CARLISLE CITY COUNCIL

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Health & Wellbeing Scrutiny Panel

Agenda Item:

A.3

Meeting Date:	11 July 2019
Portfolio:	Environment and Transport
Key Decision:	Not Applicable:
Within Policy and Budget Framework	NO
Public / Private	Public

Title:	AIR QUALITY
Report of:	Corporate Director of Governance and Regulatory Services
Report Number:	GD.38/19

Purpose / Summary:

An information report detailing the major air pollutants effecting the health of Carlisle residents.

Recommendations:

It is recommended that the report is noted

Tracking

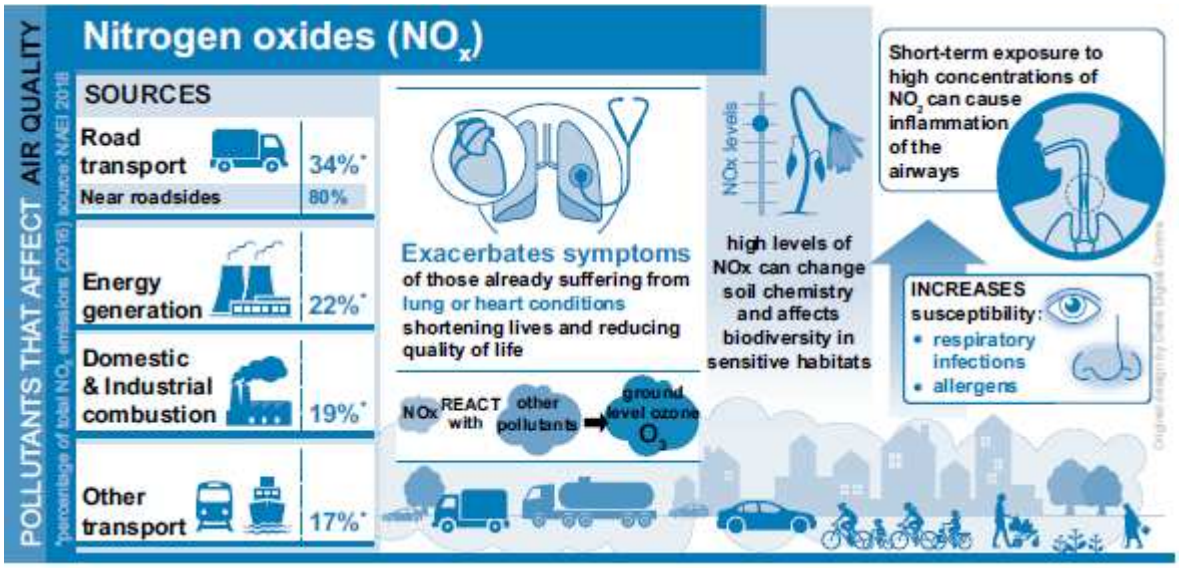
Executive:	**NA**
Scrutiny:	
Council:	**NA**

1. BACKGROUND

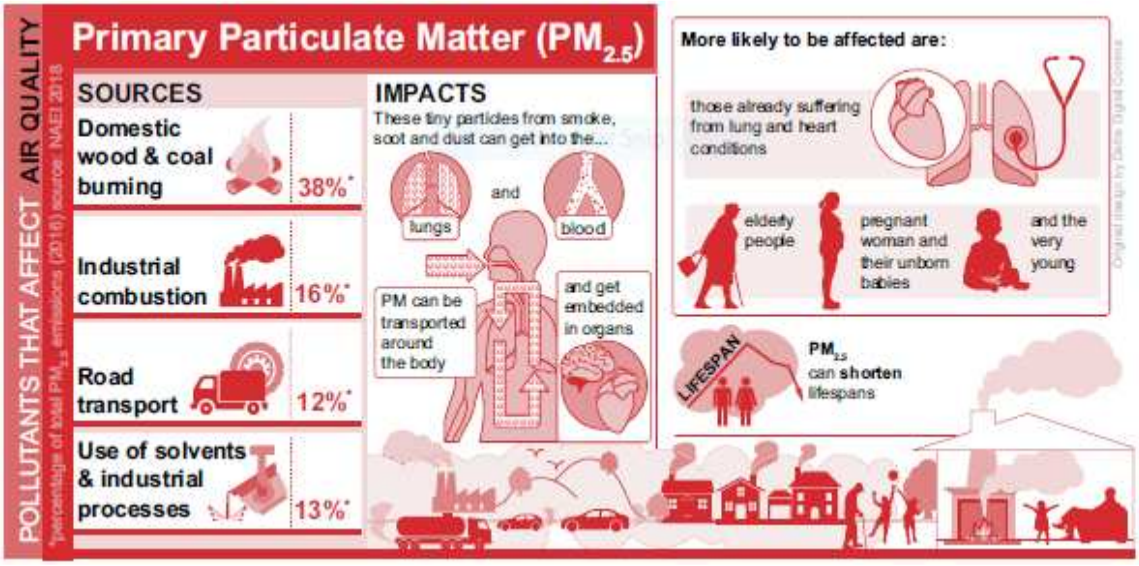
1.1 The evidence is clear on the scale of harm from air pollution. It is the largest environmental risk to the public's health in the UK with an estimated effect equivalent to 28,000 – 36,000 deaths each year attributable to human-made air pollution in the UK. It has a close association with cardiovascular and respiratory disease including lung cancer. Emerging evidence indicates that air pollution affects other organs as well as the lungs, with possible effects on dementia, low birth weight and diabetes. Children in their early years appear to be especially at risk, including asthma and poorer lung development.

1.2 There are 5 key pollutants with known impacts on human health, which are:

- **Nitrogen Oxides (NOx)** – these include nitric oxide and nitrogen dioxide and includes man-made gasses often prevalent in rush hour traffic and strongly associated with diesel vehicles;

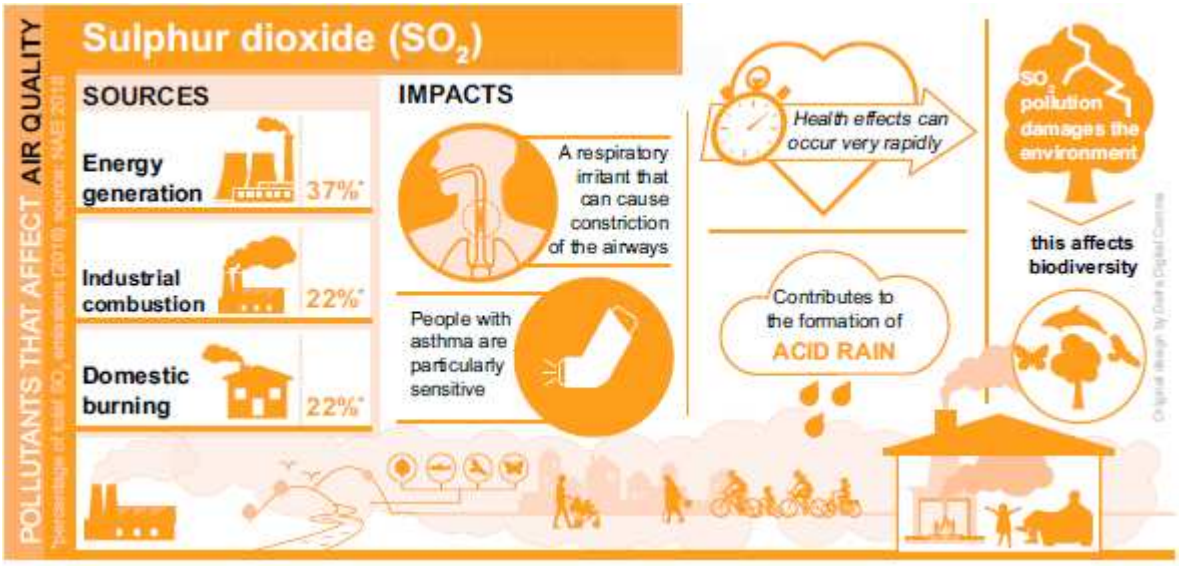


- **Particulate matter (PM)** – a generic term for a complex mixture of solid and liquid particles of varying shapes, sizes and composition which can be breathed into the lungs and passed into the bloodstream. The main man-made sources are from the burning of fuels; brake and tyre wear; mining and quarrying; and industrial emissions. Natural particulate matter can be from sea spray, moorland fires; and windblown soil and dust. Ammonia from the agricultural sector also influences particulate concentrations. Burning wood and coal in open fires and stoves makes up 38% of the UK's primary emissions of fine particulate matter (PM2.5).

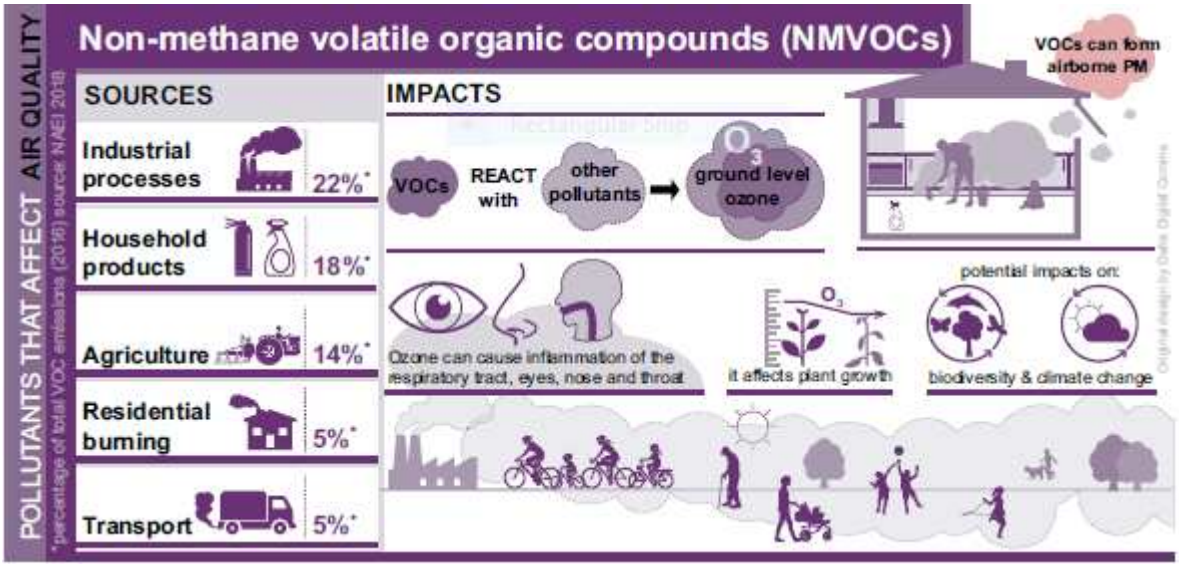


- **Carbon monoxide (CO)** – this is naturally present in the atmosphere but harmful in enclosed environments; it also has man-made sources linked mainly to combustion engines.
  Carbon dioxide (CO2) is also produced by combustions and although excessive local concentrations can cause asphyxiation its main harm is in relation to global warming.

- **Sulphur dioxide (SO2)** – this gas is present in the air mainly due to the burning of fossil fuels and oil, with power stations being a key source in the UK; SO2 emissions have successfully been reduced over previous decades. SO2 can have an irritant effect on the air ways.



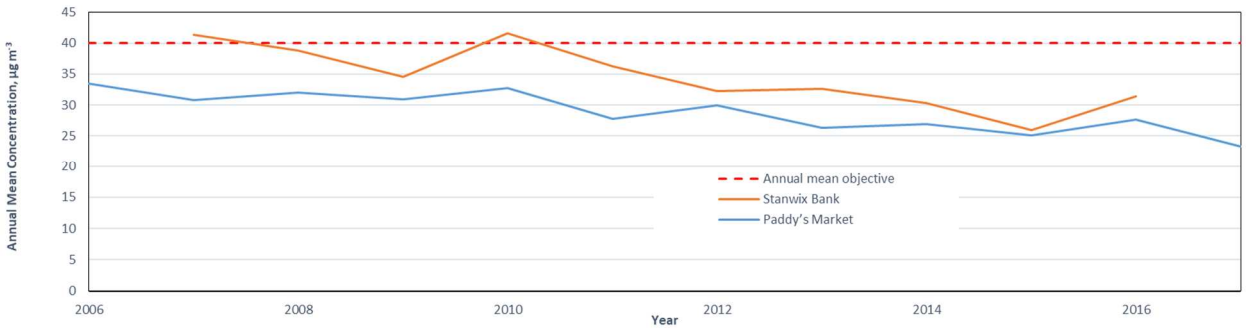
- **Non-methane volatile organic compounds (NMVOCs)** - are a very large group of organic compounds, which differ widely in their chemical composition but can display similar behaviour in the atmosphere. NMVOCs are emitted to air as combustion products, as vapour arising from petrol, solvents and cleaning products. Although a significant cause of indoor air pollution they can react outside forming the irritant ground level ozone.



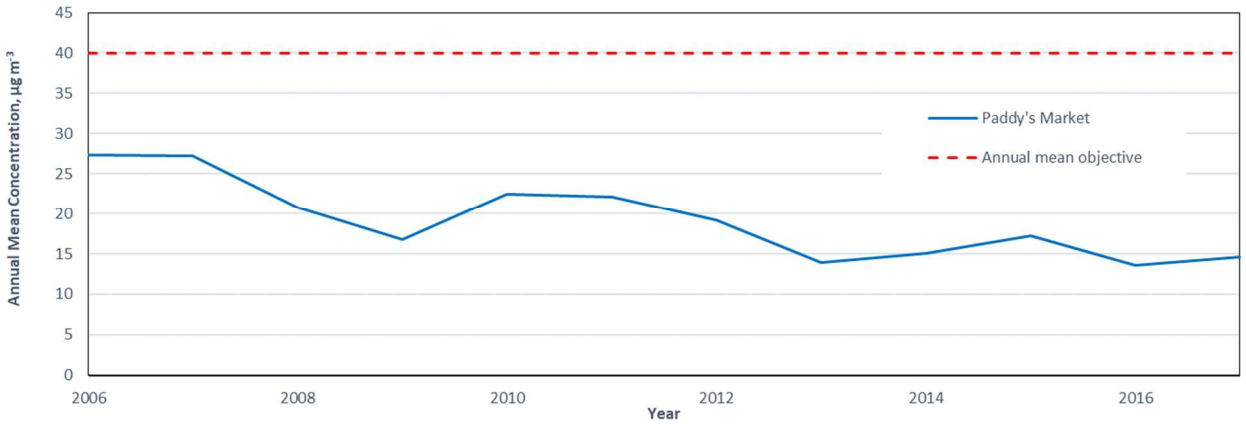
1.3 The Governments Clean Air Strategy 2019 states that recent research commissioned by Public Health England has found that the health and social care costs of air pollution (PM2.5 and NO2) in England could reach £5.3 billion by 2035. This is a cumulative cost for diseases which have a strong association with air pollution: coronary heart disease; stroke; lung cancer; and childhood asthma. When diseases with weaker evidence of association are also added, including chronic obstructive pulmonary disease; diabetes, low birth weight, lung cancer, and dementia, the costs could reach £18.6 billion by 2035. When all diseases are included, air pollution is expected to cause 2.4 million new cases of disease in England between now and 2035. PM2.5 alone could be responsible for around 350,000 cases of coronary heart disease and 44,000 cases of lung cancer in England over that time. Even small changes can make a big difference, just a 1µg/m3 reduction in PM2.5 concentrations this year could prevent 50,000 new cases of coronary heart disease and 9,000 new cases of asthma by 2035.

2. Air Pollution in Carlisle

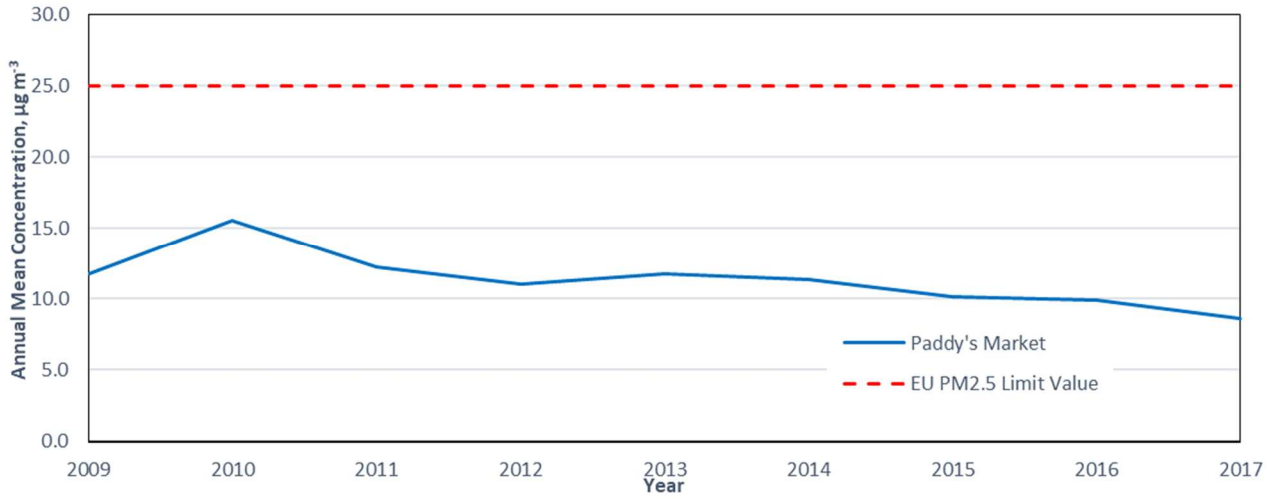
2.1



Automatic NO_2 monitoring data (2006 – 2017)



Trends in Annual Mean PM_{10} Concentrations

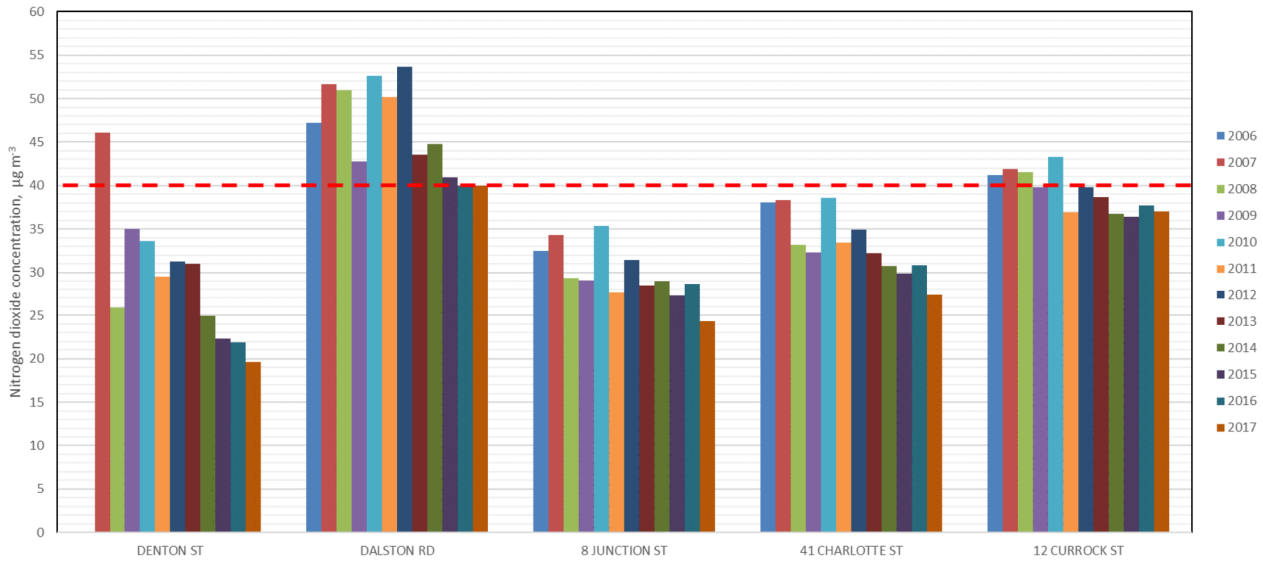


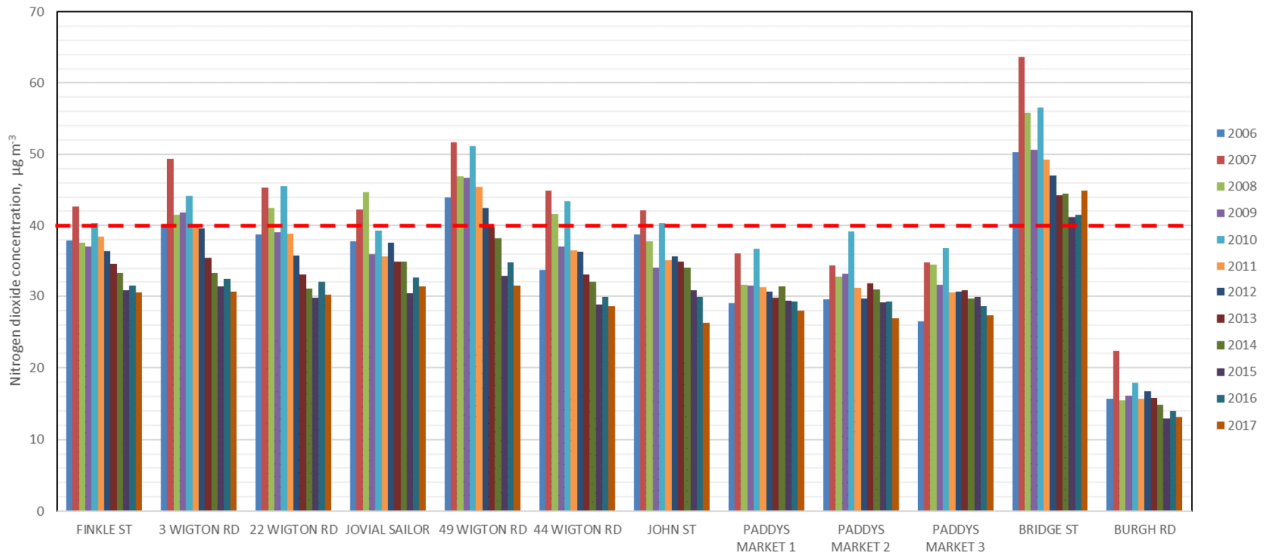
Trends in Annual Mean $PM_{2.5}$ Concentrations

2.2 The tables above confirm the actual continuous monitoring results in Carlisle for the major NO2, PM10 and PM 2.5 pollutants. The results confirm that all the hourly concentrations of these pollutants in Carlisle have been reducing since 2006 and are

significantly below the limit values in the UKs Air Quality Standards Regulations 2010. Sometimes the media produce articles relating to the World Health Organisation guidelines for air quality 2005, these are similar to the legal UK standards except there is a lower annual PM10 annual standard of 20 ug/m^3 and a lower PM2.5 annual standard of 10 ug/m^3. Carlisle complies with both the UK standards and the WHO guidelines.

2.3 Along with continuous monitoring Carlisle undertakes monthly monitoring of NO_2 concentrations at 30 sites in the District. In some of these locations the annual NO_2 pollutant concentrations have been found to be above the Air Quality Standards. As a result Carlisle declared 6 Air Quality Management Areas on the basis of previous high concentrations. An Air Quality Action Plan (2012) is in place to address the issues. The annual standards for NO_2 are now being met in most areas. We are now in the process of amending and removing some of these AQMA's due to the air quality improvements. The County Council's 'Public Health Air Quality strategy' suggests a target concentration of 30 ug/m^3 for annual NO_2 concentrations. The City Council will continue to develop its Air Quality Action Plan to encourage further reductions in annual NO_2 concentrations.





2.4 Comprehensive reporting on the monitoring results for Carlisle and the latest update on the Action Plan can be found in the latest Air Quality Annual Status Report on the Council's website.

3. RISKS

3.1 This report is for information only

4. CONSULTATION

4.1 This report is for information only

5. CONCLUSION AND REASONS FOR RECOMMENDATIONS

5.1 Whenever we use our car, heat our home or cook our food we contribute pollutants to the environment. Sometimes these pollutants can affect the environment itself, like Carbon Dioxide contributes to global warming. Sometimes the pollutants can affect human health. When pollutants are visible like the "smogs" of the last century we can relate our activities to the pollution levels. Unfortunately, with our major pollutant problem, NOx, concentrations are invisible and it is only by looking at health data, weather patterns and pollutant concentrations that we understand its effect as an air pollutant. It is a sad fact that generally air quality levels are at there worst when the weather is still and nicer to be out and about in.

5.2 Carlisle's monitoring data confirms we have started to improve our ambient air quality. We also know the steps to take to improve it further. Driving newer cleaner vehicles and eventually electric vehicles; walking or biking for small journeys and using public transport when appropriate. Carlisle City Council can help the public make these

changes by providing attractive walking and biking routes, encouraging developments of electric charging points and considering the use of technology to avoid unnecessary travelling in the first place. Insulating the home to reduce fuel usage and changing our heating fuel types are also steps we can all take to improve our health and our environment.

6. CONTRIBUTION TO THE CARLISLE PLAN PRIORITIES

6.1

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Appendices attached to report:

Note: in compliance with section 100d of the Local Government Act 1972 the report has been prepared in part from the following papers:

- **None**

CORPORATE IMPLICATIONS:

LEGAL -
FINANCE –
EQUALITY –
INFORMATION GOVERNANCE –