

Transport and Environment Committee

10.00am, Thursday, 17 May 2018

Developing Low Emission Zones in Edinburgh

Item number	7.10
Report number	
Executive/routine	Executive
Wards	All
Council Commitments	18

Executive Summary

Poor air quality affects people's everyday health and ability to lead a normal active life, especially if they already have an existing medical condition, or are vulnerable because of their age, or where they live or work.

Commitments to progress work on Low Emission Zones (LEZs) have been made by the Council. [Commitment 18](#) agrees to '*improve Edinburgh's air quality and reduce carbon emissions [and] explore the implementation of low emission zones*'. The Scottish Government's Programme for Government 2017-18 makes a commitment to work with local authorities to introduce LEZs to Aberdeen, Dundee, Edinburgh, and Glasgow by 2020.

The planned next phase of work for LEZs will include:

- testing of options using air quality and transport models (based on the significant evidence base that has been developed by SEPA, in line with the National Modelling Framework)
- engaging with a range stakeholder groups to raise awareness and understanding of the implications for LEZ
- identify wider transport and placemaking opportunities that complement and support LEZs (working in conjunction with the City Transport Strategy and the Central Edinburgh Transformation project).

A further report on the development of LEZ options will be made to Transport and Environment Committee on 9 August.

Developing Low Emission Zones in Edinburgh

1. Recommendations

- 1.1 This report recommends that the Transport and Environment Committee:
 - 1.1.1 agrees a comprehensive approach to LEZs as a step towards protecting Edinburgh's citizens from the harms of poor air quality;
 - 1.1.2 reaffirms the Council's commitment to explore the development of low emission zones, in line with the commitment by the Scottish Government to work with local authorities to introduce LEZs to the four main cities (Aberdeen, Dundee, Edinburgh, and Glasgow) by 2020;
 - 1.1.3 notes the options under consideration for Edinburgh's LEZs are based on combinations of geographical and vehicle-type restrictions;
 - 1.1.4 agrees that a phase of stakeholder engagement is undertaken to test and inform the impact of implementing low emission zones in Edinburgh;
 - 1.1.5 notes that a further report on progress to develop LEZs will be presented to Transport and Environment Committee on 9 August 2018.

2. Background

- 2.1 The Local Air Quality Management regime, as defined under the Environment Act 1995 has been successful in reviewing and assessing air quality throughout Edinburgh and therefore providing an understanding of the problems, which are predominately associated with traffic related nitrogen dioxide concentrations. While this work has also led to improvements in air quality, there are still a number of Air Quality Management Areas where measured concentrations remain above the legal objectives.

Impacts of poor air quality

- 2.2 The Council has made a commitment to 'improve Edinburgh's air quality and reduce carbon emissions [and] explore the implementation of low emission zones' (Commitment [18](#)). Air pollution impacts on human health and peoples' ability to lead a normal active life. Poor health has long-term impacts on individuals' wellbeing and on their participation in society and the economy ([UK plan for tackling roadside nitrogen dioxide concentrations; Defra & Dft; 2017](#)).
- 2.3 Air pollution disproportionately affects vulnerable people (such as the very young, the elderly, and those with respiratory and cardiovascular conditions). It is [well evidenced](#) that poor air quality exacerbates people's health, especially if they already have lung-related illnesses (e.g. asthma or chronic obstructive airways disease) or circulation problems (angina, strokes, heart attacks). There is also

- [evidence](#) of links to a wider range of health impacts, such as poor birth outcomes (pre-term birth, low birth weight), diabetes and neurological problems (dementia).
- 2.4 Poor outdoor air quality can result from contamination of the outdoor atmosphere by gaseous and particulate pollutants ([Cleaner Air for Scotland: The Road to a Healthier Future; Scottish Government; 2015](#)). Gases include: oxides of nitrogen (NO_x) which includes primary and secondary nitrogen dioxide (NO₂) and nitric oxide (NO); sulphur dioxide (SO₂) and ground-level ozone (O₃). Particles can be defined by their aerodynamic diameter for example PM₁₀ is the amount of matter that is less than 10µm in diameter. PM_{2.5} is the smaller fraction of PM₁₀ and consists of particles that are <2.5µm (often referred to as fine particles).
- 2.5 In the UK, the health impacts of poor air quality in general have been [estimated by the World Health Organisation](#) to cost around £15 billion per year. The total economic costs of air pollution (outdoor and indoor) may be as high as £54 billion a year.
- 2.6 Based on modelling by Public Health England, the [estimated](#) mortality burden on the population in Scotland in 2010 showed that there were around 2,000 premature deaths and a total of around 22,500 life years lost across the population which can be attributed to anthropogenic (man-made) fine particle pollution. In Edinburgh, this can be related to 205 premature deaths and 2,300 life-years lost. It should be noted that these figures are estimates based on modelling and should be interpreted with caution.
- 2.7 Air quality is affected by everything society does. Pollution is released into the atmosphere by industry, transport, farming, and power generation, as well as domestic activities such as heating and cooking. Pollution is also released from natural sources such as sea salt, wildfires, volcanic activity, and soil erosion [Cleaner Air for Scotland: The Road to a Healthier Future](#) provides further information on sources of pollution).
- 2.8 Air pollution can be distinguished between:
- direct emissions of pollutants from these sources
 - concentrations – the levels found in ambient air once the various emissions have been mixed and transported by atmospheric processes.

Managing air quality

- 2.9 Current [national policy](#) addresses the major air pollutants that affect human health: nitrogen dioxide (NO₂) and particulate matter (PM₁₀ and PM_{2.5}). The most immediate air quality challenge is tackling the problem of NO₂ concentrations around roads.
- 2.10 Under the Environment Act 1995 and the associated local [Air Quality Management](#) (LAQM) framework, all local authorities are duty bound to review and assess air quality in their areas against national pollution objectives. When a pollutant fails to comply with an objective an Air Quality Management Area (AQMA) must be

declared and an Action Plan prepared, detailing measures which will be implemented to improve air quality within the designated area.

- 2.11 Edinburgh has declared six [AQMAS](#), five are for traffic related (NO₂), and are located around the City centre, West End, Corstorphine, Inverleith Row, Great Junction Street, and Newbridge. Road transport is primarily responsible for NO₂ concentrations at the roadside. The other AQMA is for fine particulates (PM₁₀) related to industrial activities and road sources around Salamander Street in Leith.
- 2.12 The following table shows Edinburgh streets with the highest concentrations of NO₂ in 2016 (which also exceed the objective limit of 40µg/m³ – annual mean).

Table 1. Streets with highest concentrations of NO₂ in Edinburgh 2016

Street	NO ₂ Annual Mean Concentration (µg/m ³)
Leith Street	59
West Port	59
London Road/East Norton Place	57
Grassmarket	53
North Bridge	53
St John's Road	53

Action to develop LEZs across Scotland

- 2.13 Poor air quality (predominantly due to road transport) is an issue in number of Scotland's towns and cities. In the Scottish Government's 2015 [Cleaner Air for Scotland: The Road to a Healthier Future](#) (CAFS) strategy, a commitment was made to ensuring Scotland's air quality will be the best in Europe.
- 2.14 CAFS set a clear intention that improving air quality must be at the centre of the transport and placemaking decision making, to ensure the health benefits of cleaner air are realised. Mechanisms that can deliver air quality improvement include:
- keeping the most polluting vehicles out of the most polluted places (through LEZs)
 - reducing emissions by promoting public transport, cycling and walking
 - accelerating the take up of cleaner vehicles.
- 2.15 The [Scottish Government's Programme for Government 2017-18](#) includes a commitment to work with local authorities to introduce LEZs to the four main cities (Aberdeen, Dundee, Edinburgh, and Glasgow) by 2020.
- 2.16 In March 2018, Transport Scotland released its [analysis](#) of the 2017 Consultation paper '[Building Scotland's Low Emission Zones](#)'. There remain issues will need to be agreed between Transport Scotland and the local authorities in order to effectively implement LEZs in Scotland.
- 2.17 Legislative and funding provisions to enable the delivery of LEZs is being led by Transport Scotland. Transport Scotland has indicated that it is on schedule to introduce a draft Transport Bill later in 2018, which is expected to include specific provisions to enable the establishment of LEZs.

- 2.18 Glasgow City Council has recently [agreed](#) to introduce an LEZ focussed on buses at the end of 2018, with a second phase including trucks, vans, cars, taxis, and motorbikes. Aberdeen and Dundee City Councils are at the early stages collecting data to establish a robust air quality evidence base.
- 2.19 The Council is working closely with the Scottish Government, other authorities responsible for air quality, and the other local authorities tasked with implementing LEZs. This engagement is at both a political and officer level to ensure emerging thinking is aligned. The diagram in [Appendix 1](#) sets out the Council's governance of the LEZ project and how it is working with the other agencies related to LEZs.
- 2.20 A number of LEZ related issues will need to be addressed to inform the Transport Bill and national standards (which will be agreed by local authorities and the Scottish Government). A 'Consistency Group' led by Transport Scotland has been established to address these issues (as set out in the governance diagram in Appendix 1).

Other air quality work

- 2.21 The Council continues to review and assess air quality through the Local Air Quality Management regime defined under the Environment Act 1995. An Annual Progress Report (APR), submitted to DEFRA and Scottish Government, contains monitoring data, data trends, emerging issues and an update on progress which has been made with respect to implementation of air quality actions.
- 2.22 Edinburgh's city-wide Air Quality Action Plan is currently being revised in association with CAFS, the City Transport Strategy and LEZ development.
- 2.23 Actions to improve air quality have been in place for a number of years. These include working with bus companies to improve fleets, improving the Council's own fleet, investing in electric vehicle infrastructure, supporting sustainable travel planning, and utilising the Ecostars programme to improve the freight fleet. Work is also underway to improve the taxi fleet in Edinburgh and to support reduced use of diesel cars through a surcharge on parking permits.
- 2.24 The Scottish Parliament's Environment, Climate Change and Land Reform Committee released its draft recommendations following its [inquiry](#) into air quality in Scotland 2018. The Council will continue to work with partner agencies and participate in the CAFS working groups to respond to and implement agreed recommendations.

3. Main report

- 3.1 This section sets out the evidence base that has been developed for Edinburgh, the primary objectives for Edinburgh LEZs and the options under consideration. The last sections discuss issues related to enforcement and funding of LEZs, and timing implications.

Evidence based LEZs

- 3.2 The CAFS strategy provides a clear route for local authorities and partner organisations to work together to improve air pollution and meet legal responsibilities. CAFS introduces the National Low Emission Framework (NLEF) and the National Modelling Framework (NMF).
- 3.3 The final version of the NLEF is expected for release in Summer 2018 and it will support local authorities in assessing and addressing emissions.
- 3.4 The NMF intends to provide the quantitative evidence to support local authorities through the decision-making process for the proposal of Low Emission Zones. The NMF sets out a coordinated approach with respect to:
- 3.2..1. the collection of detailed traffic data in the city area
 - 3.2..2. developing of standardised air quality modelling approach
 - 3.2..3. post modelling analysis
 - 3.2..4. the development of visual and analytical appraisal tools for action scenario testing.
- 3.5 The NMF helps to ensure that evidence, analysis, and decision making is consistent across Scotland, even though transport issues and sources of emissions differ between geographical areas. The local NMF provides the ability to analyse individual vehicle classes across the transport fleet, assessing their relevant contributions to local air quality on a city by city basis. The Scottish Environmental Protection Agency (SEPA) are leading on this work in association with local authorities.
- 3.6 Following an extensive traffic data collection process that monitored at 144 locations across Edinburgh, SEPA have developed an Edinburgh-specific air quality model to predict kerbside NO₂ concentrations over time. The model can run scenario tests, to estimate the potential improvement in air quality by removing or cleaning up part of the vehicle fleet operating in Edinburgh. These scenarios could be applied throughout the city or within a smaller geographical area.
- 3.7 Initial results from SEPA's air quality model predicts roadside location points across the city that will be in excess of an annual mean of 40µg/m³ in 2019 (see Appendix 2). SEPA's modelling work will develop over the coming months, with revised vehicle emission factors utilised in modelling work.
- 3.8 The introduction of an LEZ would go a long way to improve Edinburgh's air quality, but it is not a complete solution. Appendix 3 shows the results of an initial scenario test where every vehicle operating in Edinburgh has the best engine emission

standards (Euro 6/VI). Even with the best fleet, there would still be roadside concentrations of NO₂ above 40µg/m³. To fully address air quality, measures that support continued increased use of public transport and active travel, placemaking interventions, and traffic prioritisation will also be required.

Objectives for Edinburgh's LEZs

- 3.9 The primary objective of developing a LEZs in Edinburgh is to improve air quality and reduce the impact of air pollution on human health. The development of LEZs is being undertaken in line with the following principles:
- 3.2..5. achieving air quality compliance in current Air Quality Management Areas
 - 3.2..6. taking an evidence based approach to target interventions that reduce the impact of air pollution on human health
 - 3.2..7. making the most of opportunities to reduce congestion, promote sustainable forms of transport, and achieve improved placemaking outcomes across Edinburgh.
- 3.10 Within a similar timeframe as LEZ, the Council is [reviewing](#) its City Transport Strategy and undertaking the [Central Edinburgh Transformation project](#). Together the three projects will set a strategic direction for transport and placemaking in Edinburgh. While each project has its own purpose, there are issues that feature across the three. To ensure the projects are aligned and to enable stakeholders to give collective feedback, the three projects are being progressed together as a wider programme of work over 2019.
- 3.11 The objectives across the three projects will be shared and aligned. These will be linked to Edinburgh's [2050 Vision](#) which focuses on Edinburgh's values and purpose as an inspired, thriving, connected, and fair city.

Options for LEZs in Edinburgh

- 3.12 Combinations of LEZ options are being explored, based around geographic limits and vehicle-types. Air quality and transport modelling will be used to test what impact the potential approaches might have for air quality and how they could work together.
- 3.13 Geography-based options under consideration include an Edinburgh-wide LEZ, a focus on the city centre, and LEZs that target emissions 'hotspots' across the city. Vehicle type approaches consider the emissions contributions of various types of vehicles (cars, buses, light and heavy goods vehicles and taxis). Based on emissions standards, restrictions could be applied to ensure that only the cleanest vehicles operate in certain areas.
- 3.14 In developing LEZ options, Edinburgh has some unique features which need to be taken into consideration. These are detailed in the following paragraphs and visually shown in Diagram1 below.

Different vehicle types

- 3.14.1 In some locations, buses are a significant contributor, in other locations cars are the dominant source. This needs to be factored in to the types of vehicles that LEZs restricts and how LEZs work cohesively across the city.

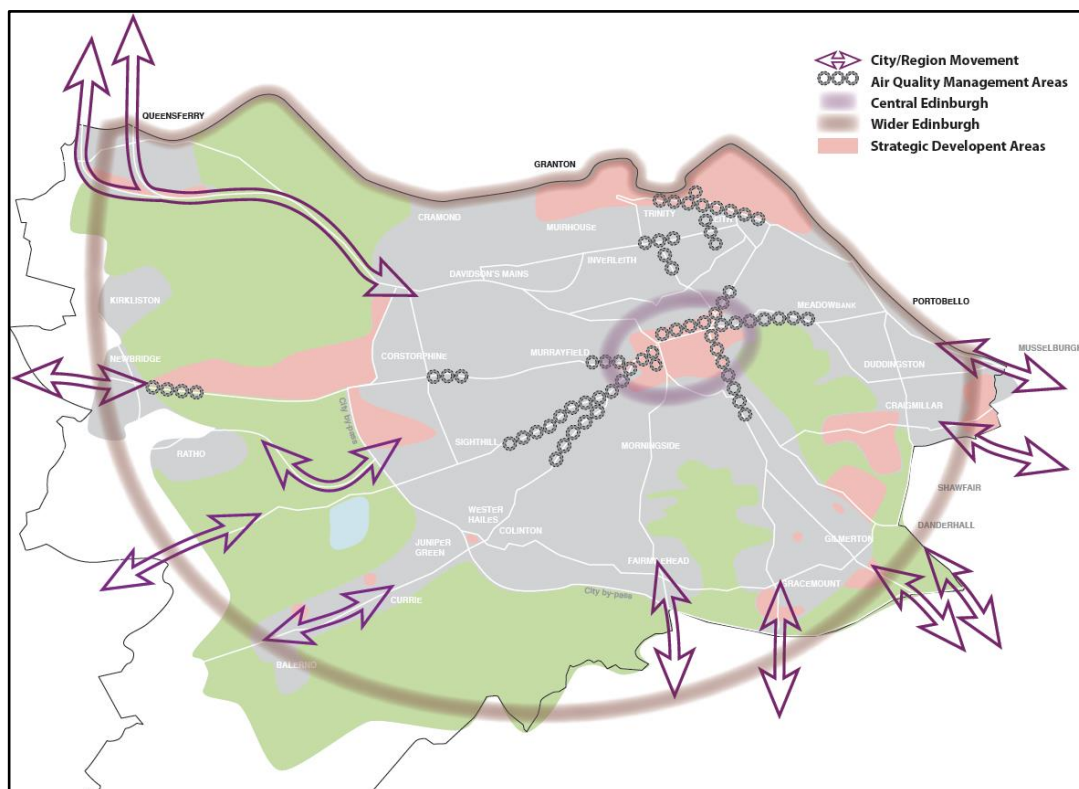
Complex road network

- 3.14.2 Edinburgh's road network carries a range of vehicle movements (including by mode and by origin/destination), particularly compared to cities with grid-style network supporting hierarchies of movement (motorways, arterials, and suburban roads). This makes it difficult to isolate a specific zone without affecting the rest of the network. Edinburgh's LEZ development will need to consider how traffic dispersion is managed around any boundary, particularly should a hot-spot approach be taken.

Cordoned geography

- 3.14.3 Edinburgh's geography with sea and city bypass border provides a natural cordon around the majority of the City's road network. This offers Edinburgh a unique opportunity to influence the way trips are made into the area. For example, the park and ride/public transport may replace trips previously taken by vehicles which do not meet the emissions standards. Similarly, freight logistics hubs outside the city could be supported in order to incentivise lower-emission vehicles servicing Edinburgh. Strategic Development Areas such as the Bio Quarter, means Edinburgh could apply a LEZ in tandem with coordinated transport investment that supports active travel and public transport.
- 3.15 Work is underway to fully understand how these features will factor into the LEZ options. Diagram 1 below shows how Edinburgh's transport flows into and across the city, areas of growth, and the existing air quality management areas, alongside geographically focussed LEZ options.

Diagram 1 –LEZ options for Edinburgh (city wide, central city, hotspot areas)



Enforcement and funding of LEZs

- 3.16 LEZ enforcement is likely to require the use of a network of Automatic Number Plate Recognition (ANPR) cameras (unless other regulations are applied such as the Traffic Commissioner or taxi licence conditions). Edinburgh has an existing network of ANPR cameras and back office functions to support bus-lane enforcement. To develop the existing system to enforce a LEZ regime would likely require a substantial expansion and capital investment.
- 3.17 Scottish Government has agreed funding to support local authorities to deliver LEZs. Capital funding of £10 million and resource funding of £0.8 million has been made available for 2018/19. Funding is to be shared between Transport Scotland, bus retrofit programmes, SEPA, and the four cities. Officers are working with Transport Scotland to access funding made available by Scottish Government for 2018/19 to support the development of LEZs.

Timing implications

- 3.18 The implementation timeframe for LEZs in Edinburgh will be dependent on the chosen proposal. Timing could include a phased approach to enable a focus on the most polluted vehicles or areas first.
- 3.19 Timing is dependent on the legislative provisions set out by the Scottish Government. The type of legal mechanism to enable LEZs will likely have requirements for consultation and lead-in periods which will need to be factored into Edinburgh's LEZ implementation. Further information on the timing will be known following the introduction of the Transport Bill later in 2018.

- 3.20 The use of existing provisions to support early implementation of LEZs are being considered. This includes asking the Traffic Commissioner for Scotland to impose Traffic Regulation Conditions (TRC) to control emissions from buses.
- 3.21 There are three broad phases to having a LEZ in effect. The following points set out these phases and the indicative timing for Edinburgh.
- 3.21.1 **Phase 1 – Local Authority publishes LEZ design options.** The Council will consult publicly on the options for LEZs in Summer of 2018, through a combined engagement with the City Transport Strategy and the Central Edinburgh Transformation project. Publication of the final design for LEZs is likely to happen early in 2019.
- 3.21.2 **Phase 2 – LEZ goes live.** The LEZ will be declared and include notification of the lead-in time and details on when enforcement begins.
- 3.21.3 **Phase 3 – LEZ enforcement begins.** At this point, penalty notices will be issued to non-compliance vehicles.
- 3.22 A 'lead-in time' will allow time for people to make necessary vehicle upgrades or to change behaviours. Transport Scotland's consultation paper found support for a period of between three and four years for general traffic. A case for a shorter period may be justified for specific vehicles or within hot-spot areas.
- 3.23 Decisions related to timing need to strike a balance between ambitiously tackling the air quality problem, application of available legal mechanisms, and providing a reasonable period for people to comply. Detail on the timing for LEZs will become clearer over the coming months as the Council and Transport Scotland develop proposals.

4. Measures of success

- 4.1 The next phase of LEZ work will include the development of specific objectives and key performance indicators to assess LEZ options against. These will align with the objectives and measures for the City Transport Strategy, and Central Edinburgh Transformation project.
- 4.2 LEZ-specific objectives and measures will refer to long-term trends in pollution monitoring data.

5. Financial impact

- 5.1 There are no direct financial implications from proposals in this paper. Progressing LEZs will require staff resource which has currently been made available from existing staff.
- 5.2 As set out in the section 'enforcement and funding of LEZs' increasing Edinburgh's ANPR camera network will require significant capital investment. Officers are working with Transport Scotland to develop proposals to access funding made available by Scottish Government for 2018/19 to support the development of LEZs.

- 5.3 Resource and funding support for combined LEZ, City Transport Strategy, and Central Edinburgh Transformation project is being sought from the [Smarter Choices, Smarter Places](#) programme for 2018/19. Should this funding not be provided, engagement will be scaled to fit within existing resource and budgets.
- 5.4 The Council is also working with Scottish Government to access funding to support local authorities to undertake LAQM work, which will align and support LEZ work in Edinburgh.

6. Risk, policy, compliance and governance impact

- 6.1 This paper proposes taking an ambitious approach to introducing LEZs in Edinburgh. A degree of risk is associated with such an approach and is being managed by a robust series of governance arrangements. A diagram summarising governance for the project is provided in [Appendix 1](#).
- 6.2 To support the delivery of the work and manage the risks associated with the project, a Project Board has been established with senior managers from across the Place directorate. The Project Board has responsibility for managing and supporting a Delivery Group of officers undertaking the work required to introduce LEZs along with SEPA and Transport Scotland.

The national context around LEZ is changing as cities progress their programmes of work conjointly with Scottish Government. A series of groups at political and officer levels have been established to ensure LEZ proposals are consistent (where necessary) across Scotland. The Council's governance arrangements include linkages to the national groups.

7. Equalities impact

- 7.1 At this stage, no specific decisions are being taken about how LEZs would operate in Edinburgh. A further impact assessment will be undertaken as specific detail for LEZ options is developed. Stakeholder engagement will assist in informing the likely impacts of LEZs.
- 7.2 LEZ proposal for Edinburgh are being developed in line with Scottish Government's framework for LEZ development across Scotland, this includes mitigation strategies for equalities impacts (such as exemption and sufficient lead-in periods). These mitigation approaches will be applied in Edinburgh's LEZ development where appropriate.

8. Sustainability impact

- 8.1 The impacts of this report in relation to the three elements of the Climate Change (Scotland) Act 2009 Public Bodies Duties have been considered, and the outcomes are summarised below.
- 8.2 The introduction of LEZs will reduce carbon emissions through actions to reduce vehicle emissions. Actions include incentivising a cleaner vehicle fleet in Edinburgh, including the uptake of fuel efficient and less polluting vehicles (such as electric, hybrid, LPG conversions, and retrofitted buses to improve engines (Euro standards)). LEZs and the associated financial penalty regime proposed will mean that use of vehicles that do not meet LEZ standards will be discouraged. LEZs will encourage more people to use public transport (including cleaner buses) and active travel rather than private vehicles.
- 8.3 LEZ proposals in this report will increase the city's resilience to climate change impacts because LEZ support the delivery of placemaking initiatives. LEZs will encourage pedestrians and cyclist movement, particularly within the city centre (aligned with the Central Edinburgh Transformation project and the City Transport Strategy). LEZs optimise existing and planned investment in public transport and active travel. Through encouraging the use of these modes and optimising the use of individual vehicles (to be cleaner or restricted from certain areas of the city), LEZs enable active travel and public transport to be more efficient, reliable, and resilient.
- 8.4 LEZs will support sustainability in Edinburgh by responding to a need to protect Edinburgh's citizens from the health impacts from being exposed to poor air quality. In particular, vulnerable people (such as children, the deprived, and the elderly) as well as those with existing health conditions (particularly affecting lung and heart health). Reducing harmful pollutants would encourage all people in Edinburgh to fully participate in society and the economy, and to live full and healthy lives. The LEZ will also work in conjunction with the Sustainable Energy Action Plan by reducing emissions from transport.

- 8.5 LEZs development will incentivise local economies to use sustainable forms of transport, contributing to sustainability in Edinburgh. In the short-term, some businesses using large fleets of older/high emission vehicles will face a financial impact to alter business arrangements or upgrade vehicles. Sufficient lead in times and exemption for some operations will assist these parts of the economy to manage the associated costs with meeting LEZ requirements.
- 8.6 LEZs implementation aligns with sustainability aims of incentivising the uptake of alternative fuel sources (such as electric vehicles). The LEZ financial penalty regime will attribute a cost to the harm caused by high emission vehicles. This will mean sustainable forms of transport are more competitive, by providing a mechanism that monetarises the environmental cost of the use of various types of vehicles.

9. Consultation and engagement

- 9.1 LEZ engagement is being undertaken jointly with the City Transport Strategy, and the Central Edinburgh Transformation project to ensure alignment between the transport and placemaking interventions across the three projects.
- 9.2 The LEZ project has been included in the Transport Strategy-led engagement with internal and external stakeholders to identify issues and opportunities to be addressed by the three projects.
- 9.3 This coordinated approach to stakeholder and public engagement will continue over the course of 2018. LEZ-specific engagement will include:
 - 9.3.1 explaining and testing assumptions with the NMF modelling work (led by SEPA)
 - 9.3.2 raising awareness of the LEZ approaches outlined in this paper and seeking input to understand the implications of the potential LEZ options
 - 9.3.3 identifying opportunities beyond LEZs to support air quality improvements.
- 9.4 An update on LEZ progress will be provided to Transport and Environment Committee in August 2018, prior to a full public consultation on proposals from the three projects.

10. Background reading/external references

- 10.1 [Clean air day UK; Global Action plan; 2017](#)
- 10.2 [Air Pollution: Action in a changing climate; Defra; 2010](#)
- 10.3 [Review of evidence on health aspects of air pollution; World Health Organisation; 2013](#)
- 10.4 [Economic cost of deaths from air pollution; WHO; 2010](#)
- 10.5 [Estimating Local Mortality Burden associated with Particulate Air Pollution; Public Health England; 2014](#)
- 10.6 [UK plan for tackling roadside nitrogen dioxide concentrations; Defra & Dft; 2017](#)
- 10.7 [UK and EU Air Quality Limits; Defra; 2017](#)
- 10.8 [Local Air Quality Management; Defra](#)
- 10.9 [Air Quality Management Areas; City of Edinburgh Council](#)
- 10.10 [Cleaner Air for Scotland: The Road to a Healthier Future; Scottish Government; 2015](#)
- 10.11 [Age Limitation and Emissions Standards for Taxis and Private Hire cars \(Air Quality\); Regulatory Committee; 16 March 2018](#)
- 10.12 [Parking Permit Diesel Surcharge; City of Edinburgh Council; January 2018](#)
- 10.13 [Scottish Government's Programme for Government 2017-18; Scottish Government; 2017](#)
- 10.14 [Building Scotland's Low Emission Zones; Transport Scotland; 2017](#)
- 10.15 [Analysis of submissions on Building Scotland's Low Emission Zones; Transport Scotland; 2018](#)
- 10.16 [Low Emission Zone update, Environment, Sustainability & Carbon Reduction City Policy Committee; Glasgow City Council; 2018](#)
- 10.17 [Air Quality Update, Transport and Environment Committee paper 5 October; City of Edinburgh Council; 2017](#)
- 10.18 [Air Quality in Scotland Inquiry; Environment, Climate Change and Land Reform Committee; 2017](#)
- 10.19 [Local Transport Strategy Review, Transport and Environment Committee paper 9 March. City of Edinburgh Council; 2018](#)
- 10.20 [Central Edinburgh Transformation Project. Transport and Environment Committee paper 5 October. City of Edinburgh Council; 2017](#)
- 10.21 [2050 Vision; Marketing Edinburgh Ltd; 2018](#)
- 10.22 [Smarter Choices, Smarter Places; Paths for all](#)

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11. Appendices

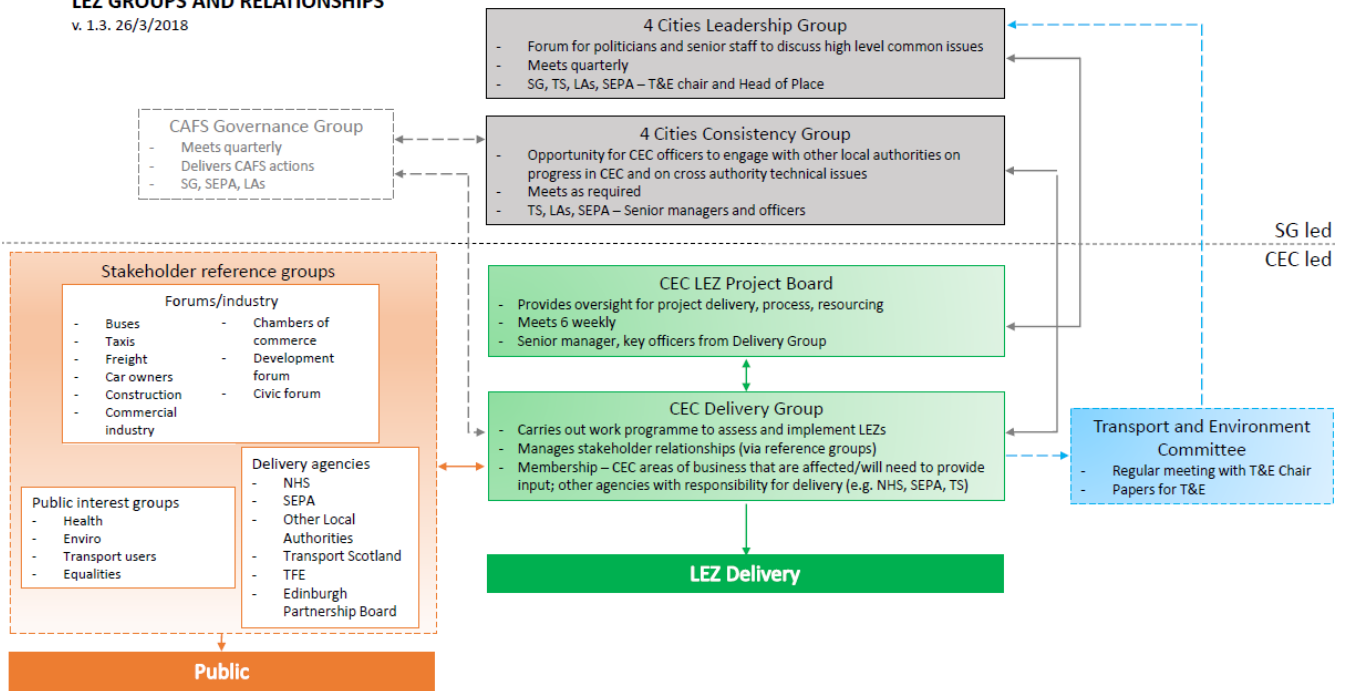
Appendix 1 – Governance arrangements for LEZ project.

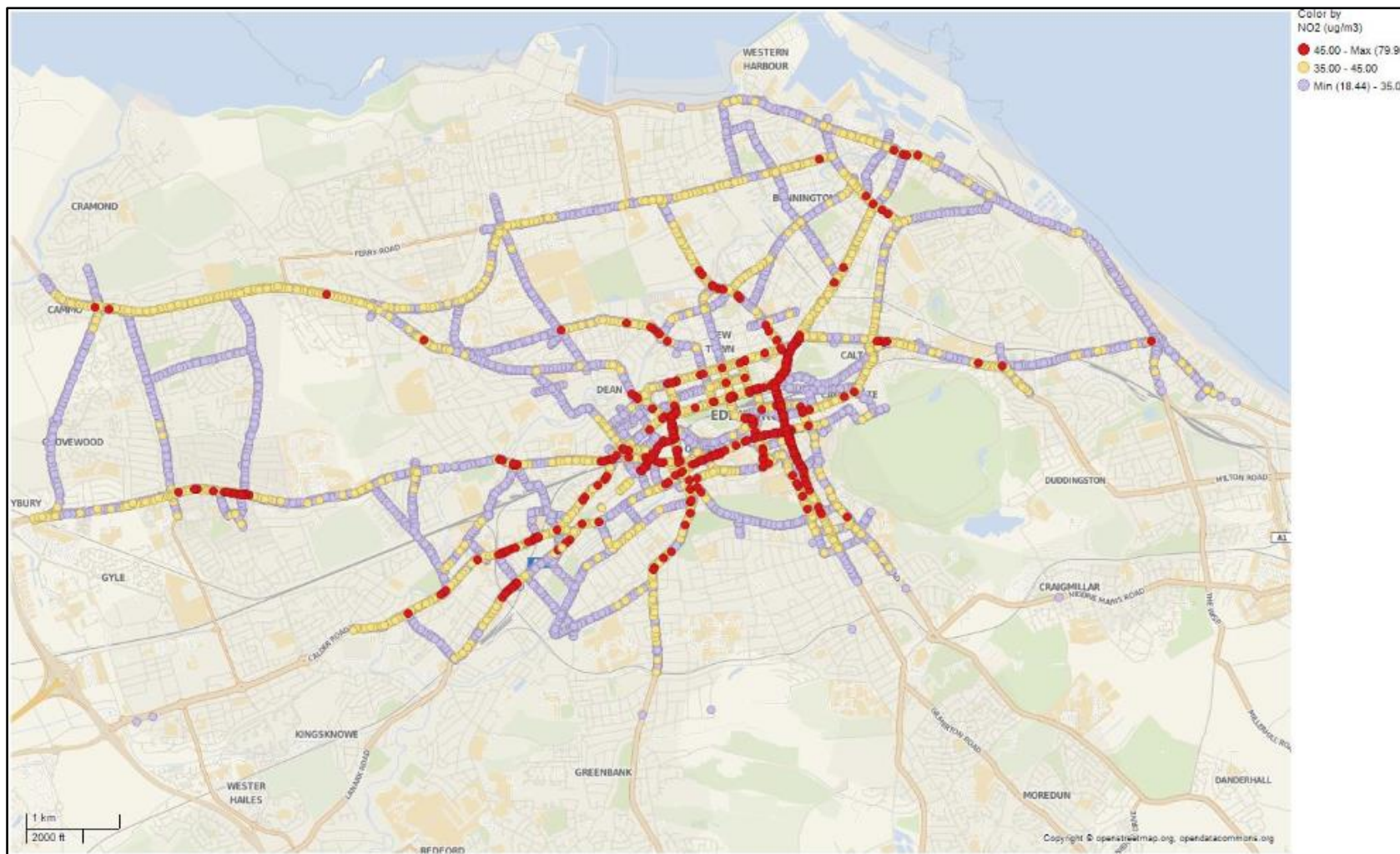
Appendix 2 – Initial NMF Model Results - Predicted Kerbside NO2 Concentrations in 2016 with Existing Fleet in Edinburgh

Appendix 3 – Initial NMF Model Results - Predicted Kerbside NO2 Concentrations in 2019 Based on a Scenario of Vehicles Euro 6/VI

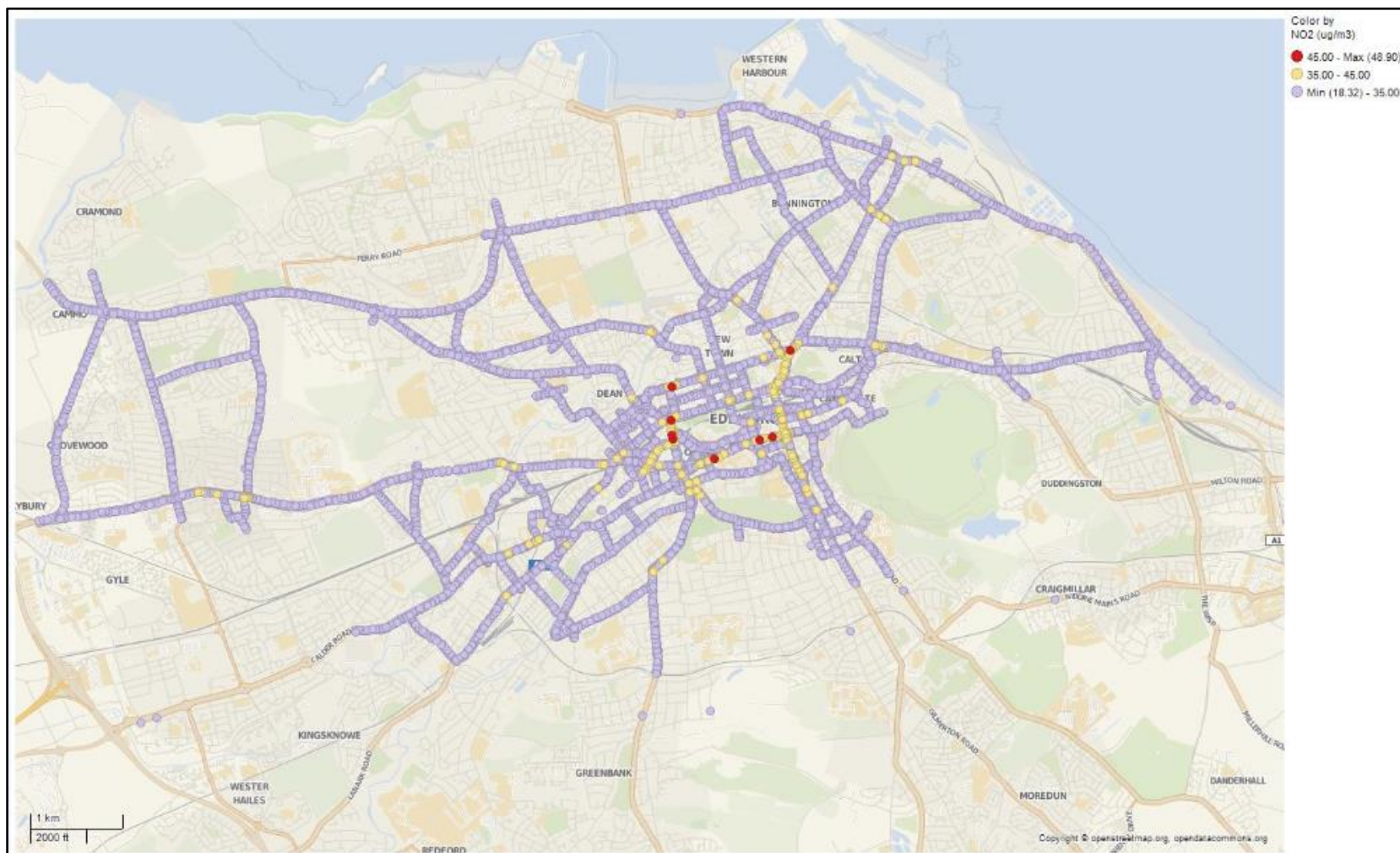
Governance arrangements for LEZ project in Edinburgh.

LEZ GROUPS AND RELATIONSHIPS
v. 1.3. 26/3/2018



Initial NMF Model Results - Predicted Kerbside NO₂ Concentrations in 2016 with Existing Fleet in Edinburgh

Note, the initial model results in this paper are based on emission factors, which have recently been updated; all future modelling will use these updated emission factors.

Initial NMF Model Results - Predicted Kerbside NO₂ Concentrations in 2019 Based on a Scenario of Vehicles Euro 6/VI

Note, the initial model results in this paper are based on emission factors, which have recently been updated; all future modelling will use these updated emission factors.