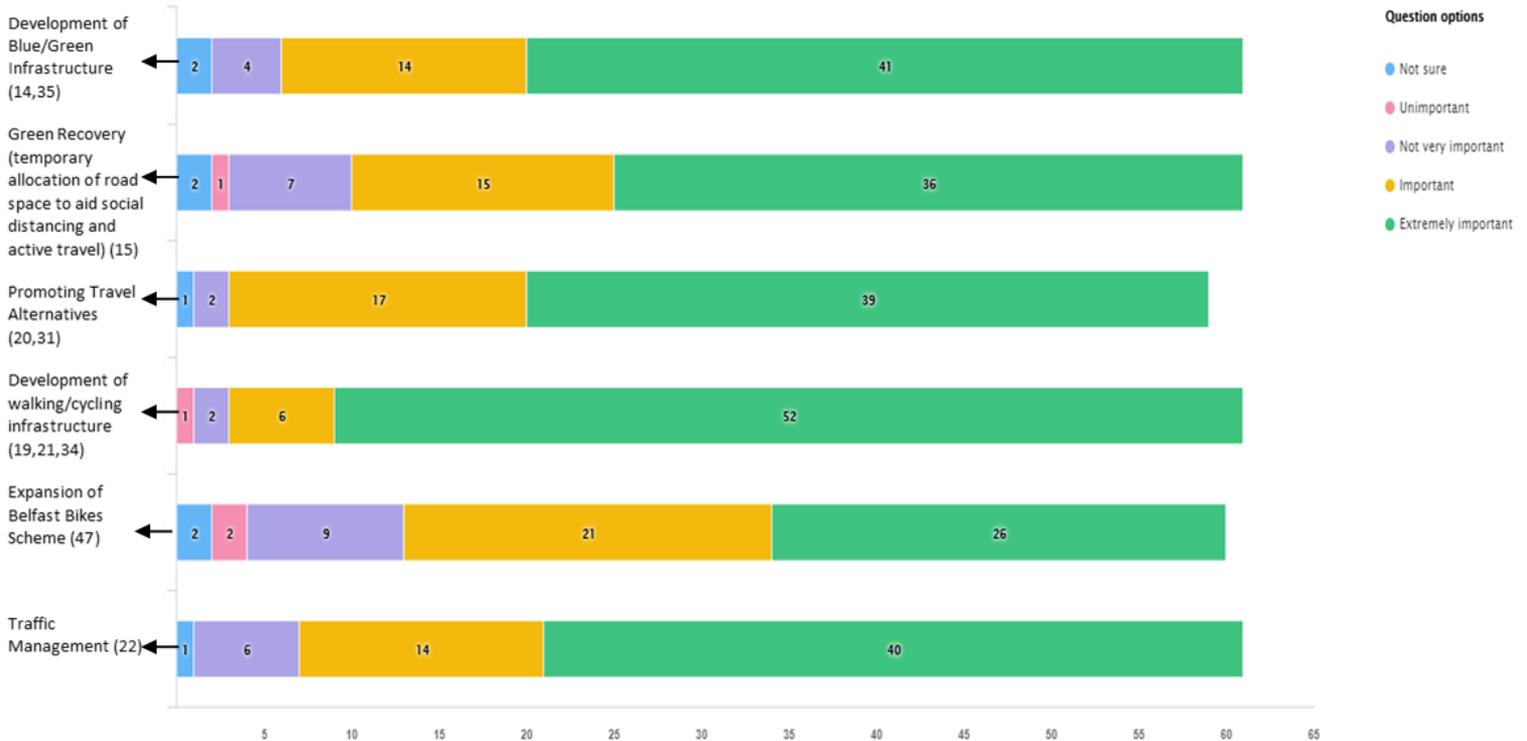


Figure 4.4 - Responses in reference to question, 'This question focuses on proposed actions relating to sustainable energy and fuels. How important or unimportant are the following proposed actions?'

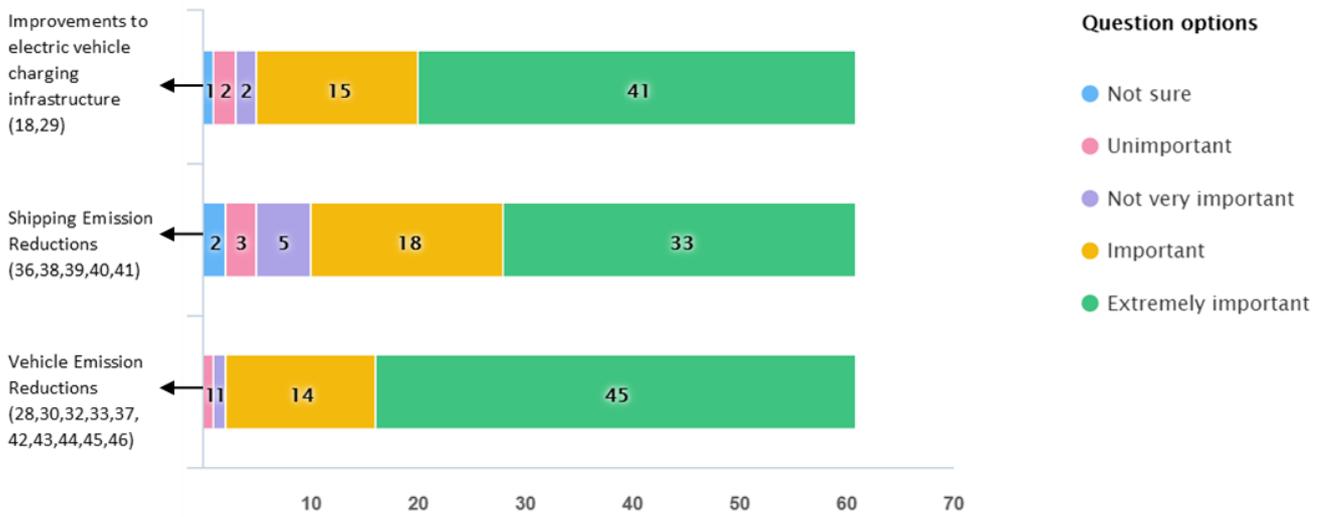
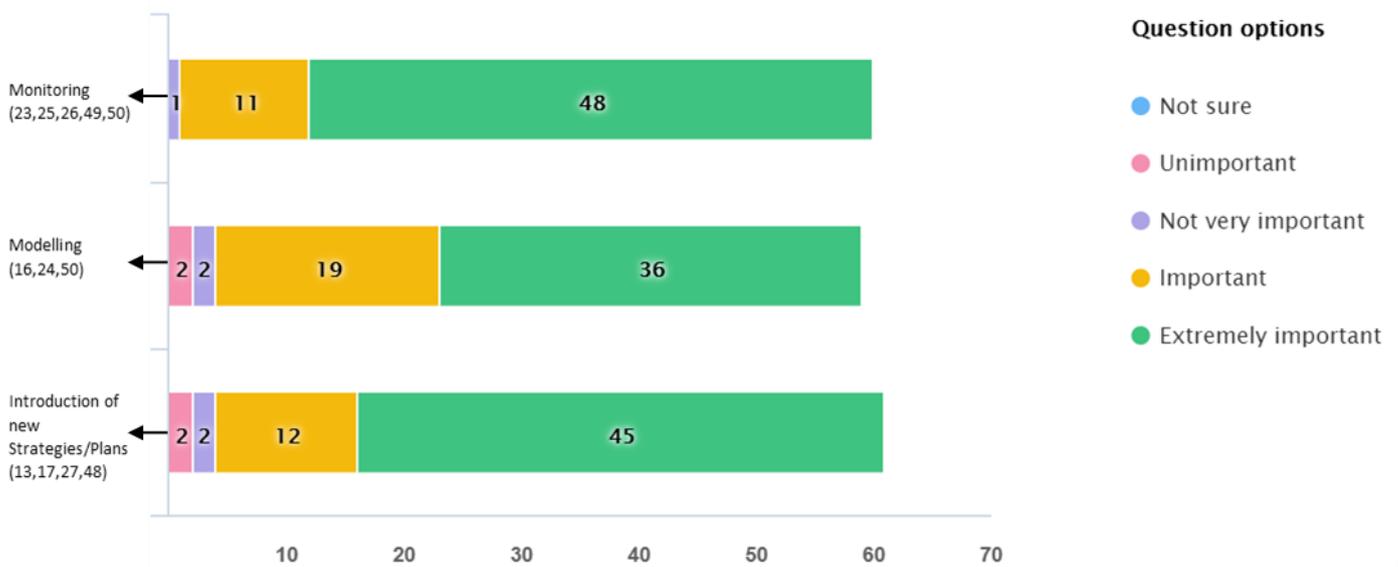
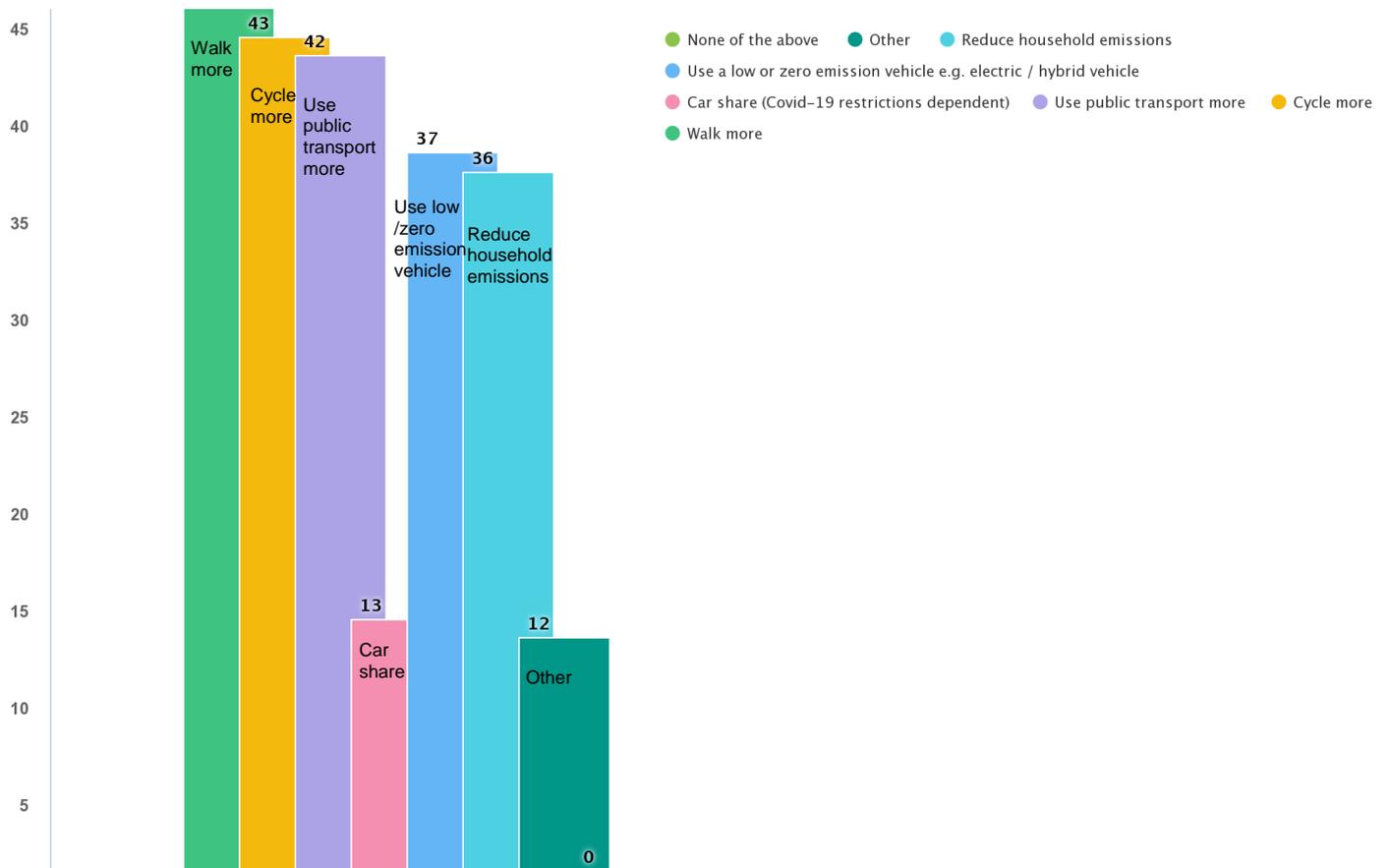


Figure 4.3 - Responses in reference to question, 'This question focuses on proposed actions relating to the assessment and reporting of air quality. How important or unimportant are the following proposed actions?'



Moreover, most consultees indicated that they would be willing to make lifestyle changes, including adopting greater levels of walking, cycling and public transport usage, in order to improve ambient air quality within Belfast (Figure 4.5 below).

Figure 4.5 - Responses to Question 'What, if any, lifestyle changes would you be willing to make to improve air quality within Belfast City? Please tick any that apply.'



Some consultees suggested however, that the Air Quality Action Plan proposals do not go far enough in improving ambient air quality and that important additional measures such as addressing domestic emission sources, energy and transport incentives and indoor air quality have not been included (seven comments in total referred to these types of measures). Moreover, many consultees indicated that they do not consider electric vehicles to be a solution to reducing transport emissions.

Additional new measures such as Low Emission Zones, vehicle scrappage schemes, vehicle idling prevention and air quality awareness campaigns were recommended.

Belfast City Council has undertaken an analysis of the consultation feedback received and summarised all of the major queries, concerns and recommendations received from the consultees into a range of key themes. This analysis and Air Quality Action Plan Steering Group responses or areas for further comment are summarised within Appendix A.

4.3 Steering Group.

The Air Quality Action Plan Steering Group is responsible for the overall development, implementation and management of this new 5-year Air Quality Action Plan for Belfast, which is necessary to meet statutory obligations under Part III of the Environment (Northern Ireland) Order 2002, the Air Quality Regulations (Northern Ireland) 2003 and the Air Quality Standards Regulations (Northern Ireland) 2010 in relation to local air quality management.

The Steering Group consists of representatives from relevant '*competent authority*' partners, identified within the above-mentioned legislation, as well as other organisations that wish to contribute views and measures that can be implemented across the city to further reduce ambient air pollution.

The 2021-2026 Air Quality Action Plan Steering Group and associated Terms of Reference were established in May 2020.

Members of the Steering Group include:

- Belfast City Council;
- Belfast Planning Service;
- Department of Agriculture, Environment and Rural Affairs (DAERA);
- Department for Infrastructure (DfI);
- Translink;
- Sustrans and;
- Belfast Harbour Commissioners.

General responsibilities of Steering Group members include:

- Providing regular updates from each organisation on progress with actions or new and innovative initiatives that can assist in improving ambient air quality specifically within AQMAs and also across the city;
- Attending Steering Group meetings and providing relevant input and information from each organisation in advance of these meetings;
- Disseminating action planning information to relevant levels of management within their organisations;

- Providing an annual update to Belfast City Council and Steering Group partners on how their organisation is progressing with the actions detailed within the Action Plan, in line with reporting requirements established via Local Air Quality Management Technical Guidance;
- Acting as a co-ordinator and conduit for air quality information from the respective organisation to the Steering Group for the purposes of local air quality management;
- Exchanging relevant information in a timely and appropriate manner.

5 AQAP Measures.

5.1 Overview.

It was anticipated that the successful implementation of the various mitigation measures included within the Air Quality Action Plan 2015-2020 would have allowed Belfast City to achieve the air quality objectives for NO₂ at all relevant receptor locations by the end of 2020.

Most of the proposed mitigation measures were completed or were proposed as longer-term ongoing actions. A summary on implementation of the Air Quality Action Plan 2015-2020 measures was included within the Belfast City Council Air Quality Progress Report 2020¹.

As highlighted in previous chapters of this Action Plan document, Belfast City Council has recorded reductions in nitrogen dioxide concentrations at all of our automatic monitoring stations over the past five years. However, as indicated within Section 3.3 of this report, our study also suggests that there were likely to be exceedances of the NO₂ annual mean objective at relevant receptor locations along sections of the A12 Westlink corridor during 2019, with compliance predicted to be likely achieved by the end of 2021.

In July 2017, the UK government, '*Air Quality Plan for tackling roadside nitrogen dioxide concentrations in Belfast Metropolitan Area (UK0028)*' was jointly published by the Department for Environment, Food and Rural Affairs (Defra) and the Department for Transport (DfT)⁴⁹. Within the 'Additional Actions in Northern Ireland' section of the UK plan, a number of roads within the Belfast agglomeration were identified as exceeding the annual mean limit value for NO₂, with 2022 predicted to be the limit value compliance year for the agglomeration.

An additional modelling evaluation project, undertaken by Belfast City Council during 2018 suggested that compliance could be achieved in Belfast in 2021, one year earlier than predicted by national modelling.

⁴⁹ Defra & DfT, Air Quality Plan for tackling roadside nitrogen dioxide concentrations in Belfast Metropolitan Urban Area (UK0028), 2017 (source: https://uk-air.defra.gov.uk/assets/documents/no2ten/2017-zone-plans/AQplans_UK0028.pdf).

Calculations presented in Section 3.3, 'Required Reduction in Emissions' of this Action Plan suggest that by 2026, assuming there is no increase in traffic levels overall, current NO_x road emissions will have decreased by around 50% along the A12 Westlink corridor, which is the reduction required to achieve compliance with the nitrogen dioxide annual mean objective at the worst case roadside locations (within the carriageway confines of the A12 Westlink corridor).

Nevertheless, in developing this new Air Quality Action Plan for Belfast, Steering Group members wish to not only achieve and maintain the various air quality objectives but also to further reduce the levels of pollution across the city for ambient pollutants, including nitrogen dioxide (NO₂) and fine particulate matter (PM_{2.5}). Accordingly, it is intended that implementation of the various mitigation measures detailed within the following Table 5.1 will reduce pollution levels beyond what might reasonably be anticipated as a consequence of increasingly stringent vehicle emission standards.

Although this Plan does not currently include mitigation measures in relation to domestic and other significant combustion sources, Belfast City Council has already commenced a detailed assessment for the city, for fine particulate matter (PM_{2.5}) in order to better understand PM_{2.5} sources and concentrations across the city, which will, where necessary, assist in determining appropriate mitigation policies and measures to reduce ambient PM_{2.5} concentrations and associated public exposure. Moreover, it should be noted that there are already measures in place within Belfast to regulate emission of smoke from premises. The majority of the Belfast City Council area has been declared as a series of Smoke Control Areas, where households may only burn 'authorised fuels' or use 'exempted appliances' when burning unauthorised fuels. These types of fuels and appliances have been formally tested to demonstrate that they emit only limited amounts of smoke when used in accordance with manufacturers' instructions. Notwithstanding, it is Belfast City Council's intention to deliver greater levels of enforcement within the city's various smoke control areas and to develop and deliver an awareness campaign to educate Belfast residents concerning the impact of using polluting fuels within their homes.

In 2017, Defra issued a practical guide for those that need to use wood burning stoves or open fires to reduce environmental and health impacts. This guidance can be found on the Defra smoke control webpage⁵⁰.

5.2 Air Quality benefits of proposed mitigation measures.

The measures proposed within this AQAP are based principally around reducing vehicle emissions and encouraging other sustainable methods of travel to reduce vehicle numbers on the roads.

It is not possible to quantify benefits of all mitigation measures, in terms of pollutant emission and/or concentration reductions. Accordingly, all measures have been afforded equal priority within the Action Plan, as they will contribute to improvements in ambient air quality.

Most measures, proposed as part of this Action Plan, refer to delivering modal shift away from private car use towards active travel (walking and cycling) and using public transport (DfI/Translink/Sustrans). As discussed within Section 3.4 Key Priorities, increased levels of walking and cycling, combined with improvement to public transport can reduce congestion and consequently improve ambient air quality across the city. Measures to improve walking and cycling infrastructure will be complemented by changes in city centre parking provision and management as proposed within the Belfast City Council Parking Strategy and Action Plan; those changes will aim to reduce commuting by single occupancy private cars to the city centre.

Although it is challenging to accurately quantify changes in ambient air quality as a consequence of active travel, it is anticipated that the proposed Action Plan measures will contribute to the desired behavioural changes and consequently reduce emissions from road transport sources.

Behavioral changes can however more readily be quantified in relation to public transport statistics. As reported by Translink within *Air Quality Action Plan 2015-2020 Progress Report 2020*¹, Belfast remains one of the few cities in the UK which is

⁵⁰ Defra, Smoke Control (source: https://uk-air.defra.gov.uk/library/reports?report_id=948).

experiencing sustained growth in passenger journeys. Since 2014/15 financial year Metro and Glider services have increase passenger journeys to over 30 million per year (2019/20). That is an impressive increase of over 4 million journeys (+15.5%).

Moreover, since the introduction of the previous AQAP, the Belfast bus fleet has improved significantly in relation to reducing emissions, with currently over 50% (52.08%) of the fleet classified as Euro 6. Furthermore, Translink is proposing to continue improving its bus fleet within the timescale of this Action Plan. By December 2022, all buses and coaches operating in Belfast are to achieve the Euro 6 emission standard. This will significantly reduce exhaust emissions from buses. Calculations undertaken by Council Officers, using available local traffic data (DfI survey 2013 Chichester Street, Translink fleet composition 2020) and the Defra Emission Factor Toolkit v10.1, have postulated an 86% decrease in NO_x emissions and an 11% decrease in PM_{2.5} emissions from the Belfast bus fleet between the years 2020 and 2022, within the Belfast City Centre area.

Translink has also proposed the introduction of over 100 new zero emission buses to the Greater Belfast area by April 2022 and a programme to decarbonise the bus fleet by 2030. This forms a key part of Translink's Climate Positive Strategy and will be fundamental in creating cleaner and greener public transport to positively impact the climate emergency and ambient air quality (source: Department for Infrastructure, news release, December 2020).

Currently, buses contribute to over 10% of road NO_x emissions in the Ormeau Road AQMA and in the Cromac Street and Albertbridge Road AQMA. Therefore, the introduction of a zero-emission fleet will help to further reduce NO₂ concentrations in these areas.

Further to the various measures proposed by DfI, Sustrans and Translink, Belfast Harbour has proposed the introduction of a range of mitigation measures, which will reduce emissions from vehicles and vessels associated with Harbour operations (Table 5.1). It is worth noting that emissions from *Other Transport*, mostly comprised of shipping, make up 25% of total NO_x emissions for Belfast⁵¹. Accordingly, reducing

⁵¹ UK National Atmospheric Emissions Inventory Map – Belfast Local Council Area, 2018 (source: <https://naei.beis.gov.uk/emissionsapp/>).

emissions from Harbour operations can therefore contribute significantly to ambient air quality improvements across the city.

At present, it is not possible to quantify the impact of Belfast Harbour's proposed measures due to a lack of baseline data. This will however be possible in the near future, as Belfast Harbour is implementing an ambient air quality monitoring programme within the Harbour area and will develop an associated emissions inventory to evaluate all relevant Harbour emissions, including from road transport movements, operation of port equipment, energy usage, and emissions from shipping. Therefore, once the Belfast Harbour air quality monitoring programme is established, improvements in ambient air quality can be determined and reported, based on a review of the monitoring data.

A summary of all Action Plan mitigation measures is presented in Table 5.1, which contains:

- A list of the actions that form part of this Plan;
- The responsible individual and departments / organisations who will deliver each action;
- A timescale for implementation and estimated completion and;
- The expected benefit in terms of pollutant emission and/or concentration reduction.

To ensure that the AQAP measures are implemented by relevant dates, and to provide a medium for other contributors to report on the implementation of their measures, the Council will convene a meeting of the Air Quality Action Planning Steering Group on at least an annual basis. During meetings, Steering Group members will be able to present progress on their own proposals and consider the implementation of the wider Action Plan measures.

In addition, Department for Environment, Food and Rural Affairs local air quality management guidance document LAQM.TG(16) establishes phased ambient air quality reporting requirements for councils. The guidance currently advises that the local air quality management regime is still to be reviewed within Northern Ireland and until this has been completed, the previous reporting system has been extended

until June 2023. Accordingly, Belfast City Council has been required to provide an Updating and Screening Assessment (USA) report in June 2021⁵² and to then provide Action Plan Progress Reports in both June 2022 and June 2023. Detailed assessments are to be undertaken whenever necessary.

To this end, Belfast City Council will monitor implementation of the Air Quality Action Plan 2021-2026 via at least annual meetings of the Action Planning Steering Group and will report progress to the Department of Agriculture, Environment and Rural Affairs (DAERA) via our various Action Plan Progress Reports or alternatively via Annual Status Reports, when they are introduced..

⁵² Updating and Screening Assessment Report 2021. <https://www.airqualityni.co.uk/laqm/district-council-reports#511>

Table 5.1 - Belfast City Air Quality Action Plan 2021-2026 Action Plan Measures.

No.	Measure	Lead Authority	Description	Implementation Date	Estimated Completion Date	Air Quality Benefits
1.	Zero Emission Public Transport	Translink	Introduce circa 100 new zero-emission buses to the Greater Belfast area.	Nov 2020 to April 2022	December 2022	Replaces c.100 diesel buses with zero emission vehicles.
2.	Zero Emission Public Transport	Translink	Develop Programme to decarbonise the bus fleet in the Greater Belfast area.	November 2022 to December 2025	December 2030	To remove all diesel buses in Belfast Metro and replace with a zero-emission fleet by 2030.
3.	Bus Fleet Improvement	Translink	Through vehicle modification, deliver minimum Euro 6 emission standards for all buses and coaches operating in Belfast.	October 2020 to December 2022	December 2022	Significant reduction in NOx and particulate matter emissions.
4.	Decarbonisation of the rail network	Translink	Work ongoing on a feasibility assessment to decarbonise the rail network including the potential roll out of electrification, battery traction and hydrogen technologies.	October 2020	December 2023	Ultimately, zero emission on the rail network by 2040.
5.	Future Ticketing System	Translink	Contactless payment on Metro / Glider. Account-based ticketing on all bus and rail services.	2018	2022	Provide greater ease of use, improved integration and best value for customers, thereby encouraging modal shift to public transport and a reduction in emissions from cars.
6.	Belfast Transport Hub	Translink	Major new multi-modal transport hub for Belfast.	2020 Procurement of the main works contractor is ongoing and work on the new station is due to commence in Q1 2022.	2025	Provide a new integrated transport hub, including facilities for active travel to encourage and facilitate increased modal shift towards sustainable transport.

7.	Promote Public Transport	Translink All BCC stakeholders	Undertake engagement across companies, organisations and agencies to incentivise reduced use of the private car and greater use of public transport. Provide information at our stations, on Personalised Travel Planning, Corporate Commuter Initiatives (CCIs), providing best value fares information and promotional activity to attract modal switch onto public transport. Promote the use of low and zero emission buses with the development of new branding and messaging to highlight their benefits.	November 2020	Ongoing	Modal shift from car use to public transport/active travel will reduce emissions.
8.	Belfast Rapid Transit Phase 2	A Belfast Region City Deal (BRCD) Infrastructure project being developed by DfI	If confirmed, as part of final Belfast Region City Deal, advance the development of Phase 2 BRT – bus priority measures, enhanced facilities & new vehicles. One of 3 infrastructure projects being taken forward by DfI as part of BRCD	TBC – depends on BRCD prioritisation	TBC – depends on BRCD prioritisation	The proposed BRT 2 route options appraisal, which launched for public consultation on 26 July 2021, encompasses the City Centre and Ormeau Road AQMA. BRT will have a beneficial impact on modal shift, traffic movements and direct pollution levels along the route. For example, the Glider vehicles are demonstrating a 90% reduction in NO ₂ and particulate matter emissions relative to the oldest vehicles in the Metro fleet.
9.	Bus & Rail based Park & Ride / Interchange	DfI Translink	1500 additional Bus & Rail Park and Ride spaces by 2023 across NI. Promotion of active travel links.	April 2018	March 2023	Modal shift from car use to Public Transport / Active Travel will reduce GHG emissions.

10.	Bus Route Improvements	DfI Translink	<p>Bus priority on all key Metro corridors in Belfast equivalent to that provided on the BRT Glider corridors.</p> <p>Bus stop 'balancing' to reduce stop/start.</p>	April 2020	March 2025	<p>By converting general traffic lanes to bus lanes, journey times are reduced and consequently fuel consumption and emissions are reduced.</p> <p>By better balancing the location and number of bus stops, dwell times are reduced, reducing idling, stop/start and associated emissions.</p>
11.	Park and Ride	DfI Translink	The current Park & Ride Strategic Delivery Programme aims to deliver circa 2,000 additional spaces by 2025 (dependent on budget allocation)	2013	2025	This extension to the programme will have positive impacts on improving air quality for Belfast by providing alternative transportation for commuters travelling into the city rather than relying upon the private car.
12.	Improved walking and cycling connectivity to public transport interchanges	DfI Translink	Enhance walking and cycling infrastructure to bus and rail stations, halts and Park and Ride sites.	2021	Ongoing	Improve infrastructure to make it easier and more attractive to walk and cycle to and from public transport interchanges, thereby reducing car usage and associated emissions.
13.	Bicycle Strategy for NI Belfast Cycling Network	DfI Sustrans	The Bicycle Strategy will be followed with a Belfast Cycling Network to guide the development and operation of cycling infrastructure across the city for the next 10 years.	2017	Published June 2021	Increased levels of cycling could reduce congestion, improved air quality, reduce noise pollution and contribute to a cleaner environment.

			A public consultation on the draft Belfast Cycling Network was held in early 2017. A consultation report was published in 2018.			
14.	Blue / Green Infrastructure Funding	DfI	<p>Capital grant funding for Councils to construct greenways.</p> <p>The following greenway projects have been allocated a grant over the 2020/21 and 2021/22 period:</p> <ul style="list-style-type: none"> - Lagan Gateway greenway (BCC) - Forth Meadow greenway (BCC) - Strathfoyle greenway (DCSDC) - Strabane North greenway (DCSDC) - Banbridge Riverside lighting (ACBCBC) 	2020-2022 depending on available Budget allocation	March 2022	Greenways have the potential to bring significant benefits to us all in terms of more physically active lifestyles, active travel, improved mental and physical health and wellbeing, social inclusion, tackling climate change, the strengthening of the local economy and tourism.
15.	Green Recovery	DfI	<p>Temporary reallocation of road space to aid social distancing and active travel:</p> <ul style="list-style-type: none"> - Pedestrianisation of Hill Street/Gordon Street - Reallocation of parking spaces for extended footway use - Pop-up cycle lanes to connect main hospitals for key workers – Dublin Road, Donegall Road and Grosvenor Road 	2020/21	Ongoing	Increased levels of walking and cycling could reduce congestion, improved air quality, reduce noise pollution and contribute to a cleaner environment.
16.	Belfast Multi-Modal Transport Model	DfI	<p>It is expected that the Multi-Modal Transport Model will be enhanced and updated as part of the development of the Belfast Metropolitan Transport Plan in conjunction with the Belfast City Council Local Development Plan. However, this is currently 'in abeyance' in light of the COVID emergency and the programming of work for the Transport Plans. A key use of the model will be in transport and land-use option generation and testing. The transport model will provide forecasts of traffic flows and speeds to enable the estimation of air quality using separate detailed atmospheric dispersion modelling software held by Belfast City Council.</p>	2022	Ongoing	<p>This model will provide the capability to estimate the likely changes in air quality arising from changes in population and employment (BCC Planning inputs) and different transport investment options (DfI).</p> <p>Note that the decision to develop this model is currently 'in abeyance' in light of the COVID pandemic and the</p>

						continuing impact on travel patterns.
17.	Belfast Metropolitan Transport Plan (BMTP)	DfI	<p>A new BMTP will be prepared to integrate with the Belfast City Council LDP. The BMTP will assess total transport demands arising from planned developments and the achievement of a range of agreed objectives. The new BMTP will become the extant Transport Plan and will include a range of schemes covering road, rail, bus, cycling and pedestrian networks.</p> <p>Whilst the contents of the new BMTP cannot be assumed in advance, it is expected to include substantial demand management measures to restrict the use of private cars in the city centre and for commuting purposes in particular. These measures are expected to complement and reinforce any measures delivered as part of the Belfast City Council Parking Strategy and Action Plan</p>	2023 estimated in line with LDP programme	2030 in line with LDP assumed	It is expected that the balance of measures in the BMTP will impact positively on ambient air quality.
18.	Electric Vehicles	DfI	<p>DfI is assisting the current public charge point network operator as it seeks to replace approx. 60 charge points i.e. 30 charge posts and a further 5 Rapid charge points to upgrade and improve the reliability of the existing public network.</p> <ul style="list-style-type: none"> • Department officials are engaging with OZEV and the Energy Saving Trust (EST), who administer the On-street Residential Charge Point Scheme (ORCS), in particular, with reference to councils in Northern Ireland. • As part of the work being carried out on the transport elements of the Executive Energy Strategy the Department is considering how to chart a pathway to support vehicle electrification and seek to address financial and non-financial barriers to the uptake of EVs in Northern 	2015	Ongoing	There are significant benefits to both the environment and to the driver in the use of electric vehicles.

			Ireland, taking into account the wider UK policy, legislative and funding environment as part of a wider clean transport strategy. The Department is developing a charging infrastructure plan, in partnership with key stakeholders from government, public, private and third sectors to develop the charging network.			
19.	Lagan Pedestrian and Cycle Bridge	A Belfast Region City Deal (BRCD) Infrastructure project being developed by DfI	If confirmed in the final Belfast Region City Deal, the proposed bridge, is one of 3 infrastructure projects being taken forward by DfI as part of BRCD. It will span the River Lagan from the Gasworks to the Ormeau Embankment aiming to improve accessibility to the city centre for residents and communities east of the River Lagan. The Bridge also aims to encourage both people from the city centre and local communities to use Ormeau Park for recreational use.	TBC – depends on BRCD prioritisation	TBC – depends on BRCD prioritisation	Increased levels of walking and cycling could reduce congestion, improve air quality, reduce noise pollution and contribute to a cleaner environment.
20.	Promoting travel alternatives: Behaviour change programmes	PHA, DfI and DAERA, Belfast City Council, EU Interreg (delivered by Sustrans) Cycling UK/ Sustrans/ European Cycling Federation Sustrans	Sustrans works in a range of settings: <ul style="list-style-type: none"> Schools with the Active School Travel Programme; Workplaces with the Leading the Way Programme; Communities – to promote walking and cycling as a mode of transport. In addition: <ul style="list-style-type: none"> Active Travel Hub in CS Lewis Square, east Belfast and more recently Whiterock Community Centre in west Belfast – provides a base for range of interventions with community groups, individuals and workplaces. Project to encourage walking and cycling in new Forthmeadow Greenway 	Ongoing 2015 2016 2017	Ongoing - Currently all these programmes are underway, with a review of extension.	Changing people's travel habits – swapping the car for walking, cycling and public transport. Active Travel Hubs are visible in the community to provide info & encourage travel alternatives.

			<ul style="list-style-type: none"> Applied to run Active Travel Hub at Cathedral Gardens <p>Cycle-friendly Employer Accreditation Scheme – Cycling UK run this in N. Ireland with support from Sustrans.</p> <p>Pedal Perks cycling discount scheme offered by range of businesses to encourage cycling to premises.</p>	2018		Provide facilities to encourage active travel e.g. cycle parking; changing facilities; mileage incentives.
				2017		Incentivises active travel to shops and facilities.
21.	Transport planning and infrastructure: Build safe protected cycling infrastructure	DfI Sustrans	<p>Belfast Bike Life report – produced every 2 years in collaboration with DfI. Provides evidence of support for cycling and progress to date, includes a public survey of attitudes to cycling.</p> <p>Belfast Cycling Network – published in June 2021, the Strategy sets out government plans to develop cycle routes in Belfast. The Bicycle Strategy will be followed with a Cycling Network for Belfast to guide the development and operation of cycling infrastructure in the city for the next 10 years. A public consultation on the draft Belfast Cycling Network was held in January 2017 and in early 2018, a consultation report was published.</p> <p>Safe Routes to School campaign – to enable children to walk and cycle rather than being driven.</p> <p>Strategic plan for Greenways – Paths for Everyone. Funding pot for Councils to develop greenways. Sustrans can assist Councils with community consultation and feasibility plans.</p>	2015 Latest Bike Life report published in March 2020	Ongoing Next report due Spring 2022	
				2017	Report published June 2021	Safety is biggest barrier to people cycling. Traffic-free greenways enable more people to walk or cycle. Urban greenways used by commuters as well as leisure trips.
				Ongoing Part of Active School Travel Programme/lobbying work	Ongoing	
				2016	Ongoing	
22.	Traffic management	DfI Sustrans	<p>Introduction of 20mph speed limits</p> <p>School Streets – closing area around schools to traffic. This is a proposed pilot scheme,</p>	2019	Ongoing	As above, as we saw in lockdown less traffic encourages people to walk or cycle. Traffic

			which has proved successful and popular in GB. Low Traffic Neighbourhoods – implement car-free areas.	TBC		restraint measures necessary to reduce volume of traffic and polluting vehicles.
23.	Dust monitoring	Belfast Harbour Commissioners	Monitor particulate matter from bulk cargoes in Port operational areas of Belfast Harbour Estate and implement mitigation measures.	Commenced	Ongoing	Identify areas of high concentration for action.
24.	AQ Modelling	Belfast Harbour Commissioners	Complete Baseline Air Quality Modelling of the Belfast Harbour Estate.	Commenced	2022	Establish theoretical baseline & identify areas for attention.
25.	NO ₂ Monitoring	Belfast Harbour Commissioners	Conduct monthly diffusion tube monitoring of NO ₂ at 18 sites within the Belfast Harbour Estate.	Commenced	Ongoing	Establish baseline of NO ₂ levels & identify areas for attention.
26.	Real Time AQ Monitoring stations	Belfast Harbour Commissioners	Implement real time Air Quality Monitoring for air pollution at 5 locations within the Belfast Harbour Estate.	2021	Ongoing	Accessible Air Quality information/ potential link to SMART traffic controls.
27.	Strategy	Belfast Harbour Commissioners	Publish a Harbour Air Quality Strategy.	2021	2021	Public commitment to improve Air Quality.
28.	Low/zero carbon fuels	Belfast Harbour Commissioners	Replace the light vehicle fleet with electric/alternative fuels.	2021	2025	Reduced air emissions from vehicles.
29.	EV Charging	Belfast Harbour Commissioners	Work with tenants to encourage installation of EV charging points.	2021	2025	Reduced air emissions from vehicles.
30.	Car sharing	Belfast Harbour Commissioners	Introduce a Car Sharing Scheme for tenants.	2021	Ongoing	Reduced air emissions from vehicles (subject to relaxation of Covid-19 restrictions).
31.	Active Travel	Belfast Harbour Commissioners	Encourage active travel, including walking and cycling to; from and within the estate for local journeys.	2021	Ongoing	Reduced air emissions from vehicles.
32.	SMART traffic control	Belfast Harbour Commissioners	Queens Road Mobility project / SMART traffic system.	2021	2023	Reduced air emissions from vehicles.
33.	Integrated commuter plans	Belfast Harbour Commissioners	Integrated commuter plans to reduce private car use including first and last mile connectivity.	2022	2025	Reduced air emissions from vehicles.
34.	Cycle lanes	Belfast Harbour Commissioners	Additional cycle lanes and crossing points.	2020	2025	Reduced air emissions from vehicles.
35.	Green corridors	Belfast Harbour Commissioners	Introduce Green spaces and screening/corridors.	2021	2025	Absorb vehicle emissions.

36.	Shore-side power	Belfast Harbour Commissioners	Assess feasibility of shore power – cruise/ferry vessels.	2021	2025	Reduced air emissions from vessels.
37.	Decarbonise port cranes & HGV's	Belfast Harbour Commissioners	Substitute hydrocarbon fuels with low carbon alternatives – cranes/plant & HGV's.	2021	2025	Reduced air emissions from port plant & equipment.
38.	Decarbonise work & pilot boats	Belfast Harbour Commissioners	Trial alternative marine fuels - Work and Pilot Boats.	2022	2025	Reduced air emissions from vessels.
39.	Commercial incentive	Belfast Harbour Commissioners	Assess feasibility of Clean Vessel Incentive Scheme.	2022	2023	Reduced air emissions from vessels.
40.	Ship planning	Belfast Harbour Commissioners	Optimise Vessel Passage Plans & Berth Utilisation.	2020	Ongoing	Reduced air emissions from vessels.
41.	Zero carbon vessel	Belfast Harbour Commissioners	Introduce electric/hybrid workboat.	2021	Ongoing	Reduced air emissions from vessels.
42.	Driver ECO Skills	Belfast City Council	Driver ECO Training & Refresher Driver ECO Training & Monitoring by GPS.	From 2020/21 onward	Ongoing	Fuel consumption reduction.
43.	Promoting Cleaner commercial vehicles	Belfast City Council	Replacing older commercial EU3-4 vehicles above 3.5 ton with EU6 cleaner standard.	From 2020/21 onward	Ongoing	Emission level reduction.
44.	Vehicle Emission Testing	Belfast City Council	All fleet vehicles tested annually to manufacturers approved EU standard.	From 2020/21 onward	Ongoing	Ensuring vehicles meet their EU approved Standard.
45.	Promoting Electric Commercial panel vans	Belfast City Council	Replacing older commercial panel vans up to 3.5 ton with Electric.	From 2020/21 onward	Ongoing	Reduction in the commercial panel van fleet carbon footprint.
46.	Promoting Vehicle Electric Bin-lifts	Belfast City Council	Replacing Refuse Collection Vehicles with rear electric bin-lifts.	From 2020/21 onward	Ongoing	Refuse Collection Vehicle fuel consumption reduction.
47.	Just Eat Belfast Bikes	Belfast City Council	Public Bike Scheme in City Centre – 300 bikes and 30 docking sites originally in 2015 in public places, including Titanic Quarter, the Gasworks, Queen's University and York Street. This has now increased to 47 docking stations.	From 2015 onward	Ongoing	Cutting congestion and improving air quality.

48.	Local Development Plan	Belfast City Council	Number of planning permissions granted on zoned Open Space. Policy: draft Plan Strategy LDP policy OS1	Belfast City Council Planning decisions and liaising with CNS.	2021	2035	To limit the net loss of zoned open space for uses other than those ancillary or compatible with open space use.
		Belfast City Council	Number of planning permissions that secure Green and Blue Infrastructure improvements, including through Developer Agreements. Policy: SP8 GB1	Belfast City Council through Major Planning decisions (BCC) and S76 Agreements.	2021	2035	75% of major permissions contributing to G & B Infrastructure improvements.
		Belfast City Council	The number of applications granted for renewable energy development. Policy: ITU4	BCC monitoring major planning decisions with Development Management.	2021	2035	Increase in number of renewable energy schemes.
		Belfast City Council	Number of people travelling by sustainable modes – active travel, bus rail & BRT. Policy: TRAN1 TRAN3 TRAN4 TRAN5 TRAN9	Travel survey for Northern Ireland (TSNI) (DfI).	2021	2035	An increase in the number of people travelling by sustainable modes.
		Belfast City Council	Number of new dwellings permitted annually outside settlement limits.	Housing Monitor and Planning decisions (BCC).	2021	2035	To sustainably manage the number of new dwellings in the countryside.

			Policy: DC policies				
		Belfast City Council	Number of non-residential proposals permitted annually outside settlement limits. Policy: DC policies	Planning decisions (BCC).	2021	2035	To sustainably manage the amount of new non-residential development in the countryside.
49.	Additional Air Quality Monitoring	Belfast City Council	Additional NO ₂ and PM Monitoring using Small Sensors and Diffusion Tube Technologies to assess air quality within Belfast City Council area.		Ongoing	Ongoing	To provide more detailed and real time information on pollution levels across the city.
50.	Detailed Air Quality Assessment for Fine Particulate Matter (PM _{2.5}) and Nitrogen Dioxide (NO ₂) for the Belfast City Council area	Belfast City Council/ DAERA	The purpose of this project is to generate, through the application of ambient monitoring and atmospheric dispersion modelling, detailed information on fine particulate matter (PM _{2.5}) and nitrogen dioxide (NO ₂) concentrations within the city boundary in order to ascertain whether UK air quality objectives, European Commission limit values or WHO guideline values are being achieved in relevant human health receptor locations.		February 2021	March 2023	The outcome of the modelling study may serve to assist in the development of mitigation policies and measures to better address PM _{2.5} and NO ₂ concentrations across the city.
51.	Enforcement within Smoke Control areas and education concerning the use of polluting fuels.	Belfast City Council	Belfast City Council will undertake greater enforcement within the city's smoke control areas, and it will develop and deliver an awareness campaign to educate Belfast residents of the adverse air quality impacts of using polluting fuels within their homes.		Ongoing	Ongoing	Reduced smoke emissions and greater levels of compliance within Smoke Control Areas
					Awareness Campaign August 2022	Ongoing	Greater awareness about polluting fuels and their adverse ambient impacts on air quality.

Appendix A: Response to Public Consultation on the Air Quality Action Plan.

Table A. 1 – Summary of Responses to Consultation and Stakeholder Engagement on the AQAP.

Consultee comment		Number of times the comment was provided during the consultation exercise	Steering Group Respondent(s)	Air Quality Action Plan Steering Group Response or Comments
Theme: Active Travel				
1	Requirement for more cycling infrastructure, including safe, fully segregated and connected cycle lanes.	20	DfI Sustrans	<p>The requirement for more cycling infrastructure is considered within this Air Quality Action Plan.</p> <p>One of the main aims of the Air Quality Action Plan is to promote and encourage walking, cycling and the use of public transport within Belfast. The actions proposed within the Action Plan therefore focus substantially on infrastructure improvements to help facilitate a modal shift away from private vehicle use towards active travel options. Such actions include ongoing delivery of the <i>Belfast Cycling Network</i>, green recovery, traffic management (including prioritisation of pedestrians and cyclists), Active Travel Hubs and greater inter-connectivity with public transport (Table 5.1).</p> <p>The Belfast Cycling Network provides a blueprint for developing a coherent, connected and safe infrastructure for everyday cycling in the city over the next ten years (Chapter 3.1.11).</p> <p>The new Belfast Metropolitan Transport Plan (BMTP) (Table 5.1 measure 17) will consider active travel measures including the Belfast Cycling Network across the Belfast Metropolitan area.</p>

				<p>In addition, the Local Development Plan will encourage the expansion of green infrastructure networks for walking and cycling across the city (including new and improved walking and cycling routes) provide for active travel (Chapter 3.1.1).</p> <p>The measures relevant to cycling infrastructure are summarised in Table 5.1 (measures 13, 14, 17, 19, 20, 21 and 34)</p>
2	Encourage behavioural change towards cycling as the main form of transport, including training for cyclists.	4	BCC DfI Sustrans	<p>Behaviour change programmes to promote active travel and public transport are essential in achieving modal shift. Such programmes are considered within the Air Quality Action Plan. Projects like the Active Travel Hub in east Belfast, funded by DAERA, have proved very successful in providing information and offering skills training to get more people walking and cycling (Chapter 3.4.3) in a location which is served by good walking and cycling infrastructure (Comber Greenway and Connswater Community Greenway).</p> <p>The Belfast City Council City Regeneration and Development Team have previously highlighted the need for frequent and clear public awareness campaigns similar to the, '<i>Take 5 Steps to Wellbeing</i>' health and social wellbeing initiative, adding that initiatives of this type should be informed by behavioural change approaches and supported by practical schemes such as cycle to work incentives (Chapter 3.3.11).</p> <p>The <i>Active School Travel Programme</i> is currently has been delivered in over 400 schools in Northern Ireland, with the aim of increasing levels of walking and cycling to and from school (Chapter 3.4.1).</p> <p>It is anticipated that the proposed Action Plan measures will contribute to the desired behavioural changes and consequently reduce emissions from road transport sources.</p> <p>The measures relevant to cycling training / promotions are summarised in Table 5.1 (measures 20, 21 and 31).</p>

3	Pop-up infrastructure in relation to the Covid pandemic (widening of footpaths etc.) should be made permanent;	1	Dfi Sustrans	In the past year, the Covid-19 pandemic has provided an opportunity to introduce a number of 'pop-up' cycle lanes and associated infrastructure throughout the city, including routes on the Dublin Road, Donegall Road and Grosvenor Road, whilst existing lanes on the Crumlin and Oldpark Roads have been improved. The new routes are designed to provide easier access to Belfast's hospitals. (Chapter 3.4.1) Table 5.1 (measure 15). A review of these pop-up lanes by Dfi will shortly be completed. The outworkings of this review will assist in the delivery of future cycling infrastructure.
4	Pop-up infrastructure H&S issues (Donegall Road cycle bollards were considered as a H&S risk for one disable car user and NI)	1	Dfi Sustrans	Lessons learned from the pop-up cycle lane review will be applied to the further development of pop-up cycle lanes, including the future of the Donegall Road lanes.
5	More facilities needed for bicycles on trains.	1	Dfi Translink	Translink, the primary provider of public transport in Northern Ireland, is collaborating with key stakeholders including the Department for Infrastructure (Dfi), Sustrans and local councils to improve integration of public transport and active travel. (Chapter 3.4.2)
6	More/better walking infrastructure required, including safe road crossings (McKinstry roundabout in West Belfast)	9	BCC Dfi	<p>The requirement for more walking infrastructure is considered within the Air Quality Action Plan document. The Plan recognises that there is a room for improvement regarding connectivity, accessibility and safety of active travel routes (for walking and cycling) throughout the city.</p> <p>The Local Development Plan will provide for the expansion of green infrastructure networks for walking and cycling across the city to enable more active travel; Strategic Policy SP7 Connectivity will support connectivity to and within the city by sustainable transport modes, such as public transport, walking and cycling. The LDP includes policies to promote new transport schemes, including new and improved walking routes. (Chapter 3.1.1)</p> <p>The new Belfast Metropolitan Transport Plan (BMTP) (Table 5.1 measure 17) will consider active travel infrastructure across the Belfast Metropolitan area.</p>

				<p>The <i>Belfast City Centre Regeneration and Investment Strategy</i> includes policies to create a green, walkable, cyclable city centre and integrating shared spaces and connectivity throughout the city. Such examples include the development of the Lagan River corridor as a recreational spine for the city. (Chapter 3.1.3)</p> <p>The <i>Belfast Green and Blue Infrastructure Plan</i> propose to create a strategic framework for green and blue infrastructure like Greenways, which are dedicated movement corridors free of motor vehicles; Greenways provide a safe environment for walkers, runners and cyclists to move around the city. (Chapter 3.1.4).</p> <p>The measures relating to walking infrastructure are summarised in Table 5.1 (measures 14, 15, 17, 19, 20 and 21)</p>
7	Pedestrianisation of the city centre.	8	BCC (Planning) DfI	<p>Although pedestrianisation of the city centre is not explicitly addressed within this Air Quality Action Plan, the Belfast Metropolitan Transport Plan (BMTP) is expected to consider substantial management measures to restrict the use of private cars in the city centre and for commuting purposes in particular (Chapter 3.1.2).</p> <p>The measures relevant to walking / pedestrianisation of the city centre are summarised in Table 5.1 (measures 15, 17, 19 and 48)</p>
Theme: Public Transport				
8	More bus routes required, including restructuring of current system of routes (e.g. inclusion of orbital and radial routes).	11	DfI Translink	<p>In relation to additional / amended bus routes, the Air Quality Action Plan highlights that the Department for Infrastructure and Translink are working on the development of Phase 2 of the Belfast Rapid Transit project (BRT Glider) and new integrated Transport Hub for Belfast. (Chapter 3.4.2)</p> <p>Frequency of service is one of the key factors in growing public transport passenger numbers. A balance has however to be achieved between expanding bus routes and maximising frequency on core corridors.</p>

				The new Belfast Metropolitan Transport Plan (BMTP) (Table 5.1 measure 17) will consider public transport infrastructure, including bus routes and measures across the Belfast Metropolitan area.
9	Use of bus lanes should be restricted to buses and cyclists only (taxis / motorcycles etc. prohibited).	2	DfI Translink	The Department for Infrastructure has no plans to amend the vehicles currently permitted to use bus lanes, unless for a particular safety / operational reason and on a site by site basis.
10	Public transport needs to be more affordable (e.g. subsidies/incentives).	10	DfI Translink	<p>This matter has been mentioned within Chapter 3.4.2 of the Air Quality Action Plan</p> <p>To make public transport more attractive, Translink offers integrated travel solutions that are attractive, sustainable and good value for passengers. Translink initiatives include the introduction of a new integrated, account-based ticketing system and full integration between services, in relation to both journeys and fares.</p> <p>The fares policy (pre Covid-19) involved small annual rises, below the rate of inflation, that over time drove down the real cost of public transport. Allied to this, fare promotions were geared at encouraging people to trial public transport, for example through the promotion of discounted fares to the 16-23 age group through yLink.</p> <p>Measures relating to public transport ticketing system / fees are summarised in Table 5.1 (measure 5)</p>
11	Improvements to frequency and reliability of public transport are required.	3	DfI Translink	<p>Translink is working with the Department for Infrastructure to promote and extend bus priority schemes, including bus lanes. (Chapter 3.4.2)</p> <p>The new Belfast Metropolitan Transport Plan (BMTP) (Table 5.1 measure 17) will consider public transport infrastructure including public transport frequency and capacity across the Belfast Metropolitan area.</p>

				Bus lanes and other bus priority measures are central to improving the reliability and punctuality of public transport. This has been demonstrated through the success of the BRT Glider system.
12	Ensure there is enough seating for elderly and disabled individuals using public transport.	1	DfI Translink	Translink complies with accessibility standards for all of its new vehicles and infrastructure and engages with relevant stakeholder groups to ensure that accessibility needs are fully considered. Metro and Glider services are operated by 100% low floor accessible vehicles.
13	Expansion of rail network, including connectivity to Belfast Harbour and airports (reopening old train lines/stops).	4	DfI Translink	DfI is currently developing the Regional Strategic Transport Network Transport Plan and Belfast Metropolitan Transport Plan, which will consider the potential for expanding the rail network and reopening lines and stops. The rail network is to be considered under the progressing suite of Transport Plans for Northern Ireland. The new Belfast Metropolitan Transport Plan (BMTP) Table 5.1 (measure 17) will consider public transport including rail and links to gateways in the Belfast Metropolitan Area.
14	Decarbonisation of rail network required.	3	DfI Translink	The requirement for decarbonisation of rail network is already considered in the Air Quality Action Plan document. Translink is currently working on a feasibility assessment to decarbonise the rail network including the potential roll out of electrification, battery traction and hydrogen technologies - Table 5.1 (measure 5)
15	Suggested reintroduction of trams in Belfast.	2	DfI Translink	This comment appears to overlook the service provided by the BRT / Glider The strategic business case for the Belfast Rapid Transit (BRT) System considered the potential for light rail (trams) in Belfast. This concluded that light rail did not offer value for money and that the BRT was a better option. A business case for phase 2 of BRT is currently being developed.

Theme: Electric Vehicle (EV) Charging Infrastructure (including e-scooters and e-bikes)				
16	More EV charging infrastructure required (including fast charging points at service stations, in car parks and public open spaces).	8	BCC DfI Belfast Harbour	<p>The requirement for more EV charging infrastructure is considered within this Air Quality Action Plan document.</p> <p>The Department for Infrastructure, as part of the Executive Energy Strategy will be developing an EV charging infrastructure strategy, in partnership with key stakeholders from government, public, private and third sectors. DfI is engaging with the current public charge point network operator with regard to its ongoing replacement programme that will see approx. 60 charge points i.e. 30 charge posts and a further 5 Rapid charge points upgraded to improve the reliability of the existing public network. These actions are summarised in Table 5.1 (measure 5)</p> <p>Moreover, Belfast Harbour Commissioners are planning to work with tenants within the Harbour Estate to encourage installation of EV charging points. Table 5.1 (measure 29)</p>
17	Legalisation of e-scooters, as well as development of e-scooter and e-bike charging infrastructure.	2	DfI	<p>It remains illegal to use e-scooters on public roads and public spaces in Northern Ireland. The position in Great Britain (GB) is the same unless they are being used as part of a Department for Transport (DfT) pilot scheme. DfT is currently running e-scooter rental pilot schemes in some local authority areas of GB with the aim of monitoring the impact of e-scooters on public spaces, the environment and the safety of both their users and others. These trials began in GB in July 2020 and are due to end in March 2022. They do not extend to Northern Ireland. Once a final analysis of the GB trials is available, scheduled for spring 2022, the Minister for Infrastructure will carefully consider the outcomes to help inform a decision about the potential use of e-scooters and their legal position within Northern Ireland.</p>
18	More affordable EV options (e.g. schemes and incentives).	5	DfI DfE	<p>To some extent, the requirement for more affordable EVs is considered within this Air Quality Action Plan document. Table 5.1 (measure 18)</p> <p>As part of the work being carried out on the transport elements of the Northern Ireland Executive's Energy Strategy, the Department for Infrastructure is considering how to support vehicle electrification and address financial and non-</p>

				financial barriers to the uptake of EVs in Northern Ireland, taking account of wider UK policy, legislative and the funding environment, as part of a wider clean transport strategy.
19	Building Regulations should include a requirement for EV charging points to be installed.	2	BCC (Planning)	<p>Although amendments to the building regulations, including requirements for EV charging points installation, are not proposed within this Air Quality Action Plan document, this comment has been forwarded to the relevant authority.</p> <p>Notwithstanding this point, Belfast City Council is attempting to introduce environmental improvements through the planning process. The Belfast City Council Local Development Plan (LDP), through Policy Des 2 and Tran 8, as highlighted within Chapter 3.1.1, should encourage more sustainable development, in order to mitigate and decrease levels of pollution and the predicted impacts of climate change.</p> <p>Under policy DES 2, the LDP suggests that planning permission will be granted for major developments where they deliver energy efficiencies that seek to achieve <i>BREEAM 'excellent'</i> or a comparable standard.</p> <p>Moreover, operational policy TRAN 8, within the LDP states that consideration should, where appropriate, be given to parking provision for electric vehicles with access to charging points in development proposals.</p>
Theme: Vehicle Emission Reductions				
20	Vehicle idling prevention measures required (to discourage both public transport and private vehicle drivers).	3	DfI Translink	<p>Vehicle idling prevention measures have not been proposed within this Air Quality Action Plan document. At present, there is no anti-idling legislation in place for Northern Ireland.</p> <p>The Council has however, organised several anti-idling public awareness campaigns in the past, reminding vehicle users to turn their engines off when stationary.</p> <p>Regarding public transport, Translink already has an anti-idling policy in place. Moreover, new buses have an auto stop / start function, i.e. if stopped at traffic lights, the vehicle's engine automatically shuts down.</p>

21	Through traffic prevention measures (e.g. Low Traffic Neighbourhoods and preventing rat running).	2	BCC DfI	<p>Traffic management measures, including Low Traffic Neighbourhoods are considered within this Air Quality Action Plan document. Table 5.1 (measure 22).</p> <p>Moreover, the Belfast Metropolitan Transport Plan is expected to consider substantial demand management measures to restrict the use of single occupancy cars in the city centre and for commuting purposes in particular (Chapter 3.1.2).</p>
22	Speed reduction measures in residential and school areas (including 20mph zones and speed humps).	4	DfI Sustrans	<p>Traffic management measures, including School Streets and introduction of 20mph speed limits are considered within this Air Quality Action Plan document. Table 5.1 (measure 22).</p>
23	Car sharing incentives (e.g. dedicated car sharing lanes).	1	Belfast Harbour Commissioners DfI	<p>A 'Car Sharing Scheme' is to be introduced by Belfast Harbour Commissioners. Table 5.1 (measure 30).</p> <p>Car sharing has been supported by the Department for Infrastructure through the provision of park and ride/car sharing sites which allow users to park free of charge and have access to public transport or to share vehicles to reduce travel costs and emissions. The HSA has advised people to avoid car sharing during COVID-19 and has provided advice to reduce the spread of the virus if car sharing cannot be avoided. Whilst there are no current plans to introduce dedicated car sharing lanes or to allow car sharing schemes access to bus lanes, the benefits of car sharing will be considered as part of a suite of measures designed to decarbonise the transport sector in the development of a local Transport Strategy.</p>
24	York Street Interchange Project must be prioritised.	1	DfI	<p>Delivery of the York Street Interchange scheme remains a high priority for the Department for Infrastructure. The NI Executive, as part of the NDNA agreement, has committed to the delivery of essential infrastructure projects, including the York Street Interchange. This scheme will address a major bottleneck on the strategic road network, replacing the existing signalised junction at York Street</p>

				<p>with direct links between Westlink, M2 and M3, three of the busiest roads in Northern Ireland.</p> <p>In July 2020, the Minister announced an external review into the scheme to provide assurance on how and to what extent the scheme reflects key Ministerial, Executive and Council objectives and priorities. This was conducted in November 2020 and in March 2021 the Minister announced the outcome, accepting the six recommendations from it and outlined proposals to address them, which included further work to be carried out, particularly around place making and to maximise ambition in terms of what can be delivered for communities, connectivity and the wider living places agenda.</p> <p>The commencement of construction for the York Street Interchange will depend on the satisfactory completion of an economic assessment, completion of the statutory process and Ministerial approval of funding being made available in future budget settlements.</p>
Theme: Parking Reduction				
25	A reduction in parking provision within the city centre is required (including the removal of government and Local Authority parking spaces and provision of residential only parking zones).	6	BCC DfI	<p>Parking provision within the city centre is considered within this Air Quality Action Plan document. The Belfast City Council Car Parking Strategy and Action Plan, aim to manage the number and type of parking spaces within the city in order to reduce commuting into the city centre in single occupancy private vehicles, thereby encouraging sustainable travel modes (Chapter 3.1.3)</p> <p>In addition, the Belfast Metropolitan Transport Plan is expected to consider substantial demand management measures to restrict the use of private cars in the city centre and for commuting purposes in particular. Table 5.1 (measure 17)</p>
26	Working from home scheme (including hot desking).	3	DfI	<p>The Department for Infrastructure is following the NICS Hybrid Working Policy which is Department of Finance led.</p> <p>Belfast City Council's Recovery and Covid-19 management principles include optimising the use of technology and new business processes to deliver remote working and access to services.</p>

Theme: Scrappage Schemes				
27	Introduce scrappage schemes, including incentives for purchase of EVs.	2	DfI	The Department for Infrastructure has no plans to introduce a diesel or petrol scrappage scheme as an incentive to purchase electric vehicles. Funding is provided by the Office for Zero Emission Vehicles (OZEV) to support electric vehicle purchase.
Theme: Low Emissions Zones				
28	Introduce Low Emission Zones in Belfast.	5	DAERA DfI	<p>Low Emission Zones have not been proposed as part of this this Air Quality Action Plan.</p> <p>In May 2017, Defra published a document entitled, '<i>Clean Air Zone Framework - Principles for setting up Clean Air Zones in England</i>'. The government did not at the time extend the low emission zone provisions and requirements to Northern Ireland.</p> <p>However, at the meeting of the People and Communities Committee of 8th October 2019, Members agreed that recommendations regarding the introduction of Clean Air Zone / Low Emission Zone legislation should be formally provided to DAERA and DfI as part of the Council's consultation response to the DAERA Clean Air Strategy Discussion Document</p> <p>The Department of Agriculture, Environment and Rural Affairs has subsequently commented that '<i>This issue was raised in the DAERA Clean Air Strategy Discussion Document, which was released to a public consultation in November 2020. This consultation closed in spring 2021 and officials are considering responses received. Preliminary findings will be shared with the Minister, with a view to identifying his preferred options for further development. Agreed proposals will then be more fully developed and will be included in a draft Clean Air Strategy for Northern Ireland. This will be subject to consideration by the Executive and a further public consultation to seek views on the proposals contained therein.</i>'</p>

Theme: Business and Domestic Emissions				
29	Create incentives for businesses / homeowners to switch to more sustainable energy solutions.	6	BCC DfE	<p>Although the Plan does not currently include proposals for additional mitigation measures in relation to domestic and other significant combustion sources, Belfast City Council has commenced a detailed review and assessment for the city for fine particulate matter (PM_{2.5}), which will, where necessary, assist in determining appropriate mitigation policies and measures to reduce ambient fine particulate matter (PM_{2.5}) concentrations, arising principally from domestic combustion sources. Table 5.1 (measure 50).</p> <p>Moreover, the Department for Communities in partnership with Belfast City Council and the Northern Ireland Housing Executive provide grant aid to improve energy efficiency measures through the Affordable Warmth Scheme. The Scheme addresses the effects of fuel poverty and energy inefficiency and is directed at low income households.</p> <p>There are range of other available incentives for homeowners and businesses provided by other organisations like National Energy Action.</p> <p>These consultation comments have been provided to the Department for the Economy (DfE) for their consideration. DfE is principally responsible for the NI Executive's strategies and policies relating to energy.</p>
30	Government bodies should lead by example in implementing sustainable energy sources (e.g. solar/wind power).	1	BCC Translink Belfast Harbour Commissioners.	<p>This recommendation is considered within this Air Quality Action Plan document.</p> <p>Policies set out in the Local Development Plan (Chapter 3.1.1 and Table 5.1 (measure 48) will contribute to achieving national targets for reducing CO₂ emissions and encouraging the production of energy from renewable resources. Moreover, the Belfast Resilience Strategy (Chapter 3.1.8) advises that Belfast City Council is committed to becoming a carbon-neutral organisation as urgently as possible.</p> <p>Translink has also developed <i>Translink Climate Positive Strategy</i>. The main goal of the Strategy is for Translink to become Climate Positive by 2050, going</p>

				<p>beyond achieving 'net zero' to create an environmental benefit by removing additional carbon dioxide (CO₂) (Chapter 3.1.9).</p> <p>Furthermore, the Belfast Harbour is to develop the Air Quality Strategy for the harbour area, which will consider all relevant emissions generated on site, including sustainable energy provisions. Chapter 3.1.10 and Table 5.1 (measure 27).</p>
Theme: Smoke Control				
31	Rigid enforcement of current air quality legislation and Smoke Control Areas.	3	BCC DAERA	<p>There are already statutory measures in place, mentioned within Chapter 5.1 of this Air Quality Action Plan, to regulate emission of smoke from premises.</p> <p>The majority of the Belfast City Council area has been declared as a series of Smoke Control Areas, where households may only burn 'authorised fuels' or use 'exempted appliances' when burning unauthorised fuels. In a Smoke Control Area, it is an offence to emit smoke from a chimney under the Clean Air (NI) Order 1981. Council Environmental Health Officers enforce smoke control provisions. It has however been recognised within UK Clean Air Strategy 2019, that changes may be needed to make smoke control legislation easier to enforce.</p> <p>In the interim, Belfast City Council will undertake greater enforcement within the city's smoke control areas, and it will develop and deliver an awareness campaign to educate Belfast residents of the adverse impact of using polluting fuels within their homes. Table 5.1 (measure 51)</p> <p>DAERA has provided further comments concerning this matter, noting that '<i>This issue was raised in the DAERA Clean Air Strategy Discussion Document, which was released to a public consultation in November 2020. This consultation closed in spring 2021 and officials are considering responses received. Preliminary findings will be shared with the Minister, with a view to identifying his preferred options for further development. Agreed proposals will then be more fully developed and will be included in a draft Clean Air Strategy for Northern Ireland. This will be subject to consideration by the Executive and a further public consultation to seek views on the proposals contained therein.</i>'</p>

Theme: Ambient Air Quality Monitoring			
32	Improvements to current monitoring of particulate matter and nitrogen oxides (with real time updates, higher granularity and historic data), including more monitoring locations around schools, residential areas, airport, the Harbour and known bonfire locations.	8	<p>BCC Belfast Harbour Commissioners George Best Belfast City Airport DAERA</p> <p>The requirement for more monitoring of particulate matter and nitrogen oxides is considered within this Air Quality Action Plan document.</p> <p>Currently, Belfast City Council operates five automatic and 60 passive air quality monitoring stations across the city in order to help inform its air quality management processes and to provide real time information to the public in relation to air pollution levels. Our air quality monitoring results and sensor locations are available from the DAERA Northern Ireland Air website via the following weblink: http://www.airqualityni.co.uk/</p> <p>Moreover, as indicated within the AQAP, the council is installing additional NO₂ and PM monitors, using Small Sensors and Diffusion Tube Technologies. Table 5.1 (measures 49 and 50)</p> <p>Belfast Harbour has commenced an air quality monitoring programme within the Belfast Harbour Estate. Table 5.1 (measures 25 and 26).</p> <p>Belfast City Airport currently have no fixed and continuous air quality monitoring in place at the airport. However, they have recently been engaged in a review of current practice and requirements at airports in the UK and Ireland with the aim of introducing a suitable air quality monitoring regime.</p> <p>DAERA have also addressed this query within their Clean Air Strategy Discussion Document which was released to a public consultation in November 2020. They have noted that <i>'this consultation closed in spring 2021 and officials are considering responses received. Preliminary findings will be shared with the Minister, with a view to identifying his preferred options for further development. Agreed proposals will then be more fully developed and will be included in a draft Clean Air Strategy for Northern Ireland. This will be subject to consideration by the Executive and a further public consultation to seek views on the proposals contained therein.'</i></p>
33	More focus on monitoring of	3	<p>BCC</p> <p>The requirement for more monitoring of particulate matter (PM_{2.5} and PM₁₀) is considered within this Air Quality Action Plan document.</p>

	particulate matter (PM _{2.5} and PM ₁₀), with analysis of results against health statistics of COPD and asthmatic hospital admissions.			<p>The Council recognises that fine particulate matter (PM_{2.5}) has emerged as an additional ambient air pollutant of concern for the city. The Council and DAERA have therefore decided to undertake a detailed assessment for the city, for particulate matter and NO₂ pollutants. This project commenced in February 2021 and comprises additional monitoring of particulate matter (PM_{2.5} and PM₁₀). Table 5.1 (measure 50)</p> <p>Air pollution is associated with a number of adverse health impacts; Belfast City Council is therefore committed to reducing the exposure of people in Belfast to poor ambient air quality and to working with medical professionals in order to safeguard and improve health.</p>
34	Analysis of air quality against traffic numbers.	2	BCC DfI DAERA	Extensive analyses of road source emissions / contributions to ambient air pollution levels within Belfast are included within Chapters 3.2 and 3.3 of this Air Quality Action Plan document. Transport emissions have been assessed using road traffic data provided by the Department for Infrastructure (DfI). DAERA have indicated however that the Department would support the installation by DfI of additional traffic counters for ambient air quality and noise management purposes.
35	Create and implement legislation based on World Health Organisation (WHO) guidelines.	2	DAERA	<p>This recommendation has not been included within this Air Quality Action Plan document.</p> <p>However, the 2019 UK Clean Air Strategy contains a commitment to progressively cut public exposure to particulate matter pollution as suggested by WHO by setting a new, ambitious, long-term target to reduce peoples' exposure to PM_{2.5}.</p> <p>It should be noted that the World Health Organisation (WHO) has recently published revised and refined Global Air Quality Guidelines for particulate matter (PM_{2.5} and PM₁₀), ozone, nitrogen dioxide, sulfur dioxide and carbon monoxide (2021).</p> <p>This matter was addressed within the recent Department of Agriculture, Environment and Rural Affairs <i>Clean Air Strategy for Northern Ireland. A Public</i></p>

				<p><i>Discussion Document, November 2020. We are currently awaiting the Department's decision on WHO guidance implementation.</i></p> <p>DAERA have previously addressed this query within the Clean Air Strategy Discussion Document which was released to a public consultation in November 2020. They have reiterated that '<i>This consultation closed in spring 2021 and officials are considering responses received. Preliminary findings will be shared with the Minister, with a view to identifying his preferred options for further development. Agreed proposals will then be more fully developed and will be included in a draft Clean Air Strategy for Northern Ireland. This will be subject to consideration by the Executive and a further public consultation to seek views on the proposals contained therein.</i>'</p>
36	Monitoring of odours and air pollution from waste facilities	2	BCC DAERA	Belfast City Council would advise that in Northern Ireland waste facilities, like industrial processes, are regulated by Northern Ireland Environment Agency. Such sites have to be operated in accordance with permit conditions; operators are required to carry out continuous and / or periodic compliance monitoring to demonstrate compliance with air emission limit values.
Theme: Education / Awareness				
37	More public awareness / education campaigns in relation to air quality (including health effects, real-time pollution information).	13	BCC DAERA	<p>The real-time pollution information on air quality is already available from the DAERA Northern Ireland Air website via the following weblink: http://www.airqualityni.co.uk/;</p> <p>There is also a free Northern Ireland Air App, which provides air quality information / health advice for people in Northern Ireland.</p> <p>Public awareness / education campaigns are considered in the AQAP document. The aim of campaign like <i>Active School Travel Programme</i> (Chapter 3.4.1) and the Promotion of Public Transport. Table 5.1 (measure 7) is to promote active travel / public transport and improve ambient air quality.</p> <p>Belfast City Council is committed to supporting public awareness campaigns like Clean Air Day. In addition, the Council will develop and deliver an awareness</p>

				campaign to educate Belfast residents of the adverse impact of using polluting fuels within their homes. Table 5.1 (measure 51)
Theme: Planning Related Actions				
38	Planning policy should prevent suburban sprawl and encourage city living.	5	BCC Planning	As part of the new Local Development Plan, discussed within Chapter 3.1.1 of this Air Quality Action Plan document, the residential accommodation policies will seek to address current and future residential needs by ensuring sufficient land is made available to meet future housing requirements. The housing policies will aim to promote sustainable housing development within the urban footprint and to facilitate city centre living to grow the residential population of the city centre.
39	All new developments and refurbishments should be more sustainable (sustainable energy provisions and transport)	3	BCC Planning	<p>The new Local Development Plan (LDP), described within Chapter 3.1.1 of the Air Quality Action Plan document, sets out strategic and operational policies as to how sustainable development can be achieved within Belfast city; LDP will support development of an efficient integrated transport network offering travel choice that minimises congestion and air pollution. In addition, the Plan will encourage the expansion of green infrastructure networks for walking and cycling.</p> <p>Moreover, the LDP, through 'Strategic Policy SP6 Environmental Resilience' will support development where such development helps to reduce greenhouse gas emissions and it is adaptable in a changing climate to build environmental resilience. The LDP includes operational policies that also support renewable energy development like Policy ITU4. Table 5.1 (measure 48).</p>
Theme: Tree Planting				
40	Develop a tree protection and planting policy	4	BCC	<p>It is highlighted within Air Quality Action Plan document that the new Local Development Plan (Chapter 3.1.1) will include operational policies like 'OS1 Protection of open space policy' and 'TRE1 Local Development Plan Policy on Trees'.</p> <p>Moreover, the Council is currently working with a range of city partners to plant one million native trees across Belfast by 2035. Belfast One Million Trees was</p>

				inspired by an original idea from the Belfast Metropolitan Residents Group and it is a collaboration between public, private and voluntary sector partners.
Theme: Indoor Air Quality				
41	Provide further monitoring and education of indoor air quality.	2	BCC DAERA	<p>This Air Quality Action Plan document has been produced as part of our statutory duties required by the Local Air Quality Management (LAQM) framework; it outlines the actions that will improve ambient air quality in Belfast; indoor air quality is not currently a component of the LAQM framework.</p> <p>We would however advise that as detailed within <i>UK Clean Air Strategy 2019</i> document, the government's objective is to raise awareness of the potential impacts of air pollution at home to help reduce the harmful build-up of indoor air pollutants.</p> <p>There are already legislative requirements concerning indoor air quality in workplaces covered by the Health & Safety at Work Act 1974, etc.</p> <p>The Institute of Air Quality Management has recently published Indoor Air Quality Guidance: Assessment, Monitoring, Modelling and Mitigation Version 1.0 September 2021⁵³.</p>
Theme: Collaboration with Neighbouring Councils				
42	Requirement for greater collaboration with neighbouring local authorities to ensure infrastructure is interconnected.	1	BCC Planning DfI	<p>A key challenge within the Local Development Plan is to provide for increased accessibility into and throughout the city and to accommodate projected growth in travel demand, whilst also discouraging single occupancy private car use for commuting purposes. The Plan Strategy will therefore facilitate future transport initiatives for the city, including promoting walking and cycling, modal change and supporting public transport measures through the integration of land use and transportation planning. (Chapter 3.1.1)</p> <p>The Belfast Metropolitan Transport Plan 2015 is the current extant Transport Plan. It was developed to deliver an integrated transport network, improving opportunities for interchange between different modes of transport and providing</p>

⁵³ Institute of Air Quality Management (IAQM) Indoor Air Quality Guidance: Assessment, Monitoring, Modelling and Mitigation. Version 1.0 September 2021. <https://iaqm.co.uk/guidance/>

				real travel choices, particularly in the Belfast Metropolitan Area's main transport corridors (Chapter 3.1.2)
Theme: Air Quality Funding				
43	Provide funding to improve air quality monitoring and target areas with exceedances.	1	BCC DAERA	<p>We would advise that the Belfast City Council air quality monitoring programme is currently supported via the DAERA Environment Fund 2019-2023. DAERA also provides funding for environmental projects (including ambient air quality monitoring) through the LAQM grant application process, available to Local Authorities, non-governmental organisations and other similar bodies.</p> <p>This query was again highlighted by DAERA within their <i>Clean Air Strategy Discussion Document</i>. They have reinforced their comments, that <i>'Preliminary findings will be shared with the Minister, with a view to identifying his preferred options for further development. Agreed proposals will then be more fully developed and will be included in a draft Clean Air Strategy for Northern Ireland. This will be subject to consideration by the Executive and a further public consultation to seek views on the proposals contained therein.'</i></p>

Glossary of Terms

Abbreviation	Description
AQAP	Air Quality Action Plan - A detailed description of measures, outcomes, achievement dates and implementation methods, showing how the local authority intends to achieve air quality limit values'
AQMA	Air Quality Management Area – An area where air pollutant concentrations exceed / are likely to exceed the relevant air quality objectives. AQMAs are declared for specific pollutants and objectives
AQS	Air Quality Strategy
ASR	Air quality Annual Status Report
Defra	Department for Environment, Food and Rural Affairs
DAERA	Department of Agriculture, Environment and Rural Affairs
Dfi	Department for Infrastructure
UK NAEI	United Kingdom National Atmospheric Emissions Inventory
EU	European Union
LAQM	Local Air Quality Management
NO ₂	Nitrogen Dioxide
NO _x	Nitrogen Oxides
PM ₁₀	Airborne particulate matter with an aerodynamic diameter of 10µm (micrometres or microns) or less
PM _{2.5}	Airborne fine particulate matter with an aerodynamic diameter of 2.5µm (micrometres or microns) or less

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