Health Impact Assessment
of the Draft Air Quality Action Plan for Belfast
Abridged Version - MAY 2006

Commissioned by Belfast City Council With support from Belfast Healthy Cities

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Forward

Belfast City Council has been charged with co-ordinating and developing an action plan to tackle poor air quality in Belfast. The National Air Quality strategy, first published in 1997, outlines the Government position on what is expected from Local Authorities to improve air quality. The guiding principles of the Strategy are that clean air is an essential ingredient for a good quality of life and that people have a right to expect that the air they breathe will not harm them.

The Council in 2004 completed a detailed review of air quality within the City against eight health based pollutants. The final outcome led to the declaration of four Air Quality Management Areas (AQMA's) within Belfast, which are areas where pollutant levels for nitrogen dioxide and particulate matter (PM10) are predicted to exceed targets laid down in the National Air quality strategy. The areas were formally declared on 31st August 2004 and are located along main busy arterial routes.

Belfast City Council with a number of partners including Translink and the Department for Regional Development Roads Service, have produced an action plan on how to tackle and reduce pollution across Belfast and in these areas in particular.

As we progressed it became apparent that the implementation of action plans in English local authorities were slow to improve air quality and there were examples where successful solutions to pollution had a negative knock on effect on an adjacent area. For example, making a road one way to reduce congestion had the desired effect of speeding up traffic and therefore reducing pollution levels. However the rerouting of the counter flow led to resident concerns about accidents and the safety of children playing in the street.

I believe that as statutory agencies we have an ethical and social duty to ensure the measures that are proposed are tested to some degree with the population on which they will have an effect. Through the Belfast Healthy Cities Office I was introduced to Erica Ison, from the University of Oxford who is an internationally recognised expert in the field of Health Impact Assessment. To drive forward the process a management team and steering group were established consisting of key partners who had an interest in air

quality. I am grateful for their hard work and commitment which has led to this report.

With the help of Erica we carried out a series of workshops where we explored which measures in the air quality action plan could be enhanced to improve health and examined whether any needed to be altered to minimise any negative impact on the population.

This process was carried out in the form of 4 workshops in different settings during June 2005. Community workshops were held in the Ormeau Road and Westlink areas and in two schools were P7 classes in St Malaghy's School in the Markets and Strandtown Primary School off the Newtownards Road suggested measures to reduce air pollution. One key stakeholder workshop was held in the City Hall.

This report summarises the main findings and offers a series of suggestions that provide further direction to improve health through the air quality action plan. The information we have gained may not have come forward from a traditional consultation method. We have gained valuable information on maximising health gain that will also impact on air quality. I would commend this report to all agencies, Government Departments and those who have an interest in road transport, land use planning, and air quality. I hope that this report will be the building block for future measures to improve air quality. Finally I would like to thank all those involved but in particular Erica for her invaluable assistance, drive and perseverance and my own colleagues and the officers within Belfast Healthy Cites for bringing this report to its completion.

The full report is available on our website at www.belfastcity.gov.uk or a hard copy can be obtained from this office.

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Introduction

This document is an abridged version of the full report of the health impact assessment of the draft Belfast City Air Quality Action Plan.

In Part 1 of the document, we outline:
- The draft Air Quality Action Plan, what it means and how it was developed;
- Health impact assessment in general, why and how it is done;
- The health impact assessment (HIA) of the draft Air Quality Action Plan, including a summary of the draft plan's possible impacts on health and well-being as identified by residents in two of the Air Quality Management Areas (AQMAs), and people from the public, private and voluntary and community sectors – all of whom are stakeholders in the HIA.

In Part 2, we present:
- The suggestions to modify the draft Air Quality Action Plan made by various stakeholders involved in the HIA;
- The observations made by the HIA Assessor (Erica Ison)

The level of support for initiatives in the draft Air Quality Action Plan is shown in the tables given in the Appendix to this document. The level of support from three sources is summarised as follows:
1. support from community stakeholders – residents in the M1/Westlink AQMA, and in the Ormeau Road AQMA;
2. support from stakeholders in the public, private or voluntary sectors;
3. support from research information in the published literature.

Part 1: The Health Impacts of the Draft Belfast City Air Quality Action Plan

1. Introduction: What is the Air Quality Action Plan for Belfast?

Belfast City Council is the lead organisation responsible for putting together an Air Quality Action Plan for Belfast as part of the process of complying with the Government's National Air Quality Strategy. In this strategy, the Government set a series of health-based objectives for eight key air pollutants:

1. Particulate matter
2. Nitrogen dioxide
3. Sulphur dioxide
4. Carbon monoxide
5. Benzene
6. 1,3-Butadiene
7. Lead
8. Ozone

The Environment (Northern Ireland) Order 2002 places a duty upon district councils to assess regularly ambient air quality against the health-based objectives for the eight key air pollutants in the National Air Quality Strategy. If a district council finds that the level of one or more of these eight key pollutants is likely to exceed any of the relevant objectives, the council is required:

• to designate an Air Quality Management Area (AQMA) based on the location of where the breach is likely to occur;
• to develop an Air Quality Action Plan, the aim of which is to reduce the concentration of the pollutants to levels that will comply with the National Air Quality Strategy objectives.

During 2003, Belfast City Council completed its first review of air quality across the city, and decided to declare four areas of the city as Air Quality Management Areas or AQMAs:

1. M1/Westlink corridor;
2. Ormeau Road;
3. Cromac Street to the junction of Short Strand, Woodstock Link and the Albertbridge Road;
4. Upper Newtownards Road.

All four AQMAs border on major arterial roads. Consequently, the main source of air pollution in these areas is road transport.

It is predicted that the air quality objective for annual mean levels of **nitrogen dioxide** will be breached in all four AQMAs, and that the air quality objectives for hourly mean levels of **nitrogen dioxide** and for annual and daily mean levels of **particulate matter** will also be breached in the M1/Westlink Corridor AQMA.

Effects on health of the pollutants for which air quality objectives are predicted to be breached in one or more AQMAs in Belfast

Pollutant	Impacts on health from the published research information
Particulate matter	Acute exposure to particulate matter shortens people's lives, increases admissions to hospital from respiratory and cerebrovascular causes, and it increases asthma symptoms and the use of bronchodilators (inhalers)
Nitrogen dioxide	Acute exposure to nitrogen dioxide shortens people's lives by weeks/months, increases admissions to hospital from respiratory and cerebrovascular causes, and increases the symptoms of asthma and use of bronchodilators. Over the longer term, nitrogen dioxide affects lung function, and increases responses to allergens (substances that produce an allergic response).

Although Belfast City Council does not anticipate that the air quality strategy objectives will be breached throughout the entirety of each AQMA (breaches are expected only at specific hotspots), after consultation with stakeholders it was decided that the AQMAs should encompass the relevant commuter arterial routes so that Belfast City Council and its partner organisations would have the capacity to implement suitable control measures. This decision is important because road transport is the major source of emissions contributing to nitrogen oxides pollution in the AQMAs, for instance:

- in the M1/Westlink AQMA, 82% of nitrogen oxides pollution is from road transport;
- in the Cromac Street AQMA, 74% of nitrogen oxides pollution is from road transport;
- in the Upper Newtownards Road AQMA, 71% of nitrogen oxides pollution is from road transport;
- in the Ormeau Road AQMA, 60% of nitrogen oxides pollution is from road transport.

For this reason, the main focus of the Draft Air Quality Action Plan is on transport-related initiatives.

However, the draft plan contains a range of initiatives presented under seven themes:

1. Initiatives to promote walking and cycling in Belfast
2. Initiatives to promote increased use of public transport in Belfast
3. Initiatives to promote improved vehicle fleet management
4. Initiatives to encourage the uptake of greener energy options by large organisations
5. Implementation of policies that will contribute to reducing air pollution
6. Highway and road improvements that will contribute to reducing air pollution
7. Marketing and education initiatives to raise awareness among the public

As part of the process of developing an Air Quality Action Plan, Belfast City Council took an innovative step and commissioned a health impact assessment of the draft plan. Project support was enlisted from Belfast Healthy Cities, an organisation that has pioneered the use of health impact assessment at both a local and regional level within Northern Ireland.

2. What is health impact assessment?

Health impact assessment is a combination of methods used to judge the effects that any kind of proposal (e.g. a policy, programme, or project) could have on the health of a community. This is done by asking:
- What are the **direct effects** on health?
- What are the **indirect effects** on health and well-being through factors that affect health, such as employment, housing conditions, community cohesion, social support, and access to services and amenities?

How do we identify health impacts?
There are many ways in which the potential health impacts of a proposal can be identified, for example, by looking at:
- information from research evidence about what has an effect on health, and about how to increase any positive effects and reduce any negative effects;
- health impact assessments undertaken on similar proposals elsewhere, and health impact assessments undertaken on any proposals that have been implemented in the local community;
- locally collected information about the community to help judge the way the health and well-being of various people could be affected by the proposal, taking into account local conditions and circumstances.

However, it is also important to consult:
- people in the communities affected by the implementation of a proposal;
- people who may be particularly vulnerable within the communities affected;
- professionals in the public, private, and voluntary sectors who serve the communities affected by a proposal.

Why perform a health impact assessment?
The main reason for looking at how a proposal might affect people's health is to suggest ways in which that proposal could be changed to reduce its possible harmful effects and increase its possible beneficial effects. If these suggestions are accepted by the relevant decision-makers, it is then possible to increase the level of health protection and improvement that can be gained from implementing that proposal. When working on a proposal in this way, suggestions can be made with various decision-makers in mind, whether they operate in the public, private or voluntary and community sector, and to influence not only the content of the proposal but also the way in which it is implemented.

3. What was the Health Impact Assessment of the Draft Air Quality Action Plan?

In preparation for the health impact assessment, we looked at information from research evidence, from health impact assessments done on similar proposals elsewhere, and from locally collected data about the community. To help judge the effects of the draft Air Quality Action Plan on the health and well-being of people living and working in Belfast, several consultation events were also organised:

- A workshop for stakeholders in the public, private, voluntary and community sectors
- Workshops for residents in two of the AQMAs – the M1/Westlink and Ormeau Road communities
- Workshops at two schools in, or close to, two of the AQMAs – Strandtown Primary School and St Malachy's Primary School

At the workshops for residents from two of the AQMAs, initiatives under four of the themes in the draft Action Plan were assessed:

- Initiatives to promote walking and cycling in Belfast
- Initiatives to promote increased use of public transport in Belfast
- Highway and road improvements that will contribute to reducing air pollution
- Marketing and education initiatives to raise awareness among the public

At the workshop for stakeholders from the public, private, and voluntary and community sectors, initiatives from all of the draft Action Plan's seven themes were assessed. In the workshops for schoolchildren, they were asked about what various people or organisations could do to improve air quality, but they were not asked to assess individual initiatives in the draft action plan.

For the community and other stakeholder workshops, participants were asked to identify effects on people's health and well-being by looking at the impacts of each initiative on the following factors:

- Air quality
- Noise levels
- Vibration
- Volume of traffic
- Amount of congestion
- Road traffic accidents
- Level of cycling
- Level of walking
- Mental well-being
- Access to jobs, services, facilities and amenities,
- Social contact, interaction and cohesion
- Community severance

4. Results of the Health Impact Assessment of the Draft Air Quality Action Plan

**Consultation with residents in M1/Westlink and Ormeau Road AQMAs.**

Walking and cycling.

On the basis of impacts on health and well-being, people in the communities consulted were generally in support of the various initiatives to promote walking and cycling in Belfast, but they had concerns that cyclists in particular would experience increased exposure to air pollution. Although residents were in favour of cycle and walkways, they did not support the use of disused railway routes for this purpose and preferred to see them converted to rapid transit routes for public transport.

Residents were in favour of traffic-calming measures, but made suggestions about the type of measures that could be introduced to avoid some of the possible negative impacts on health as a result of traffic-calming itself (e.g. bumps or humps in the road can cause increased air pollution, and may act as a catalyst for antisocial behaviour amongst young drivers).

Increased use of public transport

When assessing initiatives to promote the increased use of public transport, generally residents in the M1/Westlink AQMA were in support of them on the basis of potential health impacts. However, suggestions were made about the appropriate and effective location of Park & Ride sites, and concerns were expressed about the loss of amenity that could be suffered by residents in the vicinity of the EWAY on the Newtownards Road. Specific suggestions were also made about the need for affordable public transport, especially for
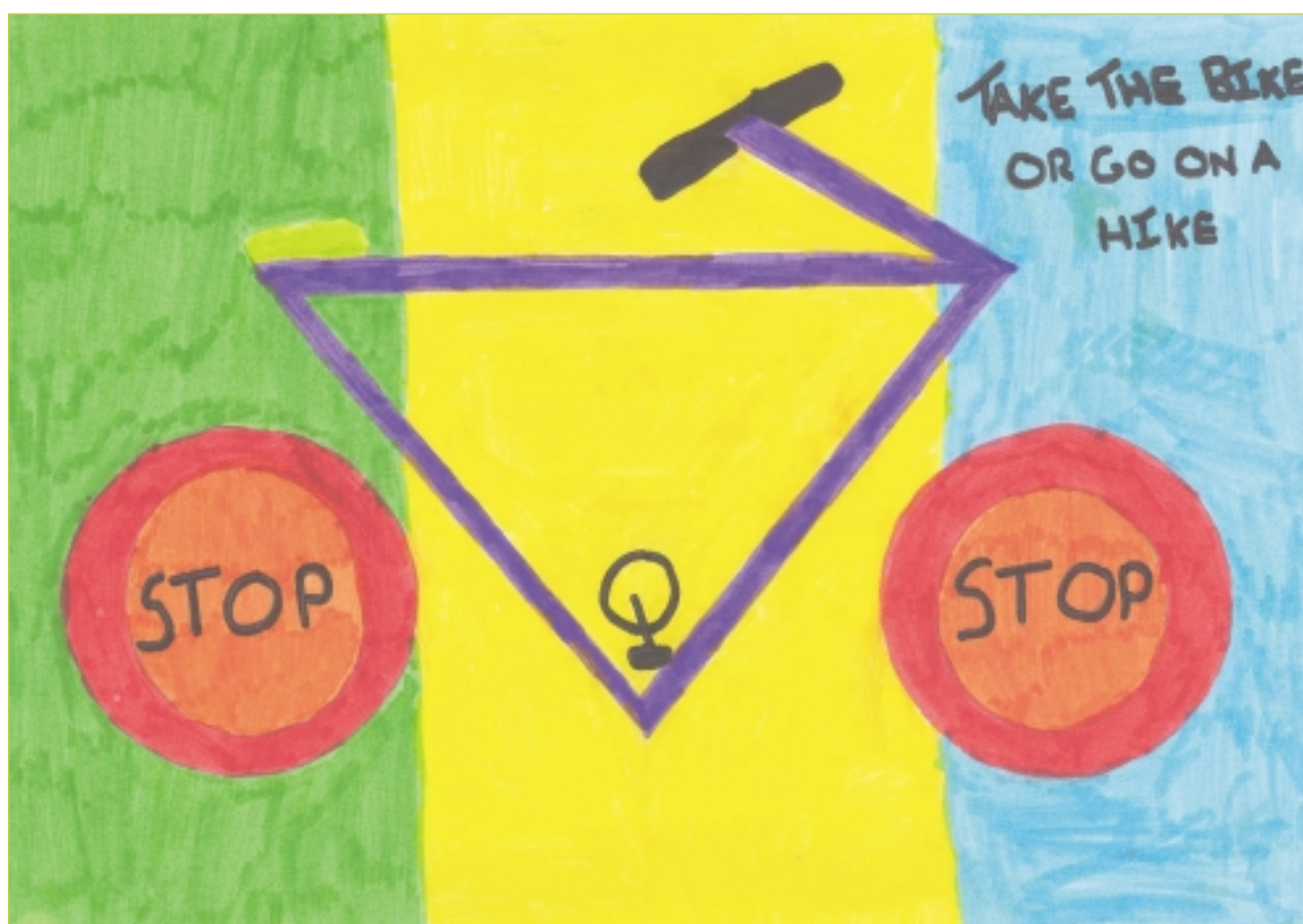
Danielle Smyth, Class P7, St Malachy's Primary School

people in vulnerable groups (e.g. people on a low income and their families). Support was strong for the improvement of taxi facilities despite the potential increase in air and noise pollution because of the health benefits from increased safety and access that taxi services bring to vulnerable people.

With respect to initiatives to promote walking and cycling and increased use of public transport, the results from the residents' workshops were generally in agreement with information from the published research evidence, although despite the residents' concerns, research suggests that the health benefits of cycling outweigh the potential harms. Information from research also indicates the factors that need to be taken into account when introducing Park & Ride sites.

Marketing and education initiatives to raise public awareness of air pollution

Residents were supportive of marketing and education initiatives to raise public awareness of air pollution issues but made practical and useful suggestions about how best to communicate with the general public to increase the likelihood that people would act upon the information provided and not ignore it.

Highway and road improvements

The response of residents in the M1/Westlink Corridor and Ormeau Road AQMAs was more mixed with respect to the health impacts of highway and road improvements that will contribute to reducing air pollution. There was a lack of support for capacity improvements to the strategic highway network, particularly along the M1/Westlink corridor, because this will involve not only construction impacts, but also increased traffic flows after road widening. In addition, there was concern that some people in the existing community who live in the vicinity of the roads scheduled to be improved would be displaced.[1] Highway and road improvements were judged to have potentially negative impacts on residents' health and well-being, whereas it was pointed out that it would be car users who would experience the benefits. Information from published research evidence supports the views expressed by the residents, and indicates there is a need for improvements to the road infrastructure **only when** they provide local access or extend priority for public transport and pedestrians. The community highlighted the likely end result of making improvements to road capacity, which would be an increase in the number of car trips made, and therefore an increase in traffic volume and air pollution, even if in the short term such improvements would increase traffic flow and decrease air pollution.

Residents from the M1/Westlink Corridor AQMA also had similar concerns over the health impacts of the non-strategic highway network scheme for the Bankmore Link.

However, there was community support for initiatives concerning strategic and non-strategic highway network traffic management, despite the possibility that residents in the vicinity of the strategic highway network will experience greater negative impacts on their health and well-being than people living in other areas. In addition, suggestions were made about appropriate and effective measures for traffic calming with respect to non-strategic highway network traffic management. There was also support for parking measures to restrict motor vehicle access to Belfast City centre, but community participants were clear that the parking needs of residents should be taken into account, particularly for those people from vulnerable groups for whom access is a problem (e.g. people with a physical disability, older people, and women with small children).

Overall, when making suggestions about how to enhance the draft Air Quality Action Plan with respect to its potential to protect and improve health, members of the community were clear that some initiatives would not be as successful if they were implemented in isolation, and that they needed to be implemented at the same time as certain other initiatives. For instance, the introduction of new Park & Ride sites needs to be linked with the introduction of traffic-calming measures and increased parking charges in Belfast City Centre. Another example would be linking initiatives to reduce the traffic capacity in Belfast City Centre with those to improve public transport services.

[1] The Roads Service has confirmed that there will be no displacement of residents as a result of highway improvements to the M1/Westlink corridor.

Consultation with children at Strandtown and St Malachy's Primary Schools

Using a workshop setting, children at Strandtown and St. Malachy's Primary Schools were asked what they, their families, their school and other organisations could do to improve air quality. Popular answers are shown in Box 1.

Box 1: Some of the suggestions to improve air quality made by Belfast schoolchildren

- To use alternative forms of transport to cars, including walking, cycling, running, scooters, rollerblading, skateboarding, and horse riding.
- To promote the use of alternative forms of transport by providing cycleways, and safe cycle parks.
- To use public transport, both buses and trains.
- To promote increased use of public transport through lower fares and increased accessibility.
- To provide bus lanes.
- To introduce traffic-calming measures.
- To reduce car parking.
- To promote car pooling and car sharing.
- To support alternative technologies that are currently available e.g. hybrid cars, electric cars.
- To develop alternative technologies and fuels.
- To promote energy efficiency, including low-energy light bulbs, energy-efficient appliances, insulation, and double-glazing in the home, school, and other buildings.
- To promote uptake of greener energy options, including solar power, wind turbines, hydroelectric and wave power.
- To inform the public about air pollution and its effects, through advertising, poster campaigns.
- To enforce legislation governing air pollution.
- To increase tax on fuel.
- To limit domestic bonfires.
- To stop smoking.
- To ban smoking in public places.
- To promote the reporting of smoky cars and chimneys.
- To increase the amount of material recycled, and composted.
- To consume less products and energy.
- To use pester power to influence parents' choices.

A competition was held for schoolchildren to design a poster drawing people's attention to air quality and what could be done to improve it.

Consultation with stakeholders from the public, private, and voluntary and community sectors
Walking and cycling

On the basis of impacts on health and well-being, stakeholders from the different sectors were generally in support of the various initiatives to promote walking and cycling in Belfast, but they had concerns, as did the community, that cyclists in particular would experience increased exposure to air pollution. There were also concerns that cycle shelters could be vandalised, and that their design needed to take account of this potential problem. Stakeholders from the different sectors also identified a conflict between transport needs and leisure uses for disused railway routes.

Increased use of public transport

For initiatives to promote the increased use of public transport, stakeholders from the different sectors were generally in support of them on the basis of health impacts. However, concern was expressed about the removal of some routes on the Metro bus network and the impact this would have on vulnerable people who do not have access to a car. Stakeholders from the different sectors also recognised that the introduction of

Park & Ride sites would increase air and noise pollution and congestion at the areas around the sites, affecting residents in the vicinity – effectively displacing some of the negative effects currently experienced by other people in Belfast – and called for sensitive location of the sites and the introduction of mitigation measures. Similar observations were made about rail-based Park & Ride initiatives. Support was given to improved taxi facilities, demand-responsive rural bus services and urban community transport on the basis of the positive effect they will have on increasing safety and access for vulnerable groups in the community, despite the potential increase in air and noise pollution that these services might bring about.

Better fleet vehicle management

With respect to initiatives to promote better vehicle fleet management, stakeholders from the different sectors were supportive of their inclusion in the plan on the basis of their positive impacts on health. They suggested that both Belfast City Council and Translink could act as role models for other organisations and champion these approaches to improving air quality and, thereby, improving health. Stakeholders from the different sectors suggested the impacts of the draft action plan could be enhanced if the following additions were made:

- Route planning for vehicles;
- Purchasing fleet vehicles that have more than one function.

Initiatives to encourage the uptake of greener energy options by large organisations

On the basis of their positive impacts on health, stakeholders from the different sectors were supportive of the inclusion in the plan of initiatives to encourage the uptake of greener energy options by large organisations. They suggested that both Belfast City Council and Translink could act as role models for other organisations and champion these approaches to improving air quality and thereby improving health.

Policies that will contribute to reducing air pollution

When assessing the potential health impacts of policies that will contribute to reducing air pollution, stakeholders from the different sectors were in support of all the initiatives, and also suggested two further initiatives that could be added to the plan to enhance its positive effects:

- Using the waterways of Belfast for transport purposes;
- Lobbying to make the European Union Directive on the Energy Performance of Buildings mandatory.

Marketing and education initiatives to raise public awareness of air pollution

Stakeholders from the different sectors were supportive of marketing and education initiatives to raise public awareness of air pollution.

Highway and road improvements

Although stakeholders from the different sectors were in support of the inclusion of the highway and road improvement initiatives in the draft action plan, they expressed concerns similar to those voiced by residents in the M1/Westlink Corridor and Ormeau Road AQMAs about the possible long-term effects of increasing road capacity in Belfast, and also about the potential negative effects on residents of community severance and displacement due to road widening of the strategic highway network.[2] They suggested mitigation measures for residents, and made it clear that car users would be the main beneficiaries as a result of increasing road capacity.

In light of their positive effects on health, stakeholders from the different sectors supported actions relating to traffic calming and city centre traffic management, but they emphasised the need for these measures to be implemented at the same time as improvements to public transport services.

Information from research about potential outcomes for health

Cycling and walking

If initiatives to promote cycling and walking are successful, they will have a highly beneficial effect on

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[2] The Roads Service has confirmed that there will be no displacement of residents as a result of highway improvements to the M1/Westlink corridor.

respiratory and heart diseases, a medium beneficial effect on cancer, diabetes, obesity and osteoporosis, and a small beneficial effect on mental health and well-being in the community, although there may be a small harmful effect on health through accidents.

Increased use of public transport
If initiatives to promote increased use of public transport are successful, they will have a highly beneficial effect on respiratory and heart diseases, a medium beneficial effect on mental health and well-being, and a small beneficial effect on cancer in the community, although people living in the immediate vicinity of some transport schemes may suffer harm from air and noise pollution.

Improved vehicle fleet management
The scale of the effects from initiatives to promote improved vehicle fleet management will not be as large (as the initiatives are limited to Translink and Belfast City Council fleet activities) but they will contribute to having a highly beneficial effect on respiratory and heart diseases, and a small beneficial effect on cancer and mental health and well-being in the community.

The uptake of greener energy options by large organisations
Depending on the location of energy-generating plants, initiatives to encourage the uptake of greener energy options by large organisations will make a similar type of contribution to health outcomes as improved vehicle fleet management, but they will also make a contribution to reducing global climate change and the potential for health impacts over a wider area than Belfast by reducing the likelihood of natural events such as flooding.

Policies that make a contribution to reducing air pollution
Policies that make a contribution to reducing air pollution can have wide-reaching effects on health:
• by reducing air and noise pollution from the use of private transport there will be a highly beneficial effect on respiratory and heart diseases, a medium beneficial effect on mental health and well-being, and a small beneficial effect on cancer in the community;
• by increasing safety, physical activity, social contact and access to jobs, services, facilities, and amenities, and decreasing community severance there will be a highly beneficial effect on respiratory and heart diseases, a highly beneficial effect on physical injuries, a medium beneficial effect on diabetes, obesity and osteoporosis, a small to medium beneficial effect on cancer and a small to medium beneficial effect on mental health and well-being.

Marketing and education initiatives to raise public awareness about air quality
Marketing and education initiatives to raise public awareness about air quality will have an indirect effect upon health in that they support and contribute to the success of other initiatives in the Air Quality Action Plan, including promoting increased use of public transport and increased active travel through promoting cycling and walking. It is also possible that providing people with information about air quality can enhance and contribute to mental well-being through opening up the choices available to them, enabling residents and workers in Belfast to take more control of their lives.

Highway and road improvements
Predicting the potential health outcomes from highway and road improvements is more complicated. The aim of all the initiatives in this theme is to increase the flow of traffic and, because this will reduce the stop-start progress of traffic in queues, it is expected that this will reduce air and noise pollution. If this effect is the only outcome of the various initiatives, then there will be a highly beneficial effect on respiratory and heart diseases, a small to medium beneficial effect on mental health and well-being, and a small beneficial effect on cancer in the community. However, for certain initiatives in the draft Air Quality Action Plan relating to increasing the capacity of both the strategic and the non-strategic highway network, the research evidence shows that air pollution will be reduced only in the short term. This is because an increase in road capacity is

likely to attract an increase in car trips so that over the longer term there will actually be an increase in air and noise pollution as more trips are taken in private vehicles. Increased air and noise pollution will have a highly harmful effect on respiratory and heart diseases, a small harmful effect on cancer and a small to medium harmful effect on mental health and well-being. In addition, as the initiatives to increase capacity on the strategic highway network of Belfast will involve road widening in some instances, it is possible that this will reinforce what is known as community severance, which can have medium harmful effects people's mental health and well-being through a loss of social contact and support. For some vulnerable groups, this effect may be more marked, for instance, for people who already have mental health problems. Road widening, especially during construction, may also exacerbate social isolation for the community, but especially for people who do not have access to private transport, older people, and parents with young children.

Chloe McCabe R10 Standtown Primary School

Assessor's observations

Highway and road improvements

Given the community responses during the health impact assessment (HIA) about the initiatives to increase capacity in the highway network of Belfast, and the information obtained from the published research evidence, the HIA Assessor has suggested that DRD Roads Service consider the possibility of modelling the potential increases in air pollution beyond the timeframe set down for the air quality objectives to find out:

- For each road improvement leading to increased capacity, what level of reduction (quantified) for air pollutants will be obtained during the timeframe set for the air quality objectives?
- For each road improvement leading to increased capacity, what level of increase in traffic will result in breaches of the air quality objectives, and how long will it take for these levels to be reached?

Once this information has been calculated, it is suggested that DRD Roads Service considers reviewing each of the highway and road improvements to judge whether they will reduce private car use and be effective in reducing air pollution beyond the timeframe of the air quality objectives. Any capacity improvements in the strategic and non-strategic highway network that do go ahead after this suggested review need to be planned incorporating appropriate and effective measures to reduce the potential negative impacts on residents' health and well-being from construction, community severance, social isolation, and any long-term increases in air and noise pollution. The HIA Assessor also suggested it is important that the community is consulted about the development of any package of measures to reduce the possible negative impacts on its health and well-being.

Targeting initiatives to reduce air pollution in areas where it is greatest

Although the guiding principle for the development of the Air Quality Action Plan is to reduce air pollution in the Air Quality Management Areas (AQMAs), the approach that has been taken includes reducing air pollution across Belfast as a whole. The information in the research evidence, which was undertaken for among others the Department of the Environment in Northern Ireland, shows that carefully targeted policies to reduce air pollution in areas where they are highest could have a greater beneficial effect in communities which are deprived. In the light of this evidence, the HIA Assessor suggested that Belfast City Council and its partners in the Air Quality Forum consider highlighting initiatives in the Action Plan that are targeted on the four AQMAs, and in particular the AQMAs where people suffer from greater health and other inequalities, e.g. the M1/Westlink Corridor AQMA. Depending on the responses received during the public consultation on the plan, the HIA Assessor suggested that it is important to retain these targeted initiatives to gain the greatest measure of health protection for people who experience health and other inequalities and who are living in or close to the AQMAs. However, it is also vital to take into account the potential harms from some of the targeted initiatives, e.g. widening of the M1/Westlink.

Priorities for funding and implementation

In view of the potential health impacts of the Draft Air Quality Action Plan we have outlined, and the main aim of the Air Quality Action Plan to reduce air pollution from road transport, the HIA Assessor suggested prioritising certain initiatives for funding, as follows:

- the development and improvement of the public transport network (bus and train) that serves Belfast and the surrounding area – this is particularly important given that just under half the households in Belfast do not have access to any private transport, that people in Northern Ireland as a whole see poor public transport as one of the biggest problems in their neighbourhood, and that access to good-quality bus and train services is poor;
- the development and introduction of improved facilities for cyclists and pedestrians;
- the introduction of initiatives that enable the implications for air quality resulting from decisions about land use to be taken into account.

However, as some of these initiatives can be perceived as restricting the "rights" of those able to afford access to a private car, the HIA Assessor suggested that it is essential to present these actions to the general

public and decision-makers as a way of increasing mobility and access for all the community by introducing choice into the transport system.

It is important not to underestimate the challenges posed by reducing air pollution from road transport – many barriers and conflicts were identified during the HIA – and as such it is vital to gain public support. Therefore, the public education and information campaigns presented in the plan are also important and need to be prioritised. To help provide support during implementation of the plan, the HIA Assessor suggested that Belfast City Council join the CITEAIR network funded by the European Union. The focus of this network is to develop efficient solutions to environmental and traffic management with respect to air quality.

The importance of linking land-use planning to improving air quality was also highlighted during the HIA, and the HIA Assessor also suggested it was important to give priority to initiatives dealing with this link, e.g.:
- developing regeneration plans for certain arterial routes in Belfast city;
- developing a Masterplan for Belfast based on the principles of sustainable development;
- producing guidance for staff at Belfast City Council on land-use planning and air quality, and including implications for air quality in responses about proposals from the Planning Service.

All these initiatives represent planning for Belfast's future air quality in a sustainable way by promoting mobility and access through mixed use developments and good-quality public transport services and active travel facilities while reducing dependence on the car.

Sean McGuigan Class P7a St Malachy's Primary School

The HIA Assessor suggested adding an initiative to the plan in the form of a pilot of a personalised marketing programme. Personalised marketing programmes provide people with all the information they need to change their travel behaviour and reduce car use; several brands of programmes are available, but the most well developed and successful is the "Travelsmart" programme developed by SUSTRANS, the use of which has achieved a reduction in car use ranging from 9% to 14% in a variety of situations (urban or rural communities, and small or large schemes).

Monitoring potential impacts on health

The HIA Assessor suggested that Belfast City Council and other partners in the Air Quality Forum liaise with the Public Health Department of the Eastern Health and Social Services Board[3] and other health sector organisations to discuss the feasibility of monitoring the potential impacts on people's health and well-being of air pollution in Belfast as a result of the implementation of the Air Quality Action Plan. The Eastern Health and Social Services Board has already provided information for the HIA on the health and well-being of people living in the wards in, or next to, the AQMAs, and it is suggested that Belfast City Council and partners could build on this support.

The HIA Assessor suggested that one way of monitoring impacts on people's health would be to do what are known as surveys of "self-reported health status", which cover people's perceptions of their health and well-being. The HIA Assessor suggested that it would be helpful to do these surveys with two groups of people:
1. some people who live in or near one or more of the AQMAs (e.g. people living along the main arterial routes designated as AQMAs or people living in the Shaftesbury ward, which is near to three of the four AQMAs);
2. some people not living in or close to an AQMA.

This would help to identify whether people living in or near the AQMAs could be benefiting from the implementation of the Air Quality Action Plan, as well as identifying whether people living in other areas of Belfast (where air quality is better) could also have benefited.

It would be useful if the surveys were designed to gather information:
- before the initiatives in the Air Quality Action Plan are implemented to provide a baseline against which any progress can be measured;
- at a midpoint in the implementation of the Air Quality Action Plan;
- at the end of the implementation of the Air Quality Action Plan.

This would help to identify any trends in people's health and well-being. However, in this type of survey, it is important to gather information on people's circumstances that might also have an impact on their health, e.g. whether they smoke, how much exercise they take, and what type of heating is used in their home, because these factors may affect the results.

The surveys could be supported by monitoring air quality at the same time to see if the trends in peoples' perceptions of their health coincide with their exposure to air pollution and trends in air quality in parts of the city. In this situation, two forms of air quality monitoring may be helpful:
- personal monitoring of air quality, either directly or indirectly, because measurements of outdoor air quality from fixed monitoring stations can significantly underestimate exposure to outdoor air pollution for people who live close to traffic-congested streets, people walking or working along busy streets, and people whose homes front onto busy streets;
- monitoring of background air pollution levels, especially in the areas where the people included in the surveys are living – background air pollution probably reflects people's exposure to outdoor air pollution.

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[3] Although the Eastern Health and Social Services Board is to be replaced by a new Health and Social Services Authority under the Review of Public Administration, the new authority's remit will include public health, including a requirement to monitor health.

Effects on Belfast's economy

During the HIA, the possible impacts of some of the initiatives in the Air Quality Action Plan on Belfast's economy were raised. In particular, people mentioned:

- the perception of traders, retailers and other businesses that reducing car use would mean reducing the number of customers and therefore the businesses' profitability;
- the concerns of employers that their workers may not be able to get to work on time if they relied on public transport.

The HIA Assessor suggested the promotion of healthy urban planning on sustainable development principles as one way that could be used to protect the viability of Belfast's economy through its various businesses is. However, research evidence shows that business and community organisations must be involved in this process for this strategy to succeed. The HIA Assessor suggested that the Masterplans for the North East and North West Quarters of Belfast City Centre could be used as a starting point for partnership working on this issue to ensure economic development without compromising air quality and other social and environmental factors important to sustainable development and people's health and well-being.

Part 2: Suggestions from the Health Impact Assessment of the Draft Air Quality Action Plan for Belfast City

In Part 2, we present the suggestions made by various stakeholders during the health impact assessment of the draft Air Quality Action Plan. These suggestions were framed by stakeholders on the basis of either reducing potential harmful effects or enhancing potential beneficial effects of various initiatives in the plan.

The suggestions are presented according to the seven themes in the Draft Air Quality Action Plan. After each suggestion, we show, inside brackets, which participants in the HIA made the suggestion, ranging from people living in the Ormeau Road and M1/Westlink Corridor Air Quality Management Areas (AQMAs), and/or people from public, private or voluntary and community sector organisations (designated as a Group numbered from 2 to 9; Group 1 was amalgamated with Group 2).

1. Initiatives to promote cycling and walking

Suggestions associated with the following actions:
Promoting and supporting cycling initiatives through the Belfast City Council (BCC) Active Living initiatives
Promoting Bike and Walk to Work Days

- To increase the effectiveness of any walking and cycling initiatives, it is suggested that Belfast City Council and partners take account of the following when designing programmes:
  - that the behaviour of adults influences that of children, and it is important to encourage a culture change in both groups (Westlink Community);
  - the need to change people's mindset such that they will reduce the use of their cars (Westlink Community; Group 8).
- To increase the effectiveness of any walking and cycling initiatives, it is suggested that Belfast City Council and partners consider the introduction of incentives for cycling (Westlink Community) and disincentives for (Group 8) or tolls on (Westlink Community) car use.
- To increase the level of achievement from the promotion of walking and cycling initiatives, it is suggested that Belfast City Council and partners undertake integrated action through an intersectoral partnership of many different organisations working together – the Air Quality Action Plan needs to be strengthened in this respect (Westlink Community; Group 8); these various organisations need to be involved in terms of both promotion and providing funding (Group 8), and promotion needs to be properly funded (Group 8).
- To increase the inclusivity of any walking and cycling initiatives, it is suggested that Belfast City Council and partners consider the needs of vulnerable groups, e.g. level of access for people who have a physical disability (Westlink Community). One way to address this issue would be to re-frame the Air Quality Action Plan in terms of "movement", or the ability/capacity to move from one place to another, as opposed to "transport" – this may help to orientate the Plan such that it becomes more inclusive of vulnerable groups (Ormeau Road Community).
- To promote cycling, it is suggested that:
  - Belfast City Council considers taking a greater leadership role in its promotion (Group 8);
  - partners in the Air Quality Action Plan work with large companies/employers in Belfast to promote cycling among their employees (Westlink Community).
- To increase the effectiveness of Bike to Work Day, it is suggested that Belfast City Council, and partners, consider:
  - greater promotion of the initiative (Group 8);
  - closing off some roads to enforce it (Group 8).
- As the level of awareness of the Bike to Work Day in the community is low, it is suggested that Belfast City Council and partners consider the measures needed to target the general public appropriately and effectively, e.g. use bus stops and signposts to display material about the initiative (Ormeau Road Community).
- To promote cycling among schoolchildren and thereby reduce the number of car trips made, DRD Roads Service needs to expand the provision and implementation of Safer Routes to Schools (Westlink Community).
- To promote walking, it is suggested that Belfast City Council and partners further promote and support walking initiatives (in addition to cycling initiatives) through:
  - the Belfast City Council Active Living Weeks (EI);
  - encouraging the implementation of Walking Bus for schools initiatives (Westlink Community; Group 8), although security and safety need to be taken into account for such initiatives (Group 8);
  - encouraging employers to organise lunch-time walks for employees (Ormeau Road Community).
- To increase the effectiveness of promoting cycling and walking, it is suggested that Belfast City Council and the UK Government should promote the International Traffic-Free day in September (Group 8).

- As the cost of buying a bike may prevent some people from cycling, e.g. people on a low income, lone parents, and people who are unemployed or experiencing other types of disadvantage, it is suggested that Belfast City Council and partners consider incorporating actions into the Action Plan in which Belfast City Council and partners work with cycle manufacturers and retailers to increase accessibility/affordability of bikes either through special deals (Westlink Community) and/or cycle rental schemes at various facilities (Ormeau Road Community; Group 8). People also need to be made aware by such initiatives that the health benefits of using a bicycle will outweigh the initial financial costs (Westlink Community).
- To reduce the potential increased risk of road traffic accidents involving cyclists, it is suggested that Belfast City Council and partners consider:
  • offering or providing safety training for both cyclists and motorists (Group 8);
  • establishing the cycling proficiency test in all schools (Westlink Community);
  • working with manufacturers of cycle helmets to increase the availability and affordability of cycle helmets (Westlink Community);
  • establishing incentives for people to wear cycle helmets (Westlink Community);
  • including these four actions in the Air Quality Action Plan (Westlink Community; Group 8).
- To increase the safety of cyclists and pedestrians, it is suggested that DRD Roads Service and partners consider the availability and location of lighting for streets, cycle paths and walkways (Westlink Community). Supported by the evidence base.

See Table 3.1.1 in full report for more information.

Conor Cobain, Year 7, R14, Strandtown Primary School

Suggestions associated with the following actions:
Installing cycle parks at Belfast City Council buildings
Installing cycle shelters at Translink locations – further promotion of facilities

- To strengthen the impact or effectiveness of this action, it is suggested that DRD Roads Service consider the concurrent building of:
  - kerbside cycle paths across Belfast (Group 8);
  - safe cycle lanes (Westlink Community) although at present cycle lanes appear to be used rarely (Westlink Community). Supported by the evidence base.
- To reduce the level of air pollution further, it is suggested that Translink considers supporting these actions with the provision of additional bus services (Group 8) – for the travelling public; this will increase the level of interchange possible within and between different modes of transport (intermodality) (EI).
- To increase the likelihood of people cycling, it is suggested that Belfast City Council and Translink consider:
  - promoting the installation of cycle parks to other employers in Belfast City (Group 8; Westlink Community);
  - including this suggestion in the Air Quality Action Plan (Group 8; Westlink Community). Supported by the evidence base.
- To increase the likelihood of people cycling, it is suggested that Belfast City Council and Translink (and any other employer who introduces cycle parks) consider complementing the provision of cycle parks or shelters with the provision of shower and changing facilities and lockers for staff (Ormeau Road Community; Westlink Community; Group 8).
- To increase safety, and decrease crime and fear of crime, it is suggested that Belfast City Council and Translink consider building cycle shelters the design of which takes into account access, security and location (Group 8), and reduces the likelihood of vandalism, e.g. roofless (Group 8). Supported by the evidence base.
- To strengthen the Plan, it is suggested that Translink considers providing more comprehensive/improved cycle facilities on trains and buses (currently bikes are carried on buses at the driver's discretion, and there are constraints on trains) (Group 8).

See Table 3.1.2 in full report for more information.

Suggestions associated with the following actions:
Promoting the availability of cycle usage mileage for Belfast City Council (BCC) employees

- To extend the potential benefits of cycle mileage usage available, it is suggested that Belfast City Council and partners consider:
  - promoting the initiative to other employers in Belfast City (Ormeau Road Community; Group 8), possibly through the use of incentives (Ormeau Road Community);
  - including this action in the Air Quality Action Plan (Ormeau Road Community; Group 8). However, this suggestion was not endorsed by the Westlink Community who think that this initiative should be limited to Belfast City Council employees.
- To encourage the uptake of cycling by Belfast City Council staff, it is suggested that Belfast City Council consider increasing the amount paid for cycle mileage usage such that it is greater than that paid to car users (Group 8).
- To increase the use of cycles, apart from establishing cycle mileage usage, it is suggested that Belfast City Council consider providing a 'pool' of bicycles for employees to use (Group 8).

See Table 3.1.3 in full report for more information.

Suggestion associated with the following actions:

Considering converting old disused railway routes into cycle- and walkways

- As there is some opposition to using old railway routes for cycle- and walkways, it is suggested that DRD consider re-instating these routes as railway or rapid transit routes as a priority (Westlink Community); if possible, separate cycleways could be introduced along this railway/rapid transit corridor (Westlink Community).

See Table 3.1.4 in full report for more information.

Suggestions associated with the following actions:

Providing improved facilities for walking and cycling as a result of traffic calming

- For the traffic calming to be effective and appropriate, it is suggested that DRD Roads Service consider:
  - the design of the physical measures carefully, for instance, the introduction of speed humps may tempt drivers to speed over them (Group 8);
  - the needs of cyclists when designing and installing traffic calming measures (Ormeau Road Community);
  - the needs of vulnerable groups using footpaths, e.g. people who have a physical disability and people with children in pushchairs, by building measures such as kerb ramps (Ormeau Road Community).
- For traffic calming to be effective in terms of reducing fatalities from traffic-related accidents involving children, it is suggested that DRD Roads Service considers the introduction and enforcement of a speed limit of 20 miles per hour (mph) around schools and built-up residential areas (Group 8). Supported by the evidence base with respect to reducing childhood fatalities from road traffic accidents, although NOx emissions increase at very low speeds, i.e. below 15 mph.
- To increase personal and community safety, it is suggested that DRD Roads Service considers introducing high-quality walking and cycling corridors at locations where traffic calming is introduced (Group 8).

See Table 3.1.5 in full report for more information.

Suggestions associated with the following actions:

Establishing a quality walking network

Establishing a comprehensive cycle network

- To increase the personal safety of cyclists, it is suggested that DRD Roads Service considers the introduction of dedicated cycle lanes that buses and taxis cannot use (Ormeau Road Community; Group 8).
- To encourage the use of cycle lanes by making their use more pleasant, it is suggested that DRD Roads Service considers improving road surfaces (Ormeau Road Community). Supported by the evidence base.
- To increase the personal safety of pedestrians, it is suggested that DRD Roads Service considers the establishment of appropriate and effective lighting of walkways (Westlink Community), including general lighting and lighting that is targeted in certain locations. Supported by the evidence base.
- To strengthen the Plan, it is suggested that DRD Roads Service considers the need for a comprehensive approach to the provision of dedicated cycle- and walkways and bus routes – the approach currently put forward in the Belfast Metropolitan Action Plan appears to be piecemeal, and if implemented in such a way it will not be as effective as a comprehensive approach would be (Group 8). Supported by the evidence base.

See Table 3.1.6 in full report for more information.

2. Initiatives to encourage increased use of public transport

Suggestions associated with the following actions:

Priority bus lanes – further development

- To increase the effectiveness of introducing priority bus lanes, it is suggested that the Public Transport Partnership Board (PTPB), DRD Roads Service and Translink consider the location of priority bus lanes in relation to anticipated demand for travelling on various routes – bus priority lanes will not be effective if they are located along routes that people do not wish to use most frequently (i.e. priority bus lanes need to be on routes that people use to go to particular facilities/amenities or employment locations) (Group 6).
- To promote access for vulnerable groups, it is suggested that the PTPB, DRD Roads Service and Translink consider ways of ensuring that vulnerable groups can access buses using priority lanes (Group 6).
- To support the effectiveness of bus priority lanes, it is suggested that Belfast City Council and partners consider the concurrent introduction of higher parking charges (Group 6).

See Table 3.2.1 in full report for more information.

Suggestions associated with the following actions:

Development of City Express service

- When planning and implementing the City Express Service, it is suggested that Public Transport Partnership Board (PTPB), DRD Roads Service and Translink consider the following factors to promote the effectiveness of the service:
  - the continuity of the bus lane (Group 3) - Supported by the evidence base;
  - enforcement by the police of the bus lane being for buses only (Group 3) - Supported by the evidence base;
  - giving buses priority at traffic lights (Group 3) - Supported by the evidence base.

See Table 3.2.2 in full report for more information.

Suggestions associated with the following actions:

New Metro bus service

Intelligent Transport System

- To strengthen the Plan with respect to the Metro network, it is suggested that Translink considers consulting the community (Ormeau Road Community; Westlink Community) not only about the appropriateness of routes but also the timing of services (Westlink Community; Group 5).
- To strengthen the Plan and the various phases of the Metro network, it is suggested that Translink considers addressing affordability (Ormeau Road Community; Group 6), frequency (Ormeau Road Community; Group 6 – intervals of 5-10 minutes), reliability (Ormeau Road Community; Westlink Community) and punctuality (Ormeau Road Community) of the services and the quality of provision of Sunday (Ormeau Road Community; Westlink Community) and off-peak services (Ormeau Road Community). Supported by the evidence base.
- It is suggested that Translink considers the flexibility of the service (Group 3) and the possibility of varying vehicle size at different times of the day/week to ensure size of Metro buses is appropriate to demand (Group 3).
- To ensure the fleet used for the Metro service is not the source of excess air pollution, it is suggested that Translink considers reviewing the age of the fleet – the older the vehicle the more likely it is to be polluting (Group 3). Supported by the evidence base.
- To free up the Metro service drivers and thereby decrease journey times, it is suggested that Translink considers the introduction of bus conductors on the Metro network (Westlink Community).
- To improve the quality of the Metro service for passengers, it is suggested that Translink considers:
  - providing regular training for drivers to take account of passengers' needs, particularly those of

vulnerable groups, e.g. older people, parents with children, and people with a physical disability (Westlink Community; Group 5) – supported by the evidence base;
- reviewing the investment of resources in customer care (Group 3).
- To strengthen the Plan with respect to the Metro service, it is suggested that Translink considers providing passengers with accurate information to encourage uptake (Ormeau Road Community). Supported by the evidence base.
- To encourage use of the Metro network by schoolchildren, and thereby reduce the volume of cars on the school run, it is suggested that Translink considers providing free services for schoolchildren (Group 3) and volunteers (Group 3).
- To encourage uptake of Metro services, it is suggested that Translink provides facilities on Metro services to carry bicycles (Group 3).
- To ensure access is maintained throughout the year, it is suggested that Translink considers reviewing the appropriateness of summer timetabling (Group 3).
- To increase the uptake of public transport, it is suggested that Translink considers improving the co-ordination among bus services and that between bus and train services to facilitate interchange within and between modes of transport (Group 5).

See Table 3.2.3 in full report for more information.

Suggestions associated with the following actions:

Integrated ticketing project
- To increase accessibility (through affordability) and therefore the uptake of public transport services for vulnerable groups, it is suggested Translink considers the introduction of concessionary fares (Group 6).
- To increase the uptake of public transport, it is suggested that Translink considers the introduction of an integrated ticketing system that covers both bus and rail journeys (Group 3).

See Table 3.2.4 in full report for more information.

Suggestions associated with the following actions:

Park & Ride
Park & Ride served by dedicated bus/rapid transit service
Rail-based Park & Ride
- To increase the uptake of Park & Ride and strengthen the Plan, it is suggested that DRD, DRD Roads Service and Translink consider:
  - making parking free at Park & Ride sites during peak hours (Ormeau Road Community);
  - increasing car parking charges in Belfast City Centre (Westlink Community; Ormeau Road Community);
  - running an effective publicity campaign to raise awareness of Park & Ride (Westlink Community).
- To maximise the benefit from Park & Ride schemes, it is suggested the DRD Roads Service and Translink consider the appropriate location of Park & Ride sites such that they are located far enough from the city centre (Ormeau Road Community). Supported by the evidence base.
- To ensure the safety of Park & Ride users, it is suggested that DRD, DRD Roads Service and Translink consider security measures at Park & Ride sites, e.g. lighting (Group 3). Supported by the evidence base.
- To complement the establishment of Park & Ride sites and reduce the desire for people to drive into Belfast, it is suggested that DRD Roads Service considers the concurrent introduction of traffic calming measures in Belfast (Group 3).
- To increase the number of people cycling, it is suggested that DRD, DRD Roads Service and Translink consider including cycle parks at Park & Ride sites (Group 3). Supported by the evidence base.
- To reduce the level of pollution caused by Park & Ride buses, it is suggested that Translink consider using buses that run on alternative fuels (see Table 3.3.3), or electric buses (Group 3).

See Table 3.2.5 in full report for more information.

Suggestions associated with the following actions:
Quality bus corridors
- To ensure the effectiveness of Quality Bus Corridors, it is suggested that DRD Roads Service and Translink, consider:
    - introducing corridors that are continuous in nature (Group 3) – Supported by evidence base;
    - giving buses priority at traffic lights (Group 3) – Supported by evidence base;
    - reducing the number of stops/halts (Westlink Community);
    - measures for enforcing the use of bus lanes for buses only (Group 3; Westlink Community & Ormeau Road Community), e.g. increase fines (Westlink Community) and greater enforcement by the police (Group 3) – Supported by evidence base.
- To increase access to public transport for people who have a physical disability, it is suggested that Translink considers reviewing the accessibility of vehicles used on quality bus corridors (Group 3).

See Table 3.2.6 in full report for more information.

Suggestions associated with the following actions:
Improved facilities for Taxi Services at bus and rail stations
- To maximise the potential positive effects from taxi services and minimise the potential negatives, it is suggested that DRD Roads Service considers working with taxi operators to promote the use of alternative fuels and not diesel (Group 3); in the short term, effective emission control could be employed (Group 3). Supported by the evidence base.
- To decrease journey times for taxi users, it is suggested that DRD Roads Service considers allowing taxis to use bus lanes (Ormeau Road Community; Westlink Community; Group 6), although it is recognised and acknowledged that some people in Belfast are opposed to this suggestion (Ormeau Road Community).[4]
- To increase access to taxi services, especially for vulnerable groups, it is suggested that DRD Roads Service considers the affordability of taxi services (Westlink Community).
- To increase coverage of taxi services, it is suggested that DRD Roads Service considers including airports and ferry terminals in this scheme (Group 3).
- To improve access for cyclists, it is suggested that taxi service providers consider the installation of cycle racks on their fleets (Group 3).
- To improve customer service, it is suggested that taxi service providers consider providing training for drivers (Group 6).

See Table 3.2.7 in full report for more information.

Suggestion associated with the following actions:
Bus Rapid Transit Network/EWAY
- To maximise the potential benefits from rapid transit, it is suggested that DRD considers reviewing other parts of the city where it may be feasible and/or practicable to introduce rapid transit services (Westlink Community); however, the nature of the landscape needs to be taken into account during such a review (Ormeau Road Community).

See Table 3.2.8 in full report for more information.

Suggestions associated with the following actions:
Demand Responsive Rural Bus Service
Urban Community Transport
- Group 6 suggested that these services be removed from the Air Quality Action Plan, believing there was no need for them and that they were unlikely to be economic, but, in Plenary Discussion, Group 5 pointed out how vital these services are for vulnerable groups in the community because they may be their only access to safe transport. The argument of Group 5 is supported by the evidence base in terms of providing access for vulnerable groups, although in London an additional type of specialised service is used, which can be more cost-effective than demand-responsive schemes – the Taxicard

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[4] Assessor's note: Although this action is already included in the Plan, this suggestion has been reported as an indicator of support, especially if there are objections to the action in response to the public consultation of the Plan.

scheme uses standard taxis adapted to incorporate wheelchair access.[5]
-   It is suggested that DRD and DRD Roads Service consider specifying the target passengers for the demand responsive and urban community transport schemes to make the nature of service provision clear (Group 5).

See Table 3.2.9 in full report for more information.

Suggestions associated with the following actions:

Other local bus services and long distance bus/coach services
-   To strengthen the Plan with respect to local and long distance bus services, it is suggested that DRD considers:
    •   consulting the community not only about the appropriateness of routes but also the timing of services (Westlink Community);
    •   addressing affordability, especially for short journeys (Westlink Community);
    •   the introduction of concessionary fares for people aged 60 years and over (Westlink Community);
    •   addressing reliability (Westlink Community);
    •   addressing the quality of provision of Sunday (Westlink Community) – supported by the evidence base.
-   To ensure the size of local buses is appropriate to demand, it is suggested that DRD considers using smaller 'flexi' buses to ensure the size of buses is appropriate to demand (Westlink Community).
-   To free up the driver and thereby decrease journey times, it is suggested that DRD considers the introduction of bus conductors on services (Westlink Community).
-   To improve the quality of service for passengers, it is suggested that DRD considers providing regular training for drivers to take account of passengers' needs, particularly those of vulnerable groups, e.g. older people, parents with children, and people with a physical disability (Westlink Community).
-   To increase the uptake of public transport, it is suggested that DRD and Translink consider the co-ordination among bus services and between bus and train services to facilitate interchange within and between modes of transport (Group 5).

See Table 3.2.10 in full report for more information.

Suggestions associated with the following actions:

Rail service frequency and pattern changes
New and improved rail stations
-   To maximise the potential positive effects of changes to rail service frequency and pattern, it is suggested that DRD considers:
    •   improving customer service (Westlink Community);
    •   appropriate staffing levels (Westlink Community);
    •   affordability of services (Westlink Community);
    •   punctuality of services (Ormeau Road Community);
    •   reviewing the number of halts to maximise access for people living near or along the routes (Group 3);
    •   accessibility for people who have a physical disability (Group 3);
    •   free fares for older people over 60 years of age (Westlink Community), people who have a physical disability (Group 3) and schoolchildren (Group 3);
    •   introduction of new carriages, with consideration given to the amount of room passengers have (Group 5; Ormeau Road Community);
    •   integration of bus services with rail services – intermodality – such that people can transfer from one service to another (Ormeau Road Community).
-   To minimise the potential impacts of changes to rail service frequency and pattern and of new and improved rail stations on people living in the vicinity of the tracks and stations, it is suggested that DRD considers the appropriate scheduling of services at night, especially with respect to noise pollution and vibration (Group 3).

[5] Page 48 in White P. (2002) Public transport: its planning, management and operation. 4th edition. Spon Press.

- To increase the uptake of rail services and reduce the number of car trips, it is suggested that DRD considers providing rail links to Belfast's airports (Group 6).
- To increase the uptake of public transport, it is suggested that DRD and Translink consider the co-ordination of bus services and between bus and train services to facilitate interchange within and between modes of transport (Group 5).

See Table 3.2.11 in full report for more information.

Suggestion associated with the following actions:

Bus Revenue Support

Bus Replacement Programme

- To maximise the potential positive effect of providing bus services, it is suggested that Translink and partners consider:
  - the establishment of continuous bus lanes (Ormeau Road Community) – supported by the evidence base;
  - strict enforcement of the bus lanes, i.e. stopping vehicles other than buses using the bus lanes for various purposes such as loading and unloading, and parking (Ormeau Road Community);
  - the punctuality of services (Ormeau Road Community) – supported by the evidence base.

See Table 3.2.12 in full report for more information.

3. Initiatives that will promote better vehicle fleet management

Suggestion associated with the following actions:

Vehicle emissions testing for the Belfast City Council fleet

Vehicle emissions testing for Metro and Ulsterbus

- To increase the potential positive effect of vehicle emissions testing, it is suggested that Belfast City Council and Translink consider:
  - providing access to vehicle emissions testing to other organisations that run vehicle fleets (Group 2);
  - holding open days for the public to encourage car owners to appreciate the value of emissions testing especially as buyers may not take emissions into account when purchasing a vehicle (Group 2).

See Table 3.3.1 in full report for more information.

Suggestions associated with the following actions:

Retrofitting of particulate traps to Belfast City Council Heavy Goods Vehicles (refuse collection vehicles)

No suggestions were made.

See Table 3.3.2 in full report for more information.

Suggestions associated with the following actions:

Use of ultra low sulphur diesel and unleaded petrol in Belfast City Council fleet

Use of ultra low sulphur diesel in bus fleet

No suggestions were made.

See Table 3.3.3 in full report for more information.

Suggestions associated with the following actions:

Purchase of hybrid petrol vehicle for Belfast City Council

- To increase the uptake of hybrid petrol vehicles, and thereby the potential positive impacts on health, it is suggested that Belfast City Council considers acting as role models to encourage other organisations, and members of the public, to choose hybrid petrol vehicles (Group 9).
- To help reduce emissions from vehicles, it is suggested that Belfast City Council and partners consider lobbying vehicle manufacturers to develop greener motor vehicles (Group 9).

See Table 3.3.4 in full report for more information.

Suggestions associated with the following actions:

Rolling vehicle replacement programme for Belfast City Council vehicles

Rolling vehicle replacement programme for Translink bus fleet

- To increase the potential positive effect of rolling vehicle replacement, it is suggested that Belfast City Council and Translink consider ways of encouraging employees to purchase vehicles that comply with the prevailing Euro standards; this could be achieved through offering incentives to those who replace their current vehicles with those that comply with the prevailing Euro standards (e.g. free parking) (Group 2).

See Table 3.3.5 in full report for more information.

Suggestions associated with the following actions:

Establishing an end-of-life policy for Translink vehicles

Establishing an end-of-life policy for Belfast City Council vehicles

No suggestions were made.

See Table 3.3.6 in full report for more information.

Suggestion associated with the following actions:
Programme for the improvement of fuel efficiency for Belfast City Council vehicles
Programme to assess and improve Translink fleet fuel consumption
Establish a mobile plant management plan for Belfast City Council's Parks and Amenity Section
Establish a mobile plant and infrastructure management plan for Translink's Infrastructure and Property Department
- To increase the potential positive effect of these initiatives in the Air Quality Action Plan, it is suggested that Belfast City Council and Translink consider providing support on vehicle fuel efficiency to other organisations that run vehicle fleets (Group 2).

See Table 3.3.7 in full report for more information.

Suggestions associated with the following actions:
Route planning for fleet vehicles
- To reduce fuel consumption and increase fuel efficiency, it is suggested that Belfast City Council and Translink consider the implementation of route planning for relevant fleet vehicles (Group 2).

See Table 3.3.8 in full report for more information.

Suggestion associated with the following actions:
Purchase of fleet vehicles that have multiple functions
- It is suggested that Belfast City Council and Translink consider identifying fleet vehicles that could undertake several functions and purchasing vehicles able to undertake these identified functions (Group 2).

4. Initiatives to encourage large organisations to consider greener energy options

Suggestion associated with the following actions:

Belfast City Council buildings using energy generated from a renewable source

Adoption and implementation of the Belfast City Council Draft Carbon Reduction Programme

Managing landfill gas at Belfast City Council North Foreshore site

Introduction of combined heat & power (CHP) plants at selected Belfast City Council facilities

Translink properties/locations using energy generated from a renewable source

- To increase the potential positive impact of increased uptake of greener energy options, it is suggested that Belfast City Council and Translink consider acting as role models and publicising the schemes to encourage other organisations, and members of the public, to choose greener energy options (Group 2).

See Table 3.4.1 in full report for more information.

Megan McArthur, R.13, Strandtown Primary School
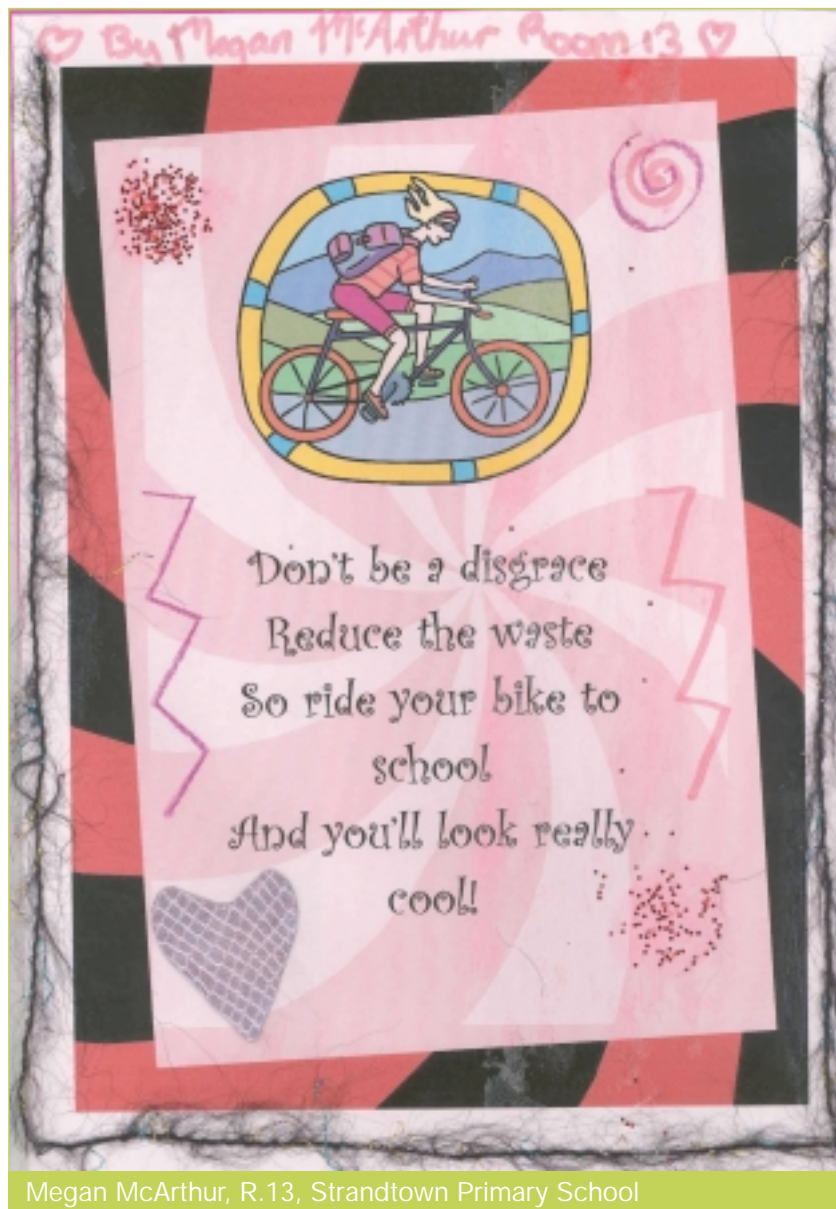
5. Implementation of policies that will contribute to lower air pollution levels

Suggestions associated with the following actions:

Developing an updated Environmental Package Transport Policy for Belfast City Council

- To increase the potential positive impacts of developing an updated Environmental Package transport policy for Belfast City Council, it is suggested that Belfast City Council considers:
  - ways in which it is possible to encourage all organisations (Ormeau Road Community) or other organisations in the public or private sector that employ a large number of people (Group 9) to develop and adopt similar policies. In this respect, Belfast City Council could take the lead, champion the action, and become a role model for other organisations (Group 9);
  - including this action in the Air Quality Action Plan (Ormeau Road Community)
- To encourage any employees to use more environmentally friendly forms of transport, it is suggested that Belfast City Council and partners consider:
  - working to provide viable and attractive alternatives are available to the car, e.g. accessible, efficient and affordable public transport, and safe and direct routes for cyclists and pedestrians (supported by the evidence base) – the issue of safety is particularly important for pedestrians and cyclists, and consideration needs to be given to street lighting and CCTV cameras along the routes (supported by the evidence base) (Group 9);
  - the use of incentives, including those that are financial, to encourage the uptake of environmentally friendly transport (Group 9).

See Table 3.5.1 in full report for more information.

Suggestions associated with the following actions:

Adoption and implementation of travel plan for Belfast City Council-owned Gasworks Business Park in partnership with site developers and occupiers

- To increase the likelihood of employees on the Gasworks site taking up cycling, it is suggested that employers on the site consider providing appropriate facilities to support this activity, e.g. cycle racks, and showers (Group 9).
- To increase the likelihood of employees on the Gasworks site using public transport, it is suggested that Translink considers:
  - the integration of public transport timetables (bus and train) such that easy, reliable connections are possible (Group 9);
  - introducing discounts for employees on the Gasworks site (Group 9).
- To increase the likelihood of employees on the Gasworks site walking, it is suggested that DRD and Belfast City Council in conjunction with employers on site, consider the introduction of:
  - suitable walking routes to reach the site (Group 9);
  - walking trails around the site, to encourage physical activity during lunch breaks (Group 9).

See Table 3.5.2 in full report for more information.

Suggestion associated with the following actions:

Investigating options for more effective travel planning for Belfast City Council employees, with potential public sector partners

- To increase the potential positive impacts of effective travel planning, it is suggested that Belfast City Council and partners explore ways to encourage other organisations in the public or private sector that employ a large number of people to develop and adopt similar programmes (Group 9). In this respect, Belfast City Council could take the lead, champion the action, and become a role model for other organisations (Group 9).

See Table 3.5.3 in full report for more information.

Suggestions associated with the following actions:

Belfast City Council participating in Active Living Weeks in conjunction with the Investing for Health Strategy

- To enhance the potential positive impacts on health of Belfast City Council (BCC) participating in Active Living Weeks, it is suggested that Belfast City Council and partners consider linking the strategy/programme to:
  - schools travel planning programmes (Group 9);
  - Safe Routes to Schools initiatives (Group 9);
  - the activities of various community organisations, such as churches (Group 9).
- To enhance the potential positive impacts on health of participating in Active Living Weeks, it is suggested that Belfast City Council considers working in partnership with other agencies as a mechanism through which more people can be encouraged to take part.
- To support the effectiveness of Active Living Weeks, it is suggested that Belfast City Council considers publicising the benefits of active living and raise awareness of what is available to encourage people to walk and cycle (Group 9).
- To support the effectiveness of Active Living Weeks, it is suggested that DRD considers developing both dedicated and integrated cycle routes that are safe and provide appropriate facilities as a way of encouraging people to cycle (Group 9). Supported by the evidence base.

See Table 3.5.4 in full report for more information.

Suggestions associated with the following actions:

Developing and implementing integrated regeneration plans for designated arterial routes across the city

- To enhance the potential positive impacts of developing and implementing plans for integrated regeneration of designated arterial routes across the city (including the Ormeau Road), it is suggested that the Planning Service considers:
  - the involvement of local residents and workers in the development of the plans (Group 9);
  - the provision of services, facilities and amenities such that local residents and workers have increased access without the need lengthy journeys or journeys by car (Group 9);
  - the promotion of business opportunities (Group 9);
  - the provision of open space that is landscaped (including trees) to improve the environment for local residents (Group 9).
- To reduce the risk of accidents, it is suggested that DRD Roads Service considers the introduction and implementation of a maximum speed for cycles and mopeds.

See Table 3.5.5 in full report for more information.

Suggestions associated with the following actions:

Including air quality considerations in responses made to the Planning Service

- For responses to the Planning Service to have maximum effect, it is suggested that Belfast City Council and the Planning Service consider liaising to ensure that air quality considerations are taken into account at all stages of the planning process but particularly at an early stage (Group 9). Supported by the evidence base.
- To improve air quality and protect and promote health, it is suggested that Belfast City Council, the Planning Service, and other partners consider partnership working to identify interventions that optimise air quality effectively and appropriately.
- To complement the effectiveness of responding to the Planning Services on specific planning issues with respect to air quality, it is suggested that Belfast City Council considers:
  - generating political will to support the inclusion of air quality as an important consideration in planning and land-use decisions, including the potential impacts of air pollution on health (Group 9);
  - developing and working to a Masterplan for Belfast that includes a consideration of air quality (Group 9).

- To support responding to the Planning Service on air quality issues, it is suggested that Belfast City Council considers identifying:
  - appropriate levels of funding to enable the compilation of effective responses (Group 9);
  - appropriate proposals to work on (Group 9).
- For responses to the Planning Service to receive support from the general public, it is suggested that Belfast City Council considers raising awareness of the importance of air quality, particularly with respect to pollution and the potential impacts on health, so that people can understand the reasoning behind certain decisions (Group 9).

See Table 3.5.6 in full report for more information.

Suggestions associated with the following actions:
Regulation of Part C processes
Regulation of Part A & B processes

- To enhance the potential positive impacts on health from the regulation of Part C processes and of Part A & B processes, it is suggested that the Industrial Pollution and Radiochemical Inspectorate and Belfast City Council consider:
  - the need for better enforcement (Group 9);
  - consistent performance with respect to enforcement among the two enforcement agencies involved (Group 9);
  - the introduction of increased penalties for non-compliance (Group 9).

  In addition, it is suggested that Belfast City Council considers whether to act as an advocate for these suggestions with respect to Part C processes, as well as implementing them with respect to Part A & B processes (Group 9).
- To complement the regulation of Part C and Part A & B processes, it is suggested that the Industrial Pollution and Radiochemical Inspectorate and Belfast City Council consider publicising why compliance is important and the consequences of non-compliance, which includes increased pollution and the potential impacts on health (Group 9).

See Table 3.5.7 in full report for more information.

Suggestions associated with the following actions:
Reduction of emissions from fossil fuel burning – enforcement under Clean Air (NI) Order

- To support the effectiveness of enforcing the Clean Air (NI) Order, and thereby ensure the achievement of the potential positive impacts on health, it is suggested that Belfast City Council considers promoting:
  - the use of other fuels that are cleaner, e.g. natural gas (Group 9);
  - the grants that are available for people to convert to fuels other than oil and coal (Group 9).
- To complement the enforcement of the Clean Air (NI) Order, it is suggested that Belfast City Council considers publicising the effects of burning fossil fuels and the potential impacts on health such that people are better informed to comply with the order and/or change their behaviour or organisational operation (Group 9).
- To improve air quality, it is suggested that Belfast City Council considers lobbying for a change in legislation with the aim of banning the sale of smoky coal (Group 9).

See Table 3.5.8 in full report for more information.

Suggestions associated with the following actions:
Regulation of the burning of commercial or domestic garden waste

- To enhance the potential positive impacts on health from regulation under the Public Health (Ireland) Act 1878 and the Pollution Control and Local Government (NI) Order 1978, it is suggested that Belfast City Council considers:
  - the need for better enforcement, including the regulation of bonfires (Group 9);
  - the introduction of increased penalties for non-compliance (Group 9).

- To complement regulation under the Public Health (Ireland) Act 1878 and the Pollution Control and Local Government (NI) Order 1978, it is suggested that Belfast City Council considers publicising why compliance is important and the consequences of non-compliance, including increased pollution and the potential impacts on health (Group 9). The publicity material could include the benefits of disposing of/recycling waste more appropriately than by burning (Group 9).
- With respect to specific wastes that tend to be burned, it is suggested that Belfast City Council considers addressing the disposal of the following types of waste:
  - Garden waste: as this waste is readily and regularly produced, it is important to provide more and better facilities for its disposal and or recycling in order to reduce the likelihood of people burning it for disposal – this could be supported by education initiatives and the introduction of incentives to encourage people to dispose of or recycle (e.g. compost) garden waste appropriately (Group 9);
  - Plastic bags: again, as this waste is readily and regularly produced, it is important to reduce the number consumed, which may be achieved through the following mechanisms: (1) the introduction of a tax on plastic carrier bags; (2) lobbying large retailers to introduce paper or recyclable bags (Group 9);
  - Tyres: as the pollution from burning this waste is serious, it is important to work with tyre retailers to develop mechanisms for the appropriate recycling and disposal of tyres, which could present a business opportunity (Group 9).

See Table 3.5.9 in full report for more information.

Suggestion associated with the following actions:

Using the waterways of Belfast – introducing the concept of a waterbus to the Air Quality Action Plan

- To complement the potential positive impacts of the policy theme in the Draft Air Quality Action Plan, it is suggested that the Department for Regional Development considers the possibility of introducing:
  - waterbus service(s) to take people from Bangor and Carrickfergus, etc., into Belfast – supported by the evidence base;
  - Lagan water taxis, associated with the Gasworks Business Park – supported by the evidence base.

See Table 3.5.10 in full report for more information.

Suggestion associated with the following actions:

Lobbying to make the EU Directive on Energy Performance of Buildings mandatory

- To complement the potential positive impacts of the policy theme in the Draft Air Quality Action Plan, it is suggested that Belfast City Council considers lobbying Government to make the EU Directive on Energy Performance of Buildings mandatory (Group 2).

**See Table 3.5.11 in full report for more information.**

6. Highway and road improvements that will contribute to lower pollution levels

Suggestions associated with the following actions:

Strategic highway network capacity improvements

- To maintain the reductions in air pollution that may be achieved through strategic highway network capacity improvements, it is suggested that DRD Roads Service and Translink consider the simultaneous introduction of bus lanes/corridors to improve service quality and reliability and thereby encourage the uptake of public transport (Group 7).

- To mitigate the potential negative impacts of construction on the health and well-being of the communities living in the vicinity of the works, it is suggested that DRD Roads Service considers a package of measures to mitigate air and noise pollution, poor access, and social exclusion/isolation during construction.

- To mitigate the potential negative impacts of strategic highway network capacity improvements after construction, it is suggested that DRD Roads Service considers:
    - measures to reduce noise levels (Group 4);
    - the provision of facilities for cyclists (Group 4);
    - crossing points for pedestrians to promote access (Group 4);
    - tree planting and other environmental improvements to counteract air pollution (Group 4);
    - improving public transport services by the introduction of bus lanes along the strategic highway network (Group 7).

- To avoid the need for some traffic to enter Belfast City Centre, it is suggested that DRD Roads Service considers introducing a flyover area at Stockman's Lane to join the M1 to the Outer Ring Road (Ormeau Road Community).

See Table 3.6.1A in full report for more information.
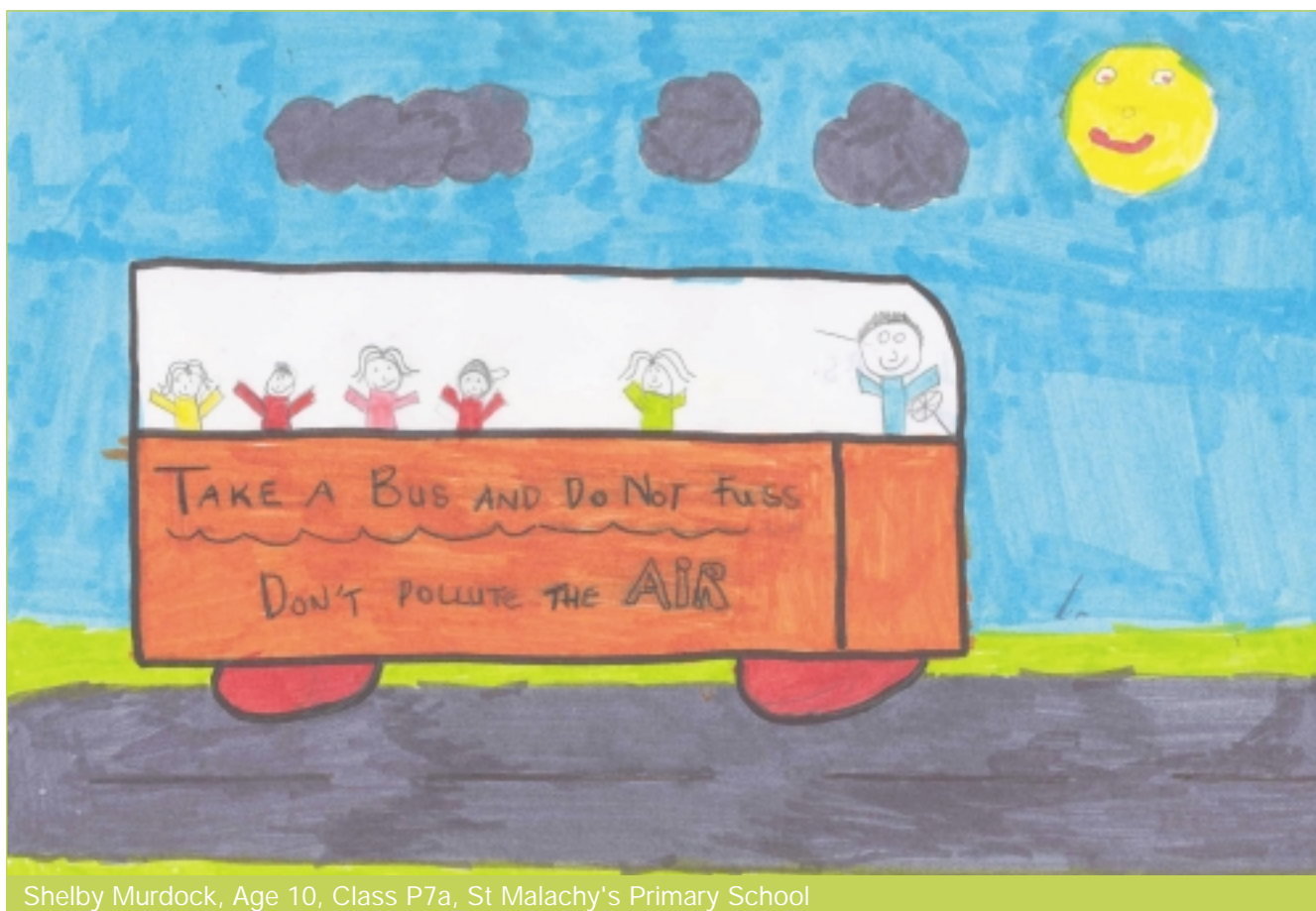
Shelby Murdock, Age 10, Class P7a, St Malachy's Primary School

Suggestions associated with the following actions:
Strategic highway network capacity improvements with specific reference to widening the Westlink

- To reduce the volume of traffic using the strategic highway network and coming into Belfast City Centre, it is suggested that DRD Roads Service considers:
  - the development of an integrated transport system, with investment in public transport (trains and buses) (Westlink Community);
  - the introduction of congestion charging, with the revenue ring-fenced to improve the environment for local communities (Westlink Community);
  - the introduction of more Park & Ride facilities on the outskirts/periphery of Belfast, e.g. at Lisburn Sprucefield or a new area at the Maze Prison Lisburn not at Kennedy Way (Westlink Community); these facilities need to have suitable security arrangements to increase personal and community safety (Westlink Community);
  - the introduction of a rail link into Belfast from Lisburn (Westlink Community);
  - introducing interventions to encourage car pooling (Westlink Community).
- To prevent the use of residential areas for parking by non-residents, it is suggested that DRD Roads Service considers the introduction of a residents' parking scheme (e.g. parking permits) that involves no charge to residents (Westlink Community).
- To reduce the potential negative impacts on health of congestion, it is suggested that DRD Roads Service considers ways of tackling the bottleneck at York Street (Westlink Community).

See Table 3.6.1B in full report for more information.

Suggestions associated with the following actions:
Non-strategic highway network schemes

- To facilitate the achievement of the potential positive impacts of a reduction in the risk of road traffic, it is suggested that the Police Service Northern Ireland (PSNI) considers the need to enforce speed limits on the non-strategic highway network (Group 7).
- To ensure increased access for vulnerable groups, it is suggested that Translink considers the need to provide facilities on public transport that meet the needs of families and people who have a physical disability (Group 7).
- To mitigate the potential negative impacts of non-strategic highway network schemes, it is suggested that DRD Roads Service considers the measures that need to be taken:
  - to reduce noise levels (Group 4);
  - to provide facilities for cyclists (Group 4).

See Table 3.6.2A in full report for more information.

Suggestions associated with the following actions:
Non-strategic highway network schemes with respect to the Bankmore Link
No suggestions were made by the Westlink Community
See Table 3.6.2B in full report for more information.

Suggestions associated with the following actions:
Strategic highway network traffic management

- To reduce the potential for stress among drivers and pedestrians, it is suggested that DRD Roads Service considers the appropriate and effective time management of traffic lights (Ormeau Road Community).
- To increase the likelihood of people cycling, it is suggested that DRD Roads Service considers providing cycling facilities as part of strategic highway network traffic management (Group 4).

See Table 3.6.3 in full report for more information.

Suggestion associated with the following actions:

Non-strategic highway network traffic management – Localised traffic calming

- To minimise the level of air pollution generated and maximise the level of safety achieved, it is suggested that DRD Roads Service considers the use of methods to reduce traffic speed that do not depend on the presence of speed bumps/ramps – they can increase the level of air and noise pollution, and they represent a temptation to young drivers to increase speed over them (Ormeau Road Community). Methods to reduce traffic speed without the use of bumps/ramps could include restricting the driver's vision, e.g. planting/strategic siting of trees can be one way of achieving this (Ormeau Road Community) – supported by the evidence base.

See Table 3.6.4A in full report for more information.

Suggestions associated with the following actions:

Non-strategic highway network traffic management – Reducing traffic capacity in Belfast City Centre

- To maximise the achievement of the potential positive impacts on health and minimise any potential negative impacts on health (e.g. reduced access), it is suggested that DRD, DRD Roads Service and Translink consider supporting actions to reduce traffic capacity in Belfast City Centre with simultaneous improvements to public transport (Group 4).
- To minimise the potential for non-residents to park in residential areas as a result of reducing traffic capacity in Belfast City Centre, it is suggested that DRD Roads Service considers introducing effective and appropriate parking control measures in residential areas (Ormeau Road Community).

See Table 3.6.4B in full report for more information.

Suggestion associated with the following actions:

Advanced traffic control strategy for M1/Westlink

- To maximise the achievement of the potential positive impacts on health from reducing congestion, it is suggested that DRD Roads Service and Translink consider linking the advanced traffic control strategy to the introduction into Belfast City Centre of a "LUAS"-type tram system as used in Dublin (Group 7).

See Table 3.6.5 in full report for more information.

Suggestions associated with the following actions:

Parking measures

- To ensure that residential areas do not become parking areas for people wanting to visit Belfast, it is suggested that DRD Roads Service considers implementing resident-only parking at the same time as the other measures in this section of the Air Quality Action Plan (Group 4).
- To encourage the use of alternative forms of transport (walking, cycling, and public transport) and achieve the potential positive impacts on health, it is suggested that Belfast City Council and other partners consider lobbying Government about introducing tax incentives for people who take up these options (Group 7).

See Table 3.6.6 in full report for more information.

Suggestions associated with the following actions:

Capital investment – street lighting programme

No suggestions were made.

See Table 3.6.7 in full report for more information.

7. Marketing and education initiatives that will raise public awareness of air pollution

Suggestions associated with the following actions:

Participating in Active Living Weeks in conjunction with the Investing for Health Strategy

Translink participating in Active Living Weeks

- For participation in Active Living Weeks to be maximised, and for the potential positive health impacts to be realised, it is suggested that:
  • Belfast City Council and other partners, e.g. Translink, considers effective and appropriate ways of raising awareness amongst the public (whether as residents or as workers), for instance, using the radio, the Belfast Telegraph section "What's on tomorrow?", and distributing leaflets through the post and at various meeting places in the community (e.g. local shops, supermarkets, Post Offices, churches) (Group 5);
  • Public transport providers consider how to improve access to sports and leisure facilities.
- For wheelchair users to be able to benefit from Active Living Weeks, and increased access in general, it is suggested that all organisations whether in the public, private or voluntary sectors which run facilities improve access for people who have a physical disability (Group 5).
- To increase the likelihood that people will cycle for part of their journey, it is suggested that Translink considers identifying ways in which it is possible to improve the provision for carriage of cycles on public transport (Group 10).

See Table 3.7.1 in full report for more information.

Suggestions associated with the following actions:

Piloting an agreed Code of Conduct for managing bonfire sites

Educating the community on the types of material that should be burnt

Agreeing target dates for the collection and build-up of bonfire materials

Annual education programme for tyre distributors

- To increase the possibility of the protocol and policy for tackling the pollution from bonfires being successful, and realising the potential positive health impacts, it is suggested that Belfast City Council considers:
  • ways of developing effective partnerships with the community or communities (Group 10);
  • the development of a public education programme about bonfires and what materials can be burnt (Group 10);
  • the development of a school education programme about bonfires, that includes explaining the risks involved in this activity, the material that can be burnt, etc. (Group 5);
  • including in the Code of Conduct the identification of key people in the various communities to enforce and control the bonfires (Group 5).
- To enhance the potential positive effects of actions relating to bonfires, it is suggested that Belfast City Council considers the development and implementation of a complementary strategy for more stringent enforcement of tyre distribution such that tyres are restricted for use on bonfires (Group 10).

See Table 3.7.2 in full report for more information.

Suggestions associated with the following actions:

Education campaign for young people highlighting the health problems related to air pollution

Promoting the Belfast City Council Smoke Hotline

- To maximise the potential of the positive health impacts from an education campaign, it is suggested that Belfast City Council considers:
  • developing an effective education campaign for the general public as well as one for young people (Westlink Community);
  • effective and appropriate ways of providing information to the public including young people –

distributing leaflets alone may not be the most effective method of information-giving – it is suggested that presentations are made to residents/groups in the community at residents/community meetings, the message of which can be reinforced with the provision of leaflets (Group 5); presentations can also be used to obtain feedback from the community/various groups (Group 5);

- promoting cycling as part of the education campaign aimed at young people (Westlink Community).

See Table 3.7.3 in full report for more information.

Suggestions associated with the following actions:

Providing real-time air-quality information

- To facilitate the achievement of the potential positive health impacts of providing real-time air-quality information, it is suggested that Belfast City Council considers:
    - showing dynamic messages on any public display systems used, i.e. what is displayed changes such that people do not "adapt" to the message and cease to read them (Westlink Community);
    - the location of any public display systems given the possibility of distraction for motorists, which could result in collisions especially on highways where they may be driving at speed (Westlink Community);
- To complement the provision of real-time air-quality information, it is suggested that DRD Roads Service considers the concurrent provision of improved facilities for cyclists and pedestrians, including cycle lanes (Group 10).

See Table 3.7.4 in full report for more information.

Suggestion associated with the following actions:

Providing free emission testing supported by promotional material for car owners

Promoting emission testing among large organisations in Belfast

- To facilitate the achievement of, and complement, the potential effects of a programme of free emissions testing for car owners, it is suggested that Belfast City Council considers:
    - appropriate and effective marketing of the programme (Group 10);
    - the introduction of a hotline through which members of the public can report smoky or dirty vehicles (emissions from exhausts) (Group 10);
    - the concurrent promotion of the Smoke Hotline for smoky chimneys in Smoke Control Areas (Group 10).

See Table 3.7.5 in full report for more information.

Suggestions associated with the following actions:

Ambient pollution monitoring throughout Belfast

No suggestions were made.

See Table 3.7.6 in full report for more information.

Suggestions associated with the following actions:

Supporting and promoting Travel Plans

Implementing a Travel Awareness Campaign for the Belfast Metropolitan Area

Implementation of Safer Routes to Schools initiative

- To achieve and maintain the potential positive impacts from Travel Plans in the workplace, the Travel Awareness Campaign, and Safer Routes to Schools, it is suggested that DRD Roads Service considers the following:
    - continual marketing of these initiatives to reinforce healthy and health-promoting travel patterns (Group 10);
    - co-ordination with other sectors – private, public and voluntary (Group 10).
- To facilitate the achievement of the potential positive impacts of Travel Plans in the workplace, it is suggested that DRD Roads Service considers:

- strengthening the promotion of this initiative in large organisations (Westlink Community);
- appropriate and effective ways in which to secure buy-in from the corporate sector (Group 10);
- appropriate and effective ways in which to work with the public sector (Westlink Community);
- negotiating with participating organisations/companies to provide appropriate facilities to encourage cycling to work, e.g. secure and/or supervised cycle parking (located in front of buildings), showers, and lockers (Westlink Community), and to introduce disincentives to travelling to work by car, e.g. removal of free car parking for staff (Group 2).

- To reduce the volume of traffic and the number of car trips made, it is suggested that DRD Roads Service considers working with participating organisations/employers to explore and encourage car pooling among staff (Group 2). Supported by the evidence base.

See Table 3.7.7 in full report for more information.

Kirby O'Donnell, Room16, Year 7, Strandtown PS

Suggestions associated with the following actions:

Reviewing and further development of Translink partnerships with public sector organisations and large employers

Environmental Information leaflet for Translink

- To encourage employers to work with Translink, and to realise the potential positive impacts of this work, it is suggested that Translink considers ways in which to improve the reliability of their services (Group 5).
- To encourage employees to take part in the Corporate Commuter Initiative, and to realise the potential positive impacts of this initiative, it is suggested that Translink considers:
  - increasing the level of security supporting their services (Group 10);
  - developing an integrated transport system with other public transport providers (Group 5); providers of bus services need to consider reviewing current routes as part not only of an integrated system but also of assessing the appropriateness and effectiveness of current routes and their coverage, and whether new routes are required, and the adequacy of the bus fleet to provide the services required (Group 5);
  - promoting the scheme, especially during the summer months when there is no need for people to use their cars for the 'school run' (Westlink Community).
- To enhance the potential positive impacts of partnerships with public sector organisations and large employers, it is suggested that Translink considers extending the scheme to all employers in Belfast (Group 5).
- To encourage employees to cycle once their public-transport journey has ended, it is suggested that Translink considers better provision for cycles on their services (Group 10).

See Table 3.7.8 in full report for more information.

Linking actions/initiatives for the benefit to health and well-being

To optimise health protection and/or health benefits from the Air Quality Action Plan, during the HIA, various stakeholders suggested that some of the initiatives need to be linked and implemented at the same time (see Display 1A).

Display 1A: Initiatives in the Draft Air Quality Action Plan stakeholders suggested are linked to enhance the potential to achieve health protection and health benefits

Improvements in the capacity of the strategic highway network	need to be linked with	The development of an integrated transport system that includes investment in public transport AND Implementation of quality bus corridors AND Introduction of more Park & Ride sites
Reducing the traffic capacity in Belfast City Centre	needs to be linked with	Improvements to public transport
The introduction and development of bus priority lanes and quality bus corridors	needs to be linked with	The introduction of increased (high) parking charges in Belfast City Centre
Introducing parking control measures	needs to be linked with	Introduction of residents-only parking especially in residential areas
Introduction of Park & Ride sites	needs to be linked with	Introduction of traffic calming measures AND Introduction of increased (high) parking charges in Belfast city centre
Travel planning programmes	need to be linked with	Introduction of improved facilities for cyclists and pedestrians AND Improvements to public transport
Active Living Weeks initiatives	need to be linked with	Safe(r) Routes to Schools initiatives AND Travel planning programmes

Appendix: Summary tables of the level of support for initiatives in the draft Belfast City Air Quality Action Plan

Table 1A: Summary of support for initiatives to promote walking and cycling in Belfast			
Actions included in the plan	*Supported by the community?*	*Supported by stakeholders in the public, private or voluntary sectors?*	*Supported by published research information?*
Promote & support cycling initiatives through the Belfast City Council (BCC) Active Living initiatives	Support for inclusion in the Air Quality Action Plan, BUT acknowledgement that cyclists will experience increased exposure to air pollution	Support for inclusion in the Air Quality Action Plan BUT acknowledgement that cyclists will be exposed to increased risk of road traffic accidents	Support for inclusion in the Air Quality Action Plan AND some authors suggest that the benefits from cycling outweigh the harms through increased risk of traffic-related accidents and increased exposure to air pollution
Promote the Walk and Bike to Work Days	Support for inclusion in the Air Quality Action Plan, BUT acknowledgement that cyclists will experience increased exposure to air pollution	Support for inclusion in the Air Quality Action Plan BUT acknowledgement that cyclists will be exposed to increased risk of road traffic accidents	Support for inclusion in the Air Quality Action Plan, AND some authors suggest that the benefits from cycling outweigh the harms through increased risk of traffic-related accidents and increased exposure to air pollution
Promote the availability of the Belfast by Bike map	Not assessed	Not assessed	
Install cycle parks at BCC buildings	Support for inclusion in the Air Quality Action Plan	Support for inclusion in the Air Quality Action Plan, BUT acknowledgement that there may be vandalism of bike shelters	Support for inclusion in the Air Quality Action Plan
Promote the availability of Cycle Usage Mileage for BCC employees	Support for inclusion in the Air Quality Action Plan	Support for inclusion in the Air Quality Action Plan	

Consider converting old disused railway routes into cycle- and walkways[6]	Although there is support for inclusion on the basis of health benefits, members of the community wish to see disused railway routes used for rapid transit or rail routes (Westlink Community)	Although there is support for inclusion on the basis of health benefits, other stakeholders identified a potential conflict between leisure and transport needs	Support for inclusion in the Air Quality Action Plan
Install cycle shelters at Translink stations – further promotion of these facilities	Support for inclusion in the Air Quality Action Plan	Support for inclusion in the Air Quality Action Plan	Support for inclusion in the Air Quality Action Plan
Provide improved facilities for walking and cycling as a result of traffic calming on local roads	Support for inclusion in the Air Quality Action Plan BUT acknowledgement that depending on the nature of traffic calming introduced there may be an increase in air pollution	Support for inclusion in the Air Quality Action Plan	Support for inclusion in the Air Quality Action Plan
Establish a quality walking network focused on each of the main urban centres and main transport corridors	Support for inclusion in the Air Quality Action Plan	Support for inclusion in the Air Quality Action Plan	Support for inclusion in the Air Quality Action Plan
Establish a comprehensive cycle network complementing existing provision for cyclists with networks focused on the main urban centres and main transport corridors	Support for inclusion in the Air Quality Action Plan	Support for inclusion in the Air Quality Action Plan	Support for inclusion in the Air Quality Action Plan

Were there any disagreements about potential impacts of promoting walking and cycling initiatives among HIA stakeholders?
No.

Were any differential effects on subgroups in the population identified?
No.

[6] This initiative did not appear in the version of the Draft Air Quality Action Plan that was prepared for public consultation.

Table 2A:	Support for initiatives to promote increased use of public transport		
Actions included in the plan	Supported by the community?	Supported by stakeholders in the public, private or voluntary sectors?	Supported by published research information?
Priority bus lanes – further development[7]	Not assessed	Support for inclusion in the Air Quality Action Plan (Group 6)	Support for inclusion in the Air Quality Action Plan
Further development of the City Express Service[8]	Not assessed	Support for inclusion in the Air Quality Action Plan (Groups 3 & 6)	Support for inclusion in the Air Quality Action Plan
Implementation of a new Metro bus operation for the Greater Belfast area	Support for inclusion in the Air Quality Action Plan	Support for inclusion in the Air Quality Action Plan BUT safety issues need to be addressed, and there may be reduced access for some people with the removal of some routes	Support for inclusion in the Air Quality Action Plan
Integrated ticketing project	Not assessed	Support for inclusion in the Air Quality Action Plan	Support for inclusion in the Air Quality Action Plan
Development of Park & Ride Schemes	Support for inclusion in the Air Quality Action Plan BUT the location of Park & Ride sites needs to be considered carefully (Ormeau Road Community)	Support for inclusion in the Air Quality Action Plan BUT acknowledgement that Park & Ride may displace congestion to areas around the Park & Ride sites, and expose vulnerable groups living in those areas to increased air and noise pollution (Group 6), although vulnerable groups living in Belfast City will benefit (Group 3)	Support for inclusion in the Air Quality Action Plan in certain circumstances: • Cities where a car-free city centre is being promoted; • Cities with severe traffic congestion; • Cities with restricted central-area parking; • At large employment sites with restricted car parking as part of a commuter-plan initiative.
Implementation of Quality Bus Corridors	Support for inclusion in the Air Quality Action Plan	Support for inclusion in the Air Quality Action Plan	Support for inclusion in the Air Quality Action Plan
Implementation of new orbital bus routes	Not assessed	Not assessed	Support for inclusion in the Air Quality Action Plan

[7] This initiative did not appear separately in the version of the Draft Air Quality Action Plan that was prepared for public consultation.
[8] This initiative did not appear separately in the version of the Draft Air Quality Action Plan that was prepared for public consultation.

Table 2A:	Support for initiatives to promote increased use of public transport		
Providing improved facilities for taxi services at major bus and rail services	Support for inclusion in the Air Quality Action Plan DESPITE the negative effects of increased air pollution because of the positive effects on vulnerable groups in particular especially in terms of access and safety	Support for inclusion in the Air Quality Action Plan on the basis that it promotes health through increasing personal safety and access, BUT acknowledgement that it may increase air and noise pollution and, possibly, congestion	Support for inclusion in the Air Quality Action Plan on the basis that it promotes health through increasing personal safety and access, especially in areas where there are no or very low-frequency services especially in the evenings and all night
Bus priority on the Strategic Highway Network	Not assessed	Not assessed	Support for inclusion in the Air Quality Action Plan
Creation of a bus rapid transit network EWAY on the Upper Newtownards Road corridor	Support for inclusion in the Air Quality Action Plan BUT there may be a loss of amenity for residents living in the vicinity of the EWAY	Support for inclusion in the Air Quality Action Plan	Support for inclusion in the Air Quality Action Plan
Demand-Responsive Rural Bus Services	Not assessed	Support for inclusion in the Air Quality Action Plan on the basis that it increases access for vulnerable groups but with acknowledgement that it may increase air pollution	Support for inclusion in the Air Quality Action Plan on the basis that it increases access for vulnerable groups living in rural areas
Park & Ride served by dedicated bus/rapid transit services	Not assessed	Support for inclusion in the Air Quality Action Plan	Support for inclusion in the Air Quality Action Plan in certain circumstances: • Cities where a car-free city centre is being promoted; • Cities with severe traffic congestion; • Cities with restricted central-area parking; • At large employment sites with restricted car parking as part of a commuter-plan initiative.
Improvements to other local bus services and long-distance bus/coach services	Support for inclusion in the Air Quality Action Plan	Support for inclusion in the Air Quality Action Plan	Support for inclusion in the Air Quality Action Plan

Table 2A:	Support for initiatives to promote increased use of public transport		
Urban community transport	Not assessed	Support for inclusion in the Air Quality Action Plan on the basis that it increases access for vulnerable groups	Support for inclusion in the Air Quality Action Plan on the basis that it increases access for vulnerable groups living in urban areas
Rail service frequency and pattern changes	Support for inclusion in the Air Quality Action Plan	Support for inclusion in the Air Quality Action Plan BUT acknowledgement that noise pollution will probably increase for residents in the vicinity of rail stations and railway lines	
New and improved rail stations	Not assessed	Support for inclusion in the Air Quality Action Plan	
Rail-based Park & Ride	Not assessed	Support for inclusion in the Air Quality Action Plan BUT acknowledgement that Park & Ride may displace congestion to areas around the Park & Ride sites, and expose vulnerable groups living in those areas to increased air and noise pollution (Group 6), although vulnerable groups living in Belfast City will benefit (Group 3)	Support for inclusion in the Air Quality Action Plan
Intelligent Transport System (ITS) measures	Not assessed	Support for inclusion in the Air Quality Action Plan	Support for inclusion in the Air Quality Action Plan for real-time passenger information and integrated ticketing system for public transport
Bus Revenue Support & Bus Replacement Programme	Discussed but not assessed against determinants of health.	Not assessed	Support for inclusion in the Air Quality Action Plan for bus revenue support and bus replacement programme
Rail Revenue Support & Provision of rolling stock, infrastructure and safety, and Railways Capital and Rolling Stock grants	Not assessed	Not assessed	

Table 2A: Support for initiatives to promote increased use of public transport

Were there any disagreements about potential impacts of encouraging increased use of public transport among HIA stakeholders?
No.

Were any differential effects on subgroups in the population identified?
HIA stakeholders did identify differential impacts on subgroups in the population as a result of initiatives to encourage the increased use of public transport in the Draft Air Quality Action Plan, as follows.

Although overall the potential impacts were assessed as positive, it was thought there would be some negative impacts, e.g. increased pollution, increased volume of traffic and increased congestion, on residents in the vicinity of the following schemes:
   • Quality bus corridors;
   • Park & Ride schemes;
   • New and improved rail stations, and changes to rail service frequency and pattern.
Some of the residents in the vicinity of these schemes may be vulnerable as a result of health and other inequalities, and it is likely that these residents will be affected to a greater degree by the negative impacts than residents not suffering from health and other inequalities.

With respect to Metro bus services, although overall potential impacts were assessed as positive, there was concern that the loss of some routes would reduce access to employment, services, facilities and amenities, especially for people who do not have access to private transport. People who do not have access to private transport also tend to be vulnerable as a result of health and other inequalities.

With respect to the bus rapid transit network/EWAY, although overall potential impacts were assessed as positive, there was concern that the service would not increase access to local services, facilities and amenities, which may be particularly important for some vulnerable groups living in the vicinity of the EWAY.

However, three of the initiatives in the plan were assessed as potentially contributing to negative effects for the whole population; for example, increasing air and noise pollution but their inclusion was supported for the positive effects they would have on increasing safety and access for vulnerable groups:
   • improved facilities for taxi services at major bus and rail services;
   • demand-responsive rural bus services;
   • urban community transport.

Table 3A: Support for initiatives to promote better vehicle fleet management		
Actions included in the plan	**Supported by stakeholders in the public, private or voluntary sectors?**	**Supported by published research information?**
Test vehicle emissions for Belfast City Council fleet during routine servicing	Support for inclusion in the Air Quality Action Plan (Group 2)	Support for inclusion in the Air Quality Action Plan
Metro & Ulsterbus vehicles emissions tested as part of PSV requirements	Support for inclusion in the Air Quality Action Plan (Group 2)	Support for inclusion in the Air Quality Action Plan
Retrofitting of particulate traps to Belfast City Council HGVs (refuse collection vehicles)	Support for inclusion in the Air Quality Action Plan (Group 2)	Support for inclusion in the Air Quality Action Plan
Fitting oxidation catalysts to older Translink vehicles	Not assessed	Support for inclusion in the Air Quality Action Plan
Use of ultra low sulphur diesel and unleaded petrol in Belfast City Council fleet	Support for inclusion in the Air Quality Action Plan (Group 2)	Support for inclusion in the Air Quality Action Plan
Use of ultra low sulphur diesel in bus fleet	Support for inclusion in the Air Quality Action Plan (Group 2)	Support for inclusion in the Air Quality Action Plan
Use of liquefied petroleum gas (LPG) by Belfast City Council vehicles	Not assessed	Support for inclusion in the Air Quality Action Plan
Purchase of hybrid petrol vehicle for Belfast City Council	Support for inclusion in the Air Quality Action Plan (Group 2)	
Investigate the feasibility of introducing biodiesel across the bus fleet	Not assessed	
Investigate the use of LPG and compressed natural gas (CNG) in bus fleet	Not assessed	Support for inclusion in the Air Quality Action Plan with respect to LPG and CNG, although for CNG there are operating constraints
Investigate the use of LPG in Translink works vehicles	Not assessed	Support for inclusion in the Air Quality Action Plan
Rolling vehicle replacement programme for Belfast City Council vehicles	Support for inclusion in the Air Quality Action Plan (Group 2)	Support for inclusion in the Air Quality Action Plan

Table 3A:	Support for initiatives to promote better vehicle fleet management	
Rolling vehicle replacement for Translink bus fleet	Support for inclusion in the Air Quality Action Plan (Group 2)	Support for inclusion in the Air Quality Action Plan
Establish Belfast City Council vehicle replacement programme	Not assessed	Support for inclusion in the Air Quality Action Plan
Establish an end-of-life policy for Translink vehicles	Neutral effects – no opposition to inclusion in Air Quality Action Plan	
Establish an end-of-life policy for Belfast City Council vehicles	Neutral effects – no opposition to inclusion in Air Quality Action Plan	
Programme for the improvement of fuel efficiency for Belfast City Council vehicles	Support for inclusion in the Air Quality Action Plan (Group 2)	
Programme to assess and improve Translink fleet fuel consumption	Support for inclusion in the Air Quality Action Plan (Group 2)	
Establish a Belfast City Council fleet management action plan	Not assessed	
Establish a mobile plant management plan for Belfast City Council's Parks and Amenity Section	Support for inclusion in the Air Quality Action Plan (Group 2)	
Establish a mobile plant and infrastructure management plan for Translink's Infrastructure and Property Department	Support for inclusion in the Air Quality Action Plan (Group 2)	
Translink to evaluate industry trends/experience through Consideration of Passenger Transport Industry Forum	Not assessed	
Translink to replace 75% of NIR fleet with new vehicles	Not assessed	

Were there any disagreements about potential impacts of initiatives to promote better vehicle fleet management among stakeholders in the HIA?
No.

Were any differential effects on subgroups in the population identified?
No.

Table 4A: Support for initiatives to encourage the uptake of greener energy options by large organisations		
Actions included in the plan	Supported by stakeholders in the public, private or voluntary sectors?	Supported by published research information?
BCC buildings to use energy generated from a renewable source	Support for inclusion in the Air Quality Action Plan (Group 2)	Support for inclusion in the Air Quality Action Plan
Adoption and implementation of the BCC Draft Carbon Reduction Programme	Support for inclusion in the Air Quality Action Plan (Group 2)	
Manage landfill gas at BCC North Foreshore site	Support for inclusion in the Air Quality Action Plan (Group 2)	Support for inclusion in the Air Quality Action Plan
Introduction of combined heat & power (CHP) plants at selected BCC facilities	Support for inclusion in the Air Quality Action Plan (Group 2)	Support for inclusion in the Air Quality Action Plan
Translink properties/locations to use energy generated from a renewable source	Support for inclusion in the Air Quality Action Plan (Group 2)	Support for inclusion in the Air Quality Action Plan

Key:
BCC: Belfast City Council

Were there any disagreements about potential impacts of initiatives to encourage the uptake of greener energy options by large organisations among stakeholders in the HIA?
No.

Were any differential effects on subgroups in the population identified?
No.

Table 5A: Support for implementation of policies that will contribute to reducing air pollution		
Actions included in the plan	*Supported by stakeholders from the public, private or voluntary sectors?*	*Supported by published research information?*
Develop an updated Environmental Package Transport Policy	Support for inclusion in the Air Quality Action Plan	
Adoption and implementation of travel plan for Belfast City Council-owned Gasworks Business Park in partnership with site developers and occupiers	Support for inclusion in the Air Quality Action Plan	
Options for travel planning for Belfast City Council employees, in conjunction with potential public sector partners	Support for inclusion in the Air Quality Action Plan	
Belfast City Council to participate in Active Living Weeks in conjunction with the Investing for Health Strategy	Support for inclusion in the Air Quality Action Plan	Support for inclusion in the Air Quality Action Plan
Develop and implement integrated regeneration plans for designated arterial routes across the city	Support for inclusion in the Air Quality Action Plan	Support for inclusion in the Air Quality Action Plan BUT regeneration plans need to address the needs of vulnerable groups in the area (e.g. employment opportunities, education, training and skills development) to counteract the pressure of displacement and gentrification
Include air quality considerations in responses made to the Planning Service	Support for inclusion in the Air Quality Action Plan	Support for inclusion in the Air Quality Action Plan
Produce guidance for Belfast City Council staff on air quality and land use planning	Not assessed.	Support for inclusion in the Air Quality Action Plan
Lobby for the development of a Memorandum of understanding between the Planning Service and Belfast City Council	Not assessed.	Support for inclusion in the Air Quality Action Plan

Table 5A:	Support for implementation of policies that will contribute to reducing air pollution	
Development and implementation of a Master Plan for Belfast based on sustainable development principles	Not assessed.	Support for inclusion in the Air Quality Action Plan
Regulation of Part C processes	Support for inclusion in the Air Quality Action Plan	Support for inclusion in the Air Quality Action Plan
Regulation of Part A & B processes	Support for inclusion in the Air Quality Action Plan	Support for inclusion in the Air Quality Action Plan
Reduction of emissions from fossil fuel burning – enforcement under Clean Air (NI) Order	Support for inclusion in the Air Quality Action Plan	Support for inclusion in the Air Quality Action Plan
Regulate the burning of domestic or commercial garden waste	Support for inclusion in the Air Quality Action Plan	Support for inclusion in the Air Quality Action Plan

Were there any disagreements about potential impacts of implementing policies that will contribute to reducing air pollution among stakeholders in the HIA?
No.

Were any differential effects on subgroups in the population identified?
No.

Table 6A:	Support for highway and road improvements that will contribute to reducing air pollution		
Actions included in the plan	*Supported by the community?*	*Supported by stakeholders from the public, private or voluntary sectors?*	*Supported by published research information?*
Strategic highway network capacity improvements	Lack of support for inclusion in the Air Quality Action Plan especially for people living in or near the M1/Westlink and Ormeau Road AQMAs who will be directly affected, not only because of increased traffic volumes, air and noise pollution, congestion, and displacement of bottlenecks, but also because of construction impacts, risks to personal safety, and community severance and social isolation	Support for inclusion in the Air Quality Action Plan BUT concern that any positive effects on health of reducing air pollution and congestion will occur only in the short term (Group 4); if implemented, mitigation measures need to be introduced (Group 4). There were also concerns about community severance, and displacement due to road widening (the Roads Service have confirmed that there will be no displacement of people along the M1/Westlink corridor as a result of highway improvements)	In general, there is a lack of support in the evidence base, which shows that capacity improvements will attract motorists and increase both the number of cars and the number of car trips made, which will increase traffic volumes and emissions to air. Improvements to road infrastructure are supported only for the following reasons: • to provide local access; • to extend priority for public transport and pedestrians.
Non-strategic highway network schemes	Concern over the impacts on the local community in the vicinity of the Bankmore Link	Support for inclusion in the Air Quality Action Plan BUT there is a need for mitigation measures (Group 4) especially as car users will benefit and non-car users/residents in the vicinity will experience the negative impacts	In general, there is a lack of support in the evidence base, which shows that capacity improvements will attract motorists and increase both the number of cars and the number of car trips made, which will increase traffic volumes and emissions to air. Improvements to road infrastructure are supported only for the following reasons: • to provide local access; • to extend priority for public transport and pedestrians.

Table 6A:	Support for highway and road improvements that will contribute to reducing air pollution		
Strategic highway network traffic management	Support for inclusion in the Action Plan	Support for inclusion in the Air Quality Action Plan – car users will benefit (Group 4), although in the long term congestion may increase	Increases in traffic flow may reduce air pollution in the short term but could lead to an increased number of car trips, which will increase air pollution over the long term. In addition, it is important not to compromise bus services as a result of strategic network traffic management.
Non-strategic highway network traffic management	Support for inclusion in the Air Quality Action Plan with respect to traffic calming depending on the particular measures that are installed – speed bumps are not favoured – and to city centre traffic management as long as there are parking restrictions in residential areas to prevent non-residents using them as car parks	Support for inclusion in the Air Quality Action Plan with respect to traffic calming and city centre traffic management, BUT city centre traffic management needs to accompanied by improvements in public transport (Group 4)	Support for inclusion in the Air Quality Action Plan for traffic calming and for city centre traffic management.
Advanced traffic control strategy for M1/Westlink	Not assessed	Support for inclusion in the Air Quality Action Plan	Increases in traffic flow may reduce air pollution in the short term but may lead to an increased number of car trips which will increase air pollution ultimately. In addition, it is important not to compromise bus services as a result of advanced traffic control strategies.
Parking measures	Support for inclusion in the Air Quality Action Plan if the parking needs of residents are considered and residential areas are not converted into car parks for workers	Support for inclusion in the Air Quality Action Plan (Groups 4 & 7) BUT concern that access may be reduced for some vulnerable groups (Groups 4 & 7), who may not be able to afford the cost (Group 7)	Support for inclusion in the Air Quality Action Plan.

Table 6A:	Support for highway and road improvements that will contribute to reducing air pollution		
Capital investment – street lighting programme	Not assessed	Support for inclusion in the Air Quality Action Plan (Group 4)	Support for inclusion in the Air Quality Action Plan.

Were there any disagreements about potential impacts of highway and road improvements that will contribute to reducing air pollution among stakeholders in the HIA?

There were no disagreements among the stakeholders consulted in the HIA about the potential impacts of highway and road improvements that will contribute to reducing air pollution, although some stakeholders identified impacts associated with one aspect of an initiative and others highlighted impacts associated with a different aspect, which may at first sight appear to be contradictory. However, in such cases, there are often explanations which can be found in the "Comments" column of the Results Tables. For instance, when responses were combined, stakeholders thought that strategic highway network capacity improvements could have a positive and a negative effect on air pollution over time, it being positive in the short term and negative in the long term if improvements lead to an increased volume of traffic, which ultimately will increase the level of emissions.

Were any differential effects on subgroups in the population identified?

HIA stakeholders did identify differential impacts on subgroups in the population as a result of highway and road improvements that will contribute to reducing air pollution in the Draft Air Quality Action Plan, as follows:

- Strategic highway network capacity improvements;
- Non-strategic highway network schemes;
- Strategic highway network traffic management.

Members of the community from the AQMAs, particularly those from the M1/Westlink AQMA, assessed the strategic highway network capacity improvements as having potentially negative impacts on the residents living in the vicinity of the strategic network, particularly the M1/Westlink, when compared with the potentially positive impacts in the (relative) short term for car users on the M1/Westlink and the general population. The health data presented in the full report show that residents living in wards within or adjacent to the M1/Westlink AQMA have poorer health and suffer relative deprivation when compared with the general population. Thus, in addition to being exposed to negative impacts, they are likely to suffer to a greater extent from any negative effects than people in the general population who are healthier and more affluent.

This situation also applies in general to the non-strategic highway network schemes. Members of the community living in wards within or adjacent to the M1/Westlink AQMA identified differentially negative effects for people living in the vicinity of these schemes, but particularly in relation to the Bankmore Link scheme. Similar concerns about differentially negative effects on local communities were also raised about the actions/initiatives relating to strategic highway network traffic management.

There were two initiatives/actions that were supported by stakeholders but were assessed as having a potentially greater negative effect on vulnerable groups in terms of reducing their access to employment, services, facilities and amenities than that for the general population:

- parking measures;
- reducing traffic capacity in Belfast City Centre.

However, suggestions were made about linking the implementation of certain actions in the Plan to ameliorate the potential negative effects (see Display 1A).

Table 7A:	Support for marketing and education initiatives that will raise public awareness of air pollution		
Actions included in the plan	**Supported by the community?**	**Supported by stakeholders from the public, private or voluntary sectors?**	**Supported by published research information?**
Participate in Active Living Weeks in conjunction with the Investing for Health Strategy (as part of the Belfast City Council Transport Policy)	Not assessed	Support for inclusion in the Air Quality Action Plan	Support for inclusion in the Air Quality Action Plan
Piloting an agreed Code of Conduct for managing bonfire sites (as part of a protocol for Belfast City Council to tackle pollution from bonfires)	Not assessed	Support for inclusion in the Air Quality Action Plan	
Educate the community on the types of material that should be burnt on bonfires (as part of a policy for Belfast City Council to tackle pollution from bonfires)	Not assessed	Support for inclusion in the Air Quality Action Plan	
Agree target dates for the collection and build up of bonfire materials (as part of a policy for Belfast City Council to tackle pollution from bonfires)	Not assessed	Support for inclusion in the Air Quality Action Plan	
Education campaign for young people highlighting the health problems related to air pollution (Belfast City Council))	Not assessed	Support for inclusion in the Air Quality Action Plan	Support for inclusion in the Air Quality Action Plan

Table 7A:	Support for marketing and education initiatives that will raise public awareness of air pollution		
Establish working partnerships with relevant health promotion bodies with respect to promoting active travel (Belfast City Council	Not assessed.	Not assessed.	
Promote the Safe Routes to Schools initiative and new cycle routes (SUSTRANS)	Not assessed	Not assessed.	Support for inclusion in the Air Quality Action Plan.
Provision of real-time air quality information	Support for inclusion in the Air Quality Action Plan	Support for inclusion in the Air Quality Action Plan (Group 10)	Support for inclusion in the Air Quality Action Plan.
Use of advertising space at Lombard St air quality monitoring station	Not assessed	In the absence of a response to queries, it is not known whether this action was assessed.	Support for inclusion in the Air Quality Action Plan.
Provision of free emission testing supported by promotional material	Not assessed	Support for inclusion in the Air Quality Action Plan	
Promote emission testing among large organisations in Belfast	In the absence of a response to queries, it is not known whether this action was assessed.	In the absence of a response to queries, it is not known whether this action was assessed.	
Promote Belfast City Council Smoke Hotline for reporting smoky chimneys in Smoke Control Areas	In the absence of a response to queries, it is not known whether this action was assessed.	In the absence of a response to queries, it is not known whether this action was assessed.	
Publicise health effects of pollution from domestic and commercial burning of garden waste	Not assessed.	Not assessed.	Support for inclusion in the Air Quality Action Plan.
Promote composting	Not assessed.	Not assessed.	
Annual education programme for tyre distributors	Not assessed	Support for inclusion in the Air Quality Action Plan	

Table 7A:	Support for marketing and education initiatives that will raise public awareness of air pollution		
Ambient pollution monitoring throughout Belfast	Support for inclusion in the Air Quality Action Plan	Not assessed	Support for inclusion in the Air Quality Action Plan.
Evaluate pollution monitoring results	In the absence of a response to queries, it is not known whether this action was assessed.	Not assessed	
Support and promote Travel Plans	Support for inclusion in the Air Quality Action Plan	Support for inclusion in the Air Quality Action Plan	
Implement a Travel Awareness Campaign for the Belfast Metropolitan Area	Not assessed	Support for inclusion in the Air Quality Action Plan	
Implementation of Safer Routes to Schools initiative	Not assessed	Support for inclusion in the Air Quality Action Plan	Support for inclusion in the Air Quality Action Plan.
Environmental Information leaflet for Translink	Not assessed	Support for inclusion in the Air Quality Action Plan	Support for inclusion in the Air Quality Action Plan.
Review and further development of Translink partnerships with public sector organisations and large employers		Support for inclusion in the Air Quality Action Plan	
Translink to participate in Active Living Weeks	Not assessed	Support for inclusion in the Air Quality Action Plan	Support for inclusion in the Air Quality Action Plan.

Table 7A:	Support for marketing and education initiatives that will raise public awareness of air pollution		
Translink to establish working partnerships with health promotion bodies	Not assessed.	Not assessed.	
Translink to promote Walk and Bike to Work Days	Not assessed.	Not assessed.	Support for inclusion in the Air Quality Action Plan.
Translink to promote the availability of cycle maps and cycleways	Not assessed.	Not assessed.	
Translink to promote air quality issues	Not assessed.	Not assessed.	Support for inclusion in the Air Quality Action Plan.

Were there any disagreements about potential impacts of marketing and education initiatives to raise public awareness of air pollution among stakeholders in the HIA?
No.

**Were any differential effects on subgroups in the population identified?**
No.

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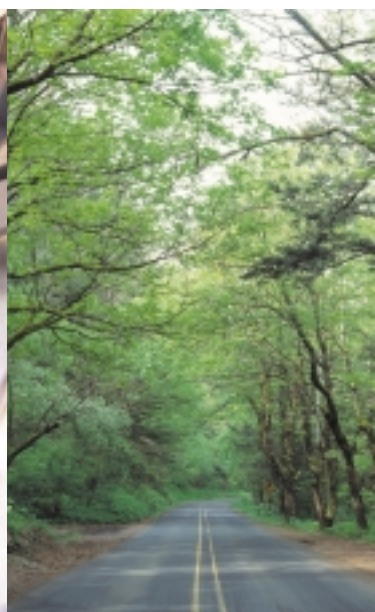
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