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Services 2019-2023: LEZ Regulations Impact Assessment

LEZ Regulations Integrated Impact Assessment (IIA)

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Project Manager: Colin Anderson
Author: Lewis Begbie
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Jacobs U.K. Limited

95 Bothwell Street
Glasgow, Scotland G2 7HX
United Kingdom
T +44 (0)141 243 8000
F +44 (0)141 226 3109
www.jacobs.com

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Executive Summary

The Programme for Government (PfG) 2018 committed to the introduction of Low Emission Zones (LEZs) into Scotland's four biggest cities between 2018 and 2020 and into Air Quality Management Areas by 2023. This programme has been amended as a result of the COVID-19 pandemic, with the indicative timetable now aiming to introduce LEZs into the four cities between February to May 2022. Introducing LEZs in Scotland will help mitigate air pollution that is predominantly caused by road transport at identified hotspots in towns and cities.

Part 2 of the Transport (Scotland) Act 2019 contains provisions that will enable the creation, and civil enforcement of LEZs by local authorities and allows Scottish Ministers to set nationally consistent standards (Regulations) on LEZ matters specified in the Act (e.g. emission standards, penalties and exemptions). This Integrated Impact Assessment (IIA) assesses the impacts of the national LEZ Regulations against objectives under three themes: equalities and human rights, environmental and economic. In doing so it assists Transport Scotland in fulfilling their duties related to The Equalities Act 2010 (Specific Duties) (Scotland) 2012 (specifically the Public Sector Equality Duty (PSED)), the Fairer Scotland Duty (FSD) and the Children and Young People (Scotland) Act 2014.

An IIA is the adopted assessment approach due to the overlapping nature of the requirements of the above duties and their aims in addressing inequalities. Specifically, the assessment was conducted using guidance published in 2017 for Councils, Health and Social Care Partnerships in the Lothians. The IIA builds upon stakeholder engagement that has been undertaken in the development of the LEZ Regulations to identify impacts and propose mitigation to reduce potential negative impacts.

In relation to Equalities and Human Rights, it is assessed that there are positive impacts to the health and wellbeing of those living in LEZ areas due to improvements in air quality as a result of anticipated shifts to more sustainable and active modes of travel. This is likely to disproportionately benefit older people, children, pregnant women, those with respiratory illnesses (who are likely to be more sensitive to poor air quality), and depending on local scheme design, people living in areas of high deprivation (who are disproportionately represented in areas of low air quality in the UK). Potentially negative impacts may arise as a result of reduced accessibility to services (e.g. education, health etc) within LEZ areas for those people reliant on private vehicles or community transport to travel to them. This is due to the cost to upgrade or replace personal vehicles or either an increase in the cost of community transport services or reduction in their availability.

Positive environmental impacts are identified due to the likely reduction in greenhouse gas emissions resulting from less polluting vehicles, and a shift to more sustainable modes of travel (i.e. walking/cycling/public transport). This may also have additional positive impacts for biodiversity and placemaking. Negative environmental impacts are identified as a result of the disposal of hazardous vehicle components which in turn may place increased pressure on waste management facilities and landfill.

Implementation of the LEZ Regulations is likely to generate increased economic activity for specific business sectors (e.g. second-hand car traders, vehicle scrappage and active travel distributors/repairers) which may also create further employment opportunities throughout the supply chain. Some 'town centre' businesses, notably retail and leisure, within LEZ areas may also benefit from increased footfall due to improved air quality and placemaking within urban areas. Potential negative economic impacts may arise due to the financial implications of replacing/upgrading vehicles to comply with the LEZ Regulations. This is particularly relevant for low income households, small and medium sized enterprises and those living in rural/semi-rural areas.

Transport Scotland and its partners have developed a comprehensive suite of national measures to mitigate the financial impacts of the LEZ Regulations on households, transport operators, and businesses. This IIA recommends further mitigation and enhancement measures for implementation at a local level that could potentially reduce negative impacts or enhance positive impacts upon differentially affected groups as a result of the LEZ Regulations.

1. Introduction

1.1 Purpose of IIA Report

This report presents the findings of the Integrated Impact Assessment (IIA) of the proposed national LEZ Regulations in Scotland. The assessment builds upon stakeholder engagement that has been undertaken in the development of the LEZ Regulations, to identify impacts and propose mitigation to reduce potential negative impacts where applicable.

1.2 Requirement for an IIA

The purpose of the IIA is to assist Transport Scotland in fulfilling their duties related to The Equalities Act 2010 (Specific Duties) (Scotland) 2012 (specifically the Public Sector Equality Duty (PSED)), the Fairer Scotland Duty (FSD) and the Children and Young People (Scotland) Act 2014.

An IIA method was chosen due to the overlapping nature of groups assessed under each duty, as such, the IIA consists of a combined framework of the following assessments:

- Equality Impact Assessment (EQIA) - The Equalities Act 2010 (Specific Duties) (Scotland) 2012, among other things, requires public bodies, to assess the impact of applying a proposed new or revised policy or practice where necessary to fulfil the requirements of the Public Sector Equality Duty (PSED) as set out in s149 of the Act. An EQIA is an effective way to assess impacts of new proposals or amendments to existing activity on the relevant protected characteristics that are identified in section 149 of the Equality Act.
- A Child Rights and Wellbeing Impact Assessment (CRWIA) – A CRWIA can be used to assess the potential impacts of new legislation or policy proposals on children's rights and their well-being and to determine impacts on children's services. A CRWIA can be used to inform Scottish Ministers on how proposed regulations and policies can affect their duty to fulfil, among other things, Part 1 and Section 2 of the Children and Young People (Scotland) Act 2014. This duty is in turn based on the UN Child Rights Convention (UNCRC) requirements.
- Assessment of socio-economic outcomes - The Fairer Scotland Duty (FSD) places a legal responsibility on public bodies in Scotland to actively consider ('pay due regard' to) how they can reduce inequalities of outcome caused by socio-economic disadvantage, when making strategic decisions.

Although the PSED and FSD as well as the duty on Scottish Ministers relating to child rights and wellbeing, are each focused on different (but overlapping) groups of the population, they are united in their aim to address inequalities. This approach has the benefit of enabling effective analysis of the impacts on all relevant groups of population, whilst avoiding duplication in assessment.

1.3 Structure of the IIA Report

The report is structured as follows:

- Chapter 2 provides a background and policy context to the development of the LEZ Policy Instructions, in addition to context on current LEZ implementation in Scotland;
- Chapter 3 provides context on the approach, methodology, assumptions and limitations of the IIA;
- Chapter 4 outlines the stakeholder engagement and consultation that has taken place in development of the LEZ Regulations;
- Chapter 5 provides a baseline of Scotland's population and protected characteristic groups;
- Chapter 6 provides an assessment of impacts against IIA objectives;

- Chapter 7 summarises the national mitigation measures available to households, businesses and transport providers, and recommends a series of further local mitigation and enhancement measures for consideration; and
- Chapter 8 presents the IIA conclusions and further recommendations.

2. Background

2.1 Policy Context

In 2015, the Scottish Government published their air quality strategy, Cleaner Air for Scotland (CAFS) – The Road to a Healthier Future, which set out their strategy to meet their legal responsibilities and vision for Scotland to have the best air quality in Europe (Scottish Government 2015a). This included commitments across a number of areas including health, placemaking, climate change, communication, legislation & policy and transport. The introduction of LEZs was considered within the strategy as a method to reduce air pollution from transport at the local and regional levels.

The Programme for Government (PfG) 2018 committed to introducing LEZs in four of Scotland's largest cities (Edinburgh, Glasgow, Aberdeen and Dundee) between 2018 and 2020, as well as Air Quality Management Areas (AQMAs) by 2023 (Scottish Government 2018a). LEZ implementation in the four cities has been delayed beyond the initial dates, although progress has been made as outlined in Section 2.4 (Current LEZ Implementation).

The Transport (Scotland) Act 2019, which received royal assent in November 2019, is the primary legislation in enabling the creation and civil enforcement of LEZs in Scotland. Specifically, Part 2 (Low Emission Zones) of the Act makes provision for the creation, operation, enforcement, or revocation of LEZs by local authorities. The Act provides the powers for Scottish Ministers to set consistent national standards through regulations and guidance on the main components of LEZ implementation (refer to Section 2.3). Subsequently, the PfG 2019 committed to consult on LEZ emission standards which would also include the extent to which enforcing stricter emission standards in the future would help in the transition to lower and zero carbon emissions from transport. Refer to Section 4 (Feedback from Engagement and Consultation) for details of stakeholder engagement that has occurred through the development of the regulations.

The formation of LEZ regulations is also supported at a national level by strategies such as the National Transport Strategy 2 (NTS2) and CAFS. Taking climate action is one of the four priorities of NTS2 and aligns with Scotland's net zero targets as set by the Climate Change (Emissions Reductions Targets) (Scotland) Act, which received royal assent on the 31 October 2019 (Scottish Government 2020a). Achieving this target will also support in the delivery of other NTS2 priorities, including reducing inequalities and improving health and wellbeing.

2.2 Air Quality in Scotland

The objectives that Scotland and its Local Authorities must meet are set out in the Air Quality (Scotland) Regulations 2000, the Air Quality (Scotland) Amendment Regulations 2002 and the Air Quality (Scotland) Amendment Regulations 2016. At a European level similar targets are set by the European 2008 Ambient Air Quality Directive (2008/50/EC), which are transposed into Scottish legislation by the Air Quality Standards (Scotland) Regulations 2010.

In order to comply with European legislation, and of relevance to this assessment, the Scottish Government and local authorities must reduce annual average NO₂ concentrations to below the legal limit to 40 µgm⁻³. Currently, the Scottish Government is not complying with European and domestic air quality legislation at a number of locations across Scotland.

2.3 Policy Instructions Summary

The Policy Instructions define secondary regulations relating to details in Part 2 of the Transport (Scotland) Act 2019. These are summarised below.

2.3.1 Emission Standards

The Transport (Scotland) Act 2019 section 6(4)(a) provides the powers for the Scottish Ministers to specify LEZ emission standards for vehicles in the Regulations. This will mean that all Scottish LEZs operate to a consistent

national level. A person may not drive a vehicle on a road within a LEZ unless the vehicle meets the specified emission standard. Vehicles within the scope of a LEZ, that is, vehicles to which the LEZ applies, which fail to comply with the LEZ emission standard will be subject to LEZ enforcement measures once the LEZ grace period has ended. In summary, the LEZ emission standards will be:

- Euro VI emission standards for buses, coaches and heavy good vehicles with diesel engines, with retrofitted vehicle to this standard also being acceptable.
- Minibuses, large vans, taxi's and cars would be set at the Euro 6 for diesel and Euro 4 for petrol vehicles. (Euro 6 diesel vehicles became available for registration in September 2015, Euro 4 petrol vehicles in January 2006).

2.3.2 Exemptions

Section 6(4)(b) of the Transport (Scotland) Act 2019 enables Scottish Ministers to apply exemptions consistently across Scotland. Local authorities will have no ability to vary or choose at their discretion from the exemptions listed in the regulations. The Scottish Government's policy is that there will be national LEZ exemptions for specific vehicle types/categories as outlined in Table 1. All local authorities would be mandated to operate their LEZ in compliance with the exemption list, so that there is national consistency in its application. In addition, to national exemptions, time-limited exemptions can also be issued by local authorities (as per Section 17 of the Act), which will be covered under LEZ Guidance, to provide advice on which vehicle types or uses could be considered for a time-limited exemption. Vehicle types/categories to have a national exemption from Scottish LEZs are set out in Table 1.

Table 1 – National LEZ exemptions

Vehicle type of classification	Description
Emergency Vehicles	For or in connection with the exercise of any function of: <ul style="list-style-type: none"> • the Scottish Ambulance Service, • the Scottish Fire and Rescue Service, • Her Majesty's Coastguard, and • the National Crime Agency.
Military Vehicles	<ul style="list-style-type: none"> • Vehicles belonging to any of Her Majesty's forces; or used for the purposes of any of those forces.
Historic Vehicles	<ul style="list-style-type: none"> • Vehicles which are 30 years old or older.
Vehicles for Disabled Persons	<ul style="list-style-type: none"> • Vehicles registered with a 'disabled' or 'disabled passenger vehicles' tax class; and/or • Vehicles being used for the purposes of the 'Blue Badge Scheme'.
Showman Vehicles	<ul style="list-style-type: none"> • Highly specialised vehicles used for the purposes of travelling showmen, where the vehicle is used during the performance, used for the purpose of providing the performance or used for carrying performance equipment.

2.3.3 Penalty Charges

Section 6 (4)(c) of the Transport (Scotland) Act 2019 enables Scottish Ministers to set penalty charges based on the vehicle class (e.g. car versus heavy goods vehicles), set the level of penalty charge, and set out the circumstances in which penalty charges can be subject to a discount or surcharges, to escalate the penalties over time. In relation to surcharge element of the regulation, the Scottish Government is proposing to set 'tiers' of penalties based on a pre-set number of Penalty Charge Notices (PCN's) being issued. The tier structure is outlined in Table 2.

Table 2 – Proposed penalty charge structure for driving in a LEZ using a non-compliant, non-exempt, in scope, vehicle

Vehicle Category/Tier	Tier				
	1 "Base level"	2	3	4	5
Car, Taxi and Private Hire	£60	£120	£240	£480	£480
Minibus	£60	£120	£240	£480	£960
Small van & small LCVs	£60	£120	£240	£480	£480
Large LCVs	£60	£120	£240	£480	£960
Bus and Coach	£60	£120	£240	£480	£960
HGV	£60	£120	£240	£480	£960
Motorcycle & Mopeds	£60	£120	£240	£480	£480
Special Purpose Vehicle (SPV)	£60	£120	£240	£480	£480

2.3.4 Enforcement

Section 8 of the Transport (Scotland) Act 2019 enables the Scottish Ministers, by regulations, to make provision for or in connection with the enforcement of LEZ schemes. In addition, provision may be made for creating offences and about the records to be produced or in connection with approved devices. The maximum penalty that may be provided for in regulations for creating offences is, on summary conviction, a fine not exceeding level 5 on the standard scale. The proposed LEZ enforcement regime builds upon existing enforcement regimes in Scotland. Details of the LEZ enforcement regime are outlined within the Regulations, with the general principles of the LEZ enforcement regime covering:

- The manner in which a penalty charge notice will be enforced;
- The issuing of a Penalty Charge Notice (PCN) or the issuing of a further PCN following cancellation of the original PCN and the records that must be produced by or in connection with approved devices;
- The timing and manner of payment of a penalty charge;
- Reviews and appeals process;
- The enabling of local authorities to enter into arrangements with any person in connection with the exercising of the LEZ enforcement regime.

2.3.5 Prior Consultation

Section 11(e) of the Transport (Scotland) Act 2019 enables Scottish Ministers to make provision to specify other persons whom local authorities must consult before a local authority asks the Scottish Ministers to approve the making, amendment or revocation of a LEZ. There are a number of organisations outlined within Section 11 of the Act which local authorities must consult when making, amending or revoking a scheme. These organisations are:

- the Scottish Environment Protection Agency (SEPA);
- NatureScot;
- Historic Environment Scotland (HES);
- such persons as the authority considers represent the interests of; and –
 - the road haulage industry,
 - the bus and coach industry,
 - the taxi and private hire car industry,

- local businesses, and drivers, likely to be affected by the proposal,
- such other persons as the authority considers appropriate.

The Scottish Government proposals for additional 'other persons' whom local authorities must consult as identified as a result of stakeholder engagement, but is not exhaustive, include:

- Local authorities neighbouring the authority delivering the scheme;
- Regional Transport Partnerships; and
- NHS (including Health Boards).

2.3.6 Section 12(6) and (7) – Examination of proposals

Section 12(6) and (7) of the Act allow either the local authority proposing the LEZ, or the Scottish Ministers, to appoint a reporter to carry out an examination into a proposal for a LEZ. It also gives the Scottish Ministers a regulation making power to prescribe the procedures for examinations, and to make provision about financial matters associated with examinations. The regulations further outline procedures for LEZ examinations to ensure the appointed Reporter leading the examination understands what is required. The appointed Reporter will undertake an assessment of evidence and provide a report with a decision and recommendations which will help to inform decision making by the party responsible for calling the inquiry.

2.3.7 Ministers power to regulate process

The regulations made under Section 13 set out the procedural requirements relating to the establishment, amendment or revocation of a low emission zone scheme. This regulation allows for flexibility of LEZs.

2.3.8 Approved devices

Section 21(1) of the Transport (Scotland) Act 2019 provides the power to Scottish Ministers to specify the approved devices to be used for or in connection with the operation and enforcement of a low emission zone scheme. The regulations outline the specification of approved devices and provides detail in relation to the certification of an approved device and the statutory requirements of an approved device. The Scottish Government's proposal is that ANPR/CCTV cameras will be utilised for the operation and enforcement of LEZs.

2.3.9 Accounts

Section 28 of the Act enables Scottish Ministers to make provision for local authorities, who are operating a LEZ scheme, to keep accounts for the duration of that scheme's operation. The accounts should outline the income and expenditure of the scheme, and how the net proceeds of the scheme are calculated. These accounts should then be prepared and presented each financial year in a statement of accounts and should also be published in the annual accounts of the local authority for the applicable financial year. The annual accounts will help local authorities to fulfil the requirements of Section 29(2) within the annual report.

2.4 Current LEZ Implementation

Current progress of LEZ implementation in Scotland differs between the four cities, with Glasgow the only city to currently have a zone in place (which only applies to local bus services). Plans to implement LEZs were paused temporarily due to the COVID-19 outbreak but work has now restarted and an indicative timeframe to introduce LEZs across the four cities has now been agreed. It is proposed that LEZs be introduced across Glasgow, Edinburgh, Dundee and Aberdeen between February 2022 and May 2022.

The LEZ in Glasgow is being phased, phase 1 commenced in December 2018 and applies only to local bus services within the city centre. This requires 20% of bus journeys entering the LEZ to meet the Euro VI emission standard by the end of December 2018, and subsequently this target will increase each year by 20% until 100% compliance

is met. Phase 2 of the LEZ will include private vehicles. An EQIA Screening Form for phase 1 had been published (Glasgow City Council 2018), and an IIA will be prepared for Phase 2.

Edinburgh, Aberdeen and Dundee have all undertaken public and stakeholder engagement over their proposals and are being development in tandem with the national regime.

3. Methodology / Approach to the IIA

3.1 Introduction

This section sets out the approach used to identify and assess the impacts of the LEZ Regulations on different protected characteristic groups and IIA objectives.

This IIA has been conducted using guidance published in 2017 for Councils, Health and Social Care Partnerships in the Lothians (NHS Lothian 2017). The NHS checklist of population groups and IIA themes has been used to identify population groups who would be affected by the implementation of the LEZ Regulations. The guidance sets out a 7-stage process to completing an IIA, which has been followed in the completion of this IIA, as demonstrated in Table 3. This report constitutes stages 4 and 6 of the 7-stage process.

Table 3- IIA 7-Stage Process

Stage	Task	Status/Actions
1	Identify if an Integrated Impact Assessment is needed	A screening report was undertaken which identified the requirement for an IIA consisting of the following assessment: <ul style="list-style-type: none"> • Equalities Impact Assessment to assess adherence to the Public Sector Equality Duty; • Fairer Scotland Duty Assessment, to assess adherence to the Duty; and • Child Rights and Wellbeing Impact Assessment, to assess potential impacts of LEZ policy instructions on children's rights and their well-being and to determine impacts on children's services.
2	Undertake Integrated Impact Assessment	A scoping report was produced to identify the scope of the IIA, baseline data sources and potential impacts to be assessed. An IIA workshop was conducted on 10/12/2020 to go through the IIA checklist, identifying impacts, confirming agreed mitigation and identifying where further mitigation or enhancement measures may need to be considered.
3	Consider the results of your assessment	The findings of the IIA workshop were compiled in a spreadsheet alongside evidence to support these findings as well as further mitigation which could reduce the impacts assessed. These results were considered and are presented in Chapter 6 (Assessment of Impacts) of this report.
4	Report the IIA findings	This report presents the findings of the assessment.
5	Sign Off	Responsibility of Transport Scotland
6	Publication	Responsibility of Transport Scotland
7	Act on IIA	Responsibility of Transport Scotland

3.2 Scope

The IIA brings together the assessment under three themes: equalities and human rights, environmental, and economic into a single objective-led assessment framework.

The assessment of social impacts assists Transport Scotland and/or Scottish Ministers in fulfilling their duties under the following legislation (Further explained in Section 1.2):

- The Equalities Act 2010 (Specific Duties) (Scotland) 2012, specifically:
 - The Public Sector Equality Duty (PSED) which requires public bodies to have due regard to three aims:
 - to eliminate discrimination, harassment and victimisation and any other conduct that is prohibited by or under the Act;
 - to advance equality of opportunity between people who share a relevant protected characteristic and people who do not share it; and

to foster good relations between people who share a relevant protected characteristic and those who do not share it.;

- The Fairer Scotland Duty (FSD) which places a legal responsibility on public bodies in Scotland to actively consider ('pay due regard' to) how they can reduce inequalities of outcome caused by socio-economic disadvantage, when making strategic decisions.
- The Children and Young People (Scotland) Act 2014, which requires Scottish Ministers to fulfil duties related to Part 1, Section 1 (Duties of Scottish Ministers in relation to the rights of children) consisting of:
 - as required in (1) (a) 'keep under consideration whether there are any steps which they could take which would or might secure better or further effect of the UNCRC (United Nations Convention on the Rights of the Child) requirements';
 - Scottish Ministers must take account of the relevant views of children;
 - Scottish Ministers must promote public awareness and understanding (including appropriate awareness and understanding among children) of the rights of children; and
 - Produce a report after a 3-year period outlining the steps that have been taken to meet the UNCRC requirements and plans for the next 3-year period.

As such a CRWIA is an effective assessment to inform Scottish Ministers on how proposed regulations and policies can affect their duty to fulfil legal requirements related to the Children and Young People (Scotland) Act 2014.

Each duty is focused on different (but overlapping) population groups, but they are united in their aim to address inequalities. As these three assessments are related, the IIA consists of a combined framework to conduct an IIA of the LEZ Regulations and policy instructions, to enable effective analysis of the interrelationships and avoid duplication but encompassing three broad groups:

- People with protected characteristics as defined in the Equality Act 2010 (see Table 4);
- Those vulnerable to falling into poverty (e.g. unemployed, single parents, homeless people, carers and vulnerable families);
- Geographical communities (e.g. urban, rural and business communities).

Table 4 - Definitions of relevant 'protected characteristics'

Protected Characteristic Group	Definition
Age	This refers to persons of a particular age or age range (for example 18 to 30-year olds).
Disability	A disability is a physical or mental impairment which has a substantial and long-term adverse effect on a person's ability to carry out normal day-to-day activities.
Sex	A man or a woman.
Race	A group of people defined by their race, colour, and nationality (including citizenship), ethnic or national origins.
Pregnancy or maternity	Pregnancy is the condition of being pregnant or expecting a baby. Maternity refers to the period after the birth and is linked to maternity leave in the employment context. In the nonwork context, protection against maternity discrimination is for 26 weeks after giving birth.
Gender reassignment	The process of transitioning from one gender to another.
Religion or belief	Religion has the meaning usually given to it, but belief includes philosophies such as lack of belief (atheism). Generally, a belief should affect life choices for it to be included in the definition.
Sexual orientation	Whether a person's sexual attraction is towards their own sex, the opposite sex or to both sexes.

The assessment of environmental impacts within the IIA is qualitative and based on secondary research. The environmental assessment provided in this IIA does not constitute a Strategic Environmental Assessment (SEA) under the Environmental Assessment (Scotland) Act 2005. Were the LEZ Regulations and policy instructions considered to constitute a qualifying plan under this legislation, then a stand-alone SEA would need to be conducted. In November 2020, a screening report was submitted by Jacobs on behalf of Transport Scotland to the SEA Gateway to confirm whether a SEA of the LEZ Regulations and policy instructions will be required. The screening report concluded that the environmental impacts associated with the LEZ regulations will depend on the spatial context, environmental conditions and scope for traffic related pollution to be displaced elsewhere. These impacts will need to be considered as the individual LEZs are developed on a case by case basis. Correspondence from the Scottish Government on 18th December 2020 confirmed that an SEA was not required and that statutory consultees advised it is unlikely that the proposals would result in significant environment effects.

The assessment of economic impacts within the IIA is focused upon socio-economic outcomes, including for local business. Impacts on the wider economy do not fall within the scope of the IIA but are addressed in a separate Business and Regulatory Impact Assessment (BRIA) which analyses the cost and benefits to businesses and the third sector as a result of the LEZ Regulations. Where relevant, this IIA report draws upon evidence from the BRIA.

3.3 IIA Objectives

The NHS guidance sets IIA objectives under each of the three assessment themes as shown in Table 5.

Table 5 - IIA Objectives

IIA Topic/Theme	IIA Objectives
Equality and Human Rights	Eliminate discrimination and harassment
	Advance equality of opportunity e.g. improve access / quality of services
	Foster good relations within and between people with protected characteristics
	Enable people to have more control of their social/work environment
	Reduce differences in status between different groups of people
	Promote participation, inclusion, dignity and control over decisions
	Protect vulnerable children and Adults
Environmental	Reduce greenhouse gas (GHG) emissions (including carbon management)
	Plan for future climate change
	Pollution: air/water/soil/noise
	Protect coastal and inland waters
	Enhance biodiversity
	Encourage resource efficiency (energy, water, materials and minerals)
	Public Safety (e.g. minimise waste generation, infection control, accidental injury, fire risk)
	Reduce need to travel and promote sustainable forms of transport
	Improve the physical environment (e.g. housing quality, public space, access to and quality of green space)
Economic	Maximise income and/or reduce income inequality
	Help young people into positive destinations
	Support local business
	Help people to access jobs (both paid and unpaid)
	Improve literacy and numeracy
	Improve working conditions, including equal pay
	Improve local employment opportunities

IIA Topic/Theme	IIA Objectives
	Improve quality of and access to services

The assessment of impacts of the LEZ Regulations against IIA objectives is provided in Table 9 of Section 6 (Assessment of Impacts).

3.4 Assumptions and Limitations

The assessment has been undertaken at a national level, drawing upon evidence gained from national stakeholder engagement and consultation undertaken by TS (See Section 4) and relevant national baseline data. Potential impacts are reported generically in terms of future LEZs, and do not apply to any specific individual LEZ areas, all of which would be expected to conduct their own scheme specific impact assessments prior to implementation. This national level IIA therefore identifies potential impacts, which will inevitably need to be assessed in greater detail at the local level, to reflect local scheme design and prevailing baseline conditions. For this reason a magnitude or scale of impact is not reported in this assessment.

All impacts are identified as positive, negative or neutral, and will be assigned a duration: short-term (first year of operation) and medium term (between 2 and 5 years). No longer term (6+ years) impacts have been identified, as it is assumed that vehicle users impacted by the LEZ will have adjusted to the Regulations within this timeframe, and that natural vehicle replacement cycles, including falling cost and greater uptake of low and zero emissions vehicles in accordance with Government policy will outweigh the impacts of the LEZ Regulations.

Assumptions have been made in relation to the behavioural response of vehicle owners to the introduction of a LEZ based upon a combination of national guidance and research undertaken to inform recent assessments of other low emissions zones. These assumptions include:

- how people would react to various charges with options to upgrade the vehicle, change mode, or cancel/re-route their trip; and
- The cost of upgrading non-compliant vehicles (used and second hand).

Findings from survey data in Bristol to understand how people would react to zone have informed work undertaken for the Manchester Clean Air Zone and the Edinburgh LEZ proposals. This indicated that two thirds of car users would choose to upgrade their vehicle, with the remaining journeys roughly equally a split between a change of mode or a cancellation of the trip (Jacobs, October 2020).

In terms of the cost of upgrading vehicles, the Joint Air Quality Unit (JAQU) has issued guidance which assumes that for all vehicle types, (with the exception of diesel cars) 100% vehicle owners will upgrade to a used vehicle of the same fuel type. For diesel cars it is assumed that 75% of owners that upgrade would switch to petrol. For both petrol and diesel cars it is assumed that 75% of upgrades would be used vehicles. Table 6 is taken from the Edinburgh LEZ IIA Report (Jacobs, October 2020) and shows the average residual value of vehicles by type and Euro standard in 2023. It is based on the assumption that in 2023 Euro 6 vehicles have the current value of Euro 4 vehicles, due to the increasing uptake of Euro 6c (from September 2019) and 6d (from January 2022).

Table 6 - Average residual value (£) per vehicle by type and euro standard in 2023 (Jacobs 2020)

	Euro 1	Euro 2	Euro 3	Euro 4	Euro 5	Euro 6	Euro 6c	Euro 6d
Car Petrol	156	314	633	1,511	3,036	7,260	12,547	19,916
Car Diesel	177	356	717	1,711	3,438	8,224	14,212	22,559
LGV Petrol	295	497	838	2,004	4,024	9,619	16,627	26,391
LGV Diesel	295	497	838	2,004	4,024	9,619	16,627	26,391
HGV	299	662	1,463	3,236	7,158	19,308	42,705	65,700
Bus/Coach	728	1,611	3,563	7,882	17,432	47,021	104,000	160,000

Note: Euro 6 was introduced in 2014; new Euro emission standards, such as 6c and 6d, will be in effect by 2023 and therefore average residual values for these vehicles have been included.

It should be acknowledged that it has not been possible in the time available to conduct further targeted engagement with organisations representing those protected characteristic groups in Scotland likely to be impacted by the LEZ Regulations. It is assumed that further engagement will be carried out during the development of individual LEZ proposals.

Where applicable, evidence has been drawn from IIAs undertaken for other LEZ schemes to support this IIA's analysis, including Edinburgh LEZ (Jacobs 2020), London Ultra Low Emission Zone (Jacobs 2014 and 2018a) and Birmingham Clean Air Zone Feasibility Study (Jacobs 2018b).

4. Feedback from Engagement and Consultation

The development of the LEZ Regulations has been informed by stakeholder engagement undertaken by Transport Scotland. A summary of the relevant evidence obtained from engagement is provided below.

4.1 Consultation on Building Scotland's Low Emission Zones – Analysis Report (CH2M 2018)

In 2017, prior to the Transport (Scotland) Act (2019) receiving Royal Assent, a consultation (Building Scotland's Low Emission Zones) took place to gather thoughts on the LEZ policy making process and to guide the development of regulations and principles which would be established to introduce Scottish LEZs. Analysis of responses to this consultation, regarding impacts on protected characteristic groups, can be found in Section 5 (Baseline).

4.2 Scotland Low Emission Zone Consultation 2019-2020 (Transport Scotland 2020a)

Transport Scotland undertook further consultation (Scotland's Low Emission Zones: Consultation on Regulations and Guidance) in order to gather feedback on the proposed LEZ Regulations outlined by the Transport (Scotland) Act (2019) (summarised in Section 2 of this report). The consultation took place between 13th December 2019 and 24th February 2020, receiving 305 responses from both individuals (234/77%) and organisations (71/23%). Responses to questions on the key components of the Regulations are summarised below:

- Emission Standards - 49% of those that responded agreed with the proposed emission standards, 46% disagreed, with the remainder not answering. Across all responses the general perception was that emission standards should be more stringent. Of those that disagreed, the most common reasons were: the lack of effectiveness of LEZs; the cost of scrapping older vehicles and purchasing vehicles to comply with the standards; and, the view that there should be exemptions for vintage/classic/historical vehicles. Of relevance to the IIA, respondents were also concerned about the negative impact that regulations would have on specific groups (e.g. disabled, low income and rural residents).
- Penalty Charges - 35% of respondents agreed with the proposed penalty charges applied for LEZ schemes, however 53% disagreed with a view that the charges were too high.
- Enforcement Regime – 56% of respondents agreed with the general principles of the proposed enforcement regime with 30% disagreeing. Those that disagreed were concerned with the cost impact associated with purchasing new vehicles, with potentially greater impacts on socio-economically disadvantaged groups.
- Exemptions – The proposals for exempting certain categories of vehicles received the following levels of support from respondents: 74% for emergency vehicles, 72% for historic vehicles, 58% for military vehicles, 55% for disabled persons, 34% for showman vehicles.
- Consultations with 'Other Persons' – Only 16% of respondents agreed with the proposed list of 'other persons' that local authorities must consult when making, amending or revoking a LEZ scheme. 48% disagreed with the list on the basis that it excluded certain groups who should be included, or alternatively that some groups that were included did not need to be. Respondents who disagreed, wanted the inclusion of groups including: Classic car clubs/historical vehicle organisations, Federation of Small Businesses, delivery companies (including the Royal Mail), coach companies, rural residents, parent/toddler groups and the Confederation for Passenger Transport/Community Transport Association.

Of particular relevance to the IIA, Question 10 asked respondents 'What positive or negative impacts do you think the LEZ proposals outlined within this consultation may have on' (p.71) groups of people with protected characteristics, (and specifically in relation to the very young and old) and people facing socioeconomic disadvantages. Responses relevant to each group are provided below:

- (a) Particular groups of people, with particular reference to 'protected characteristics' – Of those that responded, 25% anticipated negative impacts, 8% positive impacts, 8% both positive and negative impacts and 7% no impact. The other 52% of respondents either did not answer, were not clear in their answer or

chose to not comment. The main reasoning for negative impacts were the costs associated with purchase of new compliant vehicles. Likely positive impacts on these groups were seen to be a result of the reduction in congestion, improvement in air quality and subsequent improvement in health.

- (b) The very young and old – Of those that responded, 16% predicted positive impacts, 16% negative impacts, 6% both positive and negative impacts and 4% no impact. The other 58% of respondents either did not answer, indicated they had no comment or were not clear in their answer on determining the impact. Anticipated negative impacts included the cost of purchasing compliant vehicles as well as a concern for the lack of public transport options. Reasons given for identifying positive impacts were as a result of expected improvements in air quality, reduced congestion and positive improvements in health.
- (c) People facing socioeconomic disadvantages – Of those that responded, 31% anticipated negative impacts, 6% positive impacts, 5% both positive and negative impacts and 3% no impact on people facing socioeconomic disadvantage. The other 55% of respondents either did not answer, chose to not comment, or were not clear in their answer on determining the impact. The main reason given for predicted negative impacts on this group was the costs associated with the purchase of new compliant vehicles. Those responses that identified positive impacts considered that the proposals would reduce congestion, improve air quality in city centres and enable improvement of the transport network which would benefit people facing socioeconomic disadvantages.

5. Baseline

This section presents baseline data and information that has been used in the consideration of impacts of LEZ implementation on equality, human rights, economic factors and the environment.

5.1 Air Quality in Scotland Baseline

Identified in Section 2.2 (Air Quality in Scotland), the Scottish Government has a responsibility to meet both UK and European Air quality legislation. However, there are exceedances of the legal limit of concentrations of pollutants in Scotland which is reported in a study undertaken by Ricardo Energy & Environment of Scotland's air quality in 2019, presenting data for pollutants at monitoring sites throughout Scotland (Ricardo Energy & Environment 2020). Of the 89 sites set up to collect NO₂, five sites exceeded the NO₂ annual mean objective of 40 µg m⁻³, these were located in Dundee, Edinburgh and Glasgow, with the highest annual average recorded at a site in Glasgow (55.7 µg m⁻³).

Air Quality Management Areas (AQMA's) are declared for an area when any of the Scottish Air Quality Objectives are exceeded and are located in areas where the general public are exposed to the pollutant. In 2020, there were 38 AQMA's declared by 15 local authorities in Scotland (Ricardo Energy & Environment 2020).

Figure 3a-d (refer to Appendix B) presents baseline roadside NO₂ concentrations in 2018, as well as AQMA locations in the four cities that will be introducing LEZs. Each show exceedances in the legal limit of NO₂ concentrations particularly around the city centre areas. Transport is considered one of the largest sources of pollution and as reported in the Cleaner Air for Scotland Strategy - An Independent Review (Scottish Government 2019a), in 2016 transport contributed to over one-sixth of Scotland's overall PM₁₀ levels and over a third of the total emission of NO_x.

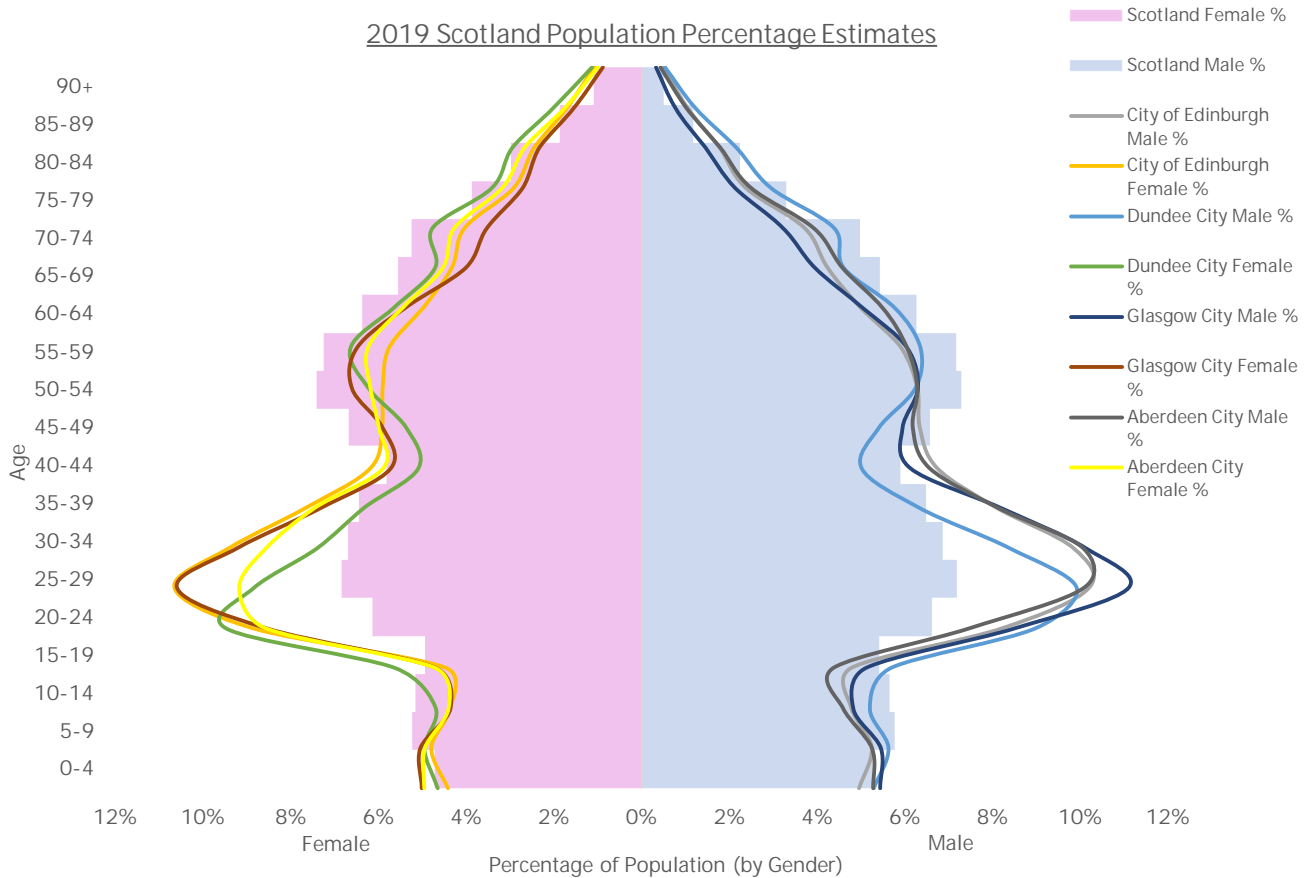
It is noted that levels of NO₂, PM₁₀ and PM_{2.5} have decreased significantly in urban areas of Scotland during the Covid-19 pandemic due to the decrease in vehicle traffic on Scotland's roads (Ricardo Energy & Environment 2020).

5.2 Population and Travel Behaviour

A baseline of data has been collected to identify trends of population related to protected characteristic groups (refer to Table 4) in Scotland who may be impacted by the introduction of LEZs. The travel patterns of these groups in addition to geographical location and health have also be considered.

5.2.1 Age

Figure 1 - Pyramid of Scotland's/Proposed LEZ Cities Population (National Records of Scotland 2020)



According to the National Records of Scotland 2019 mid-year estimates, the population of Scotland was estimated to be 5,463,300 (National Records of Scotland 2020). Figure 1 shows the percentage distribution of Scotland's population by age category and gender compared to each of the four cities committed to the introduction of LEZs. It is evident from both Figure 1 and Table 7 that the four cities all have a disproportionately larger share of their population in the 25-44 category, but a consistently lower proportion in the 45-64 category, while more closely reflecting the Scottish average in other age groups.

Table 7 – Breakdown of age estimates by gender for Scotland and LEZ Local Authorities (National Records of Scotland 2020)

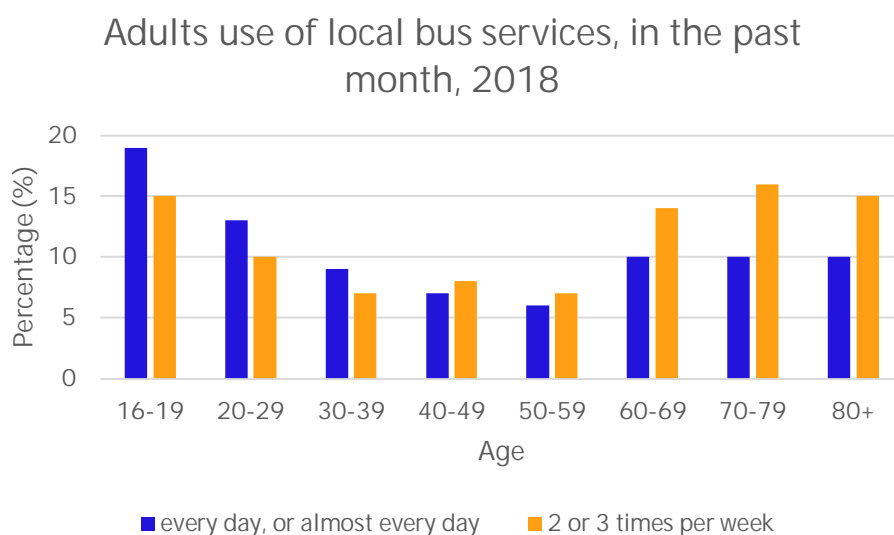
Local Authority/Scotland	Gender	Age Category						Gender Totals	Total
		0-15	16-24	25-44	45-64	65-74	75+		
Scotland	Male	18%	11%	26%	27%	10%	7%	2,663,003	5,463,300
	Female	16%	10%	26%	28%	11%	10%	2,800,297	
City of Edinburgh	Male	16%	12%	35%	24%	8%	6%	256,303	524,930
	Female	14%	13%	34%	23%	8%	8%	268,627	
Glasgow City	Male	17%	13%	36%	23%	7%	5%	310,036	633,120
	Female	15%	12%	33%	24%	8%	7%	323,084	
Dundee City	Male	17%	14%	30%	24%	9%	7%	72,128	149,320
	Female	15%	14%	28%	24%	9%	10%	77,192	
Aberdeen City	Male	16%	11%	35%	24%	8%	6%	113,797	228,670

Local Authority/Scotland	Gender	Age Category						Gender Totals	Total
		0-15	16-24	25-44	45-64	65-74	75+		
	Female	15%	13%	31%	24%	9%	9%	114,873	

Older people

Bus travel is one of the main transport methods for the older population groups (60+), as demonstrated by Figure 2. When asked how often they use their local bus services in the past month, 16% of 70-79-year olds said they used it 2-3 times per week, closely followed by 80+ year olds (15%) and 60-69 year olds (14%) (Transport Scotland 2019a). According to the Transport and Travel in Scotland report, of the 60+ year olds who possessed a concessionary fare pass, 17.7% used them 2 to 3 times a week with 9.1% using them once a week (Transport Scotland 2019a).

Figure 2 - Frequency of local bus services uptake by adults (Transport Scotland 2019a)



This dependency was identified by respondents on the Consultation on Building Scotland’s Low Emission Zones (CH2M 2018), with LEZs believed to have a negative impact on elderly people who use public transport if fares were to increase. Another issue raised by respondents was the impact if elderly people, with reduced mobility, are unable to drive their vehicles close to the city centre as a result of the implementation of a LEZ.

Working Population – 16 to State Pension Age

In 2019 66% of the population were of working age (from 16 years to state pension age (currently 66)) (National Records of Scotland 2020). In 2019, 68% of people usually travelled to work by car or van, 63% as the main driver and 5% as a passenger (Transport Scotland 2020b). Other forms of travel included, walking (12%), bus (10%), rail (5%) and cycling (3%). The main reasons for choice of travel to work by car are believed not to have changed since the Scottish Household Survey was undertaken in 2018. Of those 53% said they were unable to use public transport as there was no direct route, there was a lack of service or that it takes too long. For those who did not use public transport but could, the reasons were that it took too long, there was no direct route, it is inconvenient or that they prefer to use the car (Transport Scotland 2019a).

Figure 4a-d (Appendix B) presents 2011 census data on the mode of travel to work, specifically for those people who drive or are passengers in a car or van. It is evident for the four cities that use of car as a mode of travel to work is highest in the rural areas where public transport is less accessible. Access to bus (weekday) is lowest in peripheral and rural areas of cities as demonstrated in Figure 7a-d (Appendix B). Figure 5a-d (Appendix B) maps the other modes of travel to work excluding car travel. Edinburgh, Aberdeen and Dundee travel active travel

methods (walking and cycling) are the most common methods closer to the city centres and bus is the most common in peripheral/semi-rural areas. This pattern is similar for Glasgow, however, the use of train is also a commonly used mode of travel due to the extensive rail network surrounding Glasgow.

Younger People

Figure 2 shows that 16-19 year olds have the highest proportion of daily (or almost daily) bus use across all age groups, with 61% of those surveyed in 2019 saying they had used the bus in the last month (Sustrans 2019). In Scotland there has been a drop in the number of young people (17-19 year olds) acquiring driving licenses from 39% in 1995 to 31% in 2017 (Sustrans 2019).

Of journeys made to school 52% are by foot, 25% by car, 14% by School bus, 5% by service bus and 2% by bike (Transport Scotland 2020b). As part of Sustrans Hands up Survey in 2019, 47.8% of school pupils that were surveyed said that they travel to school by an active form of travel, which is the most frequently reported mode of travel to school (Sustrans 2020). Although there has been a decrease in those walking to school from 45.8% in 2010 to 41.0% in 2019, cycling and scootering/skating have both increased from 2.8% to 4.1% and 0.7 to 2.7% respectively (Sustrans 2020).

5.2.2 Disability

Disability is defined in the Equality Act 2010 as 'a long-term limiting mental or physical health condition, that has a substantial negative impact on your ability to do normal daily activities that has lasted, is expected to last, more than 12 months. The key elements of this definition are that there is a long-lasting health condition and that this condition limits daily activity'.

Using this definition, according to the Scottish Health Survey in 2017, it is estimated that 45% of adults and 17% of children in Scotland had a long-term condition or illness, and of that 32% of adults and 10% of children had long-term conditions that were also limiting (Scottish Government 2018b).

According to the Scottish Household Survey, in 2018 adults with a disability or long-term condition (lasting or expected to last 12 months or more) reported lower levels of attendance at cultural events or places; 52% in comparison to 86% for those with no condition (Scottish Government 2019b). In a UK-wide research survey undertaken by SCOPE, 49% of disabled people said they felt excluded from society (SCOPE 2018). Respondents to the survey stated that physical and attitudinal barriers prevent disabled people from using public transport and that 'public transport acts as a microcosm for barriers they (disabled people) face across society' (2018 p.20).

Table 8 shows the number of concessionary passes issued from 2012 to 2019 and the percentage change. Over that period there has been a significant reduction on passes issued to disabled people (-40%) and visually impaired people (-19%) including those with a companion (-14%), in contrast to the increase in passes issued to the elderly (+17%) and in total passes issued (+14%). The reduction in passes issued to disabled, visually impaired and visually impaired + companion may reflect the barriers the physical and attitudinal barriers of the transport system identified above.

Table 8 - Concessionary fare passes issued to disabled and aged 60+ (Transport Scotland 2019b)

Characteristic Group	Year								Change 2012-2019 (%)
	2012	2013	2014	2015	2016	2017	2018	2019	
60+	1,074,616	1,141,214	1,142,923	1,170,709	1,146,751	1,156,063	1,203,751	1,256,531	17%
Disabled	61,660	43,979	44,381	43,590	41,348	39,384	37,228	37,268	-40%
Disabled + companion	109,680	93,619	96,253	106,078	111,486	118,217	123,786	129,308	18%
Visually Impaired	4,751	4,188	4,092	4,041	3,921	3,826	3,787	3,852	-19%

Characteristic Group	Year								Change 2012-2019 (%)
	2012	2013	2014	2015	2016	2017	2018	2019	
Visually Impaired + Companion	11,554	10,223	10,102	10,099	9,745	9,592	9,546	9,658	-16%
All cards	1,262,261	1,293,223	1,297,751	1,334,517	1,313,251	1,327,082	1,378,098	1,436,617	14%

In addition, it is estimated that drivers with mobility difficulties make 40% less journeys than the rest of the UK population that drive as a result of a lack of access to private vehicles and a reliance upon public transport (Government Office for Science 2019).

Results of an EQIA undertaken for the 2018 Transport (Scotland) Bill, identified concerns surrounding disabled people that may be excluded from LEZs as a result of owning older vehicles in addition to being restricted to alternative public transport access (Transport Scotland 2018). Similar concerns were raised in ‘Consultation on Building Scotland’s Low Emission Zones’ (CH2M 2018), where respondents stated that disabled people are limited in their choice in how they can travel and that investment in public transport is required to facilitate greater access to services and more locations.

When asked ‘What exemptions should be applied to allow LEZ to operate robustly?’, 18 respondents suggested that blue badge holders should be exempt (2018 p.74). However, it is also recognised that disabled people that didn’t qualify for a Blue Badge would also be negatively affected. According to SPICe, in 2016 there were approximately 232,000 Blue Badge on issue in Scotland (SPICe 2016). Other initiatives that were supported in the consultation included implementing a 3-year sunset period for vehicles with a disabled or disabled passenger vehicle tax class (739 responses), in addition to due consideration of the Motability Scheme within the design of LEZs (CH2M 2018).

5.2.3 Sex

As can be seen from Figure 1, the overall split between Males and Females is almost even at 49% and 51% of the population respectively in 2019 (National Records of Scotland 2020). However, in the older age groups there is a lower proportion of men because women have a greater life expectancy (National Records of Scotland 2020). These findings are consistent across the four LEZ cities.

In relation to travel to work, 63% of both males and females use a car or van (Transport Scotland 2019a). Women are more likely to cycle, catch the bus or walk to work. 31% of women are believed to use the bus at least once a week in comparison to 25% for men (Transport Scotland 2019a). However, men were more likely to cycle to work (4%) than women (1%). This trend is reiterated by Sustrans study on exploring gender and active travel, with 4% of men and 2% women in Scotland cycling 1-2 times a week as a means of transport, with 5% of men and 2% women cycle 1-2 times a week for leisure purposes (Sustrans 2018).

Women are more likely to trip-chain i.e., break their trip between origin and final destination by including intermediate trips, such as the home to work trip may include home to school for drop-off- work or vice-versa. 25% of women are more likely than men to do a trip-chain in London and this figure could be 39% for a household with a child older than nine years (Criado-Perez, 2019).

5.2.4 Race

According to 2011 Census data, people of White Scottish ethnicity were more likely to drive to work (58%) in comparison to other ethnic groups and less likely to take the bus (Scottish Government 2015b). People of African ethnicity were the least likely to drive to work (31%) and were the most likely to take the bus (31%) (Scottish Government 2015b).

Indian, Pakistani and Chinese households were most likely to have access to a car and African households were least likely to. At the time of the 2011 census, three quarters of households in Scotland had access to a car or van. The proportion was over 80% for Pakistani and white: other British households and lowest (47%) for African households (Scottish Government 2015b).

In terms of travel by cycle, 98.5% of cyclists on the National Cycle Network identified themselves as white (Sustrans 2018).

5.2.5 Religion or belief

According to 2011 census data, the average across all religions in Scotland for driving a car or van to work was 56%. Hindu recorded the lowest percentage for driving a car or van to work with 37%, however had the highest uptake of walking (18%) and getting the bus, minibus or coach (22%) (Scottish Government 2015b).

People who recorded as 'Church of Scotland' recorded the highest (60%) in terms of use of car or van to drive to work and subsequently recorded the lowest in use of Train/underground (3%) and bus, minibus or coach travel (8%) (Scottish Government 2015b).

5.2.6 Rural communities

People in rural areas are assessed to be more likely to drive than those in urban areas (Transport Scotland 2020b). As shown in Figure 7a-d (refer to Appendix B) this reflects lower levels of public transport accessibility in rural areas. Figure 6a-d shows 2011 census data on the percentage of people travelling 10-30km to work in and around the four cities. The figure demonstrates that those in rural areas of cities or in neighbouring local authorities travel further to work than those living within urban areas.

5.2.7 Areas of Deprivation

Figure 3a-d in Appendix B, displays SIMD 20% most deprived areas against Baseline Roadside NO₂ concentrations and AQMA boundaries in the four LEZ areas in Scotland. A review of the CAFS undertaken by Professor Campbell Gemmell, concluded that air pollution disproportionately affects those that are already disadvantaged and vulnerable (Scottish Government 2019a). Additionally, air pollution is believed to further compound inequalities in accessibility, poor health and access to affordable mobility.

Upon analysis of Figures 3a-d, the geographical relationship between levels of deprivation and air quality vary considerably between the four cities in Scotland. As such conclusions on this relationship cannot be drawn at the national scale but should be analysed in the development of individual LEZs.

In relation to transport modes used, people from lower income households were more likely to walk or take the bus to work than those from higher income households. Driving was more common for people in higher income households (Transport Scotland 2020b).

5.3 Health Inequalities

Air pollution is assessed to have negative impacts on the short- and long-term health of individuals, particularly adults and children with lung or heart conditions, older people and children (DEFRA; accessed 2020).

The impact on the health of those with pre-existing health conditions, children and the elderly people were considered vulnerable groups that are disproportionately affected by air pollution in the Consultation on Building Scotland's Low Emission Zones report where respondents were positive towards the impact that LEZs can have on reducing health problems (CH2M 2018).

The Cleaner Air for Scotland Strategy – An Independent Review identifies that there is growing evidence from other countries linking reduced air quality with health conditions including dementia, diabetes and adverse pregnancy outcomes (Scottish Government 2019a).

6. Assessment of Impacts

6.1 Introduction

This Section presents an assessment of potential impacts from the introduction of the LEZ Regulations on equality and human rights, the environment and economic factors, against individual IIA objectives. These impacts were identified taking account of the analysis of baseline information, stakeholder engagement responses, assessment findings from other LEZ projects in the UK, and discussed and refined in an IIA workshop with Transport Scotland.

The assessment is presented in tabular form (Table 9). For each IIA objective positive and negative impacts are identified, with associated evidence. The final column identifies mitigation or enhancement measures that are either in place or recommended for consideration. All mitigation and enhancement measures are explained in greater detail in Section 7.

Appendix A (Table 15) identifies the individual population groups or community types that may be affected by each of the impacts identified.

Table 9 – Impact Assessment

IIA Objective	Assessed Positive/Negative Impacts	Evidence / Justification	Mitigation / Enhancement Measures
Equalities and Human Rights			
Eliminate Discrimination	<ul style="list-style-type: none"> No differential impact anticipated. 		
Advance equality of opportunity e.g. improve access / quality of services	<ul style="list-style-type: none"> Negative - Those living in deprived communities who are reliant upon private vehicles to access employment or education would be negatively impacted by the financial implications of the need to bring forward vehicle upgrades. Negative - Carers who use their own vehicles to provide service, may be negatively impacted by cost to replace or upgrade their vehicle, (this may result in potential reduction in quality or quantity of service or increase in cost to the user). Negative - Those that rely on charitable or voluntary services to either access services within LEZ areas or require services to travel to them may be negatively impacted, if the cost of providing the service increases in order to cover the costs of bringing forward fleet upgrade/replacement, which leads to a reduction in affordability or level of service provision. 	<p>Access from deprived communities to LEZ will vary considerably between cities, depending upon the socio-economic geography and the design of the individual LEZs (see Appendix B for maps showing relationship between deprived communities and transport related low air quality).</p> <p>Social Care is defined as a low paying industry by the Low Pay Commission. In 2017, 200,000 people worked in social care in Scotland, of which 83% were women and 50% worked part time. Average hourly pay was £9.79 (Fair Work Scotland Commission, 2019). The impact is likely to depend on the extent to which the costs of LEZ compliance are borne by the employer or the employee.</p> <p>Community transport benefits those who are otherwise isolated or excluded, enabling them to live independently, participate in their communities and access education, employment, health and other services. There are over 300 community transport operators in Scotland. Using everything from mopeds to minibuses, typical services include voluntary car schemes, community bus services, school transport, hospital transport, Dial-a-Ride, Wheels to Work and group hire services (Scottish Community Alliance, 2016).</p> <p>The replacement cost of larger vehicles is significant. However, the costs of retrofitting an eligible vehicle is approximately</p>	<p>Subject to meeting the eligibility criteria for households, this group may be eligible for the LEZ Support Fund and as such could receive £2,000 for their non-compliant vehicle to be scrapped and as such would be eligible for Travel Better funding.</p> <p>BEAR Scheme (bus retrofitting).</p> <p>See Recommendations for Further Mitigation and Enhancement (Section 7.2)</p>

IIA Objective	Assessed Positive/Negative Impacts	Evidence / Justification	Mitigation / Enhancement Measures
	<ul style="list-style-type: none"> Negative - Although the Blue Badge scheme is available to people with a range of disabilities, there may be circumstances of people with hidden disabilities that are not eligible and would be negatively impacted by LEZ implementation. In addition, without the implementation of a Blue Badge recognition scheme (see Section 6.2), there is no method of differentiating those that hold a blue badge as it is assigned to a person. As such, each time a blue badge holder enters a LEZ in a non-compliant vehicle they will be charged and will need to appeal. This may discourage blue badge holders from entering LEZs. 	<p>£15,000, which is comparable with the residual value of a non-compliant bus/coach (Jacobs, 2020). Evidence indicates that there was a low up take of the first three rounds of the Bus Emissions Abatement Retrofit Programme by community transport operators.</p>	<p>See Recommendations for Further Mitigation and Enhancement (Section 7.2)</p>
Foster good relations within and between people with protected characteristics	<ul style="list-style-type: none"> No differential impact anticipated. 		
Enable people to have more control of their social/work environment	<ul style="list-style-type: none"> Negative - Rural/semi-rural communities that require frequent access to LEZ areas (e.g. work, leisure, education) may be negatively impacted as a result of the financial implications of penalty charges or the cost of upgrade/replacement of their private vehicle. Neutral – Potential impacts on those who use the bus to access work as a result of increase to bus tickets by bus operators to recover cost of replacing/upgrading fleet. Impacts should be mitigated through the Bus Emissions Abatement Retrofit (BEAR) programme. 		<p>Rural drivers may be eligible for the LEZ support fund if they live within a 20km radius of a planned Scottish LEZ, as well as meeting the 4 other eligibility criteria.</p> <p>BEAR Programme supports bus and coach operators with the cost of retrofitting vehicles to Euro VI or better.</p>

IIA Objective	Assessed Positive/Negative Impacts	Evidence / Justification	Mitigation / Enhancement Measures
<p>Reduces differences in status between different groups of people</p>	<ul style="list-style-type: none"> Positive - LEZ implementation would result in increased health and wellbeing (particularly for elderly and young people, pregnant women, as well as those with respiratory illnesses) as a result of improvements to air quality as people switch to less polluting vehicles and other modes of transport (e.g. public transport and active travel methods). Positive – Deprived communities tend to be disproportionately impacted by poor air quality in large urban areas. 	<p>There is growing evidence from other countries showing associations of air pollution with other important health conditions including dementia, diabetes, and adverse pregnancy outcomes (low birth weight and prematurity). Collectively this constitutes good evidence that air pollution, even at the low concentrations found in much of Scotland, is linked to excess ill health that should be preventable by reducing pollution further. (Scottish Government, 2019a).</p> <p>2011 data analysing the population in LSOAs across Great Britain where NO2 exceed the NO2 annual average legal limit value (40ugm3) shows that approximately 45% of the population in the 20% most deprived live in areas of exceedance; higher than all other IMD quintiles (Chief Medical Officer, 2017).</p> <p>Maps showing the geographical location of the 20% most deprived LSOAs in Scotland’s four largest cities compared to NO₂ roadside emissions are provided in Appendix B. These illustrate how the relationship between these variables differs considerably between the cities, and will ultimately depend upon the geographical extent of the LEZ.</p>	<p>None required.</p>
<p>Promote participation, inclusion, dignity and control over decisions</p>	<ul style="list-style-type: none"> Negative - Those living in deprived communities who are reliant on personal vehicles would be negatively impacted by the financial implications of the need to bring forward expenditure on vehicle upgrades. Negative - Those that rely on charitable or voluntary services to either access services within LEZ areas or require services to travel to them may be negatively impacted, if the cost of providing the service leads to a reduction in affordability or level of service provision. 	<p>Impacts most likely to be experienced by those unable to access public transport or require access to provide vehicle to undertake paid employment.</p>	<p>Subject to meeting the eligibility criteria for households, this group may be eligible for the LEZ Support Fund and as such could receive £2,000 for their non-compliant vehicle to be scrapped and would therefore also be eligible for Travel Better funding towards use of alternative modes of travel (up to £1000 per household).</p>

IIA Objective	Assessed Positive/Negative Impacts	Evidence / Justification	Mitigation / Enhancement Measures
Build family support networks, resilience and community capacity	<ul style="list-style-type: none"> Negative - Financial impact on community transport providers who require to bring forward replacement / upgrade their vehicle fleet which may result in reduction in quantity/availability or increase in cost of service to vulnerable people. 	<p>Community transport benefits those who are otherwise isolated or excluded, enabling them to live independently, participate in their communities and access education, employment, health and other services. There are over 300 community transport operators in Scotland. Using everything from mopeds to minibuses, typical services include voluntary car schemes, community bus services, school transport, hospital transport, Dial-a-Ride, Wheels to Work and group hire services. (Scottish Community Alliance, 2016).</p> <p>The replacement cost of larger vehicles is significant. However, the costs of retrofitting an eligible vehicle is approximately £15,000, which is comparable with the residual value of a non-compliant bus/coach (Jacobs, 2020). Evidence indicates that there was a low take up of the first three rounds of the Bus Emissions Abatement Retrofit Programme by community transport operators.</p>	<p>Community Transport Providers eligible for Bus Emissions Abatement Retrofit (BEAR) programme.</p> <p>See Recommendations for Further Mitigation and Enhancement (Section 7.2)</p>
Reduce crime and fear of crime including hate crime	<ul style="list-style-type: none"> Negative - LEZ implementation may have a differential effect on certain groups, including women, LGBT community, BAME groups, young people and those who require to travel 'out of hours', arising from increased fear for personal safety as a result of modal shift to public transport methods of travel. As such, these groups may be disproportionately affected as they may feel safer user personal vehicles that are non-compliant with LEZ regulations. It is acknowledged that local authorities will be responsible for assessing how LEZ regulations specific to their area/extent will impact upon these groups, and how this can be mitigated through, for example greater service of public transport. 	<p>Scottish Transport Statistics (Transport Scotland 2019b) identified a notable difference between the proportion of people who felt safe using local bus services during the day (93%), compared to the evening (70%). The most recent data available relates to 2016.</p>	<p>See Recommendations for Further Mitigation and Enhancement (Section 7.2)</p>
Protect vulnerable children and adults	<ul style="list-style-type: none"> No differential impacts anticipated. 		
Promote healthier lifestyles including: <ul style="list-style-type: none"> diet and nutrition; sexual health; 	<ul style="list-style-type: none"> Positive - LEZ implementation is likely to encourage a modal shift from cars to public transport and active travel methods which will have a positive impact on health. 	<p>Heavy vehicle traffic, air and noise pollution and reduced streetscape amenity are likely to discourage active travel. While it is not currently possible to quantify the modal shift to active transport resulting from the implementation of a LEZ, survey</p>	<p>Not required. Though LEZ Support Fund and Travel Better funding measures should further support modal shift.</p>

IIA Objective	Assessed Positive/Negative Impacts	Evidence / Justification	Mitigation / Enhancement Measures
<ul style="list-style-type: none"> • substance misuse; • physical activity; and • life skills. 		<p>data from Bristol (see Section 3.3) indicates that there could be up to 1/3 fewer journeys by people who own non-compliant vehicles. Any reduction or shift away from polluting vehicular traffic and an associated improvement air quality would result in minor health benefits.</p>	
Environmental			
<p>Reduce greenhouse gas (GHG) emissions (including carbon management)</p>	<ul style="list-style-type: none"> • Positive - LEZ's likely to result in reduction in GHGs as a result of shift to more sustainable vehicles as well as active travel/public transport methods. • Negative - LEZ's may result in the displacement of traffic to areas surrounding LEZ boundaries. In turn may result in reduction in air quality of those areas. 	<p>Traffic displacement effects and associated emissions impacts will need to be assessed through local transport modelling to inform the design of individual LEZ schemes.</p>	<p>None required</p>
<p>Plan for future climate change</p>	<ul style="list-style-type: none"> • Positive – LEZs should result in a more rapid transition towards the use of low and zero emission vehicles. As such, the accelerated decrease in traffic emissions and the associated heat has the potential to contribute to a slight (unlikely to be perceptible) decrease in the effect of the urban heat island effect (UHI). 	<p>Whilst there are many factors that contribute to UHI, transport is a major contributor. Vehicles generate a large amount of heat through their exhaust emissions, radiant heat and tyre-road surface friction. As there is a higher density of vehicles in urban areas, this significantly contributes to the UHI and its associated health effects.</p>	<p>None required</p>
<p>Pollution: air/water/soil/noise</p>	<ul style="list-style-type: none"> • Positive – Reductions in traffic flows caused by modal shifts towards public transport and active travel, may result in the positive impact of reducing noise pollution within LEZ zones. • Positive - Implementation of LEZ's and chosen regulations should reduce air pollution due to the improvement in vehicle standards and a potential modal shift to more sustainable methods of transport. 	<p>The scale of the potential beneficial impacts on road noise in LEZ areas will depend on the extent to which owners of non-compliant vehicles choose to upgrade to compliant petrol (Euro 4) or diesel (Euro 6) vehicle or a quieter hybrid or electric ultra low emission vehicle (ULEV). As stated in Section 3.4 JACU guidance assumes all vehicle upgrades would be to other petrol or diesel cars. If this were the case, then the only short term noise benefits may be derived from a reduction in traffic volume, but this is likely to be small. Over the medium – long term a bigger positive impact on noise in urban areas will result from the switch to ULEV.</p>	<p>None required.</p>
<p>Protect coastal and inland waters</p>	<ul style="list-style-type: none"> • Positive - Dependent upon extent of LEZ's, particularly Edinburgh, Dundee and Aberdeen, where there may be potential for positive impacts to biodiversity and nationally designated sites along coastlines. 	<p>Subject to local air quality modelling.</p>	<p>None required</p>

IIA Objective	Assessed Positive/Negative Impacts	Evidence / Justification	Mitigation / Enhancement Measures
Enhance biodiversity	<ul style="list-style-type: none"> Positive - There are potential benefits from a reduction in air pollution deposition on habitats within LEZ areas through reduced traffic. 	Subject to local air quality modelling.	None required.
Encourage resource efficiency (energy, water, materials and minerals)	<ul style="list-style-type: none"> Negative - LEZs may result in risk of environmental harm from disposal of hazardous vehicle components from the replaced fleets e.g. batteries, in addition to placing increased pressure on waste management facilities and landfill. 	Subject to assessment of waste management capacity at a local level.	See Recommendations for Further Mitigation and Enhancement (Section 7.2)
Public safety e.g. <ul style="list-style-type: none"> minimise waste generation; infection control; accidental injury; and fire risk 	<ul style="list-style-type: none"> Negative – Vehicle waste may increase in the short to medium term where older (non-compliant) vehicles are scrapped earlier than anticipated due to the introduction of LEZ schemes. Neutral - The potential modal shift from private vehicles to public transport will require public transport operators to follow guidance regarding disease transmission due to the inherent risk of disease spread. 		See Recommendations for Further Mitigation and Enhancement (Section 7.2)
Reduce need to travel and promote sustainable forms of transport	<ul style="list-style-type: none"> Positive - LEZ implementation is likely to promote sustainable forms of transport via modal shift from cars to buses, shared cars, bicycles or walking, which in turn will have positive impacts on air quality as well as positive effects on health and well-being of people due to physical activity. 		None required.
Improve the physical environment e.g. <ul style="list-style-type: none"> housing quality; public space; and access to and quality of green space. 	<ul style="list-style-type: none"> Positive - Fewer vehicular trips into urban areas covered by a LEZ and increases in the use of sustainable modes should provide local authorities and other landowners with opportunities to improve the quality of public spaces/public realm for non-car users. . 		See Recommendations for Further Mitigation and Enhancement (Section 7.2)
Economic			
Maximise income and/or reduce income inequality	<ul style="list-style-type: none"> Negative - People from low income households who are reliant upon personal vehicles and public transport would be negatively impacted by the financial implications of replacing/upgrading their personal vehicles or increases in public transport fares if they were a consequence of the need to bring forward fleet replacements/upgrades. 		Subject to meeting the eligibility criteria for households, this group may be eligible for the LEZ Support Fund and as such could receive £2,000 for their non-compliant

IIA Objective	Assessed Positive/Negative Impacts	Evidence / Justification	Mitigation / Enhancement Measures
	<ul style="list-style-type: none"> Negative - Associated costs to businesses to upgrade or replace business vehicles may result in the slowdown of growth to business and other planned investments. Negative - Negative financial impact for those regularly travelling into LEZs from Rural/semi-rural areas as a result of financial penalties for those travelling in non-compliant vehicles. 		<p>vehicle to be scrapped and as such would also be eligible for Travel Better funding towards use of alternative modes of travel (up to £1000 per household).</p> <p>Subject to eligibility requirements businesses & sole traders, may be eligible for either a grant from the LEZ Retrofit Fund or £2,500 to scrap a non-compliant vehicle from the LEZ Support Fund, on the basis that they meet the eligibility requirements.</p> <p>Eligibility for LEZ support fund includes a requirement to live within 20km radius of the LEZ.</p>
Help young people into positive destinations	<ul style="list-style-type: none"> Positive - The development of the retrofitting and Low Emission Vehicle industries as a result of the LEZ may create employment opportunities throughout the supply chain. Jobs involving manufacturing, maintenance and sales/operation of lease or rental vehicles may benefit. Negative/Neutral - Young people and children and their parents who rely on private bus and coach companies to travel to and from school each day may be negatively impacted by an increase in cost of service as a result of additional costs to the business. However, depending on the size of their fleet, companies may be able to move their vehicles between locations, so that new compliant vehicles operate in LEZ areas. 		<p>None required.</p> <p>BEAR Programme supports bus and coach operators with the cost of retrofitting vehicles to Euro VI or better.</p>
Support local business	<ul style="list-style-type: none"> Positive - Increased economic activity for a number of sectors, including second-hand car traders, vehicle scrappage, vehicle leasing operators, active travel distributors/repairers, and public transport operators through increased patronage. 	The BRIA notes that the most commonly cited competitive concern arising from the consultation on the LEZ Regulations was the disproportionate negative impact experienced by SMEs relative to their larger counterparts. Smaller	None required

IIA Objective	Assessed Positive/Negative Impacts	Evidence / Justification	Mitigation / Enhancement Measures
	<ul style="list-style-type: none"> Positive - Potential benefit to 'town centre' businesses (e.g. shops/restaurants/cafes within LEZ as a result of increased footfall. Negative - Associated costs to businesses to upgrade or replace business vehicles may result in the slowdown of growth to business and other planned investments. 	<p>businesses/tradesman are more likely to be operating older vehicles and are therefore more likely to incur an immediate cost through necessary vehicle/fleet upgrades, and these SMEs are also less likely to be able to afford a newer, compliant vehicle than larger scale firms.</p> <p>The BRIA also identifies a differential spatial impact on businesses, as businesses located within the area of the LEZ are obligated to comply with emission standards, while businesses located outwith the LEZ are not. This will have impacts on businesses located inside the LEZ relative to their counterparts located outside of the zone. Businesses located within the LEZ are likely to experience increasing delivery costs if couriers/haulage companies choose not to absorb the increased cost and instead pass it along the supply chain.</p>	<p>None required.</p> <p>Subject to eligibility criteria, businesses & sole traders may be eligible for either a grant from the LEZ Retrofit Fund or £2,500 to scrap a non-compliant vehicle from the LEZ Support Fund, on the basis that they meet the eligibility requirements.</p>
Help people to access jobs (both paid and unpaid)	<ul style="list-style-type: none"> Negative - Decreased access to the city centre due to LEZ restricting entry to cars may result in a reduction in job opportunities, within cities, for those in deprived areas/low-income households in areas outwith LEZ areas, who currently have access to a non-compliant private vehicle. 	<p>This will largely be determined by the geographic coverage of individual LEZ and public transport accessibility to them. It is likely to hit hardest those individuals who are required to work unsocial hours (e.g. cleaners, security guards, hospitality) when public transport services are less frequent or not operating.</p>	<p>LEZ Support Fund</p>
Improve literacy and numeracy	<ul style="list-style-type: none"> No differential impact anticipated. 		
Improve working conditions, including equal pay	<ul style="list-style-type: none"> Positive - Improved air quality may make areas within LEZs more pleasant places to work particularly for those working outdoors (e.g. market traders, street cleaners etc) including staff of restaurants/cafes without outdoor seating areas. 		<p>None required.</p>
Improve local employment opportunities	<ul style="list-style-type: none"> Negative - Associated costs to some small businesses dependent upon vehicle use to undertake their trade (e.g. couriers, freight and haulage, tradespeople) may result in the reduction of their workforce, leading to an increase in unemployment. 		<p>LEZ Retrofit Fund</p>
Improve quality of and access to services	<ul style="list-style-type: none"> Negative - Potential negative impact related to accessing services for: <ul style="list-style-type: none"> financial impact on those living in rural/semi-rural and are dependent upon private vehicular access to access to essential services within LEZ areas. 	<p>Impacts on rural/semi-rural residents relate only to those trips by private vehicle to higher order services which require less frequent trips into central urban areas.</p>	<p>LEZ Support Fund</p>

IIA Objective	Assessed Positive/Negative Impacts	Evidence / Justification	Mitigation / Enhancement Measures
	<ul style="list-style-type: none"> o potential for service reduction/cost increase for those people who are reliant on community transport provision to access services in LEZ areas. • Negative - Implementation of LEZ regulations may result in a reduction in services that are required to travel into LEZ areas and as such result in a reduction in consumer choice for those that live in LEZ area. 	<p>Impact on availability or cost of community transport will depend upon compliance of existing fleet when LEZ are brought into effect, and extent to which operators are able to incur any additional costs associated with bringing forward partial fleet renewal, without impacting on service delivery.</p> <p>Impact will depend upon how businesses which are based outside of a LEZ but which provide services to other businesses or residents within a LEZ choose to respond. It is possible that some businesses may temporarily reduce or suspend their operations within the LEZ depending on how quickly they are able to upgrade/retrofit their vehicle fleet.</p>	<p>BEAR scheme</p> <p>LEZ Retrofit Fund</p>

7. Mitigation

This section outlines the agreed mitigation measures available to households, businesses and transport providers to mitigate potential impacts associated with replacing or upgrading their private vehicles or business fleets. In addition, suggested further mitigation and enhancement measures that could potentially reduce negative impacts, or enhance positive impacts upon differentially affected groups, identified in Table 9, are set out in Section 7.2.

7.1 Financial Aid for Individuals, Organisations and Businesses

7.1.1 Low Emission Zone Support Fund

The Low Emission Zone Support Fund, which is administered by Energy Saving Trust, offers an incentive for eligible low-income households and businesses to scrap their non-compliant vehicles. Households are liable to claim up to a maximum of £2000 when they take their non-compliant vehicle to an authorised treatment facility. In addition, these households are eligible for Travel Better funding, which seeks to reimburse households up to a maximum of £1000 (£500 each for two adults), who move towards sustainable travel modes, such as the purchase of a new bike or multi-trip transport tickets for bus or rail. Businesses and sole traders who take a non-compliant vehicle to be scrapped to an authorised treatment facility can claim up to £2,500.

The eligibility criteria for the Support Fund, of relevance to this assessment, includes:

Table 10 - Eligibility criteria for LEZ Support Fund (Energy Saving Trust 2020a)

Households	Businesses and sole traders
<ol style="list-style-type: none"> 1. You must live within a 20km radius of a planned Scottish LEZ; 2. You must own a vehicle that does not meet the minimum emissions standards of LEZs: <ul style="list-style-type: none"> • Euro 3 or older petrol vehicles • Euro 5 or older diesel vehicles 3. You must have owned the vehicle for at least 12 months with no outstanding finance; 4. You must be in receipt of specific means tested benefits (e.g. Disability Living Allowance, Employment and Support Allowance, Income-based Job Seeker Allowance); and 5. The LEZ Support Fund cannot be used in conjunction with Transport Scotland's Electric Vehicle Loan. 	<ol style="list-style-type: none"> 1. Your business must have an operating site within 20km; 2. Your business must own a vehicle that does not meet the minimum emissions standards of low emission zones: <ul style="list-style-type: none"> • Euro 3 or older petrol vehicles; • Euro 5 or older diesel vehicles. 3. You must have owned the vehicle for at least 12 months; 4. Your business must be an active micro business or a sole trader. To fit this definition, you must: <ul style="list-style-type: none"> • employ nine or fewer full-time employees; • have a turnover of £632,000 or less, or a balance sheet of up to £316,000 in the preceding and current financial year. 5. The LEZ Support Fund cannot be used in conjunction with Transport Scotland's Low Emission Zone Retrofit Fund, Switched on Taxi Loan or Low Carbon Transport Loan.

7.1.2 Low Emission Zone Retrofit Fund

The Low Emission Zone Retrofit Fund seeks to provide micro businesses operating within the four LEZ areas in Scotland, with financial support to retrofit their non-compliant business vehicles with approved Clean Vehicle Retrofit Accreditation Scheme solutions that will enable them to meet the minimum proposed standards as set by the regulations. Grants available to businesses consist of cover up to 80% of the cost of the retrofit solution, for the following vehicles:

- 80% cover of the cost for light commercial vehicles up to a maximum of £5000;
- 80% cover of the cost for taxi's up to a maximum of £10,000; and
- 80% cover of the cost of heavy goods vehicles (HGVs) and refuse collection vehicles (RCVs) up to a maximum of £16,000.

In order to qualify for the funding, applications must meet the following criteria:

Table 11 - Eligibility criteria for LEZ Retrofit Fund (Energy Saving Trust 2020b)

The Applicant	The Vehicle(s)
<ol style="list-style-type: none"> 1. The applicant must meet the definition of a micro business; this includes sole traders (Refer to Table 10 for definition) 2. The applicant must not be VAT registered; 3. The applicant must have owned the vehicle(s) for at least 12 months. If the applicant has purchased a newer replacement vehicle which fits the criteria (see criteria 8), only in this instance the 12-month ownership does not apply. 4. The LEZ Retrofit Fund cannot be used in conjunction with Transport Scotland's Low Emission Zone Support Fund, Switched on Taxi Loan or Low Carbon Transport Loan. 5. The applicant must read and agree to the terms and conditions outlined in this document (The Energy Saving Trust LEZ Retrofit Fund document). 	<ol style="list-style-type: none"> 6. The vehicle(s) must be non-compliant with the current proposed low emission zones standards: <ul style="list-style-type: none"> • pre-Euro 6 standard for diesel taxis and light commercial vehicles; • pre-Euro 4 standard for petrol taxis and light commercial vehicles; and • pre-Euro VI standard for heavy diesel vehicles. 7. The vehicle(s) must be one of the following, and must also have an approved Clean Vehicle Retrofit Accreditation Scheme (CVRAS) retrofit solution available for the exact make and model: <ul style="list-style-type: none"> • wheelchair accessible taxi; • light commercial vehicles – vehicles designed to carry goods that weigh less than 3.5 tonnes; • heavy goods vehicles – vehicles designed to carry goods that weigh 3.5 tonnes or more; or • refuse collection vehicles – vehicles specially designed to collect and transport solid waste. 8. The vehicle(s) must be no more than 13 years old. If the applicant's vehicle exceeds the maximum age limit, the applicant can replace this with a newly purchased, used vehicle that meets the criteria of the scheme; 9. The vehicle(s) must operate at least weekly in one of the four proposed low emission zones – Glasgow, Edinburgh, Aberdeen or Dundee.

7.1.3 The Bus Emissions Abatement Retrofit Programme

The Bus Emissions Abatement Retrofit (BEAR) programme seeks to support bus and coach operators with the cost to retrofit vehicles with Clean Vehicle Retrofit Accreditation Scheme (CVRAS) technology to a Euro VI standard or better. The programme has already undergone three phases since 2017, with the latest (BEAR Phase 3 2020/21) awarding £9.75 million to Scottish bus and coach operators to retrofit 594 buses and coaches.

This funding has been available to licensed bus and coach operators, local authorities and community transport operators located in or that operate on routes within Scotland's cities identified for LEZ's and/or one of Scotland's AQMAs, with eligible vehicles. Successful applicants have been awarded grants up to a maximum of £3,500,000 that can be used for both primary and ancillary costs.

In order to qualify for funding, vehicles must meet the following criteria:

- 'Buses and coaches operated under a Public Service Vehicle (PSV) operator licence or used for voluntary, community or other non-profit making purpose;
- less than 13 years old at time of application;
- a remaining service life of at least 5 years in Scotland; and
- conforming to Euro IV or V emission standards from factory' (Energy Saving Trust 2020c)

7.1.4 Scottish Ultra-Low Emission Bus Scheme

The Scottish Ultra-Low Emission Bus Scheme (SULEBS), formerly the Scottish Green Bus Fund, provides funding for the purchase of new buses, and assists with 50% of the cost differential between a standard diesel bus and the equivalent ultra-low emission bus (Scottish Government 2020b). This support can rise to a maximum of 75% of the differential cost depending on the zero-emission running capability. Infrastructure for the technology is also supported up to 75% of the capital cost. A round of the scheme was completed in 2020 of which £7.4 million was spent to introduce 41 ultra-low emission buses as well as supporting infrastructure.

7.2 Recommended Further Mitigation or Enhancement Measures

Transport Scotland and its partners have developed a comprehensive suite of national measures to mitigate the financial impacts of the LEZ Regulations on households, transport operators, and businesses.

However, there are a number of negative impacts identified in the report which may be reduced or avoided through the introduction of targeted mitigation measures at the local level; and conversely positive impacts which could be enhanced.

The following potential further mitigation and enhancement measures have been identified and it is recommended that Transport Scotland include these in guidance issued to local authorities responsible for implementing LEZ schemes:

- To reduce potential impacts on blue badge holders - develop and implement a technology solution that recognises entry to LEZ area by blue badge holders, for example through the use of a digital blue badge or an app;
- To reduce potential impacts on groups who may be reluctant to use public transport due to safety concerns - identify specific measures to address safety concerns which prevent greater use of public transport (e.g. increased frequency of out of hours services);
- To reduce potential impacts on disabled drivers who do not qualify for a Blue Badge – local authorities should consider individual time limited exemptions from LEZ Regulations, in accordance with Section 17 of the Transport (Scotland) Act 2019, for people with disabilities not recognised by the Blue Badge Scheme, but who may be at a substantial disadvantage (under Section 20 of the Equality Act);
- To reduce potential impacts on people with low levels of literacy or visitors from overseas who do not speak English - publicise LEZ schemes in plain English, and make information available in foreign languages, where appropriate;
- To reduce potential environmental impacts associated with increase in vehicle waste arisings - consult with local waste management facilities in addition to relevant stakeholders (e.g. Zero Waste Scotland) regarding waste management strategies to ensure vehicle components are disposed/recycled sustainably that minimise environmental impact;
- To minimise impact of increased demand for public transport on public health - work with public transport operators to consider the implications of Government guidelines on mitigating disease transmission, for accommodating the potential increase in demand for public transport following the introduction of a LEZ;
- To provide enhanced access to LEZ for long distance car commuters - use revenue from penalty fares to enhance existing, or introduce new, park and ride/choose facilities to enable car commuters to access low emission public transport or active modes prior to entering a LEZ;
- To minimise potential impacts on users of community transport - actively promote any potential future rounds of funding to community transport providers (from whom there has to date been a low level of uptake); and
- To maximise the potential streetscape and placemaking benefits of modal shift - develop strategies for placemaking in urban areas benefitting from pollution / noise reduction arising from and to 'lock in' longer term benefits of LEZ implementation.

8. Conclusions and Recommendations

8.1 Summary of Impacts

This report has presented a range of impacts resulting from the implementation of LEZs and associated regulations in Scotland's cities which are summarised by IIA themes in Tables 12 to 14 below. Details of duration of impacts, mitigation proposed, identified impacted groups and the relevant IIA objectives to each impact are listed in Table 15 of Appendix A (IIA Impact Matrix).

8.1.1 Equalities and Human Rights

The following impacts in Table 12 have been identified related to Equalities and Human Rights, as a result of LEZ implementation in Scotland:

Table 12 - Summary of Potential Equalities and Human Rights Impacts

Positive	Negative
<ol style="list-style-type: none"> 1. On average across the UK a greater proportion of people in areas of high deprivation tend to experience low air quality. As such, improvements to air quality in deprived communities as a result of LEZ may help to reduce health inequality. 2. LEZ implementation would result in increased health and wellbeing (particularly for elderly and young people, pregnant women, as well as those with respiratory illnesses) as a result of improvements to air quality as people switch to less polluting vehicles and active modes of transport. 3. LEZ implementation is likely to encourage a modal shift from cars to public transport and active travel methods which will have a positive impact on health. 	<ol style="list-style-type: none"> 1. Those that rely on charitable or voluntary services to either access services within LEZ areas or require services to travel to them may be negatively impacted, if the cost of providing the service increases in order to cover the costs of bringing forward fleet upgrade/replacement leads to a reduction in affordability or level of service provision. 2. Rural/semi-rural communities that require frequent access to LEZ areas (e.g. work, leisure, education) may be negatively impacted as a result of the financial implications of penalty charges or the cost of upgrade/replacement of their private vehicle. 3. Those living in deprived communities who are reliant upon private vehicles to access employment or education would be negatively impacted by the financial implications of the need to bring forward expenditure vehicle upgrades. 4. Carers who use their own vehicles to provide service, may be negatively impacted by cost to replace or upgrade their vehicle, (this may result in potential reduction in quality or quantity of service or increase in cost to the user). 5. Those that rely on charitable or voluntary transport services (e.g. community transport) to either access services within LEZ areas or require services to travel to them may be negatively impacted, if an increased cost of providing the service leads to a reduction in affordability or level of service provision. 6. LEZ implementation may have a differential effect on certain groups, including women, LGBT community, BAME groups and those who require to travel 'out of hours', arising from increased fear for personal safety as a result of modal shift to public transport methods of travel. As such, these groups may be disproportionately affected as they may feel safer user personal vehicles that are non-compliant with LEZ regulations. 7. There may be people with hidden disabilities that are not eligible for the blue badge scheme. For those who are eligible for a blue badge each time they enter a LEZ in a non-compliant vehicle they will be charged and will need to appeal. This may discourage blue badge holders from entering LEZs.

8.1.2 Environmental

The following impacts in Table 13 have been identified in relation to Environmental factors, as a result of LEZ implementation in Scotland:

Table 13 – Summary of Potential Environmental Impacts

Positive	Negative
<ol style="list-style-type: none"> 1. LEZ's likely to result in reduction in GHGs as a result of shift to more sustainable vehicles as well as active travel/public transport methods. 2. LEZs should result in a more rapid transition towards the use of low and zero emission vehicles. As such, the accelerated decrease in traffic emissions and the associated heat has the potential to contribute to a slight (unlikely to be perceptible) decrease in the effect of the urban heat island effect (UHI). 3. Reductions in traffic flows caused by modal shifts towards public transport and active travel, may result in the positive impact of reducing noise pollution within LEZ zones. 4. Implementation of LEZ's and chosen regulations should reduce air pollution due to the improvement in vehicle standards and a potential modal shift to more sustainable methods of transport. 5. Dependent upon extent of LEZ's, particularly Edinburgh, Dundee and Aberdeen, where there may be potential for positive impacts to biodiversity and nationally designated sites along coastlines. 6. There are potential benefits from a reduction in air pollution deposition on habitats within LEZ areas through reduced traffic. 7. LEZ implementation is likely to promote sustainable forms of transport via modal shift from cars to buses, shared cars, bicycles or walking, which in turn will have on health and well-being of people due to increased levels of physical activity. 8. Fewer vehicular trips into urban areas covered by a LEZ and increases in the use of sustainable modes should provide local authorities and other landowners with opportunities to improve the quality of public spaces/public realm for non-car users. 	<ol style="list-style-type: none"> 1. LEZ's may result in the displacement of traffic to areas surrounding LEZ boundaries. In turn this may result in a reduction of air quality of those areas. 2. LEZs may result in risk of environmental harm from disposal of hazardous vehicle components from the replaced fleets e.g. batteries, in addition to placing increased pressure on waste management facilities and landfill.

8.1.3 Economic

The following impacts in Table 14 have been identified in relation to Economic factors as a result of LEZ implementation in Scotland:

Table 14 – Summary of Potential Economic Impacts

Positive	Negative
<ol style="list-style-type: none"> 1. The development of the retrofitting and Low Emission Vehicle industries as a result of the LEZ may create employment opportunities throughout the supply chain. Jobs involving manufacturing, maintenance and sales/operation of lease or rental vehicles may benefit. 2. Increased economic activity for a number of sectors, including second-hand car traders, vehicle scrappage, vehicle leasing 	<ol style="list-style-type: none"> 1. People from low income households who are reliant upon personal vehicles would be negatively impacted by the financial implications of replacing/upgrading their personal vehicles. 2. Associated costs to small and micro businesses to upgrade or replace business vehicles may result in the slowdown of growth to business and other planned investments.

Positive	Negative
<p>operators, active travel distributors/repairers, and public transport operators through increased patronage.</p> <p>3. Potential benefit to restaurants/cafes within LEZ areas due to improvements in air quality may encourage increase patronage.</p> <p>4. Improved air quality may make areas within LEZs more pleasant places to work particularly for those working outdoors (e.g. market traders, street cleaners etc) including staff of restaurants/cafes with outdoor seating areas.</p>	<p>3. Negative financial impact for those regularly travelling into LEZs from rural/semi-rural areas as a result of financial penalties for those travelling in non-compliant vehicles.</p> <p>4. Young people and children and their parents who rely on private bus and coach companies to travel to and from school each day may be negatively impacted by an increase in cost of service as a result of additional costs to the business. However, depending on the size of their fleet, companies may be able to move their vehicles between locations, so that newer/retrofitted compliant vehicles operate in LEZ areas.</p> <p>5. Decreased access to the city centre due to LEZ restricting entry to cars may result in a reduction in job opportunities, within cities, for those in deprived areas/low-income households in areas outwith LEZ areas who currently have access to a non-compliant private vehicle.</p>

8.2 Recommendations

Following the findings of this IIA assessment, the following recommendations for locally implemented mitigation and enhancement measures are put forward for consideration by Transport Scotland/Scottish Ministers to be included in guidance issued to local authorities responsible for implementing LEZ schemes:

- develop and implement a technology solution that recognises entry to LEZ area by blue badge holders, for example through the use of a digital blue badge or an app;
- identify specific measures to address safety concerns which prevent greater use of public transport by some groups (e.g. increased frequency of out of hours services);
- consider individual time limited exemptions from LEZ Regulations, in accordance with Section 17 of the Transport (Scotland) Act 2019, for people with disabilities not recognised by the Blue Badge Scheme, but who may be at a substantial disadvantage (under Section 20 of the Equality Act);
- publicise LEZ schemes in plain English, and make information available in foreign languages, where appropriate.;
- consult with local waste management facilities in addition to relevant stakeholders (e.g. Zero Waste Scotland) regarding waste management strategies to ensure vehicle components are disposed/recycled sustainability that minimise environmental impact;
- work with public transport operators to consider the implications of Government guidelines on mitigating disease transmission, for accommodating the potential increase in demand for public transport following the introduction of a LEZ;
- use revenue from penalty fares to enhance existing, or introduce new, park and ride/choose facilities to enable car commuters to access low emission public transport or active modes prior to entering a LEZ;
- actively promote potential future funding/ support packages to community transport providers (from whom there has to date been a low level of uptake; and
- develop strategies for placemaking in urban areas benefitting from pollution / noise reduction arising from and to 'lock in' longer term benefits of LEZ implementation.

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Figure 3a-d

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Appendix A. IIA Impact Matrix

Table 15 – Summary of IIA Impacts

Identified Impact	Description	Likely Duration of Impact	Differentially Affected Groups	Relevant IIA Objectives	Available Mitigation/Enhancement
Equalities and Human Rights					
Positive – Health Improvements	<p>LEZ implementation may result in health and wellbeing benefits as a result of improvements to air quality as people switch to less polluting vehicles and other modes of transport (i.e. public transport and active travel methods).</p> <p>This is likely to have a positive differential impact on elderly people, those with respiratory illnesses as well as children (particularly where there is a reduction in schools and nurseries within areas of poor air quality).</p> <p>In addition, LEZ implementation may result in decreased traffic and improvement in air quality which in turn may lead to the improvement in the quality of public spaces in the city. Urban areas with low air quality often coincide with areas of higher deprivation. As such, improvements to air quality may positively disproportionately impact on deprived communities depending upon the geography of individual LEZ schemes.</p>	Medium-term	<ul style="list-style-type: none"> Older people and people in their middle years; Young people and children; Those living in the most deprived communities; Pregnant women; and Urban communities. 	<ul style="list-style-type: none"> Reduces differences in status between different groups of people; and Promote healthier lifestyles. 	<ul style="list-style-type: none"> See Recommendations for Further Mitigation
Positive – Improved uptake of alternative means of sustainable and healthy modes of travel.	Implementation of the LEZ Regulations are likely to increase uptake of sustainable modes of travel such as public transport, walking and cycling. This modal shift has the added benefits of encouraging people	<ul style="list-style-type: none"> Medium-term 	<ul style="list-style-type: none"> Older people and people in their middle years; Pensioners; 	<ul style="list-style-type: none"> Reduces differences in status between different groups of people; and Promote healthier lifestyles. 	<ul style="list-style-type: none"> Low income households eligible for Low Emission Zone Support Fund are also eligible for Travel Better Funding, up to a total value of £1000 to cover the cost of switching to sustainable travel modes

	to be more active, which in turn lead to improved health and wellbeing.		<ul style="list-style-type: none"> • Young people and children; and • Urban communities. 		such as the purchase of a bike or multi-trip public transport tickets for bus or rail.
Negative – Reduction in access via community transport provision	The LEZ Regulations is likely to have a financial impact on community transport providers. Should this result in a reduction in services or increase in their cost to users it would have a negative impact to those groups that depend upon community transport providers to access key services, notably older people, those with disabilities and other vulnerable people.	<ul style="list-style-type: none"> • Short-medium 	<ul style="list-style-type: none"> • Older people; • Pensioners; and • Disabled people. 	<ul style="list-style-type: none"> • Improve quality of and access to services; and • Build family support networks, resilience and community capacity. 	<ul style="list-style-type: none"> • Community transport providers are eligible to claim funding from the Bus Emissions Abatement Retrofit (BEAR) programme. • See Recommendations for Further Mitigation.
Negative – Personal financial impact to replace/upgrade vehicles	The personal financial implications of implementing the LEZ Regulations is assessed to be a negative impact, particularly for those low-income households and the unemployed, if they need to upgrade their personal vehicles. For some this may not be financially viable, and people may need to shift to less convenient forms of travel which in turn may prevent people from having control of their social and work environment as well as reduce equality of opportunity to access services or employment opportunities.	<ul style="list-style-type: none"> • Short-medium 	<ul style="list-style-type: none"> • Low-income households; • Unemployed; • People on benefits; • Single Parents; • Pensioners; and • Older people. 	<ul style="list-style-type: none"> • Advance equality of opportunity e.g. improve access / quality of services; • Enable people to have more control of their social/work environment; and • Promote participation, inclusion, dignity and control over decisions. 	<ul style="list-style-type: none"> • Low income households may be eligible for Low Emission Zone Support Fund. • Households which meet eligibility criteria are also eligible to receive £2,000 for their non-compliant vehicle, in addition to eligibility for Travel Better funding.
Negative – Cost to those that require personal vehicles to provide care and support work.	For some low-income workers who are required to use their personal vehicle to undertake their employment (e.g. carers and support workers) it is possible that their employers may not cover the cost of replacement or upgrade to a LEZ compliant vehicle. Should this be the case this would have a negative impact on the income of those individuals.	<ul style="list-style-type: none"> • Medium 	<ul style="list-style-type: none"> • Low-income households 	<ul style="list-style-type: none"> • Enable people to have more control of their social/work environment; and • Advance equality of opportunity e.g. improve access / quality of services. 	<ul style="list-style-type: none"> • None proposed.

<p>Negative – Financial and accessibility impacts for those living in rural/semi-rural communities.</p>	<p>Rural/semi-rural communities that require frequent access to LEZ areas (e.g. work, leisure, education) may be negatively impacted as a result of the financial implications of penalty charges or the cost of upgrade/replacement of their private vehicle.</p>	<ul style="list-style-type: none"> • Short-medium 	<ul style="list-style-type: none"> • Rural/semi-rural communities 	<ul style="list-style-type: none"> • Enable people to have more control of their social/work environment; • Maximise income and/or reduce income inequality; and • Improve quality of and access to services. 	<ul style="list-style-type: none"> • Rural drivers may be eligible for the LEZ support fund if they live within a 20km radius of a planned Scottish LEZ, as well as meeting the 4 other eligibility criteria.
<p>Negative – Access to charitable or voluntary services</p>	<p>For mobile social care services, there may be a risk of an increase in the cost of the service provided to cover the costs associated with vehicle upgrade or replacement, with associated secondary impacts on affordability for commissioning bodies and/or service users.</p>	<ul style="list-style-type: none"> • Short 	<ul style="list-style-type: none"> • Older people; • Pensioners; • Disabled people; • Looked after children and young people. 	<p>Advance equality of opportunity e.g. improve access / quality of services.</p>	<ul style="list-style-type: none"> • None proposed.
<p>Negative – Safety fears using public transport</p>	<p>Implementation of the LEZ Regulations may have a negative differential effect on certain groups, including women, LGBT community, BAME groups (particularly those who are required to travel 'out of hours' for employment), arising from increased fear for personal safety as a result of modal shift to public transport methods of travel.</p>	<ul style="list-style-type: none"> • Medium - long 	<ul style="list-style-type: none"> • Women (including trans woman) and Non-binary people; • Lesbian, gay, bisexual and heterosexual people; • Minority ethnic people; and • Out of hours workers. 	<ul style="list-style-type: none"> • Foster good relations within and between people with protected characteristics; and • Reduce crime and fear of crime including hate crime. 	<ul style="list-style-type: none"> • See Recommended Further Mitigation
<p>Negative – Reduction in access for people with disabilities.</p>	<p>Disabled people without access to a private vehicle, may find it more difficult to use alternative modes of transport. Any increased cost of provision or reduction in service frequency by community transport providers may negatively impact people with disabilities who rely on them to access essential services.</p>	<ul style="list-style-type: none"> • Medium 	<ul style="list-style-type: none"> • Disabled people 	<ul style="list-style-type: none"> • Advance equality of opportunity e.g. improve access / quality of services; • Enable people to have more control of their social/work environment; and • Promote participation, inclusion, dignity and control over decisions. 	<ul style="list-style-type: none"> • Low Emission Zone Retrofit Fund for private vehicles; • Taxis are eligible for the Low Emission Zone Retrofit Fund up to 80% of the cost to retrofit the vehicle, up to a maximum of £10,000, providing they meet the eligibility criteria, and the vehicle is a 'wheelchair accessible taxi';

	<p>However, although the Blue Badge scheme is available to people with a range of disabilities, there may be circumstances of people with hidden disabilities that are not eligible and would be negatively impacted by LEZ implementation.</p> <p>In addition, without the implementation of a Blue Badge recognition scheme (see Section 6.2), there is no method of differentiating those that hold a blue badge as it is assigned to a person. As such, each time a blue badge holder enters a LEZ in a non-compliant vehicle they will be charged and will need to appeal. This may discourage blue badge holders from entering LEZs.</p>				<ul style="list-style-type: none"> • The BEAR Programme, for which Community Transport Providers are eligible; • Local authorities consider individual time limited exemptions from LEZ Regulations for people with disabilities not recognised by the Blue Badge Scheme; and • Transport Scotland is working to develop a Blue Badge recognition scheme.
<p>Negative – Difficulty understanding the LEZ Regulations</p>	<p>Non-English speaking people as well as people with low literacy/numeracy may experience negative impacts due to potential inability to understand the LEZ Regulations when implemented.</p> <p>Impacts on non-English speaking people are likely to be specific to temporary overseas visitors who do not hold a British driving licence and are unable to speak English. This impact is likely to be more prevalent when visitor numbers are higher for large cultural events.</p>	<ul style="list-style-type: none"> • Short-Medium 	<ul style="list-style-type: none"> • Minority Ethnic People; and • People with low literacy/numeracy. 	<ul style="list-style-type: none"> • Promote participation, inclusion, dignity and control over decisions. 	<ul style="list-style-type: none"> • See Recommended Further Mitigation
<p>Negative – Difficulty accessing places of worship within LEZ areas.</p>	<p>People that live outside LEZ boundaries and use a personal non-compliant vehicle to regularly travel to places of worship which lie within LEZ boundaries, may be negatively impacted if they cannot afford to upgrade their vehicle or do not have access to other modes of transport.</p>	<ul style="list-style-type: none"> • Short-medium 	<ul style="list-style-type: none"> • People with different religions or beliefs. 	<ul style="list-style-type: none"> • Advance equality of opportunity e.g. improve access / quality of services; • Enable people to have more control of their social/work environment; and • Promote participation, inclusion, dignity and control over decisions. 	<ul style="list-style-type: none"> • None proposed.

Neutral – Difficulty accessing workplaces within LEZ areas via public transport.	Potential impacts on those who use the bus to access work as a result of increase to bus tickets by bus operators to recover cost of replacing/upgrading fleet. Impacts should be mitigated through the Bus Emissions Abatement Retrofit (BEAR) programme.	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> Urban communities; Those living in the most deprived communities; and Young People. 	<ul style="list-style-type: none"> Enable people to have more control of their social/work environment. 	<ul style="list-style-type: none"> BEAR Programme supports bus and coach operators with the cost of retrofitting vehicles to Euro VI or better.
Environmental					
Positive – Improvement in air quality	The implementation of the LEZ Regulations should result in an improvement in air quality in those areas where they are enacted. This is as a result of a reduction in Greenhouse Gases such as Nitrogen Dioxide (No2) from improvements in vehicle standards and a potential modal shift to more sustainable methods of transport.	<ul style="list-style-type: none"> Short-medium 	<ul style="list-style-type: none"> Older people; Young people and children; Disabled people (e.g. those with long-term medical conditions); Pensioners; Those living in the most deprived communities; and Urban communities. 	<ul style="list-style-type: none"> Reduce greenhouse gas (GHG) emissions (including carbon management); Plan for future climate change; and Pollution: Air. 	<ul style="list-style-type: none"> Not required
Positive – decrease in urban heat island effect.	A reduction in traffic emissions and the associated heat has the potential to contribute to a slight (unlikely to be perceptible) decrease in the effect of the urban heat island effect (UHI).	<ul style="list-style-type: none"> Short - medium 	<ul style="list-style-type: none"> Older people 	<ul style="list-style-type: none"> Plan for future climate change 	<ul style="list-style-type: none"> Not required
Positive – Reduction in noise pollution	The implementation of LEZ Regulations is likely to result in a small reduction in noise pollution, as a result of a reduction in traffic flows due to a shift to public transport and active travel.	<ul style="list-style-type: none"> Short - Medium 	<ul style="list-style-type: none"> Older people; Young people and children; Urban communities. 	<ul style="list-style-type: none"> Pollution: Noise 	<ul style="list-style-type: none"> Not required.
Positive – Protect biodiversity	Nitrogen deposition in the form of NOx and NO2 and elevated NOx emissions are a risk to biodiversity due to: <ul style="list-style-type: none"> reducing plant diversity in natural and semi natural 	<ul style="list-style-type: none"> Medium 	<ul style="list-style-type: none"> Urban communities; Rural/semi-rural communities; and 	<ul style="list-style-type: none"> Pollution: Soil; Protect coastal and inland waters; Enhance biodiversity; and Improve the physical environment. 	<ul style="list-style-type: none"> Not required.

	<p>ecosystems as a result of increased nitrogen deposition and overloading by nitrogen favourable species; and</p> <ul style="list-style-type: none"> an increase in the acidity of soils and therefore reducing conditions for species to survive. <p>As such, these impacts can potentially be alleviated through LEZ implementation in major urban areas of Scotland.</p> <p>Additionally, depending on the extent of LEZ areas, there is a potential for positive impacts to biodiversity and nationally designated sites along coastlines in Scotland.</p>		<ul style="list-style-type: none"> Coastal communities. 		
Negative – Environmental harm from disposal of hazardous vehicle components	A potential negative environmental impact is related to the risk of environmental harm from disposing of hazardous vehicle components of replaced vehicle fleet (e.g. batteries). Additionally, this may also place increased pressure on waste management facilities and landfill sites.	<ul style="list-style-type: none"> Short 	N/A	<ul style="list-style-type: none"> Pollution: air/water/soil/noise; and Encourage resource efficiency (energy, water, materials and minerals). 	<ul style="list-style-type: none"> See Recommended Further Mitigation
Negative – Displacement of traffic to other areas	LEZ's may result in the displacement of traffic to areas surrounding LEZ boundaries. In turn this may result in reduction in air quality of those areas.	<ul style="list-style-type: none"> Short-medium 	<ul style="list-style-type: none"> Rural/semi-rural communities 	<ul style="list-style-type: none"> Pollution: air 	<ul style="list-style-type: none"> Not required.
Neutral – Public safety from disease transmission	A neutral impact is assessed related to the potential for disease transmission due to the potential increased demand for public transport, in light of Covid-19. However, it is assumed that public transport providers will be required to follow national guidance regarding disease transmission.	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> Older people; Pensioners; and Disabled people. 	<ul style="list-style-type: none"> Public safety. 	<ul style="list-style-type: none"> See Recommended for further mitigation

Economic

<p>Positive – Relevant industries benefitting from regulations</p>	<p>The implementation of LEZs and regulations that would require vehicle owners to either scrap or upgrade their vehicle, will result in increased economic activity for a number of sectors, including second hand car traders, vehicle scrappage, vehicle leasing operators, active travel distributors/repairers, and public transport operators. This may result in further employment opportunities throughout the supply chain within the retrofitting and Low Emission Vehicle industry, manufacturing, maintenance and sales industries.</p>	<ul style="list-style-type: none"> • Short 	<ul style="list-style-type: none"> • Unemployed; • Young people; and • Business Community. 	<ul style="list-style-type: none"> • Help young people into positive destinations; • Support local business; and • Improve local employment opportunities. 	<ul style="list-style-type: none"> • Not applicable.
<p>Positive – Improved placemaking and working environment for outdoor workers</p>	<p>As a result of predicted improvements in air quality as a result of LEZ introduction, cafés and restaurants that have outdoor seating areas (particularly those that front onto major roads) may benefit in an improvement to both the working environment for staff as well as encouraging a pleasant environment for customers. This in turn may encourage an increase in customers and therefore growth of businesses and associated employment. Potential benefit to other 'town centre' businesses (e.g. shops within LEZ) as a result of increased footfall.</p>	<ul style="list-style-type: none"> • Medium 	<ul style="list-style-type: none"> • Business community; and • Urban communities. 	<ul style="list-style-type: none"> • Support local business; and • Improve working conditions. 	<ul style="list-style-type: none"> • See Recommended Further Mitigation/Enhancements
<p>Negative – Increase in business costs, or reduction in consumer market and associated slowdown in business growth</p>	<p>SMEs that regularly travel into LEZ areas to apply their trade (e.g. tradespeople) may experience negative financial impacts either from a reduction in sales, incurring financial penalties from travelling in non-compliant vehicles or cost to replace/upgrade vehicles.</p>	<ul style="list-style-type: none"> • Short-medium 	<ul style="list-style-type: none"> • Business community; and • Urban communities. 	<ul style="list-style-type: none"> • Improve local employment opportunities; • Improve quality of and access to services; and • Support local business. 	<p>SME's may be eligible to the following funding if eligibility criteria is met:</p> <ul style="list-style-type: none"> • Low Emission Zone Retrofit Fund; or • Low Emission Zone Support Fund.

	<p>In the short term, this could potentially result in the slowdown of the businesses growth, prohibit other planned investments and may result in a reduction of workforce.</p> <p>In addition, this impact may also be experienced by consumers in LEZ areas due to a reduction in choice of goods.</p>				
Negative – Reduction in job opportunities within cities.	<p>Implementation of LEZs and associated regulations may result in decreased access to the city centre for those reliant on private vehicles, due to restrictions on entry to non-compliant vehicles. This may result in a reduction in access to job opportunities, within cities, for those in deprived areas/low-income households in areas outwith LEZs, who currently have access to a non-compliant private vehicle, which they cannot afford to upgrade or replace.</p>	<ul style="list-style-type: none"> • Short-medium 	<ul style="list-style-type: none"> • Unemployed; • Young people; and • Those living in deprived communities. 	<ul style="list-style-type: none"> • Advance equality of opportunity; • Help young people into positive destinations; • Help people to access jobs (both paid and unpaid); and • Improve local employment opportunities. 	<ul style="list-style-type: none"> • LEZ Support Fund provides a grant of up to £2,000 for households which meet eligibility criteria (which include being in receipt of specific means-tested benefits)
Neutral – Reduction in accessibility for young people/children via private bus or coach travel	<p>Young people and children and their parents who rely on private bus and coach companies to travel to and from school each day may be negatively impacted by an increase in cost of service as a result of additional costs to the business. However, depending on the size of their fleet, companies may be able to move their vehicles between locations, so that new compliant vehicles operate in LEZ areas.</p> <p>Impacts should be mitigated through the Bus Emissions Abatement Retrofit (BEAR) programme.</p>	<ul style="list-style-type: none"> • N/A 	<ul style="list-style-type: none"> • Young people and Children; and • Single Parents. 	<ul style="list-style-type: none"> • Help young people into positive destinations. 	<ul style="list-style-type: none"> • BEAR Programme supports bus and coach operators with the cost of retrofitting vehicles to Euro VI or better.

Appendix B. Supporting Maps