

STRATEGIC ENVIRONMENTAL ASSESSMENT – ENVIRONMENTAL REPORT



DUNDEE LOW EMISSION ZONE

STRATEGIC ENVIRONMENTAL ASSESSMENT – ENVIRONMENTAL REPORT

IDENTIFICATION TABLE

Client/Project owner	Dundee City Council
Project	Dundee Low Emission Zone
Study	Strategic Environmental Assessment – Environmental Report
Type of document	Final Report
Date	27/10/2021
Reference number	GB01T19A08/231120
Number of pages	36

APPROVAL

Version	Name	Position	Date	Modifications	
1	Author	David Murtagh	Principal Consultant	27/10/2021	
	Checked by	Boris Johansson	Director	27/10/2021	
	Approved by	Boris Johansson	Director	27/10/2021	
2	Author			DD/MM/YY	
	Checked by			DD/MM/YY	
	Approved by			DD/MM/YY	

TABLE OF CONTENTS

1.	INTRODUCTION	5
1.1	PURPOSE OF THE ENVIRONMENTAL REPORT	5
1.2	SEA ACTIVITY TO DATE	5
1.3	DUNDEE LEZ KEY FACTS	6
2.	DUNDEE'S LOW EMISSION ZONE	7
2.1	BACKGROUND	7
2.2	LEGISLATIVE FRAMEWORK AND OPERATION OF A LEZ	7
2.3	OBJECTIVES OF DUNDEE'S LEZ	9
2.4	IDENTIFICATION OF DUNDEE'S PREFERRED LEZ OPTION	9
2.5	FINAL LEZ FOR DUNDEE	12
2.6	CONSULTATION AND ENGAGEMENT ON DUNDEE'S LEZ	14
3.	RELATIONSHIP BETWEEN OTHER PLANS, PROGRAMMES AND STRATEGIES	16
3.1	INTRODUCTION	16
3.2	POLICY CONTEXT	16
4.	ENVIRONMENTAL ASSESSMENT	19
4.1	INTRODUCTION	19
4.2	CURRENT BASELINE	19
4.3	EVOLUTION OF THE ENVIRONMENT IN THE ABSENCE OF THE LEZ	23
4.4	IMPACT OF LEZ ON ENVIRONMENTAL TOPICS	23
4.5	MITIGATION AND MONITORING	28
5.	CONSULTATION AND KEY DATES	29
5.1	CONSULTATION	29
	APPENDIX A – CONSULTATION AUTHORITIES RESPONSE TO SCOPING REPORT	30
	APPENDIX B – PLANS PROGRAMMES AND STRATEGIES	32

LIST OF FIGURES

Figure 2.1 : Inner Ring Road LEZ for Dundee	11
Figure 2.2 : Dundee LEZ Option Area	13
Figure 4.1 : SIMD 2020 20% Most Deprived Areas in Dundee (Source: DCC)	20
Figure 4.2 : 2019 Annual Mean Concentrations of NO ₂ greater than 36 µg/m ³	21
Figure 4.3 : NO ₂ Concentrations in Dundee city centre without LEZ (Source: SEPA)	26
Figure 4.4 : NO ₂ Concentrations in Dundee city centre with proposed LEZ (Source: SEPA)	26

LIST OF TABLES

Table 1.1 : Dundee LEZ Key Facts	6
Table 2.1 : National LEZ Exemptions	8
Table 2.2 : Proposed penalty charge structure for a non-compliant, non-exempt vehicles in a LEZ	9
Table 3.1 : Air Pollutant Limits and Guidelines	17
Table 4.1 : Summary of Environmental Effects	23
Table 5.1 : LEZ Key Dates	29
Table A.1 : Response to Consultation Authority Comments on Scoping Report	30

1. INTRODUCTION

1.1 Purpose of the environmental report

1.1.1 SYSTRA on behalf of Dundee City Council (DCC) has undertaken a Strategic Environmental Assessment (SEA) as part of the preparation of the Dundee Low Emission Zone (LEZ). The SEA is a systematic method for considering the likely environmental effects of the implementation of a plan (Dundee LEZ) as outlined in the [Environmental Assessment \(Scotland\) Act 2005](#). A SEA aims to:

- Integrate environmental factors into Plans, Programmes and Strategies (PPS) preparation and decision-making;
- Improve PPS and enhance environmental protection;
- Increase public participation in decision making; and
- Facilitate openness and transparency of decision-making.

1.1.2 The SEA has been prepared in accordance the Environmental Assessment (Scotland) Act 2005. The key stages are:

- Screening – determines if the PPS is likely to have significant environmental effects and whether an SEA is required
- Scoping – deciding on the scope and level of detail of the Environmental Report, and the consultation period for the report through engagement with the Consultation Authorities
- Environmental Report – publishing an Environmental Report on the PPS and its environmental effects and consulting on that report
- Adoption – providing information on the adopted PPS, how consultation comments have been taken into account, and methods for monitoring the significant environmental effects of the implementation of the PPS
- Monitoring – monitoring significant environmental effects to enable the Responsible Authority to identify any unforeseen adverse effects at an early stage and undertake appropriate remedial action

1.1.3 The purpose of this Environmental Report is to:

- Provide information on the Dundee LEZ
- Identify, describe and evaluate the likely significant effects of the Dundee LEZ
- Provide an opportunity for the Consultation Authorities and the public to offer views on any aspect of this Environmental Report and the planned introduction of a LEZ in Dundee

1.2 SEA activity to date

1.2.1 An initial Screening report was submitted to the SEA Gateway on 26 March 2019 and comments were received from the Consultation Authorities on 10 April 2019. It was determined that a SEA was required for Dundee LEZ and a Screening Determination was made on 10 February 2021. It should be noted that the length of time between the Screening Report and Screening Determination was primarily due to timeframes for the introduction of LEZs across Scotland being delayed as a result of the Covid-19 pandemic. A Scoping Report was then submitted to the SEA Gateway on 15 September 2021, with comments from the Consultation Authorities received on 20 October 2021. These comments have been considered when preparing this Environmental Report and are detailed in Appendix A alongside DCC's responses to the Consultation Authorities comments.

1.3 Dundee LEZ key facts

Table 1.1 : Dundee LEZ Key Facts

Name of Responsible Authority:	Dundee City Council
Title of Plan	Dundee Low Emission Zone (LEZ)
What prompted the Plan?	<p>The key policy and legislative drivers for Low Emission Zones are:</p> <ul style="list-style-type: none"> ○ Transport (Scotland) Act 2019; ○ Environment Act 2005; ○ Air Quality (Scotland) Regulations 2000 and Air Quality (Scotland) Amendment Regulations 2016 ○ European Ambient Air Quality Directive (2008/50/EC) and Air Quality Standards (Scotland) Regulations 2010.
Subject of the Plan	Transport and Air Quality
Period covered by the Plan	From 2022
Frequency of updates	As required and monitored through National Low Emission Framework (NLEF) and local Annual Progress Reports
Area covered by the Plan	The NLEF process and statutory consultation has identified the area inside Dundee’s inner ring road as the preferred LEZ area. In addition, the positive benefits from the LEZ will be seen city wide (as evidenced from SEPA’s air quality modelling)
Purpose and/or objective of the Plan	<p>A LEZ is a scheme under which individuals driving vehicles which fail to meet specified emission standards will be prohibited from driving those vehicles in contravention of the terms of the scheme as proposed by a local authority within a designated geographical area.</p> <p>The objectives of Dundee’s LEZ are:</p> <ul style="list-style-type: none"> ○ Protect public health through improving air quality in Dundee and achieving air quality compliance for NO₂, PM₁₀ and PM_{2.5} ○ Develop an environment that helps promote more active and sustainable travel choices in Dundee and contribute to meeting emission reduction targets set out in Part 1 of the Climate Change (Scotland) Act 2009. ○ Contribute to the ongoing transformational change in Dundee and help promote the city as an inclusive and desirable place to live, invest, visit and learn
Contact point	<p>Submitted on behalf of Dundee City Council by Systra Ltd. Prospect House 5 Thistle Street Edinburgh EH2 1DF</p>

2. DUNDEE'S LOW EMISSION ZONE

2.1 Background

- 2.1.1 The [Environment Act 1995](#) requires all local authorities in the UK the statutory duty to undertake an air quality assessment within their area and determine whether they are likely to meet the air quality objectives for a number of pollutants. The process of review and assessment of air quality undertaken by local authorities is set out under the Local Air Quality Management (LAQM) regime.
- 2.1.2 Where the results of the review and assessment process highlight problems in meeting the objectives for air quality, the authority is required to declare an Air Quality Management Area (AQMA). Following the declaration of an AQMA, the local authority is then required to produce an [Air Quality Action Plan](#) (AQAP) which sets out measures that the local authority will implement to work towards to achieve air quality objectives.
- 2.1.3 In 2006 Dundee City Council (DCC) declared the whole of DCC local authority area as an [AQMA](#) for the NO₂ annual mean objective. In 2010, DCC amended the initial AQMA to include the annual mean objective for PM₁₀. Following the declaration of the AQMA, DCC published an Air Quality Action Plan (AQAP) in January 2011.
- 2.1.4 The AQAP provide the mechanism by which local authorities, in collaboration with national agencies and others, will state their intentions for working towards the air quality objectives using the powers they have available. DCC's AQAP includes a series of measures that they will introduce in pursuit of the Air Quality Standards (AQS). The principal aim of the AQAP is to minimise the effects of air pollution on human health within the local authority area using all reasonable measures, within reasonable time frames, and by working towards achieving the AQS.
- 2.1.5 Despite improvements in air quality since the introduction of the AQAP, there remain several locations in the AQMA where exceedances of emissions exist and where the AQS are not being met. The number of exceedances of the NO₂ annual mean objective has decreased from 16 in 2018 to 10 in 2019. The [2020 Air Quality Annual Progress Report \(APR\) for Dundee City Council](#), contains the latest pre-Covid-19 (2019) information on air quality in Dundee.
- 2.1.6 In September 2017, the Scottish Government, in their [Programme for Government](#), committed to the introduction of Low Emission Zones (LEZs) into Scotland's four biggest cities (Glasgow, Edinburgh, Aberdeen and Dundee). At the time of writing each city is required to have declared their LEZ by February – May 2022. The LEZ is being introduced to accelerate the required compliance with the AQS.
- 2.1.7 A LEZ is a scheme under which individuals driving vehicles which fail to meet specified emission standards will be prohibited from driving those vehicles in contravention of the terms of the scheme as proposed by a local authority within a designated geographical area.

2.2 Legislative Framework and Operation of a LEZ

- 2.2.1 Low Emission Zones are included in the [Transport \(Scotland\) Act 2019](#) which received Royal Assent in November 2019. The Act provides the legislative framework for Scottish local authorities to design, establish and operate nationally consistent LEZs. It allows the Scottish Government to set consistent national standards for a number of key aspects including emissions, penalties, exemptions and parameters for grace periods. Local

authorities have the powers to create, enforce, operate or revoke a LEZ in their areas and to design the shape, size and vehicle scope of their low emission zone.

2.2.2 The accompanying LEZ Regulations were laid in Parliament in January 2021, thereby allowing Scottish Ministers to set nationally consistent standards (Regulations) on LEZ matters specified in the Act (e.g. emission standards, penalties and exemptions, statutory consultees). There are two sets of regulations for LEZs in Scotland. The [Low Emission Zones \(Emission Standards, Exemptions and Enforcement\) \(Scotland\) Regulations 2021](#) cover the topics of emission standards, exemptions, penalty charge rates, and enforcement. [The Low Emission Zones \(Scotland\) Regulations 2021](#) cover the topics of consultation, publication and representations, examinations, approved devices, accounts and amending or revoking LEZs.

2.2.3 The Transport (Scotland) Act 2019 [section 6\(4\)\(a\)](#) provides the powers to specify LEZ emission standards for vehicles in the Regulations and allows all Scottish LEZs operate to a consistent national level. A person may not drive a vehicle on a road within a LEZ unless that vehicle meets the specified emission standard. Vehicles that fail to comply with the LEZ emission standard will be subject to LEZ enforcement measures once any LEZ grace period has ended. The LEZ emission standards are:

- Euro VI emission standards for buses, coaches and heavy good vehicles with diesel engines, with retrofitted vehicles to this standard also being acceptable (Euro VI vehicle registrations from 2013)
- Minibuses, large vans, taxi's and cars are set at the Euro 6 for diesel and Euro 4 for petrol vehicles (Euro 6 diesel vehicle registrations in 2015, Euro 4 petrol vehicles in 2006).

2.2.4 [Section 6\(4\)\(a\)](#) of the Transport (Scotland) Act 2019 enables exemptions to be set consistently across Scotland. DCC will have no ability to vary or choose from the national LEZ exemptions listed in [Regulation 3](#) of the LEZ Regulations and outlined in Table 2.1. DCC are therefore required to operate their LEZ in compliance with the exemption list, so that there is national consistency in its application.

Table 2.1 : National LEZ Exemptions

Vehicle type of classification	Description
Emergency Vehicles	For or in connection with the exercise of any function of: the Scottish Ambulance Service, the Scottish Fire and Rescue Service, Her Majesty's Coastguard, and the National Crime Agency.
Military Vehicles	Vehicles belonging to any of Her Majesty's forces; or used for the purposes of any of those forces
Vehicles of Historic Interest	Vehicles which are 30 years old or older, are no longer in production and historically preserved or maintained
Vehicles for Disabled Persons	Vehicles registered with a 'disabled' or 'disabled passenger vehicles' tax class Vehicles being used for the purposes of the 'Blue Badge Scheme'.
Showman Vehicles	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.

2.2.5 The Transport (Scotland) Act 2019 requires a LEZ to specify a grace period before penalty enforcement of the scheme. [Section 15](#) details the scope and time-limits of the grace period. The grace period applicable to non-residents must expire:

- not less than 1 year after it (LEZ declaration) begins, and
- not more than 4 years after it begins.

2.2.6 The grace period applicable to residents (whose registered address is inside the zone) must expire not more than 2 years after the expiry of the grace period applicable to non-residents.

2.2.7 [Section 6\(4\)\(a\)](#) of the Transport (Scotland) Act 2019 enables penalty charges to be set, based on the vehicle class, and sets out the circumstances in which penalty charges can be subject to a discount or surcharges or to escalate the penalties over time. The LEZ [Regulation 4](#) and [Schedule 4](#) has 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 2.2

Table 2.2 : Proposed penalty charge structure for a non-compliant, non-exempt vehicles in a LEZ

Vehicle Category / Tier	Tier				
	1	2	3	4	5
Car, Taxi and Private Hire	£60	£120	£240	£480	£480
Minibus	£60	£120	£240	£480	£960
Light goods vehicles	£60	£120	£240	£480	£480
Bus or Coach	£60	£120	£240	£480	£960
Heavy goods vehicles	£60	£120	£240	£480	£960
Motorcycle or Mopeds	£60	£120	£240	£480	£480
Special purpose vehicles	£60	£120	£240	£480	£480

2.2.8 [Section 8](#) of the Transport (Scotland) Act 2019 also enables the enforcement of LEZ schemes. The LEZ will be enforced through Automatic Number Plate Recognition (ANPR) cameras with the LEZ Regulations [Schedule 6](#) detailing the approved devices.

2.3 Objectives of Dundee's LEZ

2.3.1 The objectives for Dundee's Low Emission Zone were accepted at the Dundee City Council Community Safety & Public Protection Committee meeting on June 3 2019 and updated at the same committee on February 24 2020.

2.3.2 They are that Dundee's Low Emission Zone will:

Protect public health through improving air quality in Dundee and achieving air quality compliance for NO₂, PM₁₀ and PM_{2.5}

Develop an environment that helps promote more active and sustainable travel choices in Dundee and contribute to meeting emission reduction targets set out in Part 1 of the Climate Change (Scotland) Act 2009.

Contribute to the ongoing transformational change in Dundee and help promote the city as an inclusive and desirable place to live, invest, visit and learn

2.4 Identification of Dundee's preferred LEZ Option

2.4.1 In line with the Transport Scotland Act (2019) and associated Regulations and Guidance, it is proposed that:

- low emission zone entry will be based on the Euro emission engine classification standards

- low emission zones operate continuously, 24 hours a day, seven days a week, all year-round enforcement will utilise Automatic Number Plate Recognition (ANPR) cameras, linked to a national vehicle licencing database, will monitor vehicles entering a low emission zone to detect vehicles which do not comply with the minimum Euro emission standards
- low emission zones will be based on a penalty notice approach to discourage non-compliant vehicles from entering the zone
- the design, implementation and operation of low emission zones will involve grace periods to allow commercial fleet operators and private vehicle owners time to prepare
- exemptions will be specified in regulations such as the ability for a local authority to allow time limited local exemptions for up to 12 months
- local authorities publish a report annually on the effectiveness of low emission zones

2.4.2 SYSTRA, on behalf of Dundee City Council, has followed the [National Low Emission Framework](#) (NLEF) guidance to build an evidence base to inform the development of the LEZ and to undertake a structured LEZ option appraisal process to identify LEZ options that best satisfy the LEZ objectives.

2.4.3 The NLEF guidance, published in January 2019, states that *NLEF is an air quality-focused, evidence-based appraisal process developed to help local authorities consider transport related actions to improve local air quality, where transport is identified as the key contributor to air quality problems* (NLEF, 2019).

2.4.4 The guidance states that the aim of the NLEF is to improve local air quality in areas where Scottish Air Quality Objectives (AQOs) are exceeded, or likely to be exceeded, and transport is identified as the key contributor. Local authorities that have declared AQMAs should have regard to the NLEF when developing their air quality action plans and Low Emission Zones.

2.4.5 The NLEF appraisal process provides a consistent approach that can be applied across Scotland to inform decisions on transport-related actions to improve local air quality. It is designed to support local authorities in considering transport-related issues in the context of local air quality management and help develop evidence to support consideration of the introduction of an LEZ as an appropriate option to improve air quality.

2.4.6 The NLEF Stage 1 Report (*Dundee Low Emission Zone, National Low Emission Framework Stage 1 Report, SYSTRA 2019*) detailed the review of Dundee's Local Air Quality Management and presented an evidence base to assist in the appraisal and implementation of Dundee's LEZ through the Stage 2 Assessment process.

2.4.7 A first [Interim NLEF Stage 2 Assessment Report](#) (*Dundee Low Emission Zone, National Low Emission Framework Interim Stage 2 Report, SYSTRA 2019*) was completed in September 2019 and detailed the identification of the LEZ objectives and the preferred LEZ options to be presented for consultation and detailed testing through local traffic and air quality models. The report summarised the high level scenario testing undertaken using SEPA's National Modelling Framework (NMF) Dundee City Air Quality Model to inform the LEZ option generation and development process. The NMF results showed that:

- Ensuring all buses meet Euro VI standard brings the largest reduction in modelled NO₂ of any change to a single type of vehicle and should be included in any LEZ option for Dundee
- The inclusion of Euro 6 standard diesel cars (in addition to buses) to a city wide LEZ would allow all key locations of exceedances to fall within air quality standards although a city centre only LEZ does not ensure city wide compliance

- HGVs, LGVs (both Euro VI) and petrol cars (Euro 4) do not bring sufficient benefit on their own to be considered individually for a LEZ, but do bring some further pollution benefits to a LEZ which includes buses and diesel cars

2.4.8 The LEZ Objectives and NMF results informed a LEZ option generation and development process. An unconstrained LEZ option generation exercise identified 40 possible LEZ options of varying size and vehicle compliance. High level sifting and option appraisal against the LEZ objectives and feasibility, affordability and public acceptability criteria concluded there to be 8 emerging LEZ Options.

2.4.9 Detailed analysis of these emerging LEZ options was undertaken and concluded that two options and their identified variants should be recommended for wider public and stakeholder consultation. The LEZ Options for Consultation were:

- LEZ Option 1A - Inner Ring Road Bus Only (including bus station)
- LEZ Option 1B - Inner Ring Road Bus Only (excluding bus station)
- LEZ Option 2A - Inner Ring Road All Vehicles (including all car parks)
- LEZ Option 2B - Inner Ring Road All Vehicles (excluding Bell Street and West Marketgait NCP car parks)
- LEZ Option 2C - Inner Ring Road All Vehicles (excluding Bell Street, West Marketgait NCP and Wellgate car parks)

2.4.10 The option generation exercise identified the area inside Dundee’s inner ring road as the most viable area for a LEZ and this is shown in Figure 2.1. The 5 options listed above are slight variants of this area and/or include different proposed vehicle restrictions.

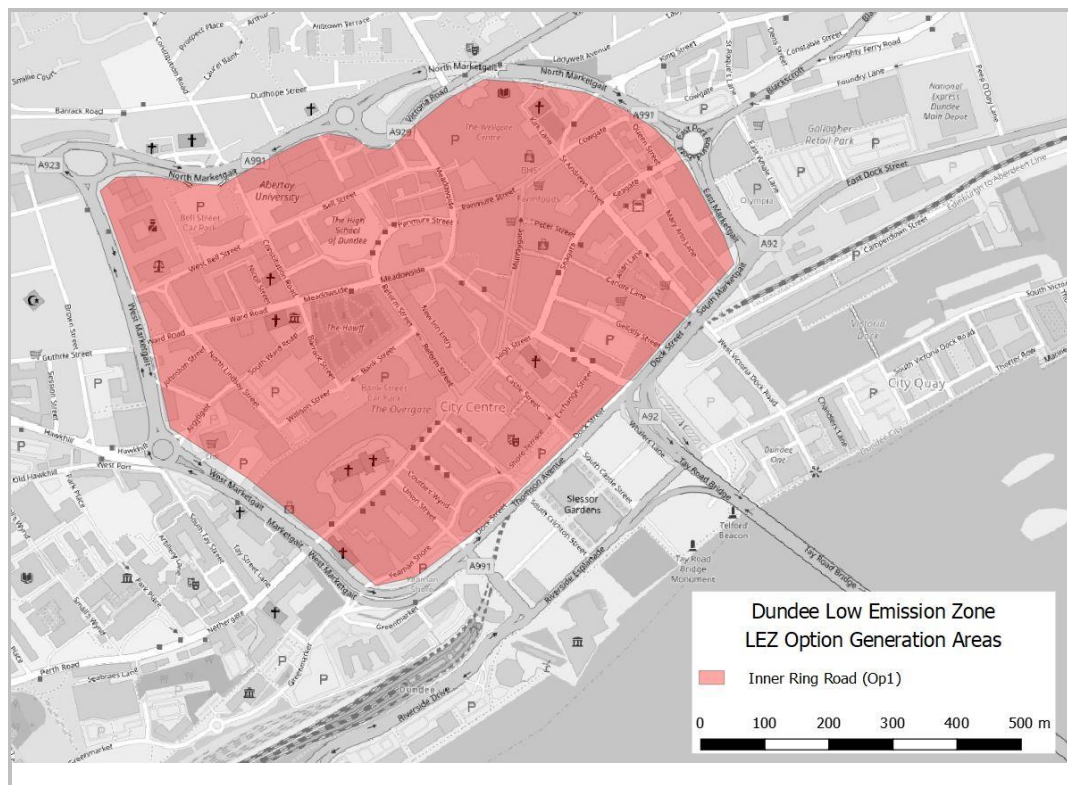


Figure 2.1 : Inner Ring Road LEZ for Dundee

2.4.11 Following publication of the first interim NLEF Stage 2 Report and on instruction from DCC’s Community Safety & Public Protection Committee, SYSTRA and DCC undertook a 6 week public and stakeholder consultation exercise in Autumn 2019. The results from consultation informed the final LEZ option for Dundee along with detailed traffic microsimulation modelling and traffic emissions modelling.

- 2.4.12 A second interim [NLEF Stage 2 Report](#) (*Dundee Low Emission Zone, National Low Emission Framework Interim Stage 2 Report, SYSTRA 2021*) was published in May 2021 and, through analysis of consultation findings and outcomes from the traffic and emissions modelling identified the final proposed LEZ for the city, as outlined below.

2.5 Final LEZ for Dundee

- 2.5.1 The final Dundee LEZ Option incorporates the area inside the A991 inner ring road, excluding Bell Street car park, West Marketgait NCP car park and Wellgate Centre car park.
- 2.5.2 A detailed drawing of the final Dundee LEZ is shown in Figure 2.2. A list of all roads which form part of the zone, as required by the Transport (Scotland) Act 2019 is included in Appendix D of the NLEF Stage 2 Report.

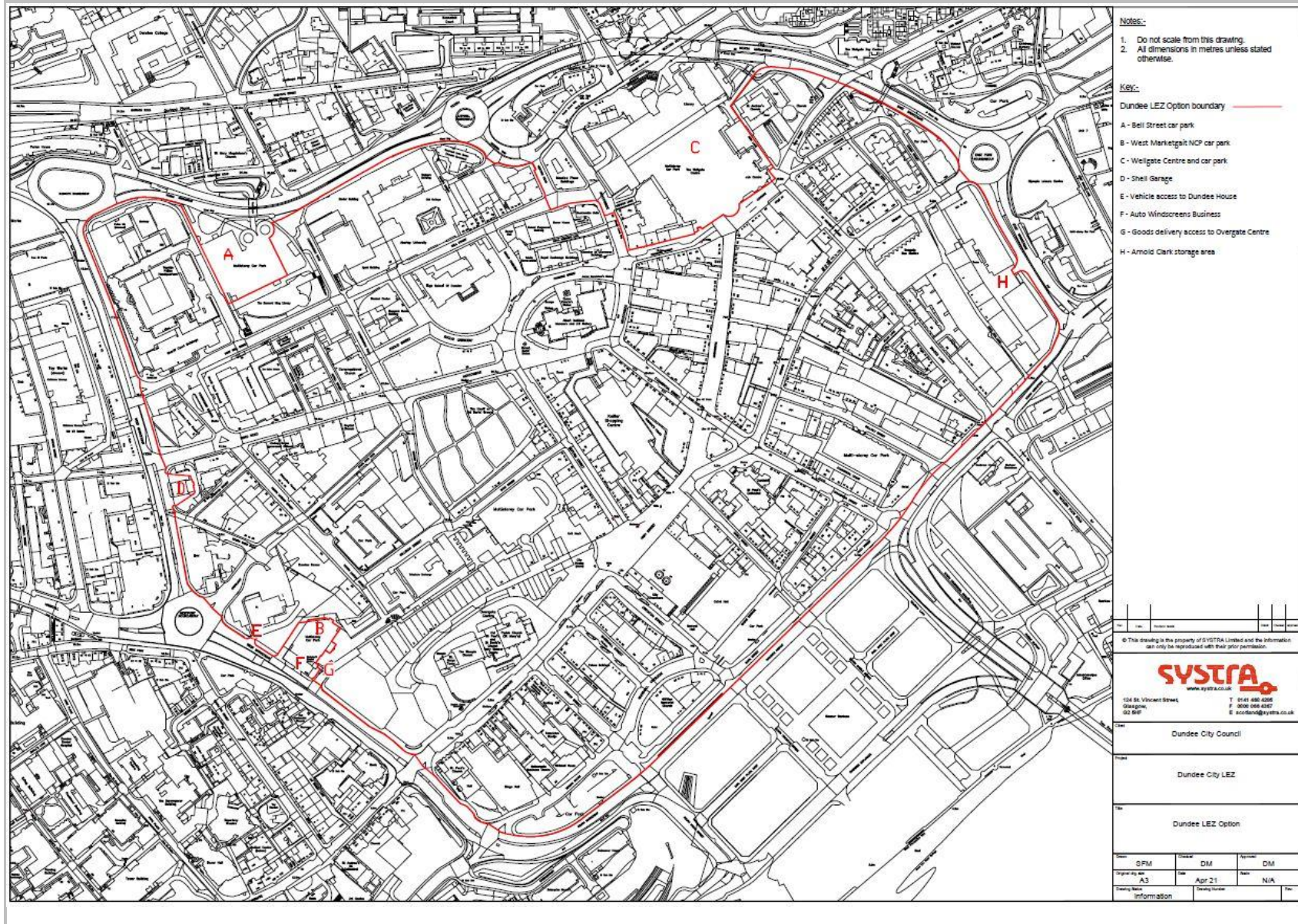


Figure 2.2 : Dundee LEZ Option Area

- 2.5.3 The [Low Emission Zones \(Emission Standards, Exemptions and Enforcement\) \(Scotland\) Regulations 2021](#) sets the emission standards for entry to the LEZ without penalty and allows DCC to define which vehicle types are to be restricted from entering the LEZ area.

It is proposed that the final Dundee LEZ Option applies to all vehicles types as specified in [Regulation 2](#) of the Low Emission Zones (Emission Standards, Exemptions and Enforcement) (Scotland) Regulations 2021, with the exception of motorcycles and mopeds and excluding the national LEZ exemptions listed in [Regulation 3](#).

- 2.5.4 The LEZ emission standards for Dundee LEZ are therefore:

- Euro VI emission standards for buses, coaches and heavy good vehicles with diesel engines, with retrofitted vehicles to this standard also being acceptable (Euro VI vehicle registrations from 2013)
- Minibuses, large vans, taxis and cars are set at the Euro 6 for diesel vehicles and Euro 4 for petrol vehicles (Euro 6 diesel vehicle registrations in 2015, Euro 4 petrol vehicles in 2006).

- 2.5.5 The Transport (Scotland) Act 2019 requires a LEZ to specify a grace period for both residents of the LEZ area and non-residents before penalty enforcement of the scheme.

It is proposed that the grace period for Dundee's LEZ expires in May 2024 for all vehicle types and for both residents and non-residents of the zone.

- 2.5.6 [Section 8](#) of the Transport (Scotland) Act 2019 enables the enforcement of LEZ schemes. The LEZ will be enforced through Automatic Number Plate Recognition (ANPR) cameras with the LEZ Regulations [Schedule 6](#) detailing the approved devices.

- 2.5.7 ANPR camera enforcement is currently subject to funding decisions from Transport Scotland and procurement procedures with suppliers. The exact number and location of ANPR cameras is therefore not concluded and will be confirmed in the final NLEF Stage 2 Report and submission to Scottish Ministers.

- 2.5.8 In line with [Section 18](#) of the Transport (Scotland) Act 2019, it is anticipated that the LEZ will be enforced at all times. [Section 17](#) of the Act does allow for DCC to apply time-limited exemptions to enforcement should it be required, for example for road closures and diversion routes.

2.6 Consultation and Engagement on Dundee's LEZ

- 2.6.1 The development of Dundee's LEZ has been informed and shaped by public and stakeholder engagement. [Section 11](#) of the Transport (Scotland) Act 2019 states that before a local authority submits its final Low Emission Zone (LEZ) proposals to Scottish Ministers for approval, it must consult with:

- the Scottish Environment Protection Agency,
- NatureScot
- Historic Environment Scotland,
- such persons as the authority considers represent the interests of—
 - i. the road haulage industry,
 - ii. the bus and coach industry,
 - iii. the taxi and private hire car industry,
 - iv. local businesses, and

- v. drivers, likely to be affected by the proposal,
- such persons as are specified by the Scottish Ministers in regulations
 - i. neighbouring local authorities
 - ii. the Regional Transport Partnership (Tactran)
 - iii. the local Health Board
- such other persons as the authority considers appropriate

2.6.2 In line with The Act 2019, Dundee City Council (DCC) launched an eight-week statutory consultation from 14th June 2021 to 9th August 2021 on its proposed LEZ scheme for the city, as agreed at the [Community Safety and Public Protection Committee](#) on 7th June 2021.

2.6.3 Prior to the statutory consultation in 2021, a six-week consultation period ran in 2019 seeking to discover the views of stakeholders and members of the public on LEZs in general and specifically the potential options for Dundee that emerged from the Interim NLEF Stage 2 Report, as noted above. Key findings from this consultation were:

- 65% of respondents supported the general principle of LEZs and
- 60% supported the principle of a LEZ for Dundee
- 64% considered that it should apply to all vehicle types
- 35% (the greatest percentage of respondents) favoured the LEZ option that has now been identified as the preferred LEZ Option for Dundee.

2.6.4 Full details of all consultation events and the key outcomes can be found in the Dundee LEZ Engagement Report (SYSTRA September 2021). The early and continual engagement across affected and interested parties has informed the proposed Environmental Report consultation period, as detailed in Chapter 5.

3. RELATIONSHIP BETWEEN OTHER PLANS, PROGRAMMES AND STRATEGIES

3.1 Introduction

- 3.1.1 The Environmental Assessment (Scotland) Act 2005 requires that the Environmental Report includes an outline of the relationship the plan has with other relevant PPS and how environmental protection objectives have been taken into account in the PPS preparation. These relationships are summarised in Section 3.2 below.
- 3.1.2 Appendix B provides a more detailed analysis of each relevant PPS and how their objectives have been taken into account during the LEZ preparation.

3.2 Policy Context

- 3.2.1 A full policy review has been undertaken in the NLEF Stage 1 Report (*Dundee Low Emission Zone, National Low Emission Framework Stage 1 Report, SYSTRA 2019*). The policy review first sets the context of the legislative framework for introducing a LEZ in Dundee, providing background on where the LEZ fits in the legislative landscape. This was followed with a detailed review of National, Regional and Local plans, policies and strategies to ensure cognisance is taken of those that may help shape a LEZ in Dundee or in turn, be impacted by the introduction of a LEZ.
- 3.2.2 Activities relating to monitoring and management of air quality in Scotland are primarily driven by European (EU) legislation (at the time of writing) and implemented to UK and Scottish air quality policy. A summary of the legal air pollutant limits and guidelines in Scottish law is detailed in Table 3.1, with local authorities required to work towards achieving the air quality objective levels.

Table 3.1 : Air Pollutant Limits and Guidelines

Pollutant	Air Quality Objective	
	Concentration	Measured as
Nitrogen Dioxide (NO ₂)	200 µg/m ³ (not to be exceeded more than 10 times a year)	1-hour mean
	40 µg/m ³	Annual mean
Coarse Particulate Matter (PM ₁₀)	50 µg/m ³ (not to be exceeded more than 7 times a year)	24-hour mean
	18 µg/m ³	Annual mean
Fine Particulate Matter (PM _{2.5})	10 µg/m ³	Annual mean
Sulphur Dioxide (SO ₂)	350 µg/m ³ (not to be exceeded more than 24 times a year)	1-hour mean
	125 µg/m ³ (not to be exceeded more than 3 times a year)	24-hour mean
	266 µg/m ³ (not to be exceeded more than 35 times a year)	15 minute mean
Benzene	3.25 µg/m ³	Running annual mean
1,3 Butadiene	2.25 µg/m ³	Running annual mean
Carbon Monoxide (CO)	10.0 mg m ³	Running 8-hour mean
Lead	0.25 µg/m ³	Annual mean

3.2.3 There are also many related national, regional and local policies and strategies that can influence and be influenced by the delivery of Dundee’s Low Emission Zone. Many of these policies and strategies are focused on transportation issues, and may help contribute to overall improvements in air quality in the Dundee City AQMA. Similarly, it is crucial that local plans and policies (e.g. Development Plans, Economic Strategies) are informed by the LEZ to ensure they continue to drive improvements in air quality.

3.2.4 The detailed legislation, policies and plans reviewed in the NLEF Stage 1 Report are listed below. Firstly, the key policy and legislative drivers for Low Emission Zones are:

- [Transport \(Scotland\) Act 2019t](#);
- [Cleaner Air for Scotland 2 – Towards a Better Place for Everyone \(CAFS2\)](#)
- [The Environment Act 1995: Part IV](#)

3.2.5 The wider legislative and policy that influence or can be influenced by a LEZ in Dundee:

- EU, UK and Scottish Air Quality Legislation
 - [The Ambient Air Quality and Cleaner Air for Europe \(CAFE\) Directive \(2008/50/EC\)](#)
 - [2013 Clean Air Programme for Europe \(COM\(2013\)918\)](#)
 - [2016 National Emissions Ceiling Directive \(2016/2284/EU\)](#)
 - [The Environment Act 1995: Part IV](#)
 - [The Air Quality Strategy for England, Scotland, Wales and Northern Ireland](#)
 - [Air Quality Standards \(Scotland\) Regulations 2010](#)
 - [Air Quality \(Scotland\) Regulations 2000](#)
 - [Air Quality \(Scotland\) Amendment Regulations 2002](#)
 - [Air Quality \(Scotland\) Amendment Regulations 2016](#)

- [Cleaner Air for Scotland 2 – Towards a Better Place for Everyone \(CAFS2\)](#)
- [National Low Emission Framework \(NLEF\)](#)
- National Plans, Policies and Strategies
 - [National Planning Framework 3 \(NPF3\)](#)
 - [National Transport Strategy 2 \(NTS2\)](#)
 - [Strategic Transport Projects Review \(STPR\)](#)
- Regional Plans and Policies
 - [Strategic Development Plan 2012-2032 \(TAYPlan\)](#)
 - [TACTRAN Regional Transport Strategy \(2015–2036 Refresh\)](#)
 - [Tay Cities Regional Economic Strategy 2019-2039](#)
 - [Tay Cities Deal Proposal](#)
- Local Plans and Policies and Projects
 - [City Plan for Dundee 2017 – 2026](#)
 - [Dundee Local Development Plan](#)
 - [Dundee Cycle Strategy](#)
 - Tay Cities Regional Transport Model
 - Dundee City Microsimulation Model

4. ENVIRONMENTAL ASSESSMENT

4.1 Introduction

4.1.1 The Assessment Methodology for the Environmental Report follows the *Environmental Topics and Assessment Questions* based approach, as outlined in the SEA Guidance. In line with the approach set out in the guidance, the assessment is structured as follows:

- What is the relevant policy context / key relevant environmental objectives? (See Chapter 3)
- What is the current baseline and how will it evolve without the plan? (See Section 4.1.2 and 4.3)
- What are the effects on the environmental topic, assessed through Assessment Questions? (See Section 4.4)
- Could any significant effects be mitigated or enhanced? (See section 4.5)

4.1.2 The assessment provided in this chapter focusses only on those topics that were scoped in in the SEA Scoping Report, namely:

- Population and Human Health
- Air
- Climatic Factors
- Material Assets

4.2 Current Baseline

Population and Human Health

4.2.1 Dundee is Scotland's fourth largest city with the most recent estimate of Dundee's population is 149,320 (National Records of Scotland (NRS) 2019 Mid-year population estimate), including approximately 4,500 residents in the LEZ area. Approximately 26,000 residents in Dundee City are aged 65 years and older (ca. 17% of total population), while in the LEZ area only approximately 500 people (11%) are aged 65 years and older. Dundee City was the only council area in Scotland that experienced a decrease in average median age of its data zones between mid-2009 and mid-2020 ([NRS Mid-2020 Small Area Population Estimates](#)).

4.2.2 The Scottish Index of Multiple Deprivation is a relative measure of deprivation across 6,976 small areas (called data zones). If an area is identified as 'deprived', this can relate to people having a low income but it can also mean fewer resources or opportunities. SIMD looks at the extent to which an area is deprived across seven domains: income, employment, education, health, access to services, crime and housing.

4.2.3 According to [Public Health England](#), poor air quality is the largest environmental risk to public health in the UK, as long-term exposure to air pollution can cause chronic conditions such as cardiovascular and respiratory diseases as well as lung cancer, leading to reduced life expectancy. Although long term exposure to air pollution can affect all members of society, some groups are more vulnerable to the effects of air pollution because of their age (children and older people are at increased risk), existing medical conditions and/or health determining behaviours. Areas of high deprivation are also associated with poorer air quality and the health impacts of poor air quality compound pre-existing health inequalities.

- 4.2.4 The Scottish Government uses 20% as a marker for the “Most Deprived” however they also state that those living in areas up to 40% most deprived may also experience difficulties.
- 4.2.5 The SIMD 2020 shows that 54,497 (36.6%) people in Dundee City live in a data zone within the 20% most deprived, with these data zones shown in Figure 4.1 This compares to 53,435 (36%) in SIMD 2016.

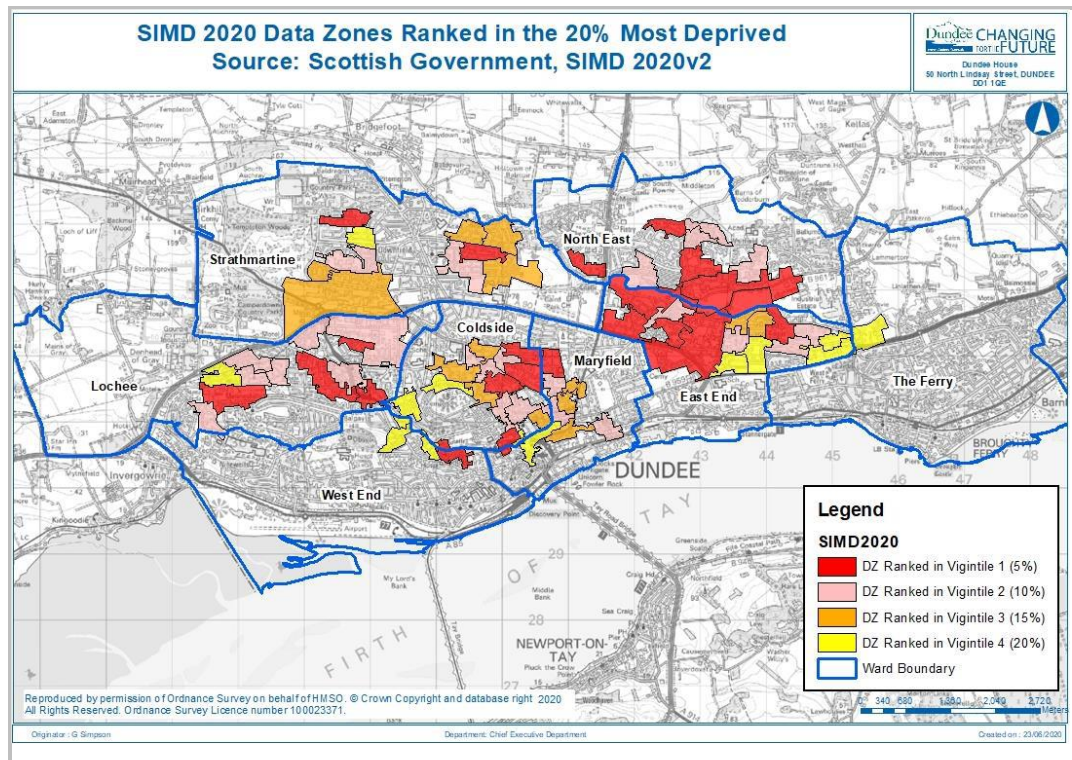


Figure 4.1 : SIMD 2020 20% Most Deprived Areas in Dundee (Source: DCC)

- 4.2.6 The Electoral Ward of Maryfield encompasses the city centre and the proposed LEZ area and contains 8 data zones within the 20% most deprived, an increase of one data zone since 2016.
- 4.2.7 The SIMD 2020 reported that 10,506 children (aged 0-15 years) live within the 20% most deprived data zones, this accounts for 43.8% of children in that age group in Dundee City overall. In Maryfield 802 (36.6%) of children live within the 20% most deprived data zones. The young are a particular group at risk from poor air quality and any improvements in air quality will directly impact on them.
- 4.2.8 The employment domain in the Scottish Index of Multiple Deprivation examines the unemployment claimant counts averaged over 12 months, the working age incapacity benefit or employment support allowance recipients and the working age severe disablement allowance recipients. The SIMD 2020 reported that 35,975 people (36.4%) of the working age population in Dundee City live in a data zone that is ranked in the 20% most deprived in the employment domain, with 4,416 (31.5%) in the Maryfield Ward.
- 4.2.9 The SIMD 2020 reported that 24,291 people or 16.4% of the population in Dundee City are classed as income deprived, with 3,064 (16.5%) located in Maryfield.

Air

- 4.2.10 In 2006 DCC declared the whole of the local authority area as an Air Quality Management Area (AQMA) for the NO₂ annual mean objective and published an Air Quality Action Plan

(AQAP) in January 2011. Air quality in Dundee is generally good but despite improvements in air quality since the introduction of the AQAP, there remain several locations in the AQMA where exceedances of emissions exist and where the AQS are not being met. The number of exceedances of the NO₂ annual mean objective has decreased from 16 in 2018 to 10 in 2019. The introduction of the LEZ will aim to accelerate the continued improvements to air quality in the city.

4.2.11 DCC are required to report on observed air quality in the city on an annual basis and the [2020 Air Quality Annual Progress Report](#) provides the full ratified and adjusted 2019 air quality dataset. Detailed analysis of air quality in Dundee is reported in the NLEF Stage 1 Report (*Dundee Low Emission Zone, National Low Emission Framework Stage 1 Report, SYSTRA 2019*). In total, there were 11 locations where annual mean concentrations of NO₂ exceed the AQO of 40 µg/m³ (maximum legal limit) and a further 12 sites where annual mean concentrations of NO₂ exceed 36 µg/m³ (within 10% of maximum legal limit) The primary exceedance locations of NO₂ are shown to be on or inside the inner ring road area of the city centre and on the Lochee Road corridor and these are shown in Figure 4.2.

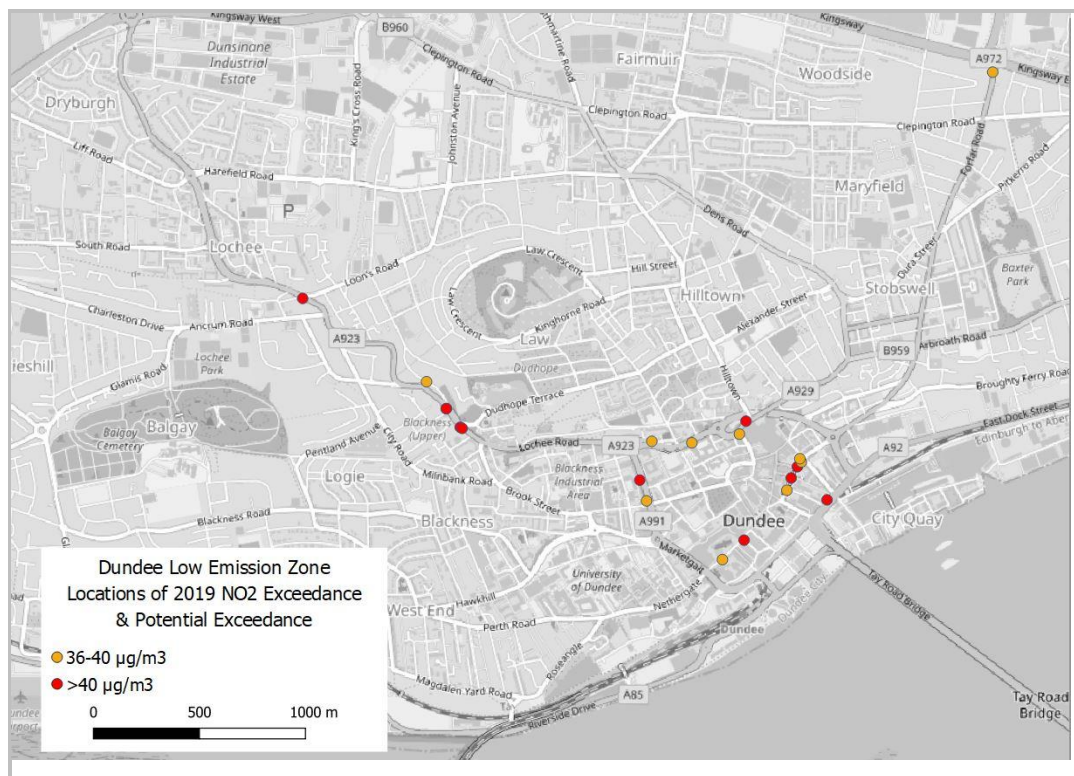


Figure 4.2 : 2019 Annual Mean Concentrations of NO₂ greater than 36 µg/m³

4.2.12 The 2021 Air Quality Annual Progress Report provides the full ratified and adjusted 2020 air quality dataset. This dataset contains observed data captured during the Covid-19 pandemic and is not considered representative of the yearly trend in pollution levels up to and including 2019. The 2019 dataset was therefore used in the NLEF appraisal and LEZ option development process.

Climatic Factors

4.2.13 In June 2019, the DCC declared a Climate Emergency, recognising the serious and accelerating environmental, social and economic challenges faced by climate change and DCC published a [Climate Action Plan](#) (in collaboration with public, private and community organisations). The Climate Action Plan details the carbon dioxide levels (CO₂) in 2005 and 2015, noting a 24% reduction in tonnes of CO₂ equivalent (tCO₂e). In 2015, Transport accounted for 25% of carbon of all CO₂ emissions. The Climate Action Plan commits to

surpass the Covenant of Mayors target of 40% reduction in greenhouse gas emissions by 2030 and ultimately achieve a science-based target of net-zero greenhouse gas emissions by 2045, in line with the proposed targets of the Scottish Climate Change Bill.

- 4.2.14 [The UK Climate Projections \(UKCP\)](#) provide the most up-to-date assessment of how the UK climate may change in the future. Under a medium emissions scenario, the central estimate for increases in summer temperatures by the 2050's may be 2.3°C in eastern Scotland. Precipitation may become greater in winter months whilst summers are predicted to will be drier. Climate change is predicted to result in more summer heat waves, extreme temperatures and drought, sea level rise, increased frequency and intensity of extreme precipitation events, and reduced occurrence of frost and snowfall.

Material Assets

- 4.2.15 Many of the policies pertaining to material assets are aligned with Scottish climate change legislation and policy. Collectively, these policies largely aim to contribute to core planning objectives and support sustainable development, reduce greenhouse gas emissions, and make the best use of Dundee's resources and existing infrastructure. Investment is ongoing in various areas including: transport infrastructure, central waterfront, cultural quarter, city centre and district centres, regeneration areas and education. The city benefits from a high level of open space. A developing network of core paths which extends throughout the Council administrative area is being further enhanced through additional paths and an expanding system of dedicated cycle ways and greenways. Dundee's green circular is a 27 mile long footpath/cycleway around the city linking open space and areas of interest.
- 4.2.16 Dundee has a large open space asset (1393 hectares, 28% of the area) and many well connected access routes including 82 Core Paths (total 181.8km) and some well promoted routes such as two National Cycle Network routes and the Green Circular. There are also five promoted cycle routes (16.5km) mainly off road. Routes at Camperdown Play Area, Trottick Ponds LNR, Broughty Ferry LNR, Templeton Art and Yellow Trails, Ninewells Arboretum and The Miley have been improved specifically to allow for wheelchair and/or push chair access. Many other routes through Parks are tarmac and are level providing paths suitable for wheelchair users.
- 4.2.17 A network of other paths through green spaces provides other routes for cycling, horse riding and walking. While there are no promoted bridleways, Templeton Woods, and Trottick Ponds are regular riding routes. While there are some paths in parks which are too steep for cyclists and have steps, most paths are available to cyclists. Made paths through most parks total over 34.4km but there are numerous paths through pocket green spaces especially around housing, measurements of which have not yet been recorded.
- 4.2.18 Dundee does not have an extensive network of bus lanes and does not operate bus lane enforcement, unlike other cities introducing LEZs in Scotland. Bus priority measures have been introduced on two city streets in 2021 to give public transport priority during the transition out of lockdown post Covid-19. These are located on Meadowside and the Westport roundabout, both on the edge of the LEZ area.
- 4.2.19 A key consideration for a LEZ is the impact on non-compliant vehicles resulting from restrictions in entering the LEZ area. Dundee's road network is such that no strategic trips should route through Dundee city centre but stay on the inner ring road. Dundee city centre however is a major trip attractor and generator with multiple land uses. City centre car parks are a key start and end point for vehicle trips to and from the city centre.

- 4.2.20 There are five multi-story car parks inside the inner ring road area of Dundee and two located just outside the inner ring road. These off-street multi-story car parks provide 3,872 spaces for the city. Analysis of car park occupancy data informed the development of LEZ options. Car park occupancy surveys were undertaken in April 2019 at all multi-story car parks in Dundee and the data was used to estimate the total number of non-compliant vehicles at each site and their possible capacity to accommodate non-compliant vehicles should they be excluded from an LEZ.
- 4.2.21 There are nearly 1,700 further off-street spaces available for public use in surface level car parks in or on the periphery of the inner ring road. These are in 18 different locations, 14 of which (comprising 791 spaces) are managed by the Council. Charges apply in all these except for the Gallagher retail park (630 spaces) and Lidl (90 spaces), which are available on a time-limited basis for customers only.
- 4.2.22 Dundee City Council provides approximately 530 charged on-street spaces for public use in the city centre, seeking in particular to meet short-stay demand and enable easy access for disabled people. There are estimated to be approximately 1,700 private residential or business car parking spaces in the city centre. These are not available for members of the public to use, but do influence total traffic volumes.

4.3 Evolution of the Environment in the Absence of the LEZ

- 4.3.1 The SEA process is required to assess the likely impact on the environment if the LEZ was not implemented. It is considered that, in the absence of the LEZ, the reduction in emissions levels associated with road transport would decline at a slower level, in line with the yearly trends noted in the [2020 Air Quality Annual Progress Report \(APR\) for Dundee City Council](#). As detailed above, despite improvements to air quality in recent years, there remain locations where legal limits are exceeded.
- 4.3.2 Existing strategies have policies to reduce vehicular travel and promote active and sustainable modes of transport. Such policies in time, together with the natural replacement of older vehicles in the city driving fleet, will result in all exceedances of the air quality limits to be met. It is unlikely that in the absence of a LEZ, air quality issues will get significantly worse, as evidence by the steady improvements seen since the introductions of Dundee's AQAP.
- 4.3.3 For the SEA Environmental Topics under consideration, the absence of a LEZ would be expected to result in a neutral impact to Population and Human Health, Air, Climatic Factors and Material Assets.

4.4 Impact of LEZ on Environmental Topics

- 4.4.1 Using the Environmental Topics based approach outlined in the SEA guidance, the environmental effects of the LEZ have been assessed and outlined below, with the overall score summarised in Table 4.1.

Table 4.1 : Summary of Environmental Effects

Environmental Topic	Score (+,-,0,?)
Population and human health	+
Air	+
Climatic Factors	0
Material Assets	0

- 4.4.2 To assist in assessing the effects of the LEZ on each Environmental Topic, Assessment Questions informed by SEPA's [SEA Topic guidance](#) have been utilised as follows:

- Population and Human Health
 - Will the LEZ affect any aspect of the environment which contributes to human health and wellbeing ?
 - Will the LEZ affect an individual's ability to improve their own health and wellbeing?
- Air
 - Will the LEZ protect and improve air quality?
 - Will the LEZ reduce levels of emissions?
- Climatic Factor
 - Does the LEZ contribute towards climate change targets?
 - Does the LEZ reduce existing and avoid new greenhouse gas emissions from transport
- Material Assets
 - Does the LEZ fit with existing infrastructure provisions?
 - Will the LEZ align with future infrastructure provisions?

Population and Human Health

- 4.4.3 As noted above, poor air quality is the largest environmental risk to public health in the UK, as long-term exposure to air pollution can cause chronic conditions such as cardiovascular and respiratory diseases as well as lung cancer, leading to reduced life expectancy. Although long term exposure to air pollution can affect all members of society, some groups are more vulnerable to the effects of air pollution because of their age, existing medical conditions and/or health determining behaviours. Areas of high deprivation are also associated with poorer air quality and the health impacts of poor air quality compound pre-existing health inequalities.
- 4.4.4 Recent studies ([Lee et al. \(2019\)](#), [Willocks et al. \(2012\)](#)) estimating the health impact of air pollution in Scotland, and the resulting benefits of reducing concentrations in city centres have highlighted the difficulty in measuring the health impacts of improved air quality interventions, such as a LEZ. [Lee et al. \(2019\)](#) found that focusing an air pollution reduction intervention, such as an LEZ, on a city centre where concentrations are highest is likely to have a relatively small positive health impact at the national level, because these areas are largely commercial and hence have small resident populations. Even though these areas will routinely see large numbers of people visiting for both shopping and working, their time spent in the area, especially outdoors, will likely be relatively short.
- 4.4.5 However, the [Committee on the Medical Effects of Air Pollutants](#) (COMEAP) has established that short-term exposure to NO₂ and PM₁₀, particularly at high concentrations, is a respiratory irritant that can cause inflammation of the airways leading to, for example, cough, production of mucus and shortness of breath. [Public Health England](#) detail epidemiological studies that have also shown associations of outdoor NO₂ with adverse effects on health, including reduced life expectancy.
- 4.4.6 A primary objective therefore of the LEZ is to improve air quality by reducing concentrations of pollutants in the city. To understand the benefits of the LEZ to the local population, existing air quality levels and predicted air quality improvements have been assessed throughout the NLEF process, utilising SEPA's National Modelling Framework (NMF) Dundee City Air Quality Model, as detailed in the Air Topic below.
- 4.4.7 The noted below, the LEZ is expected to have a positive effect on the SEA environmental topic of Population and Human Health.

Air

- 4.4.8 Air quality modelling has been undertaken by SEPA through the National Modelling Framework (NMF) in support of the Scottish Government's Cleaner Air for Scotland Strategy (CAFS). CAFS set a commitment to develop a NMF to provide a standardised approach to modelling air quality to support the consideration of LEZs in Scotland. The NMF ensures that the analysis and generation of evidence to support decision-making in the LEZ development process is consistent across all local authorities. Output from the NMF Dundee City Air Quality Model (SEPA) has informed the LEZ option development and appraisal process and ensured the LEZ delivers the expected improvements to air quality.
- 4.4.9 Chapter 5 of the second interim [NLEF Stage 2 Report](#) details how the NMF was utilised in the option development process, informing the size and vehicle scope of the LEZ. The conclusions from the initial NMF assessment helped identify the LEZ options for the first round of public and stakeholder consultation and detailed traffic model testing, as outlined in Chapter 2 above.
- 4.4.10 Upon identification of the final preferred LEZ scheme for Dundee, the NMF assessed the preferred scheme to identify the impact of the LEZ on air quality, with full outcomes provided in SEPA's *Cleaner Air for Scotland – National Modelling Framework – Low Emission Zone Dundee Evidence Report (SEPA, September 2021)*. The key outcomes from the air quality modelling of Dundee's proposed LEZ are:
- Modelling identified that the highest concentrations of annual-average NO₂ occurred in the City Centre where vehicle emissions were dominated by buses, whilst diesel car emissions dominated other key routes around the city.
 - Traffic model outputs indicated relatively low levels of displacement due to the LEZ in operation, with the inner ring road experiencing a small increase in car flow, whilst there are general reductions within the LEZ area.
 - Emissions analysis identified that key bus routes inside the LEZ boundary will experience the largest reductions in NO_x emissions by an average of 70%, whilst emissions on Lochee Road will reduce by an average of 20%.
 - Air quality model results indicate that existing exceedances inside the LEZ (for the base year of 2017) would all be removed following LEZ implementation.
 - Localised exceedances may remain on Dock Street, despite a small decrease in NO₂ concentrations due to the LEZ.
 - There is a small decrease in NO₂ concentrations along Lochee Road and Logie Street, including at locations where NO₂ exceedances were observed in 2019.
 - The LEZ is expected to lead to substantial reductions in tailpipe emissions of PM₁₀, most notably on bus routes inside the LEZ.
- 4.4.11 The NMF confirms there is a large reduction in emissions and roadside concentration of NO₂ inside the LEZ area, where all modelled levels drop below the legal requirement of 40 µg/m³. The predicted changes to NO₂ concentrations in Dundee city centre are shown in Figure 4.3 and Figure 4.4.



Figure 4.3 : NO2 Concentrations in Dundee city centre without LEZ (Source: SEPA)



Figure 4.4 : NO2 Concentrations in Dundee city centre with proposed LEZ (Source: SEPA)

- 4.4.12 The LEZ stops the most polluting vehicles from operating within the city centre of Dundee with the NMF concluding that this will reduce emissions and improve air quality. These improvements to air quality will in turn have a positive effect on the health of those who visit the city and in particular those most at risk of respiratory illness including older people/pensioners and children (including unborn children). This improvement to air quality is the most significant positive impact of the LEZ and will have health and wellbeing benefits for residents, workers, and visitors to the city.
- 4.4.13 The NMF also concludes that the LEZ provides improvements to emissions and air quality city-wide as cleaner vehicles travel to/from the LEZ area. This is particularly noticeable on those routes served by buses, where compliance of the bus fleet to enter the LEZ area

results in cleaner buses serving the entire city. This impact shows the LEZ to have wider benefits to all of Dundee's population.

- 4.4.14 Lochee Road is a key traffic corridor with existing exceedances in NO₂ concentrations (in 2019, pre-Covid-19 traffic levels). NMF emissions analysis has shown that NO_x emissions reduce by approximately 20% on the Lochee Road corridor, resulting in a fall in NO₂ of approximately 1.5 to 2 µg/m³. While this reduction is not enough in itself for NO₂ concentrations to fall below to 40 µg/m³ (of 2019 levels), it does represent an improvement to air quality. The potential for future NO₂ exceedances along Lochee Road will depend partly on the extent to which traffic levels return to pre-COVID levels and the planned improvement works to the corridor.
- 4.4.15 The NMF also examined the predicted changes to PM₁₀ emissions resulting from the introduction of the LEZ. Particulate matter (PM) is a generic term used to describe a complex mixture of solid and liquid particles of varying size, shape, and composition. According to [Public Health England](#), there is an extensive body of evidence that long-term exposure to PM increases mortality and morbidity from cardiovascular and respiratory diseases. Outdoor air pollution, particularly PM, has also been classified by the International Agency for Research on Cancer (IARC) as carcinogenic to humans (a Group 1 carcinogen) and a cause of lung cancer. The NMF concludes there are large reductions in PM₁₀ tailpipe emissions as a result of implementing the LEZ with the largest reductions occurring inside the LEZ. While the NMF has not thus far predicted the resulting reductions in concentrations of PM₁₀, it is clear that any reduction in PM₁₀ will bring health improvements to those regularly exposed and again in particular those vulnerable to the effects of poor air quality.
- 4.4.16 The LEZ is therefore expected to have a positive effect on the SEA environmental topic of Air

Climatic Factors

- 4.4.17 Transport has been identified as a major source of greenhouse gas emissions and the LEZ is part of a wider strategy to shift towards a low carbon economy and reduction of greenhouse gas emissions. As noted above, the LEZ stops the most polluting vehicles from operating within the city centre of Dundee, reducing emissions and improving air quality particularly in the city centre. However the LEZ does not in itself directly reduce the number of vehicles on the full Dundee road network and it is assumed that existing non-compliant vehicles would still exist on the network with drivers choosing to park on the periphery of the LEZ area.
- 4.4.18 Traffic microsimulation modelling in support of the development of the LEZ show that with the LEZ in place there is little overall difference in average speed of vehicles but there is a small increase in trip distance (0.3%) for non-compliant vehicles. This small increase in trip distance, assuming the same average speed as for the rest of the journey, may lead to a direct increase in carbon emissions from the non-compliant vehicles, however this does not factor in parallel policies or secondary influences to encourage a shift towards sustainable transport modes. For example, with bus operators introducing newer cleaner buses into their fleets to meet LEZ emission standards, this may encourage more of the population to switch to the bus for some journeys. Similarly, with a network of increasingly cleaner vehicles, it may be more attractive to cycle or walk in areas with lower emission levels.
- 4.4.19 The LEZ is therefore expected to have a neutral effect on the SEA environmental topic of Climatic Factors.

Material Assets

- 4.4.20 The NLEF appraisal of the LEZ for Dundee concluded the impact of the LEZ on non-compliant traffic to be minimal and localised around the proposed LEZ area of the city centre. The LEZ restricts non-compliant vehicles from entering the city centre and there are different vehicle types and trip purposes that are likely to be impacted. Analysis of available datasets and extensive stakeholder and public consultation suggests that main vehicle type to be impacted will be private cars. It is anticipated, and reflected in the traffic modelling of the LEZ, that non-compliant cars will continue to travel as they do now but choose to park on the periphery of the LEZ area.
- 4.4.21 The final LEZ excludes five multi-story car parks and the NLEF appraisal calculated these provide sufficient parking capacity for non-compliant vehicles. It is therefore considered unlikely that the LEZ will push non-compliant vehicles on to local routes or residential areas. This is true for either parking or to route away from the LEZ. The traffic modelling of the LEZ has shown there to be minimal rerouting of traffic and due to the LEZ being contained inside the strategic route of the inner ring road, this effectively means no traffic through-routes are blocked by the LEZ. Full details of this analysis can be found in the accompanying [NLEF Stage 2 Report](#) (*Dundee Low Emission Zone, National Low Emission Framework Interim Stage 2 Report, SYSTRA 2021*)
- 4.4.22 Dundee does not have a network of bus lanes and the LEZ proposals on their own do not promote increased use or implementation of any bus priority measures. DCC are currently investigating additional bus priority measures and this parallel strategy is likely to also target air quality improvements on key corridors such as Lochee Road.
- 4.4.23 Similarly, the extensive core path and cycling network in the city is likely to be unaffected by the LEZ proposals on their own. A secondary impact of the LEZ may be to promote a shift to active travel modes and while this would be welcome to help the city achieve wider objectives to increase active travel, the LEZ on its own is unlikely to significantly impact on such assets.
- 4.4.24 The LEZ is therefore expected to have a neutral effect on the SEA environmental topic of Material Assets.

4.5 Mitigation and Monitoring

- 4.5.1 In accordance with Schedule 3 of the Environmental Assessment (Scotland) Act 2005, mitigation measures to prevent, reduce or offset any significant adverse effects on the environment of implementing the plan should be considered. As noted above, it is considered that the implementation of the LEZ in Dundee will not result in any significant negative effects and mitigation as part of the SEA process is not considered.
- 4.5.2 Section 19 of the Environmental Assessment (Scotland) Act 2005 requires the Responsible Authority to monitor significant environmental effects of the implementation of the LEZ to ensure that any adverse and unforeseen impacts do not arise or can be identified and remedied. The LEZ falls under DCC's local air quality management requirements where they have an obligation to regularly review and assess air quality in the city, and to determine whether or not the air quality objectives are likely to be achieved. As of 2016, a requirement of LAQM process is the delivery of Annual Progress Reports (APR) to summarise the work being undertaken by the local authority to improve air quality and report any progress that has been made. Following its implementation date, the impact of the LEZ, including any unintended impacts such as the creation of new air quality exceedance locations, will be continually monitored through the APRs undertaken by DCC.

5. CONSULTATION AND KEY DATES

5.1 Consultation

5.1.1 The LEZ has been developed with significant involvement from key stakeholders and members of the public, as outlined in Chapter 2.

5.1.2 As proposed in the SEA Scoping Report and agreed with the Consultation Authorities, a six week consultation period will take place for interested parties to make representations on both the LEZ and the SEA Environmental Report. The consultation period will run from **1st November 2021 to 13th December 2021**. This will run concurrently with the 28-day period for objections to the final LEZ scheme, ensuring the final LEZ and the Environmental Report are available to view at the same time.

How to comment on the report:

5.1.3 If you would like to express your views on the contents of the Environmental Report or LEZ, please send written comments to the following address:

- By e-mail: dundee.lez@dundeecity.gov.uk
- By post: Head of Sustainable Transport and Roads
Floor 5
Dundee House
50 North Lindsay Street
Dundee
DD1 1LS

5.1.4 **Full details of the proposed LEZ Scheme can be found on the Dundee City Council website at www.dundeecity.gov.uk/lez.**

5.1.5 Any comments/observations received in respect of the Environmental Report will be taken into account before the LEZ is finalised and submitted to Dundee City Council's Community Safety & Public Protection Committee.

5.1.6 Key dates for the introduction of the LEZ and the accompanying Environmental Report are outline in Table 5.1 below. Note, these may be subject to change.

Table 5.1 : LEZ Key Dates

Activity	Date
Programme for Government committing Dundee to introducing a LEZ	September 2017
Scottish Government publish NLEF to assist with LEZ development and appraisal	January 2019
SEA Screening Report	March 2019
DCC NLEF Stage 1 Report	June 2019
DCC NLEF Interim Stage 2 (version 1)	September 2020
Public and stakeholder engagement on LEZ Options (6-weeks)	October-November 2020
DCC NLEF Interim Stage 2 (version 2)	June 2021
Statutory Public and stakeholder engagement on LEZ Options (8-weeks)	June - August 2021
SEA Scoping Report	September 2021
Publish LEZ Scheme (28 days for objections)	October 2021
SEA Environmental Report	October 2021
Final LEZ Scheme submitted to Scottish Ministers	January/February 2022
Declaration of LEZ	May 2022
Enforcement of LEZ	May 2024
Publish SEA/LEZ Post-Adoption Statement	May 2025

APPENDIX A – CONSULTATION AUTHORITIES RESPONSE TO SCOPING REPORT

Dundee City Council received responses from the Consultation Authorities on the SEA Scoping Report, submitted by SYSTRA on behalf of DCC on 15th September 2021. The responses from each Consultation Authority and the action taken are provided in Table A.1 below.

Table A.1 : Response to Consultation Authority Comments on Scoping Report

Consultation Authority	Response	Observation and Recommended Course of Action
SEPA	Thank you for consulting SEPA on this Scoping Report by way of your email of 15 September 2021.	
	Our SEA topic guidance notes https://www.sepa.org.uk/environment/land/planning/strategic-environmental-assessment/ provide advice in regard to the scope and level of detail to be included in environmental reports in respect of our main areas of interest (air, water, soil, human health, material assets and climatic factors). We have used this guidance to review the consultation document and in accordance with Section 15(2) of the Environmental Assessment (Scotland) Act 2005 we confirm that we are satisfied with the scope and level of detail proposed for inclusion in the Environmental Report.	Noted and welcome
	In relation to the SEA topics which fall within SEPA's remit, we note the intention to scope out the SEA topics of biodiversity, flora and fauna; soil; water. We agree with this decision. Lower emissions would have positive effects on these topics, as less chemicals would deposit and interact with the environment, however these effects are unlikely to be significant, while there will be significant positive effects for air, climatic factors and material assets.	Noted and in line with Environmental Assessment
	As SEPA have been involved in the LEZ project from start to finish we are confident that the consideration of the environmental effects, both negative and positive, have been embedded in the plan and that the Environmental Report will reflect that. We are satisfied with the methodology proposed for the assessment, however we recommend considering the assessment questions available in the SEPA SEA Topic guidance (see link above) as a guide for completing the assessment.	Noted. The use of SEA Topic based questions has been adopted on this advice from SEPA, as detailed in Chapter 4.
	We confirm that we are content with the proposed six weeks consultation period.	Noted
	If you wish to discuss this consultation response please do not hesitate to contact me by email or via our SEA Gateway at sea.gateway@sepa.org.uk .	Noted and welcome

Consultation Authority	Response	Observation and Recommended Course of Action
NatureScot	<p>Thank you for your scoping report consultation, sent to the Scottish Government SEA Gateway on 15 September 2021. Our comments on the scope and level of detail to be included in the Environmental Report and on the duration of the proposed consultation period are set out below.</p> <p>Scope of assessment and level of detail Subject to the specific comments set out below, NatureScot is content with the scope and level of detail proposed for the environmental report. We note that Biodiversity, flora and fauna have been scoped out of the assessment. While we note that there are likely to be general positive effects on biodiversity, flora and fauna due to an improvement in air quality we agree these effects are unlikely to be significant.</p> <p>Consultation period for the Environmental Report NatureScot notes the proposed period of 6 weeks for consultation on the LEZ environmental report and is content with this proposed period.</p> <p>Concluding remarks This consultation response provides a view solely on the potential for the plan or programme to have significant environmental effects. NatureScot cannot comment on whether or not the plan meets other criteria determining the need for SEA as set out in the Act.</p>	<p></p> <p>Noted</p> <p>Noted</p> <p>Noted</p>
Historic Environmental Scotland	<p>Thank you for your consultation which we received on 15 September 2021 about the above scoping report. We have reviewed this in our role as a Consultation Authority under the above Act. This letter contains our views on the scope and level of detail of the information to be included in the Environmental Report. Please note that our view is based on our main area of interest for the historic environment.</p> <p>Scope and level of detail As you will be aware, in our response to the screening for this assessment (dated 10 April 2019) we were of the view that significant effects on the historic environment were unlikely. We therefore note that the historic environment has been scoped out of the assessment. On the basis of the information provided, we are content with this approach and are satisfied with the scope and level of detail proposed for the assessment.</p> <p>Consultation period for the Environmental Report We note that a 6 week consultation is proposed for the environmental report and we are content to agree with this consultation period. Please note that, for administrative purposes, we consider that the consultation period commences on receipt of the relevant documents by the SEA Gateway.</p>	<p></p> <p>Noted</p> <p>Noted</p>

APPENDIX B – PLANS PROGRAMMES AND STRATEGIES

NAME OF PPS	MAIN REQUIREMENTS OF THE PPS	IMPLICATIONS FOR THE LEZ
Air Quality Legislation		
1.	Ambient Air Quality and Cleaner Air for Europe (CAFE) Directive (2008/50/EC) Clean Air Programme for Europe (CDM(2013)918)	Establish air quality objectives, including ambitious cost-effective targets for improving human health and environmental quality, specifying ways of assessing these and of taking any corrective action if the standards are not met.
2.	National Emissions Ceiling Directive (2016/2284/EU)	Establish air quality objectives, including ambitious cost-effective targets for improving human health and environmental quality, specifying ways of assessing these and of taking any corrective action if the standards are not met.
3.	The Environment Act 1995: Part IV	Requires all local authorities to periodically review and assess the quality of air within its boundaries.
4.	The Air Quality Strategy for England, Scotland, Wales and Northern Ireland	Sets out air quality objectives and policy options to further improve air quality in the UK from today into the long term. As well as direct benefits to public health, these options are intended to provide important benefits to quality of life and help to protect our environment.
5.	Air Quality Standards (Scotland) Regulations 2010	The principal aim of the PPS is to achieve a high degree of protection for human health and the environment against the effects of ambient air pollution.
6.	Air Quality (Scotland) Regulations 2000	The objective of this PPS is to restrict the level at which the harmful

		substance is present in the air. Setting out targets for pollutants and particulates to remain below.	number of vehicles within the LEZ and therefore reduce the levels of pollutants and particulates.
7.	Air Quality (Scotland) Amendment Regulations 2002	This provides an update on the target limits from the Air Quality (Scotland) Regulations 2000. Referring explicitly to Benzene and Carbon Monoxide.	The LEZ will allow for these objectives to be achieved, lowering traffic levels will in turn lower the emissions and therefore the pollutants and particulates.
8.	Air Quality (Scotland) Amendment Regulations 2016	Further updates the targets set out in the Air Quality (Scotland) Regulations 2000, relating to Nitrogen dioxide.	The LEZ will help to meet the stricter regulations through limiting what can enter the zone, this will therefore benefit the environment and people's health and wellbeing.
9.	Cleaner Air for Scotland 2 – Towards a Better Place for Everyone (CAFS2)	Sets out how the Scottish Government and its partner organisations propose to further reduce air pollution to protect human health. The strategy aims to achieve the ambitious vision for Scotland "to have the best air quality in Europe".	The LEZ will work towards meeting the targets to further reduce air pollution within Dundee City, this will therefore reduce the impact on human health from emissions and work towards Scotland's vision for having the best air quality in the world.
10.	National Low Emission Framework	Developed to assist in the appraisal of air quality improvement options related to transport. It provides guidance on the consistent assessment of LEZs across Scotland.	This allows for standard appraisal across Scotland's LEZ. It will therefore provide evidence on how to implement a successful LEZ.
11.	National Modelling Framework	Providing detailed models for Dundee to assist in providing evidence for taking actions at the city scale to reduce street-level emissions.	The National Modelling Framework helps to provide evidence for actions developed through the National Low Emission Framework.
12.	Transport (Scotland) Bill (for LEZ)	Aim to deliver environmental protection and minimise environmental impacts by measuring, monitoring and managing transport impacts on air quality, whilst complying with statutory air quality limits.	The Scottish Government is committed to working with local authorities to introduce low emission zones (LEZs) into its biggest four cities.
National Plans and Policy			
13.	National Planning Framework 3	To create a low carbon place, with the ambition to achieve at least an 80% reduction in greenhouse gas emissions by 2050. The long term ambition to largely decarbonise the transport sector within Scotland.	The LEZ will limit which vehicles are allowed into a certain area, this will encourage alternative methods of transport, this will allow for the creation of low carbon places and help work towards achieving 80%

			reduction in greenhouse gas emissions by 2050.
14.	National Transport Strategy	To protect the environment and improve health by building and investing in public transport and other types of efficient and sustainable transport which minimise emissions and consumption of resources and energy.	The LEZ will allow for future investment in public transport and sustainable transport methods as driving a car into the LEZ will no longer be an option. Thus protecting the environment and improving public health.
15.	Strategic Transport Projects Review (STPR & STPR2)	Measure that will support active and sustainable travel alongside placemaking principles in Scotland's seven cities to help transform cities and neighbourhood centres.	The LEZ will support active and sustainable travel whilst transforming the city centre, encouraging walking, cycling and public transport as viable alternatives to car journeys.

Regional Plans & Policies

16.	Strategic Development Plan for the City Region: The Tay Plan	Shaping better quality places; Active and healthy by design ensuring that transport and land use are integrated to: reduce the need to travel and improve accessibility by foot, cycle and public transport, make the best use of existing infrastructure to achieve an active travel environment combining different land uses with green space and support land use and transport integration by transport assessments/appraisals and travel plans where appropriate, including necessary on and off-site infrastructure.	The implications for the LEZ, this PPS encourages the wider use of sustainable and active transport whilst making best use of the existing infrastructure. Therefore strengthening the case for the LEZ.
17.	TACTRAN Regional Transport Strategy (2015-2036 Refresh)	To deliver a transport system, shaped by engagement with its citizens, which helps deliver prosperity and connects communities across the region and beyond, which is socially inclusive and environmentally sustainable and which promotes the health and well-being of all.	Helps to meet or better all statutory air quality requirements in the Tactran area. Contribute to the achievement of the Scottish national targets and obligations on greenhouse gas emissions.
18.	Tay Cities Regional Economic Strategy 2017-2037	To make the Tay Cities Region one of the most exciting, dynamic and desirable areas of Europe in which to live, work, invest and visit.	The LEZ will make the air quality, the public transport and the quality of life better. This will make Dundee a more desirable area to visit, live, work and invest in.

Local Plans and Policies and Projects

19.	City Plan for Dundee 2017-2026	Provide a strong and sustainable city economy that will provide jobs for the people of Dundee, retain more graduates and make the city a magnet for new talent; offer real choice and opportunity in a city that has tackled the root causes of social and economic exclusion, creating a community which is healthy, safe, confident, educated and empowered; a vibrant and attractive city with an excellent quality of life where people choose to live, learn, work and visit.	The implementation of an LEZ will make Dundee more desirable place to live with a higher level of health, safety, vibrant and attractive city which will help to build a strong and sustainable economy whilst improving the quality of the air and overall health of residents and workers.
20.	Dundee Local Development Plan	By 2036, the TAYplan area will be sustainable, more attractive, competitive and vibrant without creating an unacceptable burden on our planet. The quality of life will make it a place of first choice where more people choose to live, work, study and visit and where businesses choose to invest and create jobs.	The PPS wants to grow the local economy but not at the sacrifice of the environment. The LEZ therefore encourages the protection of environment and increase the quality of peoples lives through reduction in pollution and particulates into the air.
21.	Dundee Cycle Strategy	Increasing the number of people choosing to travel around the city by cycle is an important factor in improving the city's health and economic prospects. By developing a network of cycle routes, putting in place infrastructure improvements and delivering a programme of supporting initiatives, we want to create the opportunities to bring about a shift in the city's travel habits.	This PPS encourages active travel and a move away from cars by providing a credible alternative in the form of cycling. The LEZ will encourage this by making car travel undesirable.
22.	Tay Cities Regional Transport Model	For the development of outline and strategic business cases for major transport and land-use interventions identified within the Tay Cities Deal.	There will also be consideration given as to how the regional model can support the development of Low Emission Zones for Dundee.
23.	Dundee City Microsimulation Model	Carry out micro-simulation modelling and air dispersion modelling to identify traffic and pollution changes with varying scenarios.	Identify the effects of the LEZ on emissions within Dundee

SYSTRA provides advice on transport, to central, regional and local government, agencies, developers, operators and financiers.

A diverse group of results-oriented people, we are part of a strong team of professionals worldwide. Through client business planning, customer research and strategy development we create solutions that work for real people in the real world.

For more information visit www.systra.co.uk

Birmingham – Newhall Street

5th Floor, Lancaster House, Newhall St,
Birmingham, B3 1NQ
T: +44 (0)121 393 4841

Birmingham – Edmund Gardens

1 Edmund Gardens, 121 Edmund Street,
Birmingham B3 2HJ
T: +44 (0)121 393 4841

Dublin

2nd Floor, Riverview House, 21-23 City Quay
Dublin 2, Ireland
T: +353 (0) 1 566 2028

Edinburgh – Thistle Street

Prospect House, 5 Thistle Street, Edinburgh EH2 1DF
United Kingdom
T: +44 (0)131 460 1847

Glasgow – St Vincent St

Seventh Floor, 124 St Vincent Street
Glasgow G2 5HF United Kingdom
T: +44 (0)141 468 4205

Glasgow – West George St

250 West George Street, Glasgow, G2 4QY
T: +44 (0)141 468 4205

Leeds

100 Wellington Street, Leeds, LS1 1BA
T: +44 (0)113 360 4842

London

3rd Floor, 5 Old Bailey, London EC4M 7BA United Kingdom
T: +44 (0)20 3855 0079

Manchester – 16th Floor, City Tower

16th Floor, City Tower, Piccadilly Plaza
Manchester M1 4BT United Kingdom
T: +44 (0)161 504 5026

Newcastle

Floor B, South Corridor, Milburn House, Dean Street, Newcastle, NE1
1LE
United Kingdom
T: +44 (0)191 249 3816

Perth

13 Rose Terrace, Perth PH1 5HA
T: +44 (0)131 460 1847

Reading

Soane Point, 6-8 Market Place, Reading,
Berkshire, RG1 2EG
T: +44 (0)118 206 0220

Woking

Dukes Court, Duke Street
Woking, Surrey GU21 5BH United Kingdom
T: +44 (0)1483 357705

Other locations:

France:

Bordeaux, Lille, Lyon, Marseille, Paris

Northern Europe:

Astana, Copenhagen, Kiev, London, Moscow, Riga, Wroclaw

Southern Europe & Mediterranean: Algiers, Baku, Bucharest,

Madrid, Rabat, Rome, Sofia, Tunis

Middle East:

Cairo, Dubai, Riyadh

Asia Pacific:

Bangkok, Beijing, Brisbane, Delhi, Hanoi, Hong Kong, Manila,
Seoul, Shanghai, Singapore, Shenzhen, Taipei

Africa:

Abidjan, Douala, Johannesburg, Kinshasa, Libreville, Nairobi

Latin America:

Lima, Mexico, Rio de Janeiro, Santiago, São Paulo

North America:

Little Falls, Los Angeles, Montreal, New-York, Philadelphia,
Washington

SYSTRA