MAIDSTONE LOW EMISSION ZONE FEASIBILITY STUDY

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In association with

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1 Introduction

This report has been prepared by Arcadis (UK) Limited and Integrated Transport Planning Ltd (ITP) for Maidstone Borough Council (MBC). It covers an initial feasibility study of a potential Low Emission Zone (LEZ) in Maidstone. The focus of such a zone would be the Upper Stone Street area, which has the worst air quality problem in Maidstone.

The study was undertaken over a four-month period between mid-December 2018 and April 2019 and was delivered within strict budget constraints. The Arcadis/ITP team worked in cooperation with a client team throughout that included officers from MBC and from Kent County Council (KCC). A stakeholder workshop that included a broader range of stakeholder interests was held in early February 2019, at which initial ideas on a long-list and a short-list of measures that could potentially be included within a Maidstone LEZ were discussed.

Following this short introduction, the remainder of this report is structured as follows:

- Section 2 presents the context to the study, including a summary of the existing traffic and air quality issues in central Maidstone.
- Section 3 reports on the process of developing a long list of measures that could potentially form part of a LEZ and sifting those measures to reach a shortlist of three LEZ scenarios whose impacts could be assessed.
- Section 4 describes the spreadsheet-based modelling approach taken to assessing the likely traffic impacts of each of the three LEZ scenarios in 2022 in comparison with a 2022 'Do Minimum' scenario, and presents the output traffic data from this process.
- Section 5 presents the approach taken to modelling the emissions and air quality impacts of the three LEZ scenarios and presents the results of that impact assessment.
- Section 6 sets out the conclusions reached.
- A number of appendices are included, containing some of the detail of the methodology adopted and the fully detailed results.

2 Project Background

2.1 Introduction

Air pollution is the top environmental risk to human health in the UK, and the fourth greatest threat to public health after cancer, heart disease and obesity[1]. Long-term exposure can cause increased incidence of respiratory diseases, such as asthma and bronchitis, it can also exacerbate symptoms for those who already have such diseases.

- Nitrogen dioxide (NO_2): Short-term exposure to high concentrations of NO_2 causes inflammation of the airways. Long-term exposure can cause increased incidence of respiratory diseases, such as asthma and bronchitis, it can also exacerbate symptoms for those who already have such diseases.
- Particulate Matter (PM_{10}): Long-term exposure can contribute to developing cardiovascular and respiratory diseases, including lung cancer. These particles can be inhaled into the respiratory tract and can get into the blood stream.

[1] Department for Environment, Food and Rural Affairs (2019), Clean Air Strategy 2019

2.2 Relevant Legislation and Policy

Part IV of the Environment Act (1995) requires the UK government to produce a national Air Quality Strategy (AQS) which contains standards, objectives and measures for improving ambient air quality. The most recent AQS was published in July 2007[2]. The AQS sets out objectives that are maximum ambient pollutant concentrations not to be exceeded either without exception or with a permitted number of exceedances over a specified timescale.

The objectives referred to in the AQS have been supplemented by the Air Quality Standards Regulations (SI 2010/64)[3], which came into force during 2010 and transpose the European Union (EU) Air Quality Directive (2008/50/EC)[4] into UK law. Air Quality Limit Values were published in these regulations for seven pollutants, in addition to Target Values for an additional five pollutants.

Whilst AQS Objectives and EU Limit Values are identical in relation to the concentrations that are applied, they are different, and it is important to understand how they are interpreted and therefore assessed. Local authorities are required to demonstrate best efforts to achieve the AQS Objectives whereas the UK government is mandatorily required to achieve EU Limit Values.

Reporting against compliance with EU Limit Values is undertaken by Department for Environment and Rural Affairs (Defra) and reported at a zonal/agglomeration level. Zones/agglomerations only comply when everywhere in the zone is below the EU Limit Value and this is the basis of Defra's reporting, which is designed to determine what the maximum concentration is within the zone and hence determine the date the zone will comply with the Limit Value. AQS Objectives are assessed at a much more local level where an Air Quality Management Area (AQMA) can be designated as a result of exceedance at individual properties.

Table 2-1 shows the UK AQS objectives for NO_2 and PM_{10}.

Table 2-1: UK NO_2 and PM_{10} AQS Objectives

Pollutant	AQS Objective	Concentration Measured As
NO_2	200µg/m^3 not to be exceeded more than 18 times a year	1 Hour Mean
	40µg/m^3	Annual Mean
PM_{10}	50µg/m^3 not to be exceeded more than 35 times a year	24 Hour Mean
	40µg/m^3	Annual Mean

[2] Department for Environment Food and Rural Affairs. (2007), The Air Quality Strategy for England, Scotland, Wales and Northern Ireland

[3] Statutory Instrument. (2010), 'The Air Quality Standards Regulations', No. 1001. Queen's Printer of Acts of Parliament

[4] European Union. (2008), 'Directive on Ambient Air Quality and cleaner Air for Europe', Directive 2008/50/EC Official Journal, vol. 152, pp. 0001-0044

Table 2-2 summarises the advice provided in Local Air Quality Management Technical Guidance (LAQM.TG) 2016[5] on where the AQS objectives apply for pollutants considered within this assessment.

Table 2-2: Examples of where the AQS Objectives Should Apply

Averaging Period and Objective	Objectives Should Apply At:	Objectives Should Generally Not Apply At:
Annual Mean (40 µg/m^3 for both NO_2 and PM_{10})	All locations where members of the public might be regularly exposed. Building facades of residential properties, schools, hospitals, care homes etc.	Building facades of office or other place of work where members of the public do not have regular access. Hotels, unless people live there as their permanent residence. Gardens of residential properties Kerbside sites (as opposed to locations at the building façade), or any other location where public exposure is expected to be short term.
24-Hour Mean (50 µg/m^3 PM_{10} not to be exceeded more than 35 times a year)	All locations where the annual mean objective would apply, together with hotels. Gardens of residential Properties.	Kerbside sites (as opposed to locations at the building façade), or any other location where public exposure is expected to be short term.
1-Hour Mean (200 µg/m^3 NO_2 not be exceeded more than 18 times a year)	All locations where the annual mean and: 24 and 8-hour mean objectives apply. Kerbside sites (for example, pavements of busy shopping streets). Those parts of car parks, bus stations etc. which are not fully enclosed, where members of the public might reasonably be expected to spend one hour or more. Any outdoor location where members of the public might reasonably expect to spend one hour or longer.	Kerbside sites where the public would not be expected to have regular access.

2.3 The Maidstone AQMA

It is a requirement of the Environment Act 1995 that Local Authorities (LAs) review current and future air quality within their area of jurisdiction under the system of Local Air Quality Management (LAQM). Any areas of relevant exposure where the AQS Objectives are not, or unlikely to be, achieved should be identified.

[5] Department for Environment, Food and Rural Affairs (2016), Local Air Quality Management – Technical Guidance (16) (LAQM.TG16)

Where it is anticipated that an AQS Objective will not be met, it is a requirement that an AQMA be declared. Where an AQMA is declared, the LA is obliged to produce an Action Plan in pursuit of the achievement of the AQS Objectives.

Maidstone Borough Council has declared an AQMA for exceedances of the annual mean NO_2 AQS Objective (40 µg m^{-3}), which encompasses the main roads passing through the Borough including the M20, A229, A20, A26, A249 and A274. The highest NO_2 concentrations in the AQMA are monitored on the A229 Upper Stone Street.

Upper Stone Street (see Figure 2-1 and Figure 2-2) is a one-way road leading traffic out of Maidstone town centre, comprising two lanes of traffic, and an ascending gradient. It is heavily-trafficked, with significant congestion and delays, as it forms part of a major north-south route through Maidstone as well as an important radial route from central Maidstone. Upper Stone Street has a number of intersections with minor roads, and a mixture of retail, commercial and residential properties adjacent to it. The highest concentrations of NO_2 measured along this road were 71 µg m^{-3} and 84 µg m^{-3} in 2016 and 68 µg m^{-3} and 79 µg m^{-3} in 2017, which are well in excess of the annual mean AQS Objective for NO_2.

Figure 2-1: View of the north end of Upper Stone Street at the Wat Tyler Way/Knightrider Street junction (courtesy of Google Street View)

Figure 2-2: View of a southern stretch of Upper Stone Street, near to the junction of Old Torvil Road (Google Street View)

2.4 Existing Initiatives

MBC already has a number of plans and strategies in place to improve air quality in the borough, as described below.

Maidstone Local Plan (2017)

MBCs Local Plan[6] sets the framework to guide the future development of the borough. It explains 'why, what, where, when and how' development will be delivered through a strategy that plans for growth but protects and enhances the boroughs natural and built assets.

MBC's Local Plan mentions tackling congestion and air quality issues through improvements in provision for vehicles, pedestrians and cyclists, including public transport.

Policy DM6 (Air Quality) explains how pollution from developments has potential to affect human health and that it is essential that such issues are addressed. It mentions that the AQAP primarily focuses on achieving modal shift to walking, cycling and public transport and low emission transport. The policy supports the Integrated Transport Strategy and AQAP by:

- Promoting infrastructure that encourages the use of modes of transport with low impact on air quality
- Locating development close to transport infrastructure and community services and facilities to minimise trip generation
- Installing charging points to facilitate expected increases in electric vehicle ownership
- Requiring developers to contribute to funding measures, including those identified in the air quality action plans and low emissions strategies, designed to offset the impact on air quality arising from new development

Low Emission Strategy (2017)

MBC has published a Low Emission Strategy (LES)[7] which also incorporates and forms the AQAP for Maidstone Borough AQMA. MBC's LES aims to:

- Achieve a higher standard of air quality across Maidstone
- Assist MBC in complying with relevant air quality legislation
- Embed an innovative approach to vehicle emission reduction through integrated policy development and implementation in Maidstone across the region
- Improve the emissions of the vehicle fleet in Maidstone beyond the 'business as usual' projection, through the promotion and uptake of low and ultra-low emission vehicles
- Reduce emissions through an integrated approach covering all appropriate municipal policy areas. Under each area, the specific actions aimed at reducing emissions will be developed

Actions in the LES focus on five key themes, which are transport, planning, procurement of low emission vehicles, carbon management and public health.

[6] Maidstone Borough Council (2017a), Maidstone Borough Local Plan

[7] Maidstone Borough Council (2017b), Maidstone Borough Council Low Emission Strategy

Transport actions include working with partners both in improving the road network and in encouraging modal shift, implementing an emissions standard for buses operating in the district, consider an emission standard for taxis and uptake of electric vehicles.

The LES notes that effective planning policies will play a vital role in sustaining air quality improvements, by discouraging the use of high emissions vehicles and supporting the uptake of low emission vehicles.

In regard to public health MBC will support the work of the Healthy Living team, such as walking and cycling strategies.

3 Longlisting and Shortlisting of Measures

3.1 Long-listing of measures

As a first step in assessing options that could be taken forward within a (LEZ focussed on Upper Stone Street, we developed a long-list of 28 measures that could potentially be introduced in as part of a LEZ. In developing this list, we took account of:

- Local plans and policies, including the Maidstone Integrated Transport Strategy;
- ITP's previous experience of drawing up similar long-lists of potential measures to improve air quality; and
- Internal ideas that the client team had.

The long-list covered measures that fall into three main categories:

- Demand management measures that seek to reduce road use, particularly by the most polluting vehicles.
- Low emission vehicle measures that encourage adoption of low emission vehicle technologies such as electric vehicles (EVs).
- Traffic efficiency measures that aim to improve the efficiency of traffic movement and thus cut down congestion-related emissions.

The measures that were included on the long-list are shown below.

Demand management measures

Road user charging measures

- Class A Charging Clean Air Zone (CAZ) - road user charging linked to vehicle emission standards[8] covering buses, coaches, taxis and private hire vehicles (PHVs).
- Class B Charging Clean Air Zone (CAZ) - road user charging linked to vehicle emission standards covering buses, coaches, taxis and PHVs, and heavy goods vehicles (HGVs).
- Class C Charging Clean Air Zone (CAZ) - road user charging linked to vehicle emission standards covering buses, coaches, taxis and PHVs, HGVs and light goods vehicles (LGVs).

[8] Euro emission standards define the acceptable limits for exhaust emissions of new vehicles sold in the European Union and EEA member states. They are denoted by Euro 1 to 6 for cars and light vehicles and Euro I to VI for heavy duty vehicles (buses, coaches and HGVs).

- Class D Charging Clean Air Zone (CAZ) - road user charging linked to vehicle emission standards covering buses, coaches, taxis and PHVs, HGVs, LGVs and cars.

Access control based measures

- Access control regulation linked to vehicle emission standards (LEZ) for buses, coaches, taxis and PHVs.
- Access control regulation linked to vehicle emission standards (LEZ) for buses, coaches, taxis and PHVs, and HGVs.
- Access control regulation linked to vehicle emission standards (LEZ) for buses, coaches, taxis and PHVs, HGVs and LGVs.
- Access control regulation linked to vehicle emission standards (LEZ) for buses, coaches, taxis and PHVs, HGVs, LGVs and cars.
- Access control through high occupancy vehicle (HOV) lanes or roads, particularly during peak periods.
- Lorry bans during peak periods.

Parking-based measures

- Workplace parking levy (WPL) scheme.
- Emission-related on and off street parking charges.

Measures to encourage sustainable travel behaviour

- Behavioural change measures to 'nudge' people into behaviour change that involves reducing use of private cars in favour of walking, cycling and public transport use.
- Improvement of public transport infrastructure to encourage mode shift to public transport, including quality bus corridors on the north-south axis.
- Reduction of bus fares to encourage modal shift from car to bus.
- Improvement of cycling infrastructure and bike hire scheme to encourage mode shift to cycling.
- Improvement of walking infrastructure to encourage mode shift to walking.
- Provision of new park and ride (P&R) sites to encourage mode shift to P&R.
- Reduction of existing P&R fares to encourage mode shift to P&R.

Measures to encourage sustainable freight

- Freight consolidation centres.
- Freight delivery and service plans (DSPs).

Low emission vehicle measures

- Using taxi and private hire vehicle licensing to introduce lower emission vehicles to the taxi and private hire vehicle fleet.
- Working with bus operators to introduce lower emission vehicles into the bus fleet, including through grant support.
- Working with freight operators to introduce lower emission vehicles into the LGV and HGV fleet, through grant support and low emission vehicle advice.
- Electric vehicle charging point infrastructure to encourage take-up.
- Procuring low emission vehicles for all council-owned fleets.

Traffic efficiency measures

- Using traffic signal control strategies on polluted road links to reduce congestion-related emissions.
- Introducing a 'red route' to prevent stopping on Upper Stone Street.

3.2 Sifting of long-list

In order to reach a short-list of three scenarios that could be taken forward for impact assessment within the study, the long-listed options were put through a qualitative assessment against ten assessment criteria. These were:

1. Potential air quality impact on Upper Stone Street - rated as low / low-medium / medium / medium-high / high.
2. Timescale for delivery of impact - rated as short (2020-21) / medium (2022-23) / long (2024-25) / very long (beyond 2025).
3. Scale of capital cost to public sector - rated as low (<£1m) / medium (£1m to £5m) / high (>£5m).
4. Scale of operating cost to public sector – rated as low (<£100k per year) / medium (£100k to £500k per year) / high (>£500k per year)
5. Infrastructure requirements
6. Practicalities / operational requirements
7. Legal requirements
8. Enforcement issues
9. Political risks
10. Financial risks

The qualitative assessment was initially undertaken internally by the project team based on previous experience and available evidence from elsewhere. The assessment was then refined and finalised taking account of comments and views expressed at a stakeholder workshop held in Maidstone on 8th February 2019.

The result of the qualitative assessment showed that, perhaps unsurprisingly, each potential measure has pros and cons. While some were clearly not strong candidates for implementation as part of a LEZ concept focussed on Upper Stone Street, sifting of other measures to determine which to take forward to impact assessment required careful consideration of the balance of those pros and cons.

The full qualitative assessment of all 28 measures against the ten criteria is reported in spreadsheet form in a separate Annex that accompanies this report.

3.3 Short-listed scenarios

As a result of the qualitative assessment process, three scenarios were identified and agreed with the client group as being those that would be taken forward into the impact assessment process[9]. These each contained selected measures from the long-list, and are described below.

Modelling each of these scenarios was done for the selected future target year of 2022, in comparison with a 2022 'Do Minimum' scenario. The 'Do Minimum' scenario included 'business-as-usual' continuation of the current situation, with due allowance for general traffic growth (for example, associated with new development in the Maidstone area and southeast England) and for the gradual 'greening' of the overall UK vehicle fleet (due to improved vehicle emission standards and take-up of electric and other low emission technologies). A 2027 'Do Minimum' scenario was also modelled, in order that the air quality modelling could predict when Upper Stone Street would become compliant in the absence of any LEZ interventions.

3.3.1 Scenario 1 – Red Route

Scenario 1 is focussed on keeping traffic moving on Upper Stone Street to smooth flow. The LEZ measure that would be included is:

- Implementation of a Red Route restriction, preventing vehicles stopping on Palace Avenue, Lower Stone Street and Upper Stone Street (see Figure 3-1).

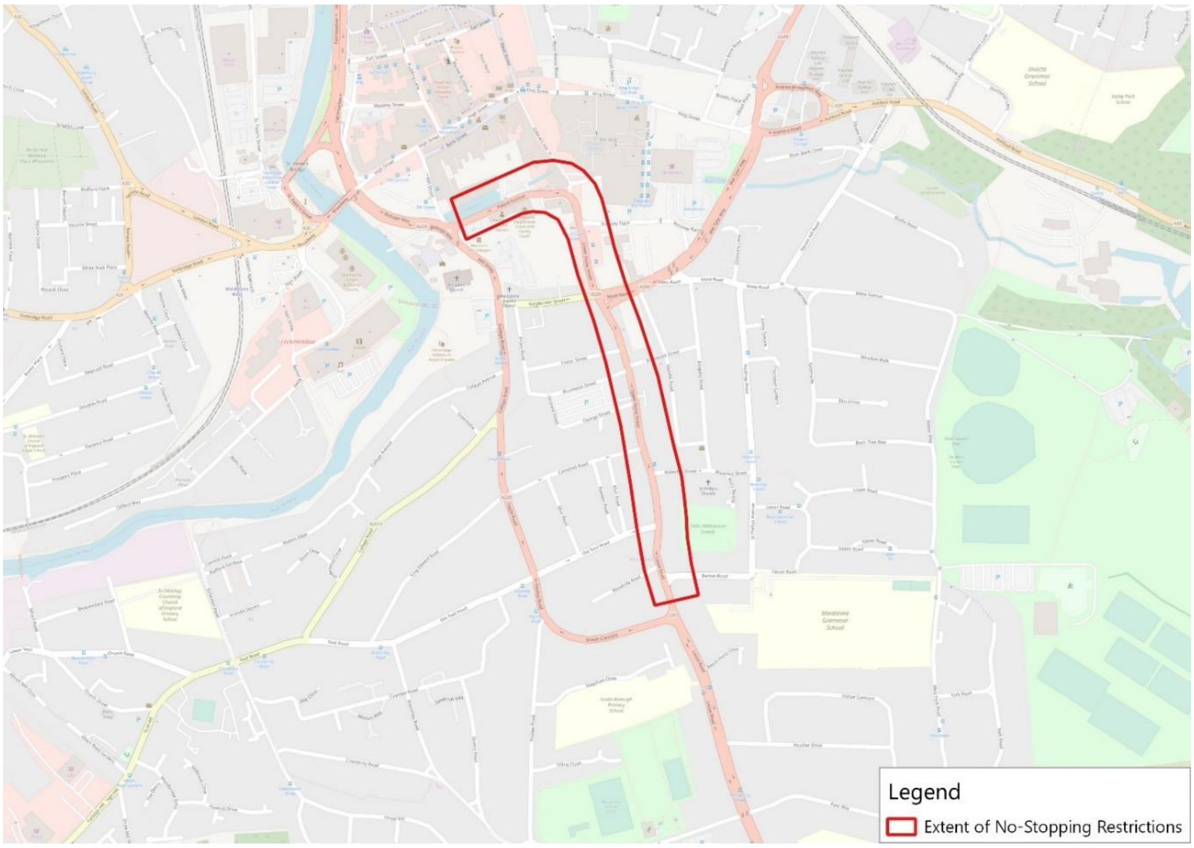

Figure 3-1: Scenario 1 - extent of Red Route

[9] Study budget constraints meant that a maximum of three could be tested, as agreed with the client.

The main aim of this measure would be to avoid the traffic flow disruption that occurs when vehicles stop (e.g. for loading), smoothing the flow significantly on what is a tightly constrained road width with little room for traffic to pass stopped vehicles. This would reduce stopping and starting and the associated deceleration / acceleration cycles that increase vehicle emissions significantly, particularly with Upper Stone Street being on a hill and carrying a significant proportion of HGVs and buses.

For the purposes of impact assessment, it was assumed that Red Route 'no stopping' restrictions would apply to all vehicles from 7am to 7pm. In practice, there would be a number of options, including a Red Route that operates only during peak times (denoted by a single Red line, with appropriate signage) and some limited 'dispensations' for delivery vehicles if there is no other practical option.

In the project team's judgement, such a measure could be implemented relatively quickly to be operational in 2021, subject to funding availability. There would first need to be detailed exploration and design of the scheme to deal with issues such as any local dispensations and creation of parking bays to minimise negative effects on businesses on Lower and Upper Stone Street. There would also need to be a public consultation. The Red Route would need to be implemented by Kent County Council (KCC) as the transport authority through a Traffic Regulation Order (TRO).

To be effective, the Red Route would need to be enforced by enforcement cameras that would capture footage of vehicles stopping in violation of the Red Route restrictions.

3.3.2 Scenario 2 – Cleaner and More Efficient Fleet Usage

In Scenario 2, the LEZ measures that would be included are:

- Working with freight operators to develop and implement freight delivery and service plans (DSPs) that minimise the number of freight vehicle movements on Upper Stone Street, and utilise their cleanest vehicles for those movements.
- Working with freight operators who make particularly heavy use of Upper Stone Street to introduce lower emission vehicles into their LGV and HGV fleet, through grant support and low emission vehicle advice.
- Working with bus operators to introduce lower emission vehicles into the bus fleet, including through grant support.

The first two measures are complementary and address the issue of the major contribution that freight vehicles make to the NO_2 air quality problem on Upper Stone Street. The source apportionment exercise undertaken for MBC using 2016 data suggested that HGVs account for 26-28% of roadside NO_2 concentrations and LGVs a further 10-11%[10]. Implementation of those measures would require establishment of a dedicated team with freight and green fleet expertise to work with freight operators, together with establishment of a grant fund that operators could bid into to support the costs of retrofitting or upgrading their vehicles.

[10] Air Quality Note: Source Apportionment on Upper Stone Street, Maidstone. Prepared by Air Quality Consultants for MBC, June 2017.

The third measure would be an extension of MBC's current efforts with the local bus operators, which have successfully brought many vehicles up from Euro III to Euro V emission standard. Bus movements on Upper Stone Street are responsible for 12-13% of NO_2 concentrations on Upper Stone Street according to the source apportionment exercise undertaken for MBC on 2016 data. The aim would be to focus much more on bringing the vehicles up to Euro VI standard by 2022. Euro VI buses reportedly give a reduction of up to 95% in NO_x emissions by comparison with Euro V.

3.3.3 Scenario 3 – Charging Clean Air Zone

Scenario 3 would embody the 'polluter pays' principle. The LEZ measure that would be included is:

- A Class B Charging Clean Air Zone (CAZ) (as defined by Government), in which a daily charge is levied on vehicles within defined classes (buses & coaches, taxis and PHVs, and HGVs) that don't meet the prescribed emission standards of Euro VI for buses, coaches and HGVs or Euro 6 (diesel) / Euro 4 (petrol) for taxis and PHVs.

The rationale for testing a Class B CAZ rather than other classes was that the source apportionment exercise by Air Quality Consultants that MBC provided to the study team suggested that in 2016 HGVs were responsible for 26-28% of roadside NO2 concentrations on Upper Stone Street. So, a Class B CAZ was agreed to be the 'least painful' charging CAZ option that could potentially deliver a significant benefit for air quality. The charging CAZ would need to be implemented by KCC as the transport authority, under the provisions of the Transport Act 2000.

For the purposes of impact assessment, it was assumed that the charging scheme applies 24 hours per day for any vehicle using Upper Stone Street and an additional small number of nearby roads, as shown in Figure 3-2. Inclusion of the additional network of nearby roads is intended to prevent vehicles that are liable to the charge from avoiding it by taking undesirable diversions, particularly through residential areas. It was also assumed that the charging scheme comes into operation in 2022, but that charges for taxis and PHVs would be zero-rated until 2025 in view of the relatively minor contribution that they make to NO_2 concentrations on Upper Stone Street.

Daily charge levels were assumed to be similar to those being proposed for the Birmingham Charging Clean Air Zone, at £50 per bus, coach or HGV and £8 per taxi or PHV once the zero-rating period ends in 2025. Significant penalty charges would be levied on violating vehicles – at least ten times higher than the daily charge.

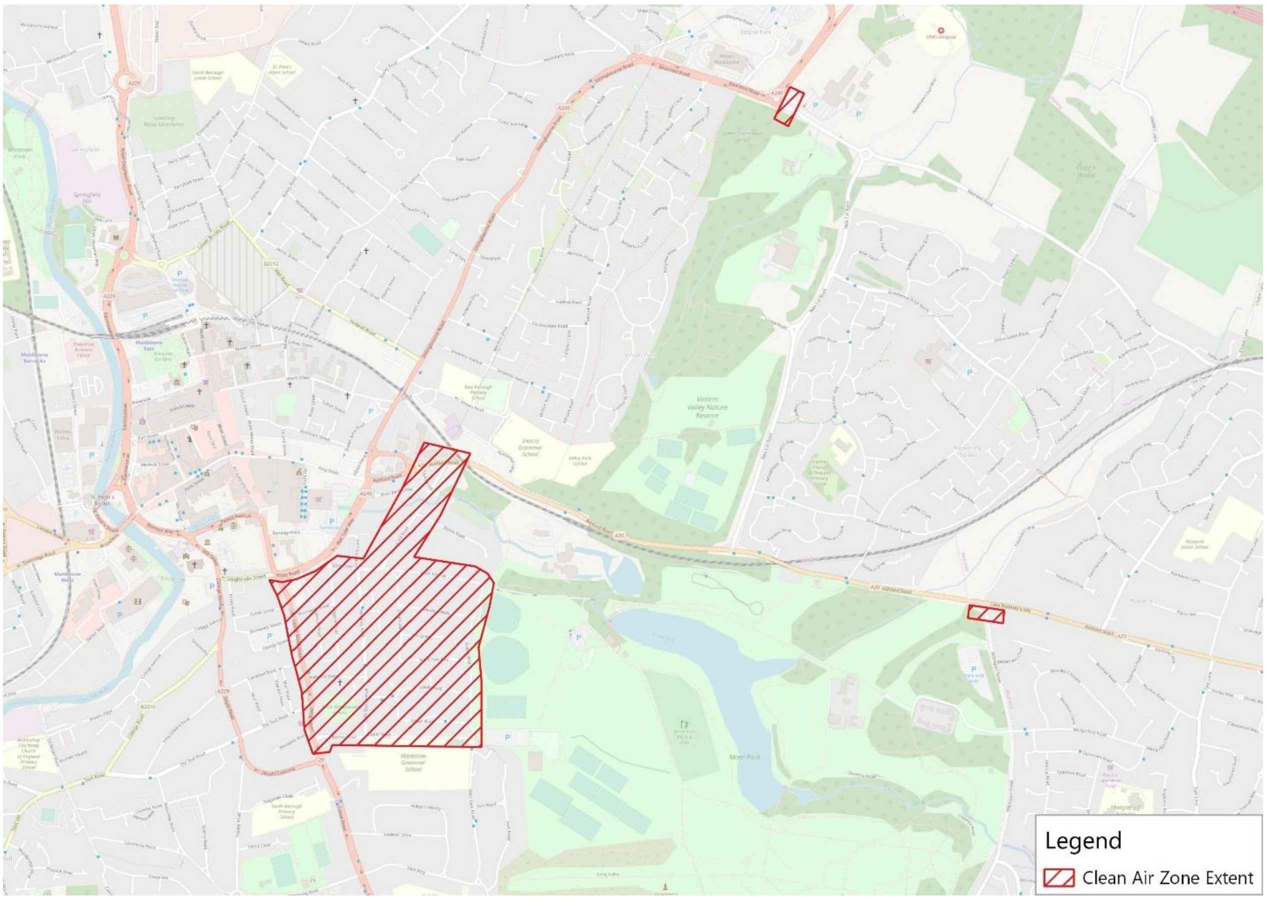

Figure 3-2: Extent of Charging Clean Air Zone

In practice, there are many other options within the Charging CAZ measure. These include, for example, charging only being applicable during peak periods, and/or including ‘sunset clauses’ (as is anticipated in the Leeds Charging CAZ Scheme) that allow an exemption from charges for vehicles based within the defined zone for a limited period of time (e.g. one year) after it is first introduced to allow extra time for adaptation to the presence of the charging scheme.

4 Assessment of Traffic Impacts

The first step towards assessing the air quality impacts of each of the three short-listed scenarios involved creating a spreadsheet-based traffic model and using this to forecast the future traffic conditions under each scenario. This approach was adopted to make best use of readily available traffic data, in view of the limited budget available for the study, rather than collecting any new data through surveys or creating and using more sophisticated transport models.

4.1 Spreadsheet Traffic Model

4.1.1 Baseline traffic volume data

In order to develop a traffic model which investigated the impacts of a number of LEZ measures, as outlined in Section 3, an intensive data collation and review process was undertaken which sought to obtain the most robust and recent traffic data available for Maidstone. Specifically, this focused on obtaining classified traffic count data within a defined area of interest, devised in discussions with MBC and Kent County Council (KCC), as illustrated in Figure 4-1.

Our review of available data at the time of the study showed that the most recent robust data for the links within the study area was Annual Average Daily Traffic (AADT) data recorded by the Department of Transport (DfT), which is available through its website (https://www.dft.gov.uk/traffic-counts/). The DfT classified count data for 2017 was therefore utilised within the 'base year' part of the spreadsheet model, covering a number of sites within the study area, as shown in Figure 4-1. On certain links within the area of interest traffic volume data could not be obtained directly from either the DfT or from locally recorded counts. In these instances, traffic volumes were estimated based on flows on neighbouring links.

At the time of the study, new traffic count data was due to be collected by KCC in relation to a 'before and after' study of the impact of improving the 'bridge gyratory system' that covers the Broadway and St Peter's bridges over the Medway on the west side of the defined study area. However, that new data was limited in extent (a count on one weekday and one Saturday) and it was agreed with the client that this would not significantly improve the robustness of the data set for the project while it would significantly delay it.

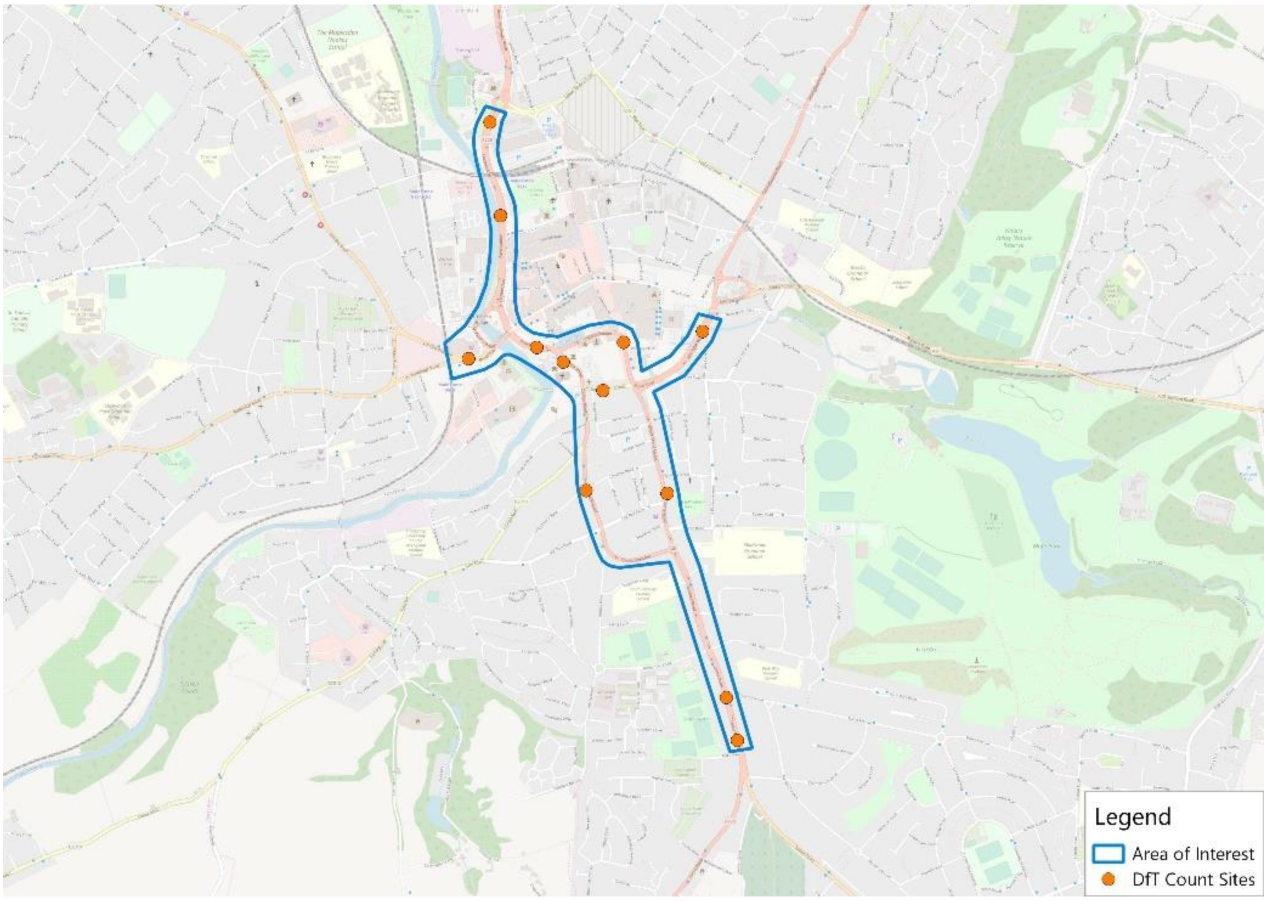

Figure 4-1: Study area and locations of DfT traffic count sites

4.1.2 Peak period calculations

In order to make the air quality assessment which fed on the traffic data as useful and accurate as possible, the all-day DfT traffic count data were allocated to different periods of the day:

- AM peak period (07.00 to 10.00)
- Inter-peak period (10.00 to 16.00)
- PM peak period (16.00 to 19.00)
- Off-peak period (19.00 to 07.00)

Allocation of traffic to those time periods was based on the most up-to-date hourly flow profiles available from the DfT database. For the off-peak period, which was not generally covered by the available hourly flow profiles, an off-peak factor of 0.287 x AADT was derived from COBA, a DfT approved economic appraisal tool, and utilised to populate traffic flow for the night time period.

4.1.3 Traffic growth

In order to consider the traffic volumes that might be expected in the future year 'Do Minimum' scenarios, growth factors from TEMPRO[11] were obtained for each time period and applied to the baseline traffic flow. To be representative the growth factors were devised by adjusting local growth against regional and national growth, in accordance with the appropriate guidance[12]. Table 4-1 outlines the factors utilised to predict car, motorcycle and bus traffic volumes in both 2022 and 2027. 2022 was the main target year for the assessment of scenarios, while 2027 was also modelled under 'Do Minimum' in order for the subsequent air quality modelling to be able to give an idea of when Upper Stone Street would become compliant without any LEZ intervention.

Table 4-1: TEMPRO factors applied to future scenarios

Time Period	TEMPRO Growth Factor (2022)	TEMPRO Growth Factor (2027)
AM Peak (07:00 – 10:00)	1.0473	1.0795
Inter-Peak (10:00 – 16:00)	1.0533	1.0949
PM Peak (16:00 – 19:00)	1.0480	1.0821
Off-Peak (19:00 – 07:00)	1.0463	1.0800

As TEMPRO does not account for growth in LGVs and HGVs, the National Traffic Growth Forecasts[13] were interrogated and a growth factor developed for these freight vehicle classes. As the growth forecasts are measured as a five yearly percentage increase from a base year of 2015, the yearly increase from the baseline was calculated and applied from the baseline year in the model (2017). For example, there are five years between the baseline (2017) and the 2022 scenarios, so therefore the yearly growth factor was multiplied by five.

Table 4-2 outlines the growth factors utilised for HGVs and LGVs in 2022 and 2027 under a Do Minimum scenario.

Table 4-2: National Traffic Growth Forecast factors applied to future scenarios

Scenario	National Traffic Growth Forecast (LGV)	National Traffic Growth Forecast (HGV)
All Scenarios - 2022	1.0938	1.0060
Business as Usual (2027)	1.1282	1.0204

[11] Trip End Model Presentation Program (TEMPro) provided by Department for Transport.
[12] https://laqm.defra.gov.uk/documents/TEMPRO_guidance.pdf
[13] https://www.gov.uk/government/publications/road-traffic-forecasts-2018

4.1.4 Vehicle speeds

In the absence of any speed data from local or national sources, vehicle speeds used within the spreadsheet model for the baseline year were based on average journey times extracted from the Google Maps journey planner. Due to the absence of the ability to identify journey times of less than one minute within the Google Maps journey planner, average speeds on each link within the model were based on longer example journeys which covered multiple links. As it was not possible to reliably forecast changes in future speeds, the baseline traffic speeds were utilised for all future 'Do Minimum' scenarios.

Table 4-3 outlines the example journeys run through the Google Maps journey planner, and the links to which average speeds were applied.

Table 4-3: Example journeys run through the Google Maps journey planner

A-Junction	B-Junction	Distance (km)	Links speed applied to
Mill Street (North)	Sutton Road	1.9	A229 Palace Avenue, A229 Lower Stone Street, A229 Upper Stone Street, A229 Loose Road (Southbound)
Sutton Road	Bishops Way/Palace Avenue	1.9	A229 Loose Road (Northbound), A229 Sheal's Crescent/Hayle Road, A229 Mill Street (South)
Chatham Road Roundabout/Invicta Park	Mill Street (North)	1.6	A229 Bishops Way (Eastbound), A229 Fairmeadow (Southbound)
Mill Street (North)	Chatham Road Roundabout/Invicta Park	1.6	A229 Bishops Way (Westbound), A229 Fairmeadow (Northbound)
Buckland Hill/Somerset Road	A229 Fairmeadow (North Gyratory)	1.1	A20 Broadway (Eastbound)
A229 Bishops Way (South Gyratory)	Buckland Hill/Somerset Road	1.1	A20 Broadway (Westbound)
A20 Ashford Road	A229 Mill Street (South)	0.8	A249 Wat Tyler Way (Southbound), Knightrider Street
A229 Lower Stone Street	A20 Ashford Road	0.6	A249 Wat Tyler Way (Northbound)

4.2 Scenario Testing

Traffic data was modelled for the Base Year scenario (2017) and the two 'Do Minimum' scenarios (2022 and 2027) using the data and growth factors described above. The three Low Emission Zone scenarios described in Section 3 were then modelled for

2022, using available evidence to scale appropriate parameters off the 2022 'Do Minimum' scenario. The scaling factors used and the associated evidence on which they were based were as follows:

- **Scenario 1 – Red Route** – under this scenario an estimate of a 10% improvement in vehicle speeds on Palace Avenue, Lower Stone Street and Upper Stone Street was applied. This estimate was based on evaluation of the impacts of Red Routes in London[14] when they were first introduced. This showed average journey time improvements across the day of between 1% and 23%. A 10% improvement was therefore seen to be a realistic but cautious estimate of the likely benefits. It should also be noted that emission reductions would be likely to arise from smoothing of flow, on top of the improvement in average speeds.

- **Scenario 2 – Cleaner and More Efficient Fleet Usage** - under this scenario, the measure that would affect traffic volumes would be the Delivery and Service Plans (DSP). Here an estimate was made that there would be a 2% reduction in LGV and HGV traffic compared with the 2022 Do Minimum case. This value was based on evidence of a 20% reduction in deliveries seen by Transport for London (TfL) as part of a pilot programme at their Southwark offices[15] alongside a cautious assumption that 10% of LGV and HGV movements would be affected by DSP measures in the Maidstone area.

- **Scenario 3 – Charging Clean Air Zone (Class B)** – estimation of the impact of a Charging CAZ was based primarily on evidence from the Birmingham CAZ and on default forecast fleet Euro compositions in 2022 from the Defra Emission Factor Toolkit (EFT). This was utilised to develop a percentage reduction factor for HGVs which was applied to the 2022 Do Minimum HGV volumes, as follows:
  - In the Birmingham evidence base 11% of non-compliant vehicles were forecast to travel as before and pay the charge, 27% vehicles would adapt their travel behaviour to avoid the charging zone, and 62% would upgrade fleet to become Euro VI compliant. Therefore 73% of vehicles would travel as they did before implementation of the CAZ.
  - According to EFT in 2022, 13% of rigid HGVs would be non-compliant, whilst 4% of articulated HGVs would be non-compliant. Therefore, in relation to the above evidence from the Birmingham CAZ, 96.5% of rigid HGVs and 98.9% of Articulated HGVs would continue to travel versus the 2022 Do Minimum scenario.

  It was assumed that under this scenario all buses would be upgraded by operators to be Euro VI compliant by 2022. This is in line with assumptions used in consideration of charging CAZ options in other UK cities.

[14] TRL (1993) Assessment of the Pilot Priority (Red) Route in London.

[15] TfL - Transport for London (2009) London Freight Matters: A Pilot Delivery Servicing Plan for TfL's Palestra Offices in Southwark: A Case Study.

4.3 Spreadsheet Modelling Outputs

The complete set of traffic data outputs from the spreadsheet modelling can be found in 7. These were passed through to the Arcadis Air Quality team for use as inputs to the emission modelling and air quality modelling reported in Section 5.

5 Assessment of Air Quality Impacts

The ADMS air quality dispersion model was used to gain a more detailed understanding of the dispersion of pollutants along Upper Stone Street and to determine the extent to which each LEZ option would reduce pollutant concentrations both here and across the surrounding road network. The methodology and results of the air quality modelling assessment are described in this section.

5.1 Modelled Area

The area covered by the air quality model specifically covers Upper Stone Street, Lower Stone Street and the surrounding major roads in Maidstone Town Centre as shown in Figure 5-1.

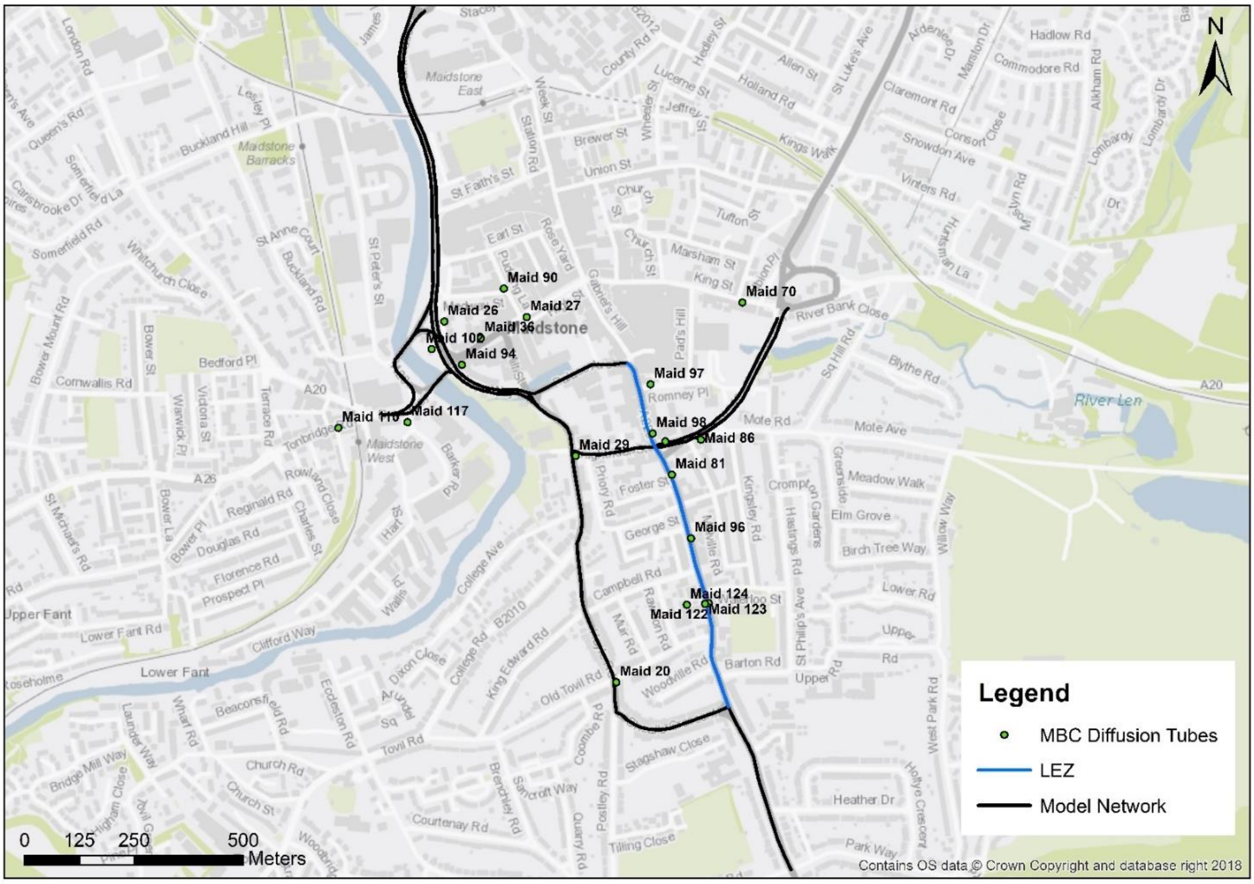

Figure 5-1: Maidstone LEZ Feasibility Study Area

5.2 Baseline Conditions

MBC reviews and assesses air quality in the borough on an annual basis and is required to produce an Annual Status Report (ASR) for Defra. MBC undertakes air quality monitoring using a combination of diffusion tubes and automatic stations. Diffusion tubes are a low-cost passive monitoring technique which can be used to monitor long term ambient concentrations of NO_2. Automatic stations provide real time, high resolution measurements and are typically more accurate than diffusion tube methods.

5.2.1 Diffusion Tube Monitoring

MBC widely carries out NO_2 diffusion tube monitoring throughout the borough. Table 5-1 shows the monitoring results from diffusion tubes in the assessment study area, and the location of these tubes is shown in Figure 5-1.

In summary, the 2017 monitoring results with good data capture (>75%) showed that three sites exceed the annual mean NO_2 AQS Objective. Two sites, 96 and 81 are located on Upper Stone Street and one site, 97 is located on Romney Place.

Table 5-1: Annual Mean NO_2 Concentrations (μg/m^3) Monitored from Diffusion Tubes in Study Area

Site ID	Site Name	Site Type	X	Y	Annual Mean NO2 (µg/m3)			2017 Data Capture (%)
					2015	2016	2017	
Maid 20	Sheals Crescent	Roadside	576175	154854	24.8	28.1	27.1	100%
Maid 26	Drakes PH	Roadside	575782	155678	30.7	31.0	33.5	92%
Maid 27	High Street (JPs Bar)	Roadside	575970	155688	37.0	36.4	33.8	100%
Maid 29	Knightrider Street	Roadside	576082	155371	30.3	30.9	34.3	92%
Maid 36	37 High Street	Roadside	575865	155640	39.4	40.7	36.8	92%
Maid 70	92 King Street	Roadside	576463	155721	38.3	38.5	37.6	83%
Maid 81	The Pilot PH	Roadside	576302	155328	71.5	71.3	67.7	100%
Maid 86	20 & 18 Mote Road	Roadside	576368	155408	33.5	30.2	35.8	100%
Maid 90	Pudding Lane, Medway Street, Maidstone	Kerbside	575918	155753	32.9	32.8	34.2	83%
Maid 94	53, High Street, Maidstone, Maidstone, Kent, ME14 1SY	Roadside	575822	155579	31.3	35.5	35.4	75%
Maid 96	Lamppost KUBT 512 in bracket for "One Way" sign outside Lashings Sports Club (opposite grassy area) Upper Stone St	Roadside	576346	155183	94.8	83.8	79.3	100%

Maid 97	Post re bracket for "No Loading" sign outside Romney House in Romney Place	Roadside	576253	155534	-	38.6	41.9	100%
Maid 98	Post re bracket for "No Loading" sign outside Miller House	Roadside	576258	155422	-	35.2	34.8	92%
Maid 102	On fence near public toilets as you enter EDF substation carpark	Other	575753	155615	-	30.1	28.8	-
Maid 110	Tonbridge Road (on lamp post near No 3)	Roadside	575540	155435	-	29.0	33.8	100%
Maid 111	Mote Road. On lamp post adjacent to pedestrian crossing on Wat Tyler Way (Wren's Cross) near Miller House.	Roadside	576287	155404	-	-	30.4	100%
Maid 117	On lamppost adjacent to drive though area of McDonalds	Roadside	575698	155448	-	-	*31.8*	50%
Maid 122	Loading sign to the right of the front of the Papermakers Arms PH	Roadside	576386	155035	-	-	*58.7*	25%
Maid 123	Loading sign on opposite side of Upper Stone St to Maid 122	Roadside	576378	155033	-	-	*59.0*	25%
Maid 124	Fence pole at back of site for proposed development at 102 Upper Stone St	Roadside	576336	155031	-	-	*16.1*	25%
Bold = Exceedance of the annual mean NO2 AQS Objective (40µg/m3) Italics = Sites with Low Data Capture (<75% Data Capture) which are not representative of the annual mean								

5.2.2 Automatic Monitoring

MBC also carries out monitoring at one automatic station, site CM2 a rural background site. This station is located ~5km north east of the study area on Scragged Oak Lane and monitors both NO_2 and PM_{10}. In 2017 the station measured an annual mean concentration of 13 µg/m^3 for both NO_2 and PM_{10}, which is lower than the annual mean AQS Objectives. The station did not monitor any exceedances of the NO_2 or PM_{10} short term AQS Objectives.

5.3 Methodology

5.3.1 Scenarios modelled

Three LEZ scenarios were considered against a Do Minimum (DM or Business as Usual) scenario in the target year of 2022. A full description of each of these scenarios is provided in Section 3.3. In addition, a Do Minimum scenario was modelled for 2027, to allow an estimate to be made of when Upper Stone Street would become compliant in the absence of any LEZ intervention.

5.3.2 Air Quality Dispersion Modelling

The ADMS-Roads model (version 4.1) was used to predict NO_2 and PM_{10} concentrations in the Base Year, Do Minimum and LEZ scenarios.

The dispersion model was built by digitising traffic model links and assigning road widths according to OS mapping and satellite photography.

The following inputs are required to undertake the air quality dispersion modelling:

- Traffic data
- Emission factors
- NO_x to NO_2 conversion
- Meteorological data
- Receptors
- Background pollutant concentrations

5.3.3 Traffic Data

Traffic data was provided by Integrated Transport Planning as summarised below. The traffic data is presented in 7, and a full description of the methodology used to generate the data is provided in Section 4.

Traffic data was provided for the following assessment scenarios:

- Base Year (2017): Previous year allowing model verification against air quality monitoring data. The model verification process is outlined in Appendix B.
- Do Minimum (2022): Future year without any of the LEZ options, and accounting for greening of the vehicle fleet over time that would occur regardless of a LEZ.
- Red Route Scenario (2022): Implementation of a 'no stopping' restriction on Lower and Upper Stone Street.
- Cleaner and More Efficient Fleet Usage Scenario (2022): Working with bus and freight operators to lower emissions from LGVs, HGVs and buses.
- CAZ Scenario (2022): A charging CAZ for buses, coaches, HGVs, taxis and PHVs (note taxis/PHVs would be except from charges until 2025).
- Do Minimum (2027): Future year without any of the LEZ options, and accounting for greening of the vehicle fleet over time that would occur regardless of a LEZ.

Traffic flows were provided for the following time periods:

- AM peak period (07:00 to 10:00);
- Inter-peak (IP) period (10:00 to 16:00);
- PM peak period (16:00 to 19:00); and

- Off-peak (OP) period (19:00 to 07:00).

The period traffic flows were provided for cars, motorcycles, buses and coaches, LGVs, rigid HGVs and articulated HGVs, for each individual road in the study area. Traffic speeds were also provided for each road and traffic period based on journey time data.

5.3.4 Emission Factors

Road traffic emission factors for NO_x and PM_{10} were derived from Emission Factor Toolkit (v8.0, released October 2017). The EFT is published by Defra and is being widely used in the assessment of policy-based interventions on road traffic emissions such as Clean Air Zones and other measures that form part of the UK national plan on compliance with EU Limit Values.

The EFT v8 takes account of fleet composition data developed for the UK by the National Atmospheric Emissions Inventory (NAEI) and Transport for London (TfL). It also includes updated NO_x and PM speed emission coefficient equations, taken from the European Environment Agency (EEA) COPERT 5 emission calculation tool.

Emissions were derived for each of the AM, IP, PM and OP periods using the 'Detailed Option 2' Traffic Format. This traffic format allows flows to be specified for cars, motorcycles, buses and coaches, LGVs, rigid HGVs, articulated HGVs, providing a bespoke emission factor which reflects the local traffic composition (rather than the default national composition built into EFT). The emissions were therefore calculated according to the detailed traffic fleet data provided for each traffic link.

The Euro composition of the vehicle fleet was modified for all scenarios, using the advanced options available in EFT. The Euro composition represents the distribution of vehicles meeting each Euro emission standard. A Euro standard (i.e. Euro 1-6 for cars and LGVs and Euro I to VI for HGVs and buses) represents the amount of pollution emitted by a vehicle's exhaust. A higher Euro number indicates that the engine is newer and its emissions cleaner. A lower Euro number means the engine is older and more polluting.

The national Euro composition (England – not London) was assumed for all vehicle types other than for buses, which were modified to reflect the Euro composition of the local bus fleet, based on information provided by the bus operator Arriva. EFT accounts for changes in the Euro composition of the national fleet over time, and the national rate of turnover for buses was applied to the local data to estimate the local bus Euro composition in the Do Minimum (2022) and Red Route (2022) scenarios (note these scenarios are identical in terms of the Euro composition assumed across the full vehicle fleet, including buses).

The Cleaner and More Efficient Fleet Usage and CAZ (2022) scenarios assume an accelerated rate of upgrade of the Euro standards for HGVs, buses and LGVs (Cleaner and More Efficient Fleet Usage scenario only) compared to the Do Minimum (2022) scenario. The national Euro composition for LGVs, HGVs and buses affected in the Cleaner and More Efficient Fleet Usage and CAZ scenarios were therefore modified in line with the description provided in Table 5-2. These changes were universally applied throughout the entire extent of the model.

Table 5-2 Euro Composition Assumed for the Cleaner and More Efficient Fleet Usage and CAZ scenarios

Vehicle Category	Cleaner and More Efficient Fleet Usage Scenario	CAZ Scenario
LGVs	10% of Euro 3 and 4 upgraded to Euro 6	N/A
HGVs	10% of Euro III and Euro IV upgraded to Euro VI	85% of Euro III, Euro IV and Euro V vehicles upgraded to Euro VI (note the composition reflects the influence of non-compliant vehicles which avoid the area, as well as those which are upgraded)
Buses	20% Euro V compliant 80% Euro VI compliant	100% Euro VI compliant
% upgraded are relative to the national Euro composition assumed in the Do Minimum (2022) scenario.		

It should be noted that taxis and private hire vehicles would also need to be Euro 6 (diesel)/ Euro 4 (petrol) compliant from 2025 onwards win the CAZ scenario, but this has not been considered here as 2022 is expected to represent the greatest air quality benefits for this scenario. This is because taxis and PHVs make only a small contribution to emissions, and the benefits of the CAZ will diminish over time (due to the baseline improvements in the vehicle fleet that would happen regardless of the CAZ).

The traffic period emissions were represented in the model using a time varying emissions file, covering every hour of the day.

5.3.5 NO_x to NO_2 Conversion

The ADMS-Roads model predicts road-based NO_x concentrations, which have to be converted to NO_2 for comparison against the NO_2 AQS Objective.

In accordance with LAQM.TG(16)[5] all modelled road-based concentrations of NO_x have been converted to annual mean NO_2 using the 'NO_x to NO_2' calculator (Version 6.1, released October 2017). The traffic mix '*all other urban UK traffic*' was used in the calculator.

5.3.6 Meteorological Data

Hourly meteorological parameters are required for dispersion modelling, including wind speed, wind direction, cloud cover and temperature. There are only a limited number of sites in the UK where these measurements are available.

Year 2017 hourly sequential meteorological data from Gatwick Airport was used in the assessment. This station is located approximately 30 miles southwest of Maidstone and is the nearest suitable data source. The year 2017 corresponds with the base year of the traffic model and allows for verification of modelled outputs with 2017 monitoring data.

The wind rose for Gatwick Airport is presented in Figure 5-2. The predominant wind direction is from the south west, which is also associated with the greatest wind speeds.

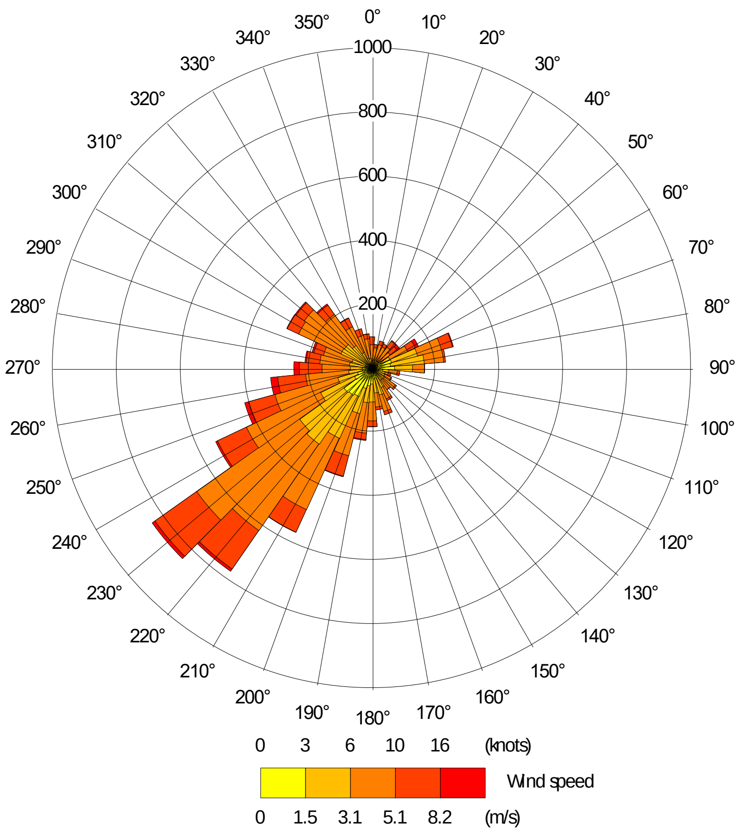

Figure 5-2: Gatwick Airport 2017 Windrose

5.3.7 Receptors

Pollutant concentrations were predicted at sensitive receptors, defined according to Defra[5] as:

'Locations where members of the public are likely to be regularly present and are likely to be exposed for a period of time appropriate to the averaging period of the relevant air quality objective'.

The receptors considered included residential uses, schools, hospitals and care homes. It should be noted that the AQS Objectives do not apply to offices or other places of work where members of the public do not have regular access.

Receptors were placed along the façade of every residential property, school, hospital and care home located immediately adjacent to the modelled road network. These receptors correspond with locations where the highest pollutant concentrations would be expected, since traffic pollutant concentrations decrease with increasing distance from roadside. The receptor height was specified according to the height at which relevant exposure would occur, a height of 1.5m was assumed at ground floor level, and a height of 4.5m at the next storey above.

A full list of the receptors included in the model is provided in Appendix C and the receptors are shown in Figure 7-4 in Appendix E.

5.3.8 Background Pollutant Concentrations

Total air pollutant concentrations comprise a background and local component; both of which have to be independently considered for the air quality assessment. The background component is determined by regional, national and international emissions, and often represents a significant proportion of the total pollutant concentration. The local component is affected by emissions from sources such as roads and chimney stacks, which are less well mixed locally, and add to the background concentration.

Background pollutant concentrations are spatially and temporally variable throughout the UK and were obtained from the Defra UK-AIR website for NO_x, NO_2 and PM_{10}. Defra provide predictions based on a grid at a resolution of 1 km^2 across the whole of the UK and forecast from a base year of 2015.

The background NO_x and PM_{10} maps provide data for individual pollutant sectors, the road traffic component was removed for roads included in the dispersion model in order to avoid double counting the road traffic contribution to the background concentration. This included removing the in-grid contribution of trunk A roads and primary A roads in the model. A tool is available on the Defra website to adjust the NO_2 backgrounds, allowing sector removal of NO_x from the total NO_x background. This tool (v6.0) was used to adjust the base year and future year background NO_2 concentrations used in the assessment.

The background NO_2 and PM_{10} concentrations used for receptors is shown in Appendix D.

5.3.9 Impact Descriptors

The impact of the LEZ scenarios was assessed in accordance with the Institute of Air Quality Management (IAQM) development control guidance[16]. The characterisation of air quality effects is dependent upon the percentage change in concentration and the total concentration, relative to the relevant AQS Objective(s) (40 $\mu g.m^{-3}$ for annual mean NO_2/PM_{10}). The impact descriptors relative to the change metrics and AQS Objective are presented in Table 5-3. The table is used by rounding the change in percentage pollutant concentration to a whole number, making it clear which category the impact falls within.

Table 5-3: IAQM Impact Descriptors for Individual Receptors (Table 6.3 of IAQM (2017) Land-Use Planning & Development Control: Planning for Air Quality)

Annual Mean Concentration at Receptor in Assessment Year	% Change in Concentration Relative to Annual Mean AQS Objective (40 $\mu g.m^{-3}$)			
	1	2-5	6-10	>10
75% or less of AQS Objective	Negligible	Negligible	Slight	Moderate
76 - 94% of AQS Objective	Negligible	Slight	Moderate	Moderate
95 - 102% of AQS Objective	Slight	Moderate	Moderate	Substantial
103 - 109% of AQS Objective	Moderate	Moderate	Substantial	Substantial

[16] Institute of Air Quality Management (2017), Land-Use Planning & Development Control: Planning for Air Quality

Annual Mean Concentration at Receptor in Assessment Year	% Change in Concentration Relative to Annual Mean AQS Objective (40 µg.m^{-3})			
	1	2-5	6-10	>10
110% or more of AQS Objective	Moderate	Substantial	Substantial	Substantial

5.3.10 Limitations

The air quality modelling predictions are based on the most reasonable, robust and representative methodologies, however, there is an inherent level of uncertainty associated with the model predictions, including:

- Uncertainties with model input parameters such as surface roughness length (defined by land use) and minimum Monin-Obukhov length (used to calculate stability in the atmosphere).
- Uncertainties with traffic forecasts.
- Uncertainties with vehicle emission predictions.
- Uncertainties with background air quality data.
- Uncertainties with recorded meteorological data.
- Simplifications made in the model algorithms or post processing of the data that represent atmospheric dispersion or chemical reactions.

In order to best manage these uncertainties, the air quality model was evaluated using air quality measurements to verify model outputs. This model verification process was undertaken in line with Defra guidance[5] in order to manage the uncertainties referred to above. It does this by comparing modelled and monitored pollutant concentrations and if necessary, adjusting the model output to account for systematic bias. The model verification for this study is presented in Appendix B.

It should be noted that traffic data was unavailable for some minor roads in the study area and therefore these roads were not included in the air quality model (modelled roads are shown in Figure 5-1). Total pollutant concentrations are likely to be under-predicted immediately around junctions where these roads are absent in the air quality model. However, this represents only a small proportion of receptors in the model, and as the roads absent are minor roads, they would be expected to make only a relatively small contribution to total pollutant concentrations around junctions.

As described in Section 5.3.4, the national (England – not London) Euro composition was assumed to derive emission factors for all vehicle types other than buses. The impact of the Cleaner and More Efficient Fleet Usage and CAZ scenarios (which accelerate a shift towards Euro 6/VI) will be dependent on the Euro standards of vehicles passing through Maidstone, which may be different to the national composition assumed.

5.4 Results

Annual mean NO_2 and PM_{10} concentrations were predicted at receptors for the 2017 Base Year, 2022 Do Minimum, 2022 LEZ and 2027 Do Minimum Scenarios. The full set of results modelled at all receptors are shown in Appendix C.

The section below discusses the key results for the baseline scenarios and each of the LEZ scenarios. Note that for the LEZ scenarios, the concentrations were compared to those predicted in the 2022 Do Minimum scenario, to determine the extent to which they would accelerate compliance with the annual mean NO_2 AQS Objective. The 2027 Do Minimum scenario was used to understand how far into the future compliance with the annual mean NO_2 AQS Objective would be achieved without any LEZ measures.

5.4.1 Baseline (2017, 2022 and 2027) Scenarios

Annual mean NO_2 and PM_{10} concentrations are predicted to decrease at all receptors between the 2017 Base Year, 2022 Do Minimum and 2027 Do Minimum scenarios due to future air quality improvements forecast to occur as a result of technology improvements and air quality regulations (e.g. shift to Euro 6/VI vehicles, and increased presence of hybrid and electric vehicles in the national fleet). These air quality improvements are embedded into the Defra EFT (used to derive vehicle emission factors) and background air quality maps used in this study.

Upper Stone Street is the only road in the study area where exceedances of the annual mean NO_2 AQS Objective are predicted in any of the baseline scenarios. The maximum NO_2 concentration in the Base Year is predicted at receptor 99 on Upper Stone Street and is 79.8 $\mu g.m^{-3}$ which is well in excess of the annual AQS Objective. Future baseline air quality improvements are expected to lead to a considerable reduction in NO_2 at receptors (reduction in NO_2 of circa 20 $\mu g.m^{-3}$ at some receptors on Upper Stone Street between 2017 and 2022). However annual mean NO_2 concentrations are still predicted to exceed the AQS objective at 13 receptors on Upper Stone Street in the 2022 Do Minimum scenario, where a maximum concentration of 57.7 $\mu g.m^{-3}$ is predicted (also at receptor 99).

In the 2027 Do Minimum scenario, annual mean NO_2 concentrations are expected to further decline from the Do Minimum 2022 scenario, and only two receptors are predicted to exceed the AQS Objective. The maximum NO_2 concentration is predicted at receptor 99 and is 41.3 $\mu g.m^{-3}$. Based on the rate of improvement in NO_2 between the 2022 Do Minimum and 2027 Do Minimum scenario, it is likely that the AQS Objective would be achieved at all receptors in 2028.

The maximum PM_{10} concentration predicted in the Base Year and 2022 Do Minimum scenario is 25.9 $\mu g.m^{-3}$ and 24.7 $\mu g.m^{-3}$ (receptor 99) respectively, which is well below the annual PM_{10} AQS Objective (40 $\mu g.m^{-3}$). The maximum PM_{10} concentration in the study area decreases further to 24.4 $\mu g.m^{-3}$ in the 2027 Do Minimum scenario.

5.4.2 Red Route Scenario

This scenario leads to an improvement in average traffic speeds on Lower Stone Street and Upper Stone Street. Figure 7-5 in Appendix E shows the % change in NO_x emissions that occur on the modelled road network between the 2022 Do Minimum and Red Route scenario. There is around 4% reduction in NO_x emissions on Upper and Lower Stone Street in this scenario as a result of the reduction in congestion.

Table 5-4 shows the annual mean NO_2 concentrations predicted at receptors where the greatest Base/ Do Minimum concentrations and changes in NO_2 are modelled as a result of the Red Route restriction. There are 13 receptors where the annual mean NO_2 AQS Objective is predicted to be exceeded in the Do Minimum (2022) and Red Route (2022) scenario, and all of these receptors are located on Upper Stone Street.

All of the perceptible changes in NO_2 (i.e. those where changes are not described as negligible according to Table 5-3) are predicted on Upper Stone Street. Although this scenario does lead to a reduction in emissions on roads other than Upper Stone Street, the emissions per vehicle are more elevated on Upper Stone Street compared to elsewhere in the study area (mainly as a result of two lanes of traffic travelling uphill under congested conditions). The higher emissions per vehicle mean that Upper Stone Street is more sensitive to emission changes compared to elsewhere.

Table 5-4 Annual Mean NO_2 Concentrations Predicted at Receptors where Greatest Impacts for Red Route scenario

Receptor	Annual Mean NO_2 ($\mu g.m^{-3}$)				Impact Descriptor[Ŧ]
	Base (2017)	DM (2022)	Red Route (2022)	Impact	
87	**75.9**	**54.9**	**53.5**	-1.4	Substantial Beneficial
88	**76.7**	**55.5**	**54.0**	-1.5	Substantial Beneficial
98	**79.3**	**57.4**	**56.0**	-1.4	Substantial Beneficial
99	**79.8**	**57.7**	**56.3**	-1.4	Substantial Beneficial

RR = Red Route restriction (LEZ Scenario 1)

Impact is Red Route minus DM (Do Minimum) scenario

Impact descriptor defined according to Table 5-3

Annual mean NO_2 AQS Objective = 40 $\mu g.m^{-3}$ (exceedance highlighted in bold)

The greatest reduction in NO_2 predicted is a decrease of 1.5 $\mu g.m^{-3}$ (R88) between the 2022 Do Minimum scenario and Red Route scenario. This reduction in NO_2 corresponds with a substantial beneficial impact according to Table 5-3. Substantial benefits are predicted at 13 receptors (those which exceed the AQS Objective), with slight beneficial impacts occurring at two receptors. These receptors are shown in Figure 7-6 in Appendix E.

It should also be noted that the baseline reduction in NO_2 between the Base 2017 and 2022 Do Minimum scenario is much greater than the improvement gained from the Red Route restriction. For example, at receptor 99 there is a 22 $\mu g.m^{-3}$ reduction in NO_2 between the Base and Do Minimum scenario, corresponding with an average year on year reduction of 4.4 $\mu g.m^{-3}$.

Even when including the Red Route restriction, NO_2 concentrations are predicted to be well above the AQS Objective of 40 $\mu g.m^{-3}$ at all receptors where the perceptible air quality benefits occur. The maximum NO_2 concentration predicted on Upper Stone Street in the Red Route scenario is 56.3 $\mu g.m^{-3}$, which is predicted at receptor 99. It should be noted that NO_2 concentrations at this receptor would need to be reduced by 50%, 31% and 29% to meet the NO_2 AQS Objective in the Base, Do Minimum and the Red Route scenario, respectively.

The maximum change in PM_{10} predicted at any receptor between the Do Minimum and Cleaner and Red Route scenario is a reduction of 0.1 $\mu g.m^{-3}$, which is predicted at receptors on Upper Stone Street and can be described as negligible according to Table 5 5, which reflects the fact that changes in vehicle speed have less influence on PM_{10} emissions compared to emissions of NO_x. The maximum PM_{10} concentration predicted in the Red Route scenario is 24.6 $\mu g.m^{-3}$ (receptor 99), which is well below the annual mean AQS Objective.

5.4.3 Cleaner and More Efficient Fleet Usage Scenario

Figure 7-5 in Appendix E shows the % change in NOx emissions that occur on the modelled road network between the 2022 Do Minimum and Cleaner and More Efficient Fleet Usage scenario. There is around 3% reduction in NOx emissions on Upper Stone Street in this scenario, with the maximum reduction of 4.5% occurring on Hayle Road. The reduction in emissions occurs as a result of:

- 2% reduction in HGV and LGV traffic through Maidstone associated with the more efficient operation of vehicle fleets under the Cleaner and More Efficient Fleet Usage interventions.
- Accelerated uptake of Euro 6/VI LGV, HGV and buses (as shown in Table 5-2).

Table 5-5 shows the annual mean NO_2 concentrations predicted at receptors where the greatest Base/ Do Minimum concentrations and changes in NO_2 are modelled as a result of the Cleaner and More Efficient Fleet Usage scenario. There are 13 receptors where the annual mean NO_2 AQS Objective is predicted to be exceeded in the Do Minimum (2022) and Cleaner and More Efficient Fleet Usage (2022) scenario, and all of these receptors are located on Upper Stone Street.

Similar to the Red Route scenario, all of the perceptible changes in NO_2 (i.e. those where changes are not described as negligible according to Table 5-3) occur at receptors located on Upper Stone Street, and therefore this scenario is predicted to lead to air quality benefits on this road only.

Table 5-5 Annual Mean NO_2 Concentrations Predicted at Receptors where Greatest Impacts for Cleaner and More Efficient Fleet Usage scenario

Receptor	Annual Mean NO_2 ($\mu g.m^{-3}$)				Impact Descriptor[ŧ]
	Base (2017)	DM (2022)	Cleaner and More Efficient Fleet Usage (2022)	Impact	
87	**75.9**	**54.9**	**53.8**	-1.1	Substantial Beneficial
88	**76.7**	**55.5**	**54.4**	-1.1	Substantial Beneficial
98	**79.3**	**57.4**	**56.3**	-1.1	Substantial Beneficial
99	**79.8**	**57.7**	**56.6**	-1.1	Substantial Beneficial

Cleaner and More Efficient Fleet Usage = LEZ Scenario 2
Impact is Cleaner and More Efficient Fleet Usage minus Do Minimum (DM) scenario
Impact descriptor defined according to Table 5-3
Annual mean NO_2 AQS Objective = 40 µg.m^{-3} (exceedance highlighted in bold)

The greatest reduction in NO_2 predicted is a decrease of 1.1 µg.m^{-3} between the 2022 Do Minimum and More Efficient Fleet Usage scenario. This reduction in NO_2 corresponds with a substantial beneficial impact according to Table 5 5. Similar to the Red Route scenario, substantial benefits are predicted at 13 receptors (those which exceed the AQS Objective), with slight beneficial impacts occurring at two receptors. These receptors are shown in Figure 7-6 in Appendix E.

With the Cleaner and More Efficient Fleet Usage scenario, NO_2 concentrations are predicted to remain well above the AQS Objective of 40 µg.m^{-3} at all receptors where the perceptible air quality benefits occur. The maximum NO_2 concentration predicted on Upper Stone Street in the Cleaner and More Efficient Fleet Usage scenario is 56.6 µg.m^{-3}, which is predicted at receptor 99.

The maximum change in PM_{10} predicted at any receptor between the Do Minimum and Cleaner and More Efficient Fleet Usage scenario is a reduction of 0.1 µg.m^{-3}, which is predicted at receptors on Upper Stone Street and can be described as negligible according to Table 5-3. The maximum PM_{10} concentration predicted in the Cleaner and More Efficient Fleet Usage scenario is 24.6 µg.m^{-3} (receptor 99), which is well below the annual mean AQS Objective.

5.4.4 Clean Air Zone (CAZ Scenario)

Figure 7-5 in Appendix E shows the % change in NO_x emissions that occur on the modelled road network between the 2022 Do Minimum and CAZ scenario. There is around 8% reduction in NO_x emissions on Upper Stone Street in this scenario, with the maximum reduction of 11% occurring on Hayle Road. These benefits occur as a direct result of:

- 3% reduction in HGV traffic through Maidstone associated with non-compliant vehicles avoiding the CAZ (to avoid the daily charge).
- Accelerated uptake of Euro VI HGV and buses (as shown in Table 5-2).

Table 5-6 shows the annual mean NO_2 concentrations predicted at receptors where the greatest Base/ Do Minimum concentrations and changes in NO_2 are modelled as a result of the CAZ. There are 13 receptors where the annual mean NO_2 AQS Objective is predicted to be exceeded in the Do Minimum (2022) and CAZ (2022) scenario, and all of these receptors are located on Upper Stone Street.

The CAZ scenario is predicted to lead to a reduction in emissions across the modelled road network, however similar to the Red Route and Cleaner and More Efficient Fleet Usage scenarios, all of the perceptible changes in NO_2 (i.e. those where changes are not described as negligible according to Table 5-3) occur at receptors located on Upper Stone Street, and therefore this scenario is predicted to lead to air quality benefits on this road only. These results again reflect the fact that Upper Stone Street is more sensitive to changes in vehicle emissions than elsewhere in the study area.

Table 5-6 Annual Mean NO_2 Concentrations Predicted at Receptors where Greatest Impacts for CAZ scenario

Receptor	Annual Mean NO_2 ($\mu g.m^{-3}$)				Impact Descriptor[‡]
	Base (2017)	DM (2022)	CAZ (2022)	Impact	
87	**75.9**	**54.9**	**52.2**	-2.7	Substantial Beneficial
88	**76.7**	**55.5**	**52.8**	-2.7	Substantial Beneficial
98	**79.3**	**57.4**	**54.6**	-2.8	Substantial Beneficial
99	**79.8**	**57.7**	**54.9**	-2.8	Substantial Beneficial

CAZ = Clean Air Zone (LEZ Scenario 3)
Impact is CAZ minus DM (Do Minimum) scenario
Impact descriptor defined according to Table 5-3
Annual mean NO_2 AQS Objective = 40 $\mu g.m^{-3}$ (exceedance highlighted in bold)

The greatest reduction in NO_2 is predicted at receptors 98 and 99, where concentrations decrease by 2.8 $\mu g.m^{-3}$ from the 2022 Do Minimum scenario as a result of the CAZ. This reduction in NO_2 corresponds with a substantial beneficial impact according to Table 5 5. Similar to the Red Route and Cleaner and More Efficient Fleet Usage scenarios, substantial benefits are predicted at 13 receptors (those which exceed the AQS Objective), with slight beneficial impacts occurring at two receptors. These receptors are shown in Figure 7-6 in Appendix E.

Even with the CAZ, NO_2 concentrations are predicted to be well above the AQS Objective of 40 $\mu g.m^{-3}$ at all receptors where the perceptible air quality benefits occur. The maximum NO_2 concentration predicted on Upper Stone Street in the CAZ scenario is 54.9 $\mu g.m^{-3}$, which is predicted at receptor 99.

The maximum change in PM_{10} predicted at any receptor between the 2022 Do Minimum and CAZ scenario is a reduction of 0.2 $\mu g.m^{-3}$, which is predicted at receptor 99 on Upper Stone Street and can be described as negligible according to Table 5-3. The maximum PM_{10} concentration predicted in the CAZ scenario is 24.5 $\mu g.m^{-3}$ (receptor 99), which is well below the annual mean AQS Objective.

5.5 Summary

An air quality dispersion model was used to investigate the potential air quality benefits of three proposed LEZ options introduced to improve air quality on Upper Stone Street. The options considered include a Red Route (RR) restriction, Cleaner and More Efficient Fleet Usage and a Class B Clean Air Zone (CAZ). It was assumed that the LEZ would be implemented in 2022.

The dispersion model has also been used to predict how air quality would change in the future without a LEZ, under a Do Minimum (Business as Usual) scenario. Annual mean NO_2 and PM_{10} concentrations are predicted to decrease at all receptors (e.g. houses) between the 2017 Base Year, 2022 Do Minimum and 2027 Do Minimum scenarios due to future air quality improvements forecast to occur as a result of technology improvements and air quality regulations. Upper Stone Street is the only road where the annual mean NO_2 AQS Objective is predicted to be exceeded in the 2017 Base Year scenario.

Annual mean NO_2 concentrations are still predicted to exceed the AQS Objective at 13 receptors on Upper Stone Street in the 2022 Do Minimum scenario, and to exceed the AQS Objective at two Upper Stone Street receptors in the 2027 Do Minimum scenario. It should however be noted that based on the rate of improvement in NO_2 between 2022 and 2027, the AQS Objective is likely to be achieved at all receptors in 2028 (under Do Minimum scenario).

All of the LEZ options are predicted to lead to perceptible improvements in air quality on Upper Street (substantial beneficial impacts at 13 receptors) when compared to the Do Minimum (2022) scenario, however the reductions in NO_2 achieved for all LEZ options are smaller than the annual rate of air quality improvement that occurs between the baseline scenarios (i.e. air quality improvements that occur without the LEZ). Furthermore, the NO_2 concentrations predicted in all of the 2022 LEZ scenarios remain well in excess of the AQS Objective at receptors on Upper Stone Street.

In terms of the effectiveness of the options, the Charging CAZ (Scenario 3) is predicted to deliver the greatest air quality benefit, followed by the Red Route restriction (Scenario 1) and the Cleaner and More Efficient Fleet Usage scenario (Scenario 2).

6 Conclusions

Maidstone Borough Council has declared an Air Quality Management Area (AQMA) for exceedances of the health based AQS Objective for nitrogen dioxide (NO_2), covering major roads in the borough. The highest NO_2 concentrations in the AQMA are monitored on Upper Stone Street, where the most recent monitoring data indicates that concentrations are almost double the AQS Objective value.

The feasibility of introducing a Low Emission Zone (LEZ) in Maidstone has been investigated in this study. The LEZ would be introduced in order to improve air quality on Upper Stone Street and surrounding roads.

A process was followed in which a long list of potential measures that could form part of a LEZ was identified, covering a range of demand management measures, low emission vehicle measures and traffic efficiency measures. Following a qualitative assessment of these measures against ten criteria, three LEZ scenarios were defined for more detailed impact assessment and modelling:

- Scenario 1 - Red Route restriction: implementation of a ‘no stopping’ restriction on Lower Stone Street, Upper Stone Street and Palace Avenue. This would need to be implemented by KCC as the transport authority through a Traffic Regulation Order (TRO).
- Scenario 2 - Cleaner and More Efficient Fleet Usage: including working with freight operators to implement freight delivery and service plans (DSPs); working with freight operators who make heavy use of Upper Stone Street to introduce lower emission vehicles into their LGV and HGV fleet through grant support and low emission vehicle advice; and working with bus operators to introduce lower emission vehicles into the bus fleet, including through grant support. This could be implemented directly by MBC, although cooperation with KCC as the transport authority may be advantageous.

- Scenario 3 – Charging Clean Air Zone: a 'Class B' charging CAZ for buses, coaches, HGVs, taxis and PHVs. This would need to be implemented by KCC as the transport authority (under the provisions of the Transport Act 2000).

It was assumed that the LEZ would be introduced in 2022, and traffic, emission and air quality modelling was undertaken to understand how air quality would change in the future without a LEZ (Do Minimum scenario) and under each LEZ scenario. The results of the modelling indicate that:

- Upper Stone Street is the only road in the study area where AQS Objectives are predicted to be exceeded in 2022 in the Do Minimum scenario.
- Annual mean NO_2 concentrations are not likely to meet the AQS Objective on Upper Stone Street until circa 2028 in the Do Minimum scenario and would remain well above the objective in 2022.
- Annual mean NO_2 concentrations are expected to remain well above the AQS Objective on Upper Stone Street in all of the LEZ scenarios, and no exceedances of the AQS Objective are removed from receptors relative to the Do Minimum scenario.
- The LEZ scenarios tested are all likely to deliver substantial air quality benefits in terms of reducing NO_2 on Upper Stone Street (despite not removing the exceedances of the AQS Objective) but lead to lesser effects elsewhere.
- In terms of the effectiveness of the LEZ scenarios, the Charging CAZ (Scenario 3) is predicted to deliver the greatest air quality benefit, followed by the Red Route restriction (Scenario 1) and the Cleaner and More Efficient Fleet Usage scenario (Scenario 2). Although LEZ modelling focussed on 2022, the magnitude of forecast air quality improvement under Scenario 3 would suggest that it could bring forward compliance with the AQS Objective by around a year from 2028 to 2027.
- Scenario 1 would be relatively low cost to implement (<£1m capital cost), while Scenario 2 and 3 as defined for this study would incur a high capital cost (over £5 million), once any mitigation measures are taken into account on Scenario 3. Scenario 1 could be implemented relatively quickly if budget was available, while Scenarios 2 and 3 would take longer but could be in place before 2022.
- The annual rate of improvement in NO_2 concentrations in the Do Minimum scenario is likely to be greater than the improvement achieved from any of the LEZ options (due to future technology improvements across the entire vehicle fleet that would occur regardless of the LEZ).
- The air quality benefits of the LEZ scenarios could be enhanced in combination, for example the Charging CAZ or Cleaner and More Efficient Fleet Usage scenario could be implemented alongside the Red Route restriction, which would help achieve AQS Objectives in a shorter timescale.

The results of the impact assessment suggest that if Maidstone Borough Council wants to bring Upper Stone Street into compliance with the AQS Objective as early as possible, it may need to consider more radical interventions than those tested in this study. This could include, for example, a Class D Charging CAZ in which non-compliant vehicles of all classes would be charged. Although such a scenario was not tested, the modelling undertaken here together with experience elsewhere, suggests that this could bring compliance forward by around an additional two years compared with the Class B Charging CAZ tested in Scenario 3. Should Maidstone Borough Council be mandated in due course by Government to develop a local plan to address the air quality exceedances in the shortest possible time, it would almost certainly need to examine such an option in detail.

Implementation of a package of measures to improve air quality and bring Upper Stone Street into compliance would require joint working between MBC and KCC. It would almost certainly also require additional central government funding. Government is making funding available for addressing air quality problems through its Joint Air Quality Unit (JAQU), which administers a significant Implementation Fund and a Clean Air Fund. Engagement with JAQU on the results of this initial feasibility study would be a first step towards unlocking availability of funding from these sources.

7 Appendices

Appendix A

7.1 Spreadsheet Traffic Model – Output Data

1. Base Year 2017

Table 7-1: Base Year 2017 AM Peak Traffic Data

Road Link	Road Name	Traffic Direction	Link Length (km)	Average speed (kph)	Vehicle Class - Traffic Volume										
					Motorcycles	Cars	Buses & Coaches	LGV	HGV Rigid 2 axle	HGV Rigid 3 axle	HGV Rigid 4 or more axle	HGV Articulated 3 axle	HGV Articulated 5 axle	HGV Articulated 6 or more axle	Total HGV	Total Vehicular Traffic
A229	Fairmeadow	North	1.5	24.0	50	3,590	7	568	60	10	18	7	17	16	128	4,343
A229	Fairmeadow	South	1.5	12.5	62	4,201	6	791	58	13	14	6	14	23	127	5,188
A20	Broadway	East	0.5	22.4	46	3,084	58	472	29	8	10	1	1	3	52	3,712
A20	Broadway	West	0.5	15.5	48	3,229	58	526	34	9	12	1	1	3	59	3,920
A229	Bishops Way	East	0.3	12.5	45	3,220	6	540	34	11	11	7	15	11	89	3,901
A229	Bishops Way	West	0.3	26.2	55	3,676	7	534	46	13	12	7	19	10	107	4,378
A229	Palace Avenue	East	0.4	11.6	47	3,574	41	613	41	12	12	7	16	11	99	4,374
A229	Lower Stone Street	East	0.4	11.6	51	5,081	50	733	75	15	21	12	22	16	160	6,076
A229	Mill Street (South)	North	0.2	10.2	57	5,675	56	936	80	18	16	10	22	13	159	6,883
A249	Knightrider Street	West	0.2	9.0	10	1,627	17	223	13	3	2	1	0	0	18	1,895
A249	Wat Tyler Way	North	0.5	12.8	17	1,810	18	202	15	4	2	1	3	1	26	2,072

A249	Wat Tyler Way	South	0.5	9.0	20	1,888	15	271	21	6	5	2	5	5	44	2,237
A229	Upper Stone Street	South	0.6	11.6	21	2,600	47	490	64	14	11	5	8	10	112	3,271
A229	Hayle Road	North	0.9	10.2	26	2,418	77	549	47	16	20	4	9	6	102	3,172
A229	Loose Road	North	0.9	10.2	28	2,397	39	389	42	11	17	9	27	10	116	2,969
A229	Loose Road	South	0.9	11.6	36	2,659	41	434	42	12	15	9	21	18	116	3,286

Table 7-2: Base Year 2017 Inter-Peak Traffic Data

Road Link	Road Name	Traffic Direction	Link Length (km)	Average speed (kph)	Vehicle Class - Traffic Volume											
					Motorcycles	Cars	Buses & Coaches	LGV	HGV Rigid 2 axle	HGV Rigid 3 axle	HGV Rigid 4 or more axle	HGV Articulated 3 axle	HGV Articulated 5 axle	HGV Articulated 6 or more axle	Total HGV	Total Vehicular Traffic
A229	Fairmeadow	North	1.5	16.9	84	6,008	12	950	100	17	30	11	28	27	214	7,268
A229	Fairmeadow	South	1.5	15.6	88	5,939	9	1,118	82	18	19	9	20	32	180	7,335
A20	Broadway	East	0.5	22.4	90	5,993	113	917	57	16	19	2	2	6	101	7,214
A20	Broadway	West	0.5	22.4	87	5,890	107	959	61	16	22	2	2	5	107	7,150
A229	Bishops Way	East	0.3	15.6	91	6,584	13	1,105	70	22	23	13	31	22	183	7,975
A229	Bishops Way	West	0.3	20.6	108	7,284	14	1,057	92	26	24	14	37	19	212	8,675
A229	Palace Avenue	East	0.4	12.9	94	7,082	82	1,214	81	23	25	14	32	23	197	8,668
A229	Lower Stone Street	East	0.4	12.9	98	9,806	97	1,415	144	29	40	24	42	30	310	11,726
A229	Mill Street (South)	North	0.2	15.8	101	10,077	100	1,662	141	32	29	18	39	23	282	12,223
A249	Knightrider Street	West	0.2	14.4	21	3,314	34	455	26	5	3	1	0	1	37	3,861
A249	Wat Tyler Way	North	0.5	12.8	34	3,689	36	411	31	7	5	2	6	2	52	4,223
A249	Wat Tyler Way	South	0.5	14.4	37	3,466	27	497	38	10	9	3	10	10	81	4,108
A229	Upper Stone Street	South	0.6	12.9	49	5,927	106	1,118	146	31	26	12	19	22	256	7,456

A229	Hayle Road	North	0.9	15.8	44	4,090	131	929	79	28	34	6	16	11	173	5,366
A229	Loose Road	North	0.9	15.8	55	4,650	76	755	81	21	32	18	53	19	224	5,760
A229	Loose Road	South	0.9	12.9	70	5,158	79	843	81	23	30	17	41	35	225	6,375

Table 7-3: Base Year 2017 PM Peak Traffic Data

Road Link	Road Name	Traffic Direction	Link Length (km)	Average speed (kph)	Vehicle Class - Traffic Volume											
					Motorcycles	Cars	Buses & Coaches	LGV	HGV Rigid 2 axle	HGV Rigid 3 axle	HGV Rigid 4 or more axle	HGV Articulated 3 axle	HGV Articulated 5 axle	HGV Articulated 6 or more axle	Total HGV	Total Vehicular Traffic
A229	Fairmeadow	North	1.5	19.2	54	3,847	8	608	64	11	19	7	18	17	137	4,654
A229	Fairmeadow	South	1.5	11.1	56	3,753	5	707	52	11	12	6	13	20	114	4,634
A20	Broadway	East	0.5	18.3	43	2,838	54	434	27	7	9	1	1	3	48	3,416
A20	Broadway	West	0.5	15.5	47	3,200	58	521	33	9	12	1	1	3	58	3,885
A229	Bishops Way	East	0.3	11.1	61	4,388	8	736	47	15	16	9	21	15	122	5,315
A229	Bishops Way	West	0.3	13.1	66	4,426	8	642	56	16	14	8	23	12	129	5,271
A229	Palace Avenue	East	0.4	10.9	57	4,303	50	738	49	14	15	8	19	14	120	5,267
A229	Lower Stone Street	East	0.4	10.9	51	5,107	50	737	75	15	21	12	22	16	161	6,107
A229	Mill Street (South)	North	0.2	11.6	54	5,431	54	896	76	17	15	9	21	12	152	6,587
A249	Knightrider Street	West	0.2	10.3	12	1,908	19	262	15	3	2	1	0	0	21	2,223
A249	Wat Tyler Way	North	0.5	11.5	19	2,031	20	226	17	4	3	1	3	1	29	2,325
A249	Wat Tyler Way	South	0.5	10.3	20	1,841	14	264	20	6	5	2	5	5	43	2,182
A229	Upper Stone Street	South	0.6	10.9	35	4,281	77	807	105	22	19	9	14	16	185	5,385

A229	Hayle Road	North	0.9	11.6	23	2,196	70	499	42	15	18	3	8	6	93	2,881
A229	Loose Road	North	0.9	11.6	35	2,924	48	475	51	13	20	11	33	12	141	3,622
A229	Loose Road	South	0.9	10.9	44	3,244	50	530	51	14	19	11	26	22	141	4,009

Table 7-4: Base Year 2017 Off-Peak (Free Flow Conditions) Traffic Data

Road Link	Road Name	Traffic Direction	Link Length (km)	Average speed (kph)	Vehicle Class - Traffic Volume											
					Motorcycles	Cars	Buses & Coaches	LGV	HGV Rigid 2 axle	HGV Rigid 3 axle	HGV Rigid 4 or more axle	HGV Articulated 3 axle	HGV Articulated 5 axle	HGV Articulated 6 or more axle	Total HGV	Total Vehicular Traffic
A229	Fairmeadow	North	1.5	33.1	31	2,189	4	346	36	6	11	4	10	10	78	2,647
A229	Fairmeadow	South	1.5	29.5	34	2,261	3	426	31	7	7	3	8	12	69	2,793
A20	Broadway	East	0.5	31.0	29	1,939	37	297	18	5	6	1	1	2	33	2,334
A20	Broadway	West	0.5	26.9	30	2,005	36	326	21	5	7	1	1	2	37	2,434
A229	Bishops Way	East	0.3	29.5	32	2,335	4	392	25	8	8	5	11	8	65	2,828
A229	Bishops Way	West	0.3	32.9	38	2,535	5	368	32	9	8	5	13	7	74	3,019
A229	Palace Avenue	East	0.4	28.4	33	2,464	28	422	28	8	9	5	11	8	68	3,016
A229	Lower Stone Street	East	0.4	28.4	33	3,254	32	470	48	10	13	8	14	10	103	3,891
A229	Mill Street (South)	North	0.2	30.9	34	3,448	34	569	48	11	10	6	13	8	97	4,182
A249	Knightrider Street	West	0.2	20.6	7	1,115	11	153	9	2	1	0	0	0	12	1,299
A249	Wat Tyler Way	North	0.5	17.1	12	1,249	12	139	10	2	2	1	2	1	18	1,430
A249	Wat Tyler Way	South	0.5	20.6	13	1,189	9	171	13	4	3	1	3	3	28	1,409
A229	Upper Stone Street	South	0.6	28.4	17	2,085	37	393	51	11	9	4	7	8	90	2,622

A229	Hayle Road	North	0.9	30.9	15	1,417	45	322	27	10	12	2	5	4	60	1,859
A229	Loose Road	North	0.9	30.9	19	1,623	27	263	28	7	11	6	18	7	78	2,010
A229	Loose Road	South	0.9	28.4	24	1,800	28	294	28	8	10	6	14	12	78	2,225

2. Do Minimum Scenario 2022

Table 7-5: Do Minimum 2022 AM Peak Traffic Data

Road Link	Road Name	Traffic Direction	Link Length (km)	Average speed (kph)	Vehicle Class - Traffic Volume											
					Motorcycles	Cars	Buses & Coaches	LGV	HGV Rigid 2 axle	HGV Rigid 3 axle	HGV Rigid 4 or more axle	HGV Articulated 3 axle	HGV Articulated 5 axle	HGV Articulated 6 or more axle	Total HGV	Total Vehicular Traffic
A229	Fairmeadow	North	1.5	24.0	53	3,760	7	606	60	10	18	7	17	16	128	4,554
A229	Fairmeadow	South	1.5	12.5	65	4,400	6	844	58	13	14	6	14	23	128	5,443
A20	Broadway	East	0.5	22.4	49	3,230	61	503	29	8	10	1	1	3	52	3,895
A20	Broadway	West	0.5	15.5	50	3,382	61	561	34	9	12	1	1	3	59	4,114
A229	Bishops Way	East	0.3	12.5	47	3,373	6	577	35	11	12	7	15	11	90	4,093
A229	Bishops Way	West	0.3	26.2	57	3,850	7	569	47	13	12	7	19	10	107	4,591
A229	Palace Avenue	East	0.4	11.6	49	3,743	43	654	41	12	13	7	16	12	100	4,589
A229	Lower Stone Street	East	0.4	11.6	53	5,322	53	782	75	15	21	12	22	16	161	6,371
A229	Mill Street (South)	North	0.2	10.2	59	5,944	59	999	80	18	16	10	22	13	160	7,221
A249	Knightrider Street	West	0.2	9.0	11	1,704	17	238	13	3	2	1	0	0	18	1,988
A249	Wat Tyler Way	North	0.5	12.8	18	1,896	19	215	15	4	2	1	3	1	26	2,173
A249	Wat Tyler Way	South	0.5	9.0	21	1,977	15	289	21	6	5	2	5	5	44	2,346

A229	Upper Stone Street	South	0.6	11.6	22	2,723	49	523	64	14	11	5	8	10	113	3,431
A229	Hayle Road	North	0.9	10.2	27	2,532	81	586	47	17	20	4	9	6	103	3,329
A229	Loose Road	North	0.9	10.2	30	2,510	41	415	42	11	17	9	27	10	116	3,112
A229	Loose Road	South	0.9	11.6	38	2,785	43	464	42	12	15	9	21	18	117	3,445

Table 7-6: Do Minimum 2022 Inter-Peak Traffic Data

Road Link	Road Name	Traffic Direction	Link Length (km)	Average speed (kph)	Vehicle Class - Traffic Volume											
					Motorcycles	Cars	Buses & Coaches	LGV	HGV Rigid 2 axle	HGV Rigid 3 axle	HGV Rigid 4 or more axle	HGV Articulated 3 axle	HGV Articulated 5 axle	HGV Articulated 6 or more axle	Total HGV	Total Vehicular Traffic
A229	Fairmeadow	North	1.5	16.9	88	6,328	12	1,014	100	17	31	11	29	27	215	7,658
A229	Fairmeadow	South	1.5	15.6	93	6,256	9	1,193	82	18	19	9	20	33	181	7,732
A20	Broadway	East	0.5	22.4	95	6,312	119	978	57	16	19	2	2	6	102	7,606
A20	Broadway	West	0.5	22.4	91	6,204	112	1,023	61	16	22	2	2	5	108	7,539
A229	Bishops Way	East	0.3	15.6	96	6,934	13	1,179	71	22	24	13	31	22	184	8,406
A229	Bishops Way	West	0.3	20.6	114	7,672	14	1,128	93	26	24	14	37	19	213	9,141
A229	Palace Avenue	East	0.4	12.9	99	7,459	86	1,295	81	23	25	14	32	23	198	9,137
A229	Lower Stone Street	East	0.4	12.9	103	10,328	102	1,510	145	29	40	24	43	30	311	12,355
A229	Mill Street (South)	North	0.2	15.8	106	10,614	106	1,774	142	32	29	18	40	23	284	12,883
A249	Knightrider Street	West	0.2	14.4	22	3,491	36	485	26	5	3	1	0	1	37	4,071
A249	Wat Tyler Way	North	0.5	12.8	36	3,886	38	439	31	7	5	2	6	2	52	4,451
A249	Wat Tyler Way	South	0.5	14.4	39	3,651	28	531	39	11	9	3	10	10	81	4,330
A229	Upper Stone Street	South	0.6	12.9	51	6,243	112	1,193	147	31	26	12	19	23	257	7,856

A229	Hayle Road	North	0.9	15.8	46	4,308	137	991	79	28	34	6	16	11	174	5,656
A229	Loose Road	North	0.9	15.8	58	4,897	80	805	81	22	32	18	53	19	225	6,066
A229	Loose Road	South	0.9	12.9	74	5,432	84	899	81	23	30	17	41	35	226	6,715

Table 7-7: Do Minimum 2022 PM Peak Traffic Data

Road Link	Road Name	Traffic Direction	Link Length (km)	Average speed (kph)	Vehicle Class - Traffic Volume											
					Motorcycles	Cars	Buses & Coaches	LGV	HGV Rigid 2 axle	HGV Rigid 3 axle	HGV Rigid 4 or more axle	HGV Articulated 3 axle	HGV Articulated 5 axle	HGV Articulated 6 or more axle	Total HGV	Total Vehicular Traffic
A229	Fairmeadow	North	1.5	19.2	56	4,032	8	649	64	11	20	7	18	17	138	4,883
A229	Fairmeadow	South	1.5	11.1	58	3,933	6	754	52	11	12	6	13	21	115	4,866
A20	Broadway	East	0.5	18.3	45	2,974	56	463	27	7	9	1	1	3	48	3,586
A20	Broadway	West	0.5	15.5	49	3,354	61	556	33	9	12	1	1	3	59	4,079
A229	Bishops Way	East	0.3	11.1	64	4,599	9	786	47	15	16	9	21	15	123	5,579
A229	Bishops Way	West	0.3	13.1	69	4,639	9	685	56	16	14	8	23	12	129	5,531
A229	Palace Avenue	East	0.4	10.9	60	4,510	52	787	49	14	15	8	19	14	120	5,529
A229	Lower Stone Street	East	0.4	10.9	54	5,353	53	786	76	15	21	12	22	16	162	6,408
A229	Mill Street (South)	North	0.2	11.6	57	5,692	57	956	77	18	15	10	21	13	153	6,914
A249	Knightrider Street	West	0.2	10.3	13	1,999	20	279	15	3	2	1	0	0	21	2,333
A249	Wat Tyler Way	North	0.5	11.5	20	2,129	21	241	17	4	3	1	3	1	29	2,440
A249	Wat Tyler Way	South	0.5	10.3	20	1,930	15	282	21	6	5	2	5	5	43	2,290

A229	Upper Stone Street	South	0.6	10.9	37	4,487	81	861	106	23	19	9	14	16	186	5,651
A229	Hayle Road	North	0.9	11.6	24	2,302	73	532	43	15	18	3	9	6	94	3,025
A229	Loose Road	North	0.9	11.6	36	3,065	50	507	51	14	20	11	33	12	142	3,799
A229	Loose Road	South	0.9	10.9	46	3,400	52	566	51	14	19	11	26	22	142	4,206

Table 7-8: Do Minimum 2022 Off-Peak (Free Flow Conditions) Traffic Data

Road Link	Road Name	Traffic Direction	Link Length (km)	Average speed (kph)	Vehicle Class - Traffic Volume											
					Motorcycles	Cars	Buses & Coaches	LGV	HGV Rigid 2 axle	HGV Rigid 3 axle	HGV Rigid 4 or more axle	HGV Articulated 3 axle	HGV Articulated 5 axle	HGV Articulated 6 or more axle	Total HGV	Total Vehicular Traffic
A229	Fairmeadow	North	1.5	33.1	32	2,290	5	369	37	6	11	4	10	10	78	2,774
A229	Fairmeadow	South	1.5	29.5	35	2,366	3	454	31	7	7	3	8	12	69	2,928
A20	Broadway	East	0.5	31.0	30	2,029	38	316	18	5	6	1	1	2	33	2,447
A20	Broadway	West	0.5	26.9	31	2,098	38	348	21	5	8	1	1	2	37	2,552
A229	Bishops Way	East	0.3	29.5	34	2,443	5	418	25	8	8	5	11	8	65	2,964
A229	Bishops Way	West	0.3	32.9	39	2,652	5	393	32	9	8	5	13	7	74	3,163
A229	Palace Avenue	East	0.4	28.4	34	2,578	30	451	28	8	9	5	11	8	69	3,162
A229	Lower Stone Street	East	0.4	28.4	34	3,405	34	501	48	10	13	8	14	10	103	4,077
A229	Mill Street (South)	North	0.2	30.9	36	3,607	36	607	49	11	10	6	14	8	97	4,383
A249	Knightrider Street	West	0.2	20.6	8	1,166	12	163	9	2	1	0	0	0	13	1,361
A249	Wat Tyler Way	North	0.5	17.1	12	1,307	13	149	10	2	2	1	2	1	18	1,499
A249	Wat Tyler Way	South	0.5	20.6	13	1,244	10	182	13	4	3	1	3	3	28	1,477

A229	Upper Stone Street	South	0.6	28.4	18	2,181	39	420	52	11	9	4	7	8	91	2,748
A229	Hayle Road	North	0.9	30.9	16	1,482	47	343	27	10	12	2	5	4	60	1,949
A229	Loose Road	North	0.9	30.9	20	1,698	28	281	28	8	11	6	18	7	79	2,106
A229	Loose Road	South	0.9	28.4	26	1,883	29	314	28	8	10	6	14	12	79	2,331

4. Do Minimum Scenario 2027

Table 7-9: Do Minimum 2027 AM Peak Traffic Data

Road Link	Road Name	Traffic Direction	Link Length (km)	Average speed (kph)	Vehicle Class - Traffic Volume											
					Motorcycles	Cars	Buses & Coaches	LGV	HGV Rigid 2 axle	HGV Rigid 3 axle	HGV Rigid 4 or more axle	HGV Articulated 3 axle	HGV Articulated 5 axle	HGV Articulated 6 or more axle	Total HGV	Total Vehicular Traffic
A229	Fairmeadow	North	1.5	24.0	54	3,876	8	641	61	11	18	7	17	16	130	4,708
A229	Fairmeadow	South	1.5	12.5	67	4,535	7	892	59	13	14	7	14	23	130	5,631
A20	Broadway	East	0.5	22.4	50	3,329	63	532	30	8	10	1	1	3	53	4,027
A20	Broadway	West	0.5	15.5	51	3,486	63	593	34	9	12	1	1	3	60	4,254
A229	Bishops Way	East	0.3	12.5	48	3,476	7	610	35	11	12	7	16	11	91	4,232
A229	Bishops Way	West	0.3	26.2	59	3,968	7	602	47	13	12	7	19	10	109	4,746
A229	Palace Avenue	East	0.4	11.6	51	3,858	44	691	42	12	13	7	16	12	101	4,746
A229	Lower Stone Street	East	0.4	11.6	55	5,485	54	827	76	15	21	13	22	16	164	6,585
A229	Mill Street (South)	North	0.2	10.2	61	6,126	61	1,056	81	19	16	10	23	13	162	7,467
A249	Knightrider Street	West	0.2	9.0	11	1,756	18	252	13	3	2	1	0	0	19	2,055
A249	Wat Tyler Way	North	0.5	12.8	18	1,954	19	228	15	4	2	1	3	1	26	2,245
A249	Wat Tyler Way	South	0.5	9.0	22	2,038	16	306	21	6	5	2	6	5	45	2,425

A229	Upper Stone Street	South	0.6	11.6	23	2,807	50	553	65	14	12	5	9	10	115	3,548
A229	Hayle Road	North	0.9	10.2	28	2,610	83	619	47	17	20	4	9	6	104	3,445
A229	Loose Road	North	0.9	10.2	31	2,587	42	439	43	11	17	9	28	10	118	3,217
A229	Loose Road	South	0.9	11.6	39	2,870	44	490	42	12	16	9	21	18	118	3,562

Table 7-10: Do Minimum 2027 Inter-Peak Traffic Data

Road Link	Road Name	Traffic Direction	Link Length (km)	Average speed (kph)	Vehicle Class - Traffic Volume											
					Motorcycles	Cars	Buses & Coaches	LGV	HGV Rigid 2 axle	HGV Rigid 3 axle	HGV Rigid 4 or more axle	HGV Articulated 3 axle	HGV Articulated 5 axle	HGV Articulated 6 or more axle	Total HGV	Total Vehicular Traffic
A229	Fairmeadow	North	1.5	16.9	92	6,578	13	1,072	102	18	31	11	29	27	218	7,973
A229	Fairmeadow	South	1.5	15.6	97	6,503	9	1,262	83	18	20	9	20	33	184	8,054
A20	Broadway	East	0.5	22.4	99	6,561	124	1,034	58	16	19	2	2	6	103	7,921
A20	Broadway	West	0.5	22.4	95	6,449	117	1,082	62	16	22	2	2	5	110	7,852
A229	Bishops Way	East	0.3	15.6	100	7,208	14	1,246	72	23	24	14	32	23	187	8,755
A229	Bishops Way	West	0.3	20.6	118	7,975	15	1,193	94	27	24	14	38	20	216	9,517
A229	Palace Avenue	East	0.4	12.9	102	7,754	89	1,370	82	24	25	14	32	23	201	9,516
A229	Lower Stone Street	East	0.4	12.9	107	10,736	106	1,596	147	30	41	24	43	31	316	12,862
A229	Mill Street (South)	North	0.2	15.8	110	11,033	110	1,875	144	33	29	18	40	24	288	13,417
A249	Knightrider Street	West	0.2	14.4	23	3,629	37	513	27	5	3	1	0	1	38	4,240
A249	Wat Tyler Way	North	0.5	12.8	38	4,039	40	464	31	7	5	2	6	2	53	4,633
A249	Wat Tyler Way	South	0.5	14.4	40	3,795	29	561	39	11	9	3	10	10	82	4,508
A229	Upper Stone Street	South	0.6	12.9	53	6,490	117	1,261	149	32	26	12	20	23	261	8,182

A229	Hayle Road	North	0.9	15.8	48	4,478	143	1,048	80	28	35	6	16	11	177	5,893
A229	Loose Road	North	0.9	15.8	60	5,091	83	852	83	22	33	18	54	20	229	6,315
A229	Loose Road	South	0.9	12.9	77	5,647	87	951	82	23	30	17	42	35	229	6,991

Table 7-11: Do Minimum 2027 PM Peak Traffic Data

Road Link	Road Name	Traffic Direction	Link Length (km)	Average speed (kph)	Vehicle Class - Traffic Volume											
					Motorcycles	Cars	Buses & Coaches	LGV	HGV Rigid 2 axle	HGV Rigid 3 axle	HGV Rigid 4 or more axle	HGV Articulated 3 axle	HGV Articulated 5 axle	HGV Articulated 6 or more axle	Total HGV	Total Vehicular Traffic
A229	Fairmeadow	North	1.5	19.2	58	4,163	8	687	65	11	20	7	19	18	140	5,056
A229	Fairmeadow	South	1.5	11.1	60	4,061	6	797	53	11	12	6	13	21	116	5,040
A20	Broadway	East	0.5	18.3	46	3,071	58	490	27	7	9	1	1	3	49	3,714
A20	Broadway	West	0.5	15.5	51	3,463	63	588	34	9	12	1	1	3	60	4,224
A229	Bishops Way	East	0.3	11.1	66	4,748	9	831	48	15	16	9	21	15	124	5,778
A229	Bishops Way	West	0.3	13.1	71	4,790	9	725	57	16	15	8	23	12	131	5,726
A229	Palace Avenue	East	0.4	10.9	62	4,656	54	832	50	14	15	8	20	14	122	5,726
A229	Lower Stone Street	East	0.4	10.9	55	5,527	55	831	77	15	21	13	23	16	165	6,633
A229	Mill Street (South)	North	0.2	11.6	59	5,877	58	1,011	78	18	16	10	22	13	155	7,159
A249	Knightrider Street	West	0.2	10.3	13	2,064	21	295	15	3	2	1	0	1	22	2,416
A249	Wat Tyler Way	North	0.5	11.5	20	2,198	22	255	17	4	3	1	3	1	29	2,525
A249	Wat Tyler Way	South	0.5	10.3	21	1,992	15	298	21	6	5	2	5	5	44	2,371
A229	Upper Stone Street	South	0.6	10.9	38	4,632	83	911	107	23	19	9	14	17	189	5,853

A229	Hayle Road	North	0.9	11.6	25	2,376	76	563	43	15	19	3	9	6	95	3,135
A229	Loose Road	North	0.9	11.6	37	3,164	52	536	52	14	21	11	34	12	144	3,933
A229	Loose Road	South	0.9	10.9	48	3,510	54	598	52	15	19	11	26	22	144	4,354

Table 7-12: Do Minimum 2027 Off-Peak (Free Flow Conditions) Traffic Data

Road Link	Road Name	Traffic Direction	Link Length (km)	Average speed (kph)	Vehicle Class - Traffic Volume											
					Motorcycles	Cars	Buses & Coaches	LGV	HGV Rigid 2 axle	HGV Rigid 3 axle	HGV Rigid 4 or more axle	HGV Articulated 3 axle	HGV Articulated 5 axle	HGV Articulated 6 or more axle	Total HGV	Total Vehicular Traffic
A229	Fairmeadow	North	1.5	33.1	33	2,376	5	391	37	6	11	4	11	10	79	2,884
A229	Fairmeadow	South	1.5	29.5	36	2,455	4	480	32	7	7	4	8	13	70	3,046
A20	Broadway	East	0.5	31.0	32	2,106	40	335	19	5	6	1	1	2	33	2,545
A20	Broadway	West	0.5	26.9	32	2,177	39	368	21	6	8	1	1	2	37	2,655
A229	Bishops Way	East	0.3	29.5	35	2,535	5	442	25	8	8	5	11	8	66	3,083
A229	Bishops Way	West	0.3	32.9	41	2,753	5	415	33	9	8	5	13	7	75	3,289
A229	Palace Avenue	East	0.4	28.4	35	2,676	31	477	29	8	9	5	11	8	70	3,289
A229	Lower Stone Street	East	0.4	28.4	35	3,534	35	530	49	10	13	8	14	10	105	4,239
A229	Mill Street (South)	North	0.2	30.9	37	3,744	37	642	49	11	10	6	14	8	99	4,559
A249	Knightrider Street	West	0.2	20.6	8	1,210	12	173	9	2	1	0	0	0	13	1,416
A249	Wat Tyler Way	North	0.5	17.1	13	1,357	13	157	11	2	2	1	2	1	18	1,558
A249	Wat Tyler Way	South	0.5	20.6	14	1,291	10	193	13	4	3	1	4	3	28	1,536
A229	Upper Stone Street	South	0.6	28.4	19	2,264	41	444	52	11	9	4	7	8	92	2,858

A229	Hayle Road	North	0.9	30.9	16	1,538	49	363	28	10	12	2	6	4	61	2,028
A229	Loose Road	North	0.9	30.9	21	1,762	29	297	29	8	11	6	19	7	80	2,189
A229	Loose Road	South	0.9	28.4	26	1,955	30	332	29	8	11	6	14	12	80	2,423

5. Scenario 1 – A LEZ to Keep Vehicles Moving (Red Route) 2022

Table 7-13: Red Routing 2022 AM Peak Traffic Data

Road Link	Road Name	Traffic Direction	Link Length (km)	Average speed (kph)	Vehicle Class - Traffic Volume											
					Motorcycles	Cars	Buses & Coaches	LGV	HGV Rigid 2 axle	HGV Rigid 3 axle	HGV Rigid 4 or more axle	HGV Articulated 3 axle	HGV Articulated 5 axle	HGV Articulated 6 or more axle	Total HGV	Total Vehicular Traffic
A229	Fairmeadow	North	1.5	24.0	53	3,760	7	606	60	10	18	7	17	16	128	4,554
A229	Fairmeadow	South	1.5	12.5	65	4,400	6	844	58	13	14	6	14	23	128	5,443
A20	Broadway	East	0.5	22.4	49	3,230	61	503	29	8	10	1	1	3	52	3,895
A20	Broadway	West	0.5	15.5	50	3,382	61	561	34	9	12	1	1	3	59	4,114
A229	Bishops Way	East	0.3	12.5	47	3,373	6	577	35	11	12	7	15	11	90	4,093
A229	Bishops Way	West	0.3	26.2	57	3,850	7	569	47	13	12	7	19	10	107	4,591
A229	Palace Avenue	East	0.4	12.7	49	3,743	43	654	41	12	13	7	16	12	100	4,589
A229	Lower Stone Street	East	0.4	12.7	53	5,322	53	782	75	15	21	12	22	16	161	6,371
A229	Mill Street (South)	North	0.2	10.2	59	5,944	59	999	80	18	16	10	22	13	160	7,221
A249	Knightrider Street	West	0.2	9.0	11	1,704	17	238	13	3	2	1	0	0	18	1,988
A249	Wat Tyler Way	North	0.5	12.8	18	1,896	19	215	15	4	2	1	3	1	26	2,173
A249	Wat Tyler Way	South	0.5	9.0	21	1,977	15	289	21	6	5	2	5	5	44	2,346

A229	Upper Stone Street	South	0.6	12.7	22	2,723	49	523	64	14	11	5	8	10	113	3,431
A229	Hayle Road	North	0.9	10.2	27	2,532	81	586	47	17	20	4	9	6	103	3,329
A229	Loose Road	North	0.9	10.2	30	2,510	41	415	42	11	17	9	27	10	116	3,112
A229	Loose Road	South	0.9	11.6	38	2,785	43	464	42	12	15	9	21	18	117	3,445

Table 7-14: Red Routing 2022 Inter-Peak Traffic Data

Road Link	Road Name	Traffic Direction	Link Length (km)	Average speed (kph)	Vehicle Class - Traffic Volume											
					Motorcycles	Cars	Buses & Coaches	LGV	HGV Rigid 2 axle	HGV Rigid 3 axle	HGV Rigid 4 or more axle	HGV Articulated 3 axle	HGV Articulated 5 axle	HGV Articulated 6 or more axle	Total HGV	Total Vehicular Traffic
A229	Fairmeadow	North	1.5	16.9	88	6,328	12	1,014	100	17	31	11	29	27	215	7,658
A229	Fairmeadow	South	1.5	15.6	93	6,256	9	1,193	82	18	19	9	20	33	181	7,732
A20	Broadway	East	0.5	22.4	95	6,312	119	978	57	16	19	2	2	6	102	7,606
A20	Broadway	West	0.5	22.4	91	6,204	112	1,023	61	16	22	2	2	5	108	7,539
A229	Bishops Way	East	0.3	15.6	96	6,934	13	1,179	71	22	24	13	31	22	184	8,406
A229	Bishops Way	West	0.3	20.6	114	7,672	14	1,128	93	26	24	14	37	19	213	9,141
A229	Palace Avenue	East	0.4	14.2	99	7,459	86	1,295	81	23	25	14	32	23	198	9,137
A229	Lower Stone Street	East	0.4	14.2	103	10,328	102	1,510	145	29	40	24	43	30	311	12,355
A229	Mill Street (South)	North	0.2	15.8	106	10,614	106	1,774	142	32	29	18	40	23	284	12,883
A249	Knightrider Street	West	0.2	14.4	22	3,491	36	485	26	5	3	1	0	1	37	4,071
A249	Wat Tyler Way	North	0.5	12.8	36	3,886	38	439	31	7	5	2	6	2	52	4,451
A249	Wat Tyler Way	South	0.5	14.4	39	3,651	28	531	39	11	9	3	10	10	81	4,330
A229	Upper Stone Street	South	0.6	14.2	51	6,243	112	1,193	147	31	26	12	19	23	257	7,856

A229	Hayle Road	North	0.9	15.8	46	4,308	137	991	79	28	34	6	16	11	174	5,656
A229	Loose Road	North	0.9	15.8	58	4,897	80	805	81	22	32	18	53	19	225	6,066
A229	Loose Road	South	0.9	12.9	74	5,432	84	899	81	23	30	17	41	35	226	6,715

Table 7-15: Red Routing 2022 PM Peak Traffic Data

Road Link	Road Name	Traffic Direction	Link Length (km)	Average speed (kph)	Vehicle Class - Traffic Volume											
					Motorcycles	Cars	Buses & Coaches	LGV	HGV Rigid 2 axle	HGV Rigid 3 axle	HGV Rigid 4 or more axle	HGV Articulated 3 axle	HGV Articulated 5 axle	HGV Articulated 6 or more axle	Total HGV	Total Vehicular Traffic
A229	Fairmeadow	North	1.5	19.2	56	4,032	8	649	64	11	20	7	18	17	138	4,883
A229	Fairmeadow	South	1.5	11.1	58	3,933	6	754	52	11	12	6	13	21	115	4,866
A20	Broadway	East	0.5	18.3	45	2,974	56	463	27	7	9	1	1	3	48	3,586
A20	Broadway	West	0.5	15.5	49	3,354	61	556	33	9	12	1	1	3	59	4,079
A229	Bishops Way	East	0.3	11.1	64	4,599	9	786	47	15	16	9	21	15	123	5,579
A229	Bishops Way	West	0.3	13.1	69	4,639	9	685	56	16	14	8	23	12	129	5,531
A229	Palace Avenue	East	0.4	11.9	60	4,510	52	787	49	14	15	8	19	14	120	5,529
A229	Lower Stone Street	East	0.4	11.9	54	5,353	53	786	76	15	21	12	22	16	162	6,408
A229	Mill Street (South)	North	0.2	11.6	57	5,692	57	956	77	18	15	10	21	13	153	6,914
A249	Knightrider Street	West	0.2	10.3	13	1,999	20	279	15	3	2	1	0	0	21	2,333
A249	Wat Tyler Way	North	0.5	11.5	20	2,129	21	241	17	4	3	1	3	1	29	2,440
A249	Wat Tyler Way	South	0.5	10.3	20	1,930	15	282	21	6	5	2	5	5	43	2,290
A229	Upper Stone Street	South	0.6	11.9	37	4,487	81	861	106	23	19	9	14	16	186	5,651

A229	Hayle Road	North	0.9	11.6	24	2,302	73	532	43	15	18	3	9	6	94	3,025
A229	Loose Road	North	0.9	11.6	36	3,065	50	507	51	14	20	11	33	12	142	3,799
A229	Loose Road	South	0.9	10.9	46	3,400	52	566	51	14	19	11	26	22	142	4,206

Table 7-16: Red Routing 2022 Off-Peak (Free Flow Conditions) Traffic Data

Road Link	Road Name	Traffic Direction	Link Length (km)	Average speed (kph)	Vehicle Class - Traffic Volume											
					Motorcycles	Cars	Buses & Coaches	LGV	HGV Rigid 2 axle	HGV Rigid 3 axle	HGV Rigid 4 or more axle	HGV Articulated 3 axle	HGV Articulated 5 axle	HGV Articulated 6 or more axle	Total HGV	Total Vehicular Traffic
A229	Fairmeadow	North	1.5	33.1	32	2,290	5	369	37	6	11	4	10	10	78	2,774
A229	Fairmeadow	South	1.5	29.5	35	2,366	3	454	31	7	7	3	8	12	69	2,928
A20	Broadway	East	0.5	31.0	30	2,029	38	316	18	5	6	1	1	2	33	2,447
A20	Broadway	West	0.5	26.9	31	2,098	38	348	21	5	8	1	1	2	37	2,552
A229	Bishops Way	East	0.3	29.5	34	2,443	5	418	25	8	8	5	11	8	65	2,964
A229	Bishops Way	West	0.3	32.9	39	2,652	5	393	32	9	8	5	13	7	74	3,163
A229	Palace Avenue	East	0.4	31.2	34	2,578	30	451	28	8	9	5	11	8	69	3,162
A229	Lower Stone Street	East	0.4	31.2	34	3,405	34	501	48	10	13	8	14	10	103	4,077
A229	Mill Street (South)	North	0.2	30.9	36	3,607	36	607	49	11	10	6	14	8	97	4,383
A249	Knightrider Street	West	0.2	20.6	8	1,166	12	163	9	2	1	0	0	0	13	1,361
A249	Wat Tyler Way	North	0.5	17.1	12	1,307	13	149	10	2	2	1	2	1	18	1,499
A249	Wat Tyler Way	South	0.5	20.6	13	1,244	10	182	13	4	3	1	3	3	28	1,477
A229	Upper Stone Street	South	0.6	31.2	18	2,181	39	420	52	11	9	4	7	8	91	2,748

A229	Hayle Road	North	0.9	30.9	16	1,482	47	343	27	10	12	2	5	4	60	1,949
A229	Loose Road	North	0.9	30.9	20	1,698	28	281	28	8	11	6	18	7	79	2,106
A229	Loose Road	South	0.9	28.4	26	1,883	29	314	28	8	10	6	14	12	79	2,331

6. Scenario 2 – A LEZ to Encourage Cleaner Vehicles

Table 7-17: Delivery and Servicing Plans 2022 AM Peak Traffic Data

Road Link	Road Name	Traffic Direction	Link Length (km)	Average speed (kph)	Vehicle Class - Traffic Volume											
					Motorcycles	Cars	Buses & Coaches	LGV	HGV Rigid 2 axle	HGV Rigid 3 axle	HGV Rigid 4 or more axle	HGV Articulated 3 axle	HGV Articulated 5 axle	HGV Articulated 6 or more axle	Total HGV	Total Vehicular Traffic
A229	Fairmeadow	North	1.5	24.0	53	3,760	7	594	59	10	18	6	17	16	126	4,540
A229	Fairmeadow	South	1.5	12.5	65	4,400	6	827	57	12	13	6	14	23	126	5,424
A20	Broadway	East	0.5	22.4	49	3,230	61	493	29	8	10	1	1	3	51	3,884
A20	Broadway	West	0.5	15.5	50	3,382	61	550	33	9	12	1	1	3	58	4,101
A229	Bishops Way	East	0.3	12.5	47	3,373	6	565	34	11	11	6	15	11	88	4,079
A229	Bishops Way	West	0.3	26.2	57	3,850	7	558	46	13	12	7	18	10	105	4,578
A229	Palace Avenue	East	0.4	11.6	49	3,743	43	641	40	11	12	7	16	11	98	4,574
A229	Lower Stone Street	East	0.4	11.6	53	5,322	53	767	74	15	20	12	22	15	158	6,352
A229	Mill Street (South)	North	0.2	10.2	59	5,944	59	979	78	18	16	10	22	13	157	7,198
A249	Knightrider Street	West	0.2	9.0	11	1,704	17	233	13	2	2	1	0	0	18	1,983
A249	Wat Tyler Way	North	0.5	12.8	18	1,896	19	211	15	3	2	1	3	1	25	2,168
A249	Wat Tyler Way	South	0.5	9.0	21	1,977	15	283	21	6	5	2	5	5	43	2,340

A229	Upper Stone Street	South	0.6	11.6	22	2,723	49	513	63	13	11	5	8	10	111	3,418
A229	Hayle Road	North	0.9	10.2	27	2,532	81	574	46	16	20	4	9	6	101	3,315
A229	Loose Road	North	0.9	10.2	30	2,510	41	407	41	11	16	9	27	10	114	3,102
A229	Loose Road	South	0.9	11.6	38	2,785	43	454	41	11	15	9	21	18	114	3,434

Table 7-18: Delivery and Servicing Plans 2022 Inter-Peak Traffic Data

Road Link	Road Name	Traffic Direction	Link Length (km)	Average speed (kph)	Vehicle Class - Traffic Volume											
					Motorcycles	Cars	Buses & Coaches	LGV	HGV Rigid 2 axle	HGV Rigid 3 axle	HGV Rigid 4 or more axle	HGV Articulated 3 axle	HGV Articulated 5 axle	HGV Articulated 6 or more axle	Total HGV	Total Vehicular Traffic
A229	Fairmeadow	North	1.5	16.9	88	6,328	12	994	98	17	30	11	28	26	211	7,633
A229	Fairmeadow	South	1.5	15.6	93	6,256	9	1,169	81	17	19	9	20	32	178	7,705
A20	Broadway	East	0.5	22.4	95	6,312	119	958	56	15	19	2	2	6	100	7,584
A20	Broadway	West	0.5	22.4	91	6,204	112	1,003	60	16	22	2	2	5	106	7,516
A229	Bishops Way	East	0.3	15.6	96	6,934	13	1,155	69	22	23	13	31	22	180	8,379
A229	Bishops Way	West	0.3	20.6	114	7,672	14	1,106	91	26	23	13	37	19	209	9,115
A229	Palace Avenue	East	0.4	12.9	99	7,459	86	1,269	80	23	24	13	31	22	194	9,107
A229	Lower Stone Street	East	0.4	12.9	103	10,328	102	1,479	142	29	39	23	42	30	305	12,318
A229	Mill Street (South)	North	0.2	15.8	106	10,614	106	1,738	139	32	28	17	39	23	278	12,842
A249	Knightrider Street	West	0.2	14.4	22	3,491	36	476	26	5	3	1	0	1	37	4,061
A249	Wat Tyler Way	North	0.5	12.8	36	3,886	38	430	30	7	5	2	6	2	51	4,441
A249	Wat Tyler Way	South	0.5	14.4	39	3,651	28	520	38	10	9	3	10	9	80	4,318
A229	Upper Stone Street	South	0.6	12.9	51	6,243	112	1,169	144	31	25	12	19	22	252	7,827

A229	Hayle Road	North	0.9	15.8	46	4,308	137	971	78	27	33	6	16	11	171	5,633
A229	Loose Road	North	0.9	15.8	58	4,897	80	789	80	21	32	17	52	19	221	6,046
A229	Loose Road	South	0.9	12.9	74	5,432	84	881	79	22	29	17	40	34	222	6,693

Table 7-19: Delivery and Servicing Plans 2022 PM Peak Traffic Data

Road Link	Road Name	Traffic Direction	Link Length (km)	Average speed (kph)	Vehicle Class - Traffic Volume											
					Motorcycles	Cars	Buses & Coaches	LGV	HGV Rigid 2 axle	HGV Rigid 3 axle	HGV Rigid 4 or more axle	HGV Articulated 3 axle	HGV Articulated 5 axle	HGV Articulated 6 or more axle	Total HGV	Total Vehicular Traffic
A229	Fairmeadow	North	1.5	19.2	56	4,032	8	638	67	12	20	7	19	18	143	4,878
A229	Fairmeadow	South	1.5	11.1	58	3,933	6	741	54	12	13	6	13	21	119	4,857
A20	Broadway	East	0.5	18.3	45	2,974	56	455	28	8	9	1	1	3	50	3,580
A20	Broadway	West	0.5	15.5	49	3,354	61	546	35	9	12	1	1	3	61	4,072
A229	Bishops Way	East	0.3	11.1	64	4,599	9	772	49	16	16	9	22	16	128	5,570
A229	Bishops Way	West	0.3	13.1	69	4,639	9	673	59	17	15	9	24	12	135	5,524
A229	Palace Avenue	East	0.4	10.9	60	4,510	52	773	51	15	16	9	20	14	125	5,520
A229	Lower Stone Street	East	0.4	10.9	54	5,353	53	772	79	16	22	13	23	17	169	6,401
A229	Mill Street (South)	North	0.2	11.6	57	5,692	57	939	80	18	16	10	22	13	159	6,903
A249	Knightrider Street	West	0.2	10.3	13	1,999	20	274	16	3	2	1	0	1	22	2,329
A249	Wat Tyler Way	North	0.5	11.5	20	2,129	21	237	18	4	3	1	3	1	30	2,437
A249	Wat Tyler Way	South	0.5	10.3	20	1,930	15	277	21	6	5	2	6	5	45	2,287
A229	Upper Stone Street	South	0.6	10.9	37	4,487	81	846	110	23	19	9	15	17	194	5,644

A229	Hayle Road	North	0.9	11.6	24	2,302	73	523	44	16	19	3	9	6	97	3,020
A229	Loose Road	North	0.9	11.6	36	3,065	50	498	53	14	21	12	35	13	148	3,796
A229	Loose Road	South	0.9	10.9	46	3,400	52	556	53	15	20	11	27	23	148	4,202

Table 7-20: Delivery and Servicing Plans 2022 Off-Peak (Free Flow Conditions) Traffic Data

Road Link	Road Name	Traffic Direction	Link Length (km)	Average speed (kph)	Vehicle Class - Traffic Volume											
					Motorcycles	Cars	Buses & Coaches	LGV	HGV Rigid 2 axle	HGV Rigid 3 axle	HGV Rigid 4 or more axle	HGV Articulated 3 axle	HGV Articulated 5 axle	HGV Articulated 6 or more axle	Total HGV	Total Vehicular Traffic
A229	Fairmeadow	North	1.5	33.1	32	2,290	5	362	36	6	11	4	10	10	77	2,765
A229	Fairmeadow	South	1.5	29.5	35	2,366	3	445	31	7	7	3	7	12	68	2,917
A20	Broadway	East	0.5	31.0	30	2,029	38	310	18	5	6	1	1	2	32	2,440
A20	Broadway	West	0.5	26.9	31	2,098	38	341	21	5	7	1	1	2	36	2,544
A229	Bishops Way	East	0.3	29.5	34	2,443	5	410	25	8	8	5	11	8	64	2,955
A229	Bishops Way	West	0.3	32.9	39	2,652	5	385	32	9	8	5	13	7	73	3,154
A229	Palace Avenue	East	0.4	28.4	34	2,578	30	442	28	8	8	5	11	8	67	3,151
A229	Lower Stone Street	East	0.4	28.4	34	3,405	34	491	47	9	13	8	14	10	101	4,065
A229	Mill Street (South)	North	0.2	30.9	36	3,607	36	595	48	11	10	6	13	8	95	4,369
A249	Knightrider Street	West	0.2	20.6	8	1,166	12	160	9	2	1	0	0	0	12	1,358
A249	Wat Tyler Way	North	0.5	17.1	12	1,307	13	146	10	2	2	1	2	1	17	1,495
A249	Wat Tyler Way	South	0.5	20.6	13	1,244	10	178	13	4	3	1	3	3	27	1,473
A229	Upper Stone Street	South	0.6	28.4	18	2,181	39	411	51	11	9	4	7	8	89	2,738

A229	Hayle Road	North	0.9	30.9	16	1,482	47	336	27	9	12	2	5	4	59	1,941
A229	Loose Road	North	0.9	30.9	20	1,698	28	275	28	7	11	6	18	7	77	2,098
A229	Loose Road	South	0.9	28.4	26	1,883	29	308	28	8	10	6	14	12	77	2,323

7. Scenario 3 – A 'Polluter Pays' LEZ

Table 7-21: Clean Air Zone 2022 AM Peak Traffic Data

Road Link	Road Name	Traffic Direction	Link Length (km)	Average speed (kph)	Vehicle Class - Traffic Volume											
					Motorcycles	Cars	Buses & Coaches	LGV	HGV Rigid 2 axle	HGV Rigid 3 axle	HGV Rigid 4 or more axle	HGV Articulated 3 axle	HGV Articulated 5 axle	HGV Articulated 6 or more axle	Total HGV	Total Vehicular Traffic
A229	Fairmeadow	North	1.5	24.0	53	3,760	7	606	58	10	18	7	17	16	125	4,551
A229	Fairmeadow	South	1.5	12.5	65	4,400	6	844	56	12	13	6	14	23	125	5,440
A20	Broadway	East	0.5	22.4	49	3,230	61	503	28	8	10	1	1	3	51	3,893
A20	Broadway	West	0.5	15.5	50	3,382	61	561	33	9	12	1	1	3	57	4,112
A229	Bishops Way	East	0.3	12.5	47	3,373	6	577	33	11	11	7	15	11	88	4,090
A229	Bishops Way	West	0.3	26.2	57	3,850	7	569	45	13	12	7	19	10	104	4,588
A229	Palace Avenue	East	0.4	11.6	49	3,743	43	654	40	11	12	7	16	11	97	4,587
A229	Lower Stone Street	East	0.4	11.6	53	5,322	53	782	73	15	20	12	22	16	157	6,367
A229	Mill Street (South)	North	0.2	10.2	59	5,944	59	999	77	18	16	10	22	13	155	7,217
A249	Knightrider Street	West	0.2	9.0	11	1,704	17	238	12	2	2	1	0	0	18	1,988
A249	Wat Tyler Way	North	0.5	12.8	18	1,896	19	215	15	3	2	1	3	1	25	2,172
A249	Wat Tyler Way	South	0.5	9.0	21	1,977	15	289	20	6	5	2	5	5	43	2,345

A229	Upper Stone Street	South	0.6	11.6	22	2,723	49	523	62	13	11	5	8	10	110	3,427
A229	Hayle Road	North	0.9	10.2	27	2,532	81	586	45	16	19	4	9	6	100	3,325
A229	Loose Road	North	0.9	10.2	30	2,510	41	415	41	11	16	9	27	10	113	3,109
A229	Loose Road	South	0.9	11.6	38	2,785	43	464	40	11	15	9	21	18	114	3,442

Table 7-22: Clean Air Zone 2022 Inter-Peak Traffic Data

Road Link	Road Name	Traffic Direction	Link Length (km)	Average speed (kph)	Vehicle Class - Traffic Volume											
					Motorcycles	Cars	Buses & Coaches	LGV	HGV Rigid 2 axle	HGV Rigid 3 axle	HGV Rigid 4 or more axle	HGV Articulated 3 axle	HGV Articulated 5 axle	HGV Articulated 6 or more axle	Total HGV	Total Vehicular Traffic
A229	Fairmeadow	North	1.5	16.9	88	6,328	12	1,014	97	17	29	11	28	27	209	7,652
A229	Fairmeadow	South	1.5	15.6	93	6,256	9	1,193	79	17	19	9	20	32	176	7,727
A20	Broadway	East	0.5	22.4	95	6,312	119	978	55	15	19	2	2	6	98	7,602
A20	Broadway	West	0.5	22.4	91	6,204	112	1,023	59	16	21	2	2	5	105	7,535
A229	Bishops Way	East	0.3	15.6	96	6,934	13	1,179	68	22	23	13	31	22	179	8,401
A229	Bishops Way	West	0.3	20.6	114	7,672	14	1,128	89	25	23	14	37	19	207	9,136
A229	Palace Avenue	East	0.4	12.9	99	7,459	86	1,295	78	22	24	14	32	23	193	9,132
A229	Lower Stone Street	East	0.4	12.9	103	10,328	102	1,510	140	28	39	24	42	30	303	12,346
A229	Mill Street (South)	North	0.2	15.8	106	10,614	106	1,774	137	31	28	18	39	23	276	12,875
A249	Knightrider Street	West	0.2	14.4	22	3,491	36	485	25	5	3	1	0	1	36	4,070
A249	Wat Tyler Way	North	0.5	12.8	36	3,886	38	439	30	7	5	2	6	2	51	4,449
A249	Wat Tyler Way	South	0.5	14.4	39	3,651	28	531	37	10	9	3	10	10	79	4,327
A229	Upper Stone Street	South	0.6	12.9	51	6,243	112	1,193	141	30	25	12	19	22	250	7,849

A229	Hayle Road	North	0.9	15.8	46	4,308	137	991	76	27	33	6	16	11	169	5,651
A229	Loose Road	North	0.9	15.8	58	4,897	80	805	79	21	31	18	52	19	220	6,060
A229	Loose Road	South	0.9	12.9	74	5,432	84	899	78	22	29	17	41	34	221	6,710

Table 7-23: Clean Air Zone 2022 PM Peak Traffic Data

Road Link	Road Name	Traffic Direction	Link Length (km)	Average speed (kph)	Vehicle Class - Traffic Volume											
					Motorcycles	Cars	Buses & Coaches	LGV	HGV Rigid 2 axle	HGV Rigid 3 axle	HGV Rigid 4 or more axle	HGV Articulated 3 axle	HGV Articulated 5 axle	HGV Articulated 6 or more axle	Total HGV	Total Vehicular Traffic
A229	Fairmeadow	North	1.5	19.2	56	4,032	8	649	62	11	19	7	18	17	134	4,880
A229	Fairmeadow	South	1.5	11.1	58	3,933	6	754	50	11	12	6	13	20	111	4,863
A20	Broadway	East	0.5	18.3	45	2,974	56	463	26	7	9	1	1	3	47	3,585
A20	Broadway	West	0.5	15.5	49	3,354	61	556	32	8	12	1	1	3	57	4,077
A229	Bishops Way	East	0.3	11.1	64	4,599	9	786	46	14	15	9	21	15	119	5,576
A229	Bishops Way	West	0.3	13.1	69	4,639	9	685	54	15	14	8	22	12	126	5,528
A229	Palace Avenue	East	0.4	10.9	60	4,510	52	787	48	14	15	8	19	14	117	5,526
A229	Lower Stone Street	East	0.4	10.9	54	5,353	53	786	73	15	20	12	22	16	158	6,403
A229	Mill Street (South)	North	0.2	11.6	57	5,692	57	956	74	17	15	9	21	12	149	6,909
A249	Knightrider Street	West	0.2	10.3	13	1,999	20	279	15	3	2	1	0	0	21	2,333
A249	Wat Tyler Way	North	0.5	11.5	20	2,129	21	241	16	4	2	1	3	1	28	2,439
A249	Wat Tyler Way	South	0.5	10.3	20	1,930	15	282	20	5	5	2	5	5	42	2,289
A229	Upper Stone Street	South	0.6	10.9	37	4,487	81	861	102	22	18	9	14	16	180	5,646

A229	Hayle Road	North	0.9	11.6	24	2,302	73	532	41	14	18	3	8	6	91	3,022
A229	Loose Road	North	0.9	11.6	36	3,065	50	507	49	13	20	11	33	12	138	3,796
A229	Loose Road	South	0.9	10.9	46	3,400	52	566	49	14	18	11	25	22	139	4,202

Table 7-24: Clean Air Zone 2022 Off-Peak (Free Flow Conditions) Traffic Data

Road Link	Road Name	Traffic Direction	Link Length (km)	Average speed (kph)	Vehicle Class - Traffic Volume											
					Motorcycles	Cars	Buses & Coaches	LGV	HGV Rigid 2 axle	HGV Rigid 3 axle	HGV Rigid 4 or more axle	HGV Articulated 3 axle	HGV Articulated 5 axle	HGV Articulated 6 or more axle	Total HGV	Total Vehicular Traffic
A229	Fairmeadow	North	1.5	33.1	32	2,290	5	369	35	6	11	4	10	10	76	2,772
A229	Fairmeadow	South	1.5	29.5	35	2,366	3	454	30	7	7	3	8	12	67	2,926
A20	Broadway	East	0.5	31.0	30	2,029	38	316	18	5	6	1	1	2	32	2,446
A20	Broadway	West	0.5	26.9	31	2,098	38	348	20	5	7	1	1	2	36	2,551
A229	Bishops Way	East	0.3	29.5	34	2,443	5	418	24	8	8	5	11	8	64	2,963
A229	Bishops Way	West	0.3	32.9	39	2,652	5	393	31	9	8	5	13	7	72	3,161
A229	Palace Avenue	East	0.4	28.4	34	2,578	30	451	27	8	8	5	11	8	67	3,160
A229	Lower Stone Street	East	0.4	28.4	34	3,405	34	501	47	9	13	8	14	10	101	4,074
A229	Mill Street (South)	North	0.2	30.9	36	3,607	36	607	47	11	9	6	13	8	94	4,380
A249	Knightrider Street	West	0.2	20.6	8	1,166	12	163	8	2	1	0	0	0	12	1,361
A249	Wat Tyler Way	North	0.5	17.1	12	1,307	13	149	10	2	2	1	2	1	17	1,498
A249	Wat Tyler Way	South	0.5	20.6	13	1,244	10	182	13	3	3	1	3	3	27	1,476
A229	Upper Stone Street	South	0.6	28.4	18	2,181	39	420	50	11	9	4	7	8	88	2,746

A229	Hayle Road	North	0.9	30.9	16	1,482	47	343	26	9	11	2	5	4	59	1,947
A229	Loose Road	North	0.9	30.9	20	1,698	28	281	27	7	11	6	18	7	77	2,104
A229	Loose Road	South	0.9	28.4	26	1,883	29	314	27	8	10	6	14	12	77	2,329

Appendix B

7.2 Model Verification

Model Verification

The comparison of modelled concentrations with local monitored concentrations is a process termed 'verification'. Model verification identifies any discrepancies between modelled and measured concentrations, which can arise for a number of reasons. The following are examples of potential causes of such discrepancies:

- Estimates of background pollutant concentrations
- Meteorological data uncertainties
- Traffic data uncertainties
- Emission factor uncertainties
- Model input parameters, such as 'roughness length' and
- Overall limitations of the ability of the dispersion model to model dispersion in a complex environment

The verification process involves a review of the modelled pollutant concentrations against corresponding monitoring data to determine how well the air quality model has performed. Depending on the outcome it may be considered that the model has performed adequately and that there is no need to adjust any of the modelled results.

Alternatively, the model may perform poorly against the monitoring data (acceptable limits of model verification performance are set out in Defra guidance[17], therefore there is a need to check all the input data to ensure that it is reasonable and accurately represented in the air quality modelling process. Where all input data, such as traffic data, emission rates and background concentrations have been checked and considered reasonable, then the modelled results may require adjustment to best align them with the monitoring data. This may either be a single verification adjustment factor to be applied to the modelled concentrations across the study area or a range of different adjustment factors to account for different situations within the study area.

Residual Uncertainty & Model Performance

Residual uncertainty may remain after systematic error or 'overall model accuracy' has been accounted for in the final predictions. Residual uncertainty may be considered synonymous with the 'residual inaccuracies' of the model predictions, i.e. how wide the scatter or residual variability of the predicted values compare with the monitored 'true value', once systematic error has been allowed for. The quantification of final model accuracy provides an estimate of how the final predictions may deviate from the 'true' (monitored) values at the same location over the same period. It must though be recognised that some of the residual uncertainty is greater for monitoring using diffusion tubes than for automatic monitors.

Suitable local monitoring data for the purpose of verification is available for concentrations of NO_2 at the locations shown in Table 5-1. This monitoring data has been used to validate

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[17] Department for Environment, Food and Rural Affairs (2016), Local Air Quality Management – Technical Guidance (16) (LAQM.TG16)

the dispersion model prediction and obtain adjustment factors which can be applied to predictions of pollutant concentrations in the base and future years.

An evaluation of model performance has been undertaken to establish confidence in model results. LAQM.TG (16)[17] identifies a number of statistical procedures that are appropriate to evaluate model performance and assess the uncertainty. The statistical parameters used in this assessment are:

- root mean square error (RMSE);
- fractional bias (FB); and
- correlation coefficient (CC).

A brief explanation of each statistic is provided in *Table 7-25*, and further details can be found in LAQM.TG(16) Box 1.17.

Table 7-25 : Statistical Parameters used to estimate model performance

Statistical Parameter	Comments	Ideal Value
RMSE	RMSE is used to define the average error or uncertainty of the model. The units of RMSE are the same as the quantities compared. If the RMSE values are higher than 25% of the objective being assessed, it is recommended that the model inputs and verification should be revisited in order to make improvements. For example, if the model predictions are for the annual mean NO2 objective of 40 µg/m3, if an RMSE of 10 µg/m3 or above is determined for a model it is advised to revisit the model parameters and model verification. Ideally an RMSE within 10% of the air quality objective would be derived, which equates to ±4 µg/m3 for the annual mean NO2 objective.	0.01
Fractional Bias	It is used to identify if the model shows a systematic tendency to over or under predict. FB values vary between +2 and -2 and have an ideal value of zero. Negative values suggest a model over-prediction and positive values suggest a model under-prediction.	0.00
Correlation Coefficient	It is used to measure the linear relationship between predicted and observed data. A value of zero means no relationship and a value of 1 means absolute relationship. This statistic can be particularly useful when comparing a large number of model and observed data points.	1.00

These parameters estimate how the model results agree or diverge from the observations. These calculations have been carried out prior to, and after, adjustment and provide information on the improvement of model predictions as a result of the application of the verification adjustment factor.

Air Quality Monitoring Data

The air quality monitoring data collected as part of this assessment and detailed in the baseline section was reviewed to determine suitability of each of the monitoring locations for inclusion into the model verification process.

The traffic base year was defined as 2017, therefore monitoring data representative of 2017 was acquired in order inform the model verification process.

Monitoring data was collected from MBC. Only the following sites were included in the verification process:

- those within 50m of a road within the air quality study area;
- those where annual data capture is greater than 75% in 2017; and
- those where all major pollution sources are accounted for in the model (e.g. where all major roads within 200m of the monitoring site were included?).

Verification Methodology

The verification method follows the process detailed in LAQM.TG(16) (Defra, 2016). The initial verification was undertaken by comparing the modelled versus monitored road NO_X. Road NO_X measured at the diffusion tubes was calculated using the latest Defra NO_X to NO_2 calculator, because diffusion tubes only measure NO_2 and do not directly measure NO_X.

Following the removal of the monitoring locations with low data capture and those locations where road sources were not fully represented in the traffic data, a total of six diffusion tubes were used in verification. A description of the sites is presented in Table 7-26 below.

Table 7-26: Collated Maidstone Monitoring Site Information

Site ID	X	Y	Monitoring Method	2017 Monitored NO_2 (µg/m^3)
Maid 29	576082	155371	Diffusion Tube	34.3
Maid 81	576302	155328	Diffusion Tube	67.7
Maid 96	576346	155183	Diffusion Tube	79.3
Maid 98	576258	155422	Diffusion Tube	34.8
Maid 111	576287	155404	Diffusion Tube	30.4
Maid 26	575782	155678	Diffusion Tube	33.5

For each monitoring site, the relevant 1x1km 2017 background concentration for NO_X were acquired by using the 2015 reference year Defra background maps (issued December 2017) which were sector removed for A Roads and Trunk A Roads in, as to not double count the road sources being assessed.

The NO_2 to NO_X tool was used to calculate the total road NO_X at each diffusion tube monitoring site. Table 7-27 below summarises the background NO_X/NO_2 concentrations, raw (i.e. no adjustment) modelled and monitored road NO_X concentrations and raw modelled and monitored total NO_2 concentrations.

Table 7-27: Unadjusted Modelled Results vs Monitored Results 2017 (Total NO_2 & Road NO_x)

Tube ID	Background NO_x ($\mu g/m^3$)	Background NO_2 ($\mu g/m^3$)	Monitored NO_2 ($\mu g/m^3$)	Modelled Total NO_2 ($\mu g/m^3$)	Monitored V Modelled Total NO_2 % Difference	Monitored Road NOx ($\mu g/m^3$)	Modelled Road NOx ($\mu g/m^3$)	Monitored v Modelled Road NOx % Difference
Maid 29	19.9	14.4	34.3	26.8	21.8%	40.6	24.5	39.8%
Maid 81	19.9	14.4	67.7	31.4	53.6%	129.3	34.2	73.5%
Maid 96	19.9	14.4	79.3	30.4	61.7%	165.8	32.0	80.7%
Maid 98	19.9	14.4	34.8	32.9	5.5%	41.7	37.5	10.2%
Maid 111	19.9	14.4	30.4	31.8	-4.6%	32.0	35.1	-9.5%
Maid 26	18.5	13.5	33.5	26.7	20.4%	40.7	25.9	36.4%

The modelled versus monitored road NO_X component concentrations were plotted on a scatter graph presented in *Figure 7-1* below.

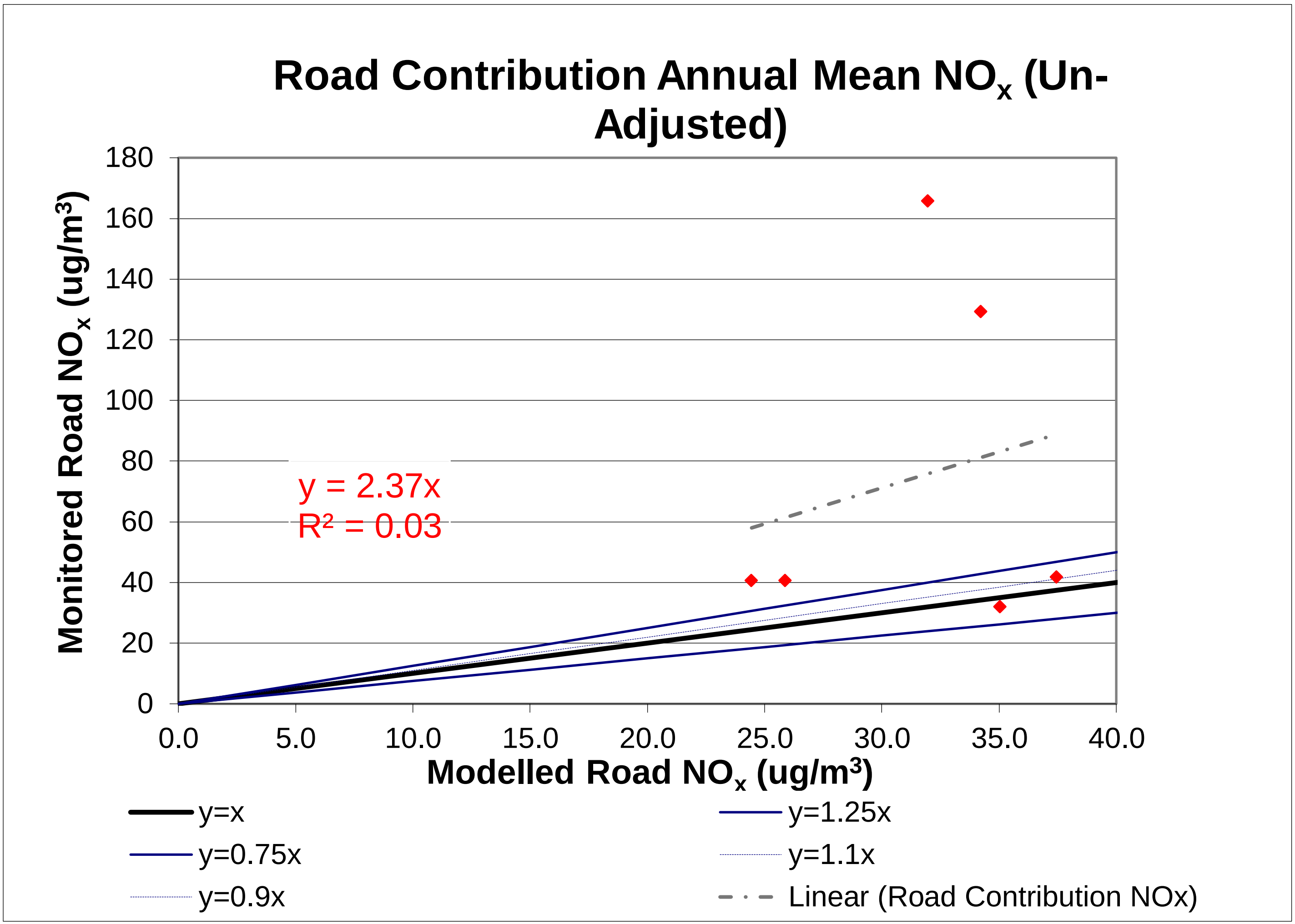

Figure 7-1: Scatterplot of Unadjusted Modelled Road NO_X vs Monitored Road NO_X

Figure 7-1 illustrates that the modelled concentrations under-predict the road component of NO_x in relation to the monitored concentrations. It was decided that detailed verification should be undertaken. Modelled underpredictions were higher for Upper Stone Street than elsewhere, therefore a separate verification factor was defined for that road compared to the rest of the study area. The road NO_X verification factors for each of the modelled zones are presented in

Table 7-28 below.

Table 7-28: Road NO_X Verification Factors per Model Verification Zone

Verification Zone Description	Road NO_X Verification Factor	Number of Monitoring Sites Used	Number of Receptors in Zone
1 Upper Stone Street	4.43	2	31
2 Maidstone Town Centre	1.21	4	308

When the two verification factors in

Table 7-28 were applied to the raw modelled results, total annual mean NO_2 concentrations at 100% of the modelled sites were within 25% of monitored NO_2 concentrations as summarised in *Figure 7-3* below, as apposite to 67% of sites when no adjustment was applied (*Figure 7-2*).

Figure 7-3 demonstrates that once adjusted for road NO_X, total modelled NO_2 concentrations are closer to the monitored total NO_2 concentrations, than the unadjusted total modelled in *Figure 7-2*.

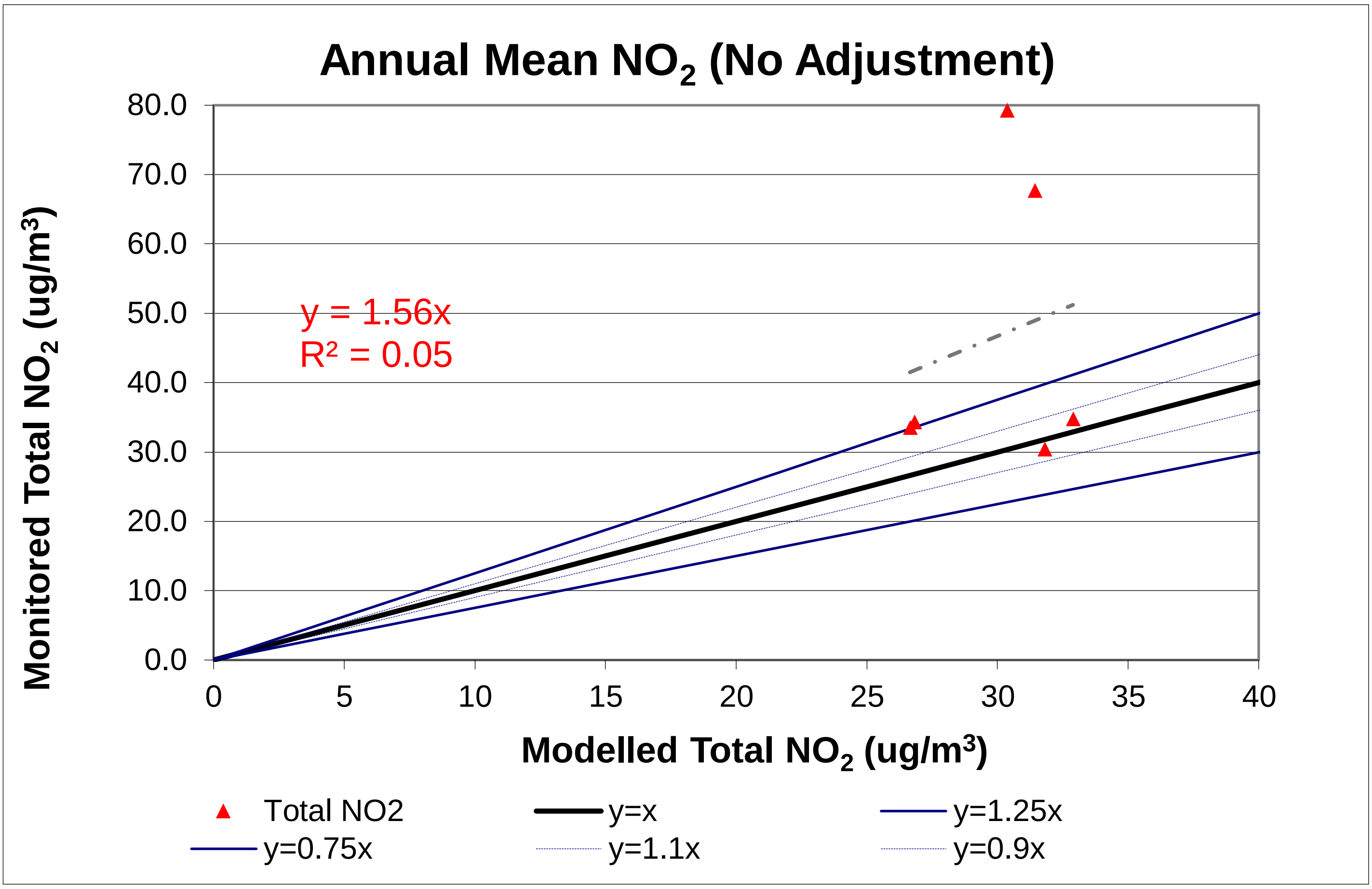

Figure 7-2:Scatterplot of Unadjusted Total NO2 vs Monitored Total NO2

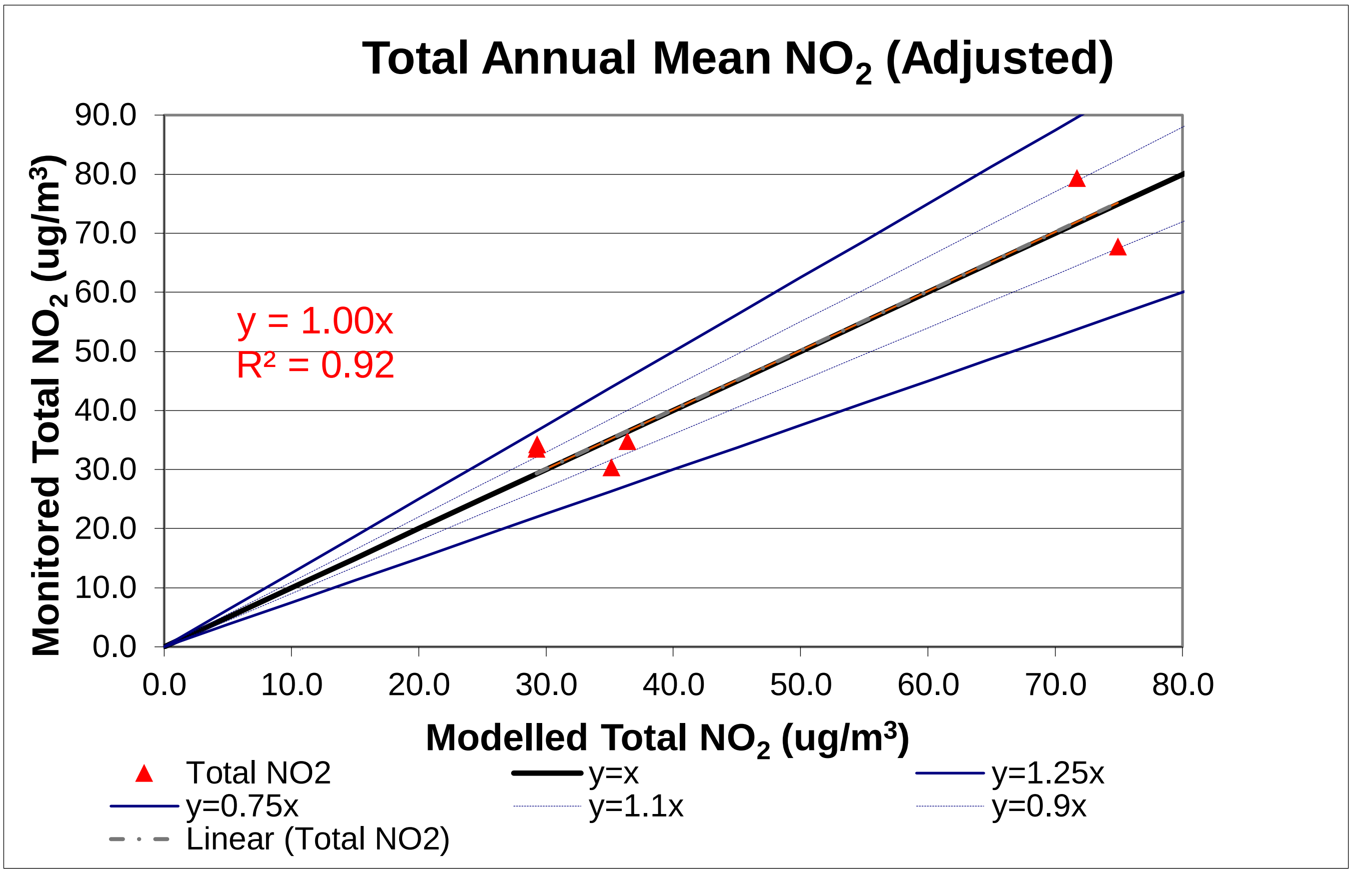

Figure 7-3: Scatterplot of Road NOx adjusted Modelled Total NO2 vs Monitored NO2

Table 7-29: Model Performance Statistics

Parameter	No Adjustment	Road NOx Contribution Adjustment (2 Zones)
Root Mean Square Error (RMSE)	25.5	5.4
Fractional Bias	0.4	0.0
Correlation Coefficient	0.22	0.96

Table 7-29 summarises the model performance statistics which show that the uncertainty in the predictions of the total NO_2 using the unadjusted model would have been large, as the RMSE is 25.5 µg/m^3. Additionally, the model had a tendency to under-predict actual concentrations prior to adjustment, because the fractional bias is greater than zero. When road NO_X is adjusted by applying the two verification factors, the RMSE is reduced from 25.5 µg/m^3 to 5.4 µg/m^3. The model does not systematically under or over predict actual concentrations once adjusted because the fractional bias is zero. The adjusted model thus provides a much-improved model performance.

The road NO_x adjustment factors were also applied to modelled road contribution PM_{10} concentrations in the absence of sufficient PM_{10} monitoring data

Appendix C

7.3 Modelled Annual Mean NO_2 Results ($\mu g/m^3$)

Receptor	Road Closest to Receptor	Base 2017 Concentration	DM 2022 Concentration	DM 2027 Concentration	LEZ Option 1 (Red Routing)			LEZ Option 2 (Cleaner and More Efficient Fleet Usage)			LEZ Option 3 (CAZ)		
					LEZ Concentration	Impact	IAQM Impact Descriptor	LEZ Concentration	Impact	IAQM Impact Descriptor	LEZ Concentration	Impact	IAQM Impact Descriptor
1	Loose Road	16.7	13.0	10.6	13.0	0.0	Negligible	12.9	-0.1	Negligible	12.8	-0.2	Negligible
2	Loose Road	25.4	18.6	14.3	18.6	0.0	Negligible	18.4	-0.2	Negligible	18.0	-0.6	Negligible
3	Loose Road	17.0	13.2	10.8	13.2	0.0	Negligible	13.1	-0.1	Negligible	13.0	-0.2	Negligible
4	Loose Road	25.9	19.0	14.5	19.0	0.0	Negligible	18.7	-0.3	Negligible	18.3	-0.7	Negligible
5	Loose Road	17.6	13.6	11.0	13.6	0.0	Negligible	13.5	-0.1	Negligible	13.3	-0.3	Negligible
6	Loose Road	17.8	13.7	11.1	13.7	0.0	Negligible	13.6	-0.1	Negligible	13.5	-0.2	Negligible
7	Loose Road	26.6	19.5	14.8	19.5	0.0	Negligible	19.2	-0.3	Negligible	18.8	-0.7	Negligible
8	Loose Road	17.4	13.4	10.9	13.4	0.0	Negligible	13.3	-0.1	Negligible	13.2	-0.2	Negligible
9	Loose Road	26.0	19.0	14.5	19.0	0.0	Negligible	18.8	-0.2	Negligible	18.4	-0.6	Negligible
10	Loose Road	17.5	13.5	11.0	13.5	0.0	Negligible	13.4	-0.1	Negligible	13.3	-0.2	Negligible
11	Loose Road	17.6	13.6	11.0	13.6	0.0	Negligible	13.5	-0.1	Negligible	13.3	-0.3	Negligible
12	Loose Road	17.8	13.7	11.1	13.7	0.0	Negligible	13.6	-0.1	Negligible	13.4	-0.3	Negligible
13	Loose Road	26.0	19.0	14.5	19.0	0.0	Negligible	18.8	-0.2	Negligible	18.4	-0.6	Negligible
14	Loose Road	17.7	13.7	11.1	13.7	0.0	Negligible	13.6	-0.1	Negligible	13.4	-0.3	Negligible

Receptor	Road Closest to Receptor	Base 2017 Concentration	DM 2022 Concentration	DM 2027 Concentration	LEZ Option 1 (Red Routing)			LEZ Option 2 (Cleaner and More Efficient Fleet Usage)			LEZ Option 3 (CAZ)		
					LEZ Concentration	Impact	IAQM Impact Descriptor	LEZ Concentration	Impact	IAQM Impact Descriptor	LEZ Concentration	Impact	IAQM Impact Descriptor
15	Loose Road	26.0	19.0	14.5	19.0	0.0	Negligible	18.8	-0.2	Negligible	18.4	-0.6	Negligible
16	Loose Road	17.7	13.6	11.0	13.6	0.0	Negligible	13.5	-0.1	Negligible	13.4	-0.2	Negligible
17	Loose Road	17.7	13.6	11.0	13.6	0.0	Negligible	13.5	-0.1	Negligible	13.4	-0.2	Negligible
18	Loose Road	17.5	13.5	11.0	13.5	0.0	Negligible	13.4	-0.1	Negligible	13.3	-0.2	Negligible
19	Loose Road	17.5	13.5	11.0	13.5	0.0	Negligible	13.4	-0.1	Negligible	13.3	-0.2	Negligible
20	Loose Road	18.1	13.9	11.2	13.9	0.0	Negligible	13.8	-0.1	Negligible	13.6	-0.3	Negligible
21	Loose Road	26.0	19.0	14.5	19.0	0.0	Negligible	18.8	-0.2	Negligible	18.4	-0.6	Negligible
22	Loose Road	17.1	13.3	10.8	13.3	0.0	Negligible	13.2	-0.1	Negligible	13.0	-0.3	Negligible
23	Loose Road	26.6	19.5	14.8	19.5	0.0	Negligible	19.2	-0.3	Negligible	18.8	-0.7	Negligible
24	Loose Road	17.2	13.3	10.8	13.3	0.0	Negligible	13.2	-0.1	Negligible	13.1	-0.2	Negligible
25	Loose Road	17.3	13.4	10.9	13.4	0.0	Negligible	13.3	-0.1	Negligible	13.1	-0.3	Negligible
26	Loose Road	17.4	13.4	10.9	13.4	0.0	Negligible	13.3	-0.1	Negligible	13.2	-0.2	Negligible
27	Loose Road	17.3	13.4	10.9	13.4	0.0	Negligible	13.3	-0.1	Negligible	13.1	-0.3	Negligible
28	Loose Road	17.3	13.4	10.9	13.4	0.0	Negligible	13.3	-0.1	Negligible	13.2	-0.2	Negligible
29	Loose Road	27.8	20.2	15.3	20.2	0.0	Negligible	19.9	-0.3	Negligible	19.5	-0.7	Negligible
30	Loose Road	26.5	19.4	14.8	19.4	0.0	Negligible	19.1	-0.3	Negligible	18.7	-0.7	Negligible

Receptor	Road Closest to Receptor	Base 2017 Concentration	DM 2022 Concentration	DM 2027 Concentration	LEZ Option 1 (Red Routing)			LEZ Option 2 (Cleaner and More Efficient Fleet Usage)			LEZ Option 3 (CAZ)		
					LEZ Concentration	Impact	IAQM Impact Descriptor	LEZ Concentration	Impact	IAQM Impact Descriptor	LEZ Concentration	Impact	IAQM Impact Descriptor
31	Loose Road	26.6	19.5	14.8	19.4	-0.1	Negligible	19.2	-0.3	Negligible	18.8	-0.7	Negligible
32	Loose Road	17.4	13.5	10.9	13.5	0.0	Negligible	13.4	-0.1	Negligible	13.2	-0.3	Negligible
33	Loose Road	17.5	13.5	10.9	13.5	0.0	Negligible	13.4	-0.1	Negligible	13.2	-0.3	Negligible
34	Loose Road	17.5	13.5	11.0	13.5	0.0	Negligible	13.4	-0.1	Negligible	13.3	-0.2	Negligible
35	Loose Road	17.5	13.5	11.0	13.5	0.0	Negligible	13.4	-0.1	Negligible	13.3	-0.2	Negligible
36	Loose Road	17.4	13.5	10.9	13.4	-0.1	Negligible	13.3	-0.2	Negligible	13.2	-0.3	Negligible
37	Loose Road	17.4	13.5	10.9	13.4	-0.1	Negligible	13.3	-0.2	Negligible	13.2	-0.3	Negligible
38	Loose Road	26.9	19.6	14.9	19.6	0.0	Negligible	19.4	-0.2	Negligible	19.0	-0.6	Negligible
39	Loose Road	25.4	18.6	14.3	18.6	0.0	Negligible	18.4	-0.2	Negligible	18.0	-0.6	Negligible
40	Loose Road	26.2	19.2	14.6	19.2	0.0	Negligible	18.9	-0.3	Negligible	18.5	-0.7	Negligible
41	Loose Road	26.4	19.3	14.7	19.3	0.0	Negligible	19.0	-0.3	Negligible	18.7	-0.6	Negligible
42	Loose Road	14.7	11.8	9.8	11.8	0.0	Negligible	11.7	-0.1	Negligible	11.6	-0.2	Negligible
43	Loose Road	25.9	19.0	14.5	19.0	0.0	Negligible	18.7	-0.3	Negligible	18.4	-0.6	Negligible
44	Loose Road	23.7	17.6	13.6	17.6	0.0	Negligible	17.3	-0.3	Negligible	17.0	-0.6	Negligible
45	Loose Road	17.3	13.4	10.9	13.4	0.0	Negligible	13.3	-0.1	Negligible	13.1	-0.3	Negligible
46	Loose Road	17.9	13.8	11.1	13.8	0.0	Negligible	13.6	-0.2	Negligible	13.5	-0.3	Negligible

Receptor	Road Closest to Receptor	Base 2017 Concentration	DM 2022 Concentration	DM 2027 Concentration	LEZ Option 1 (Red Routing)			LEZ Option 2 (Cleaner and More Efficient Fleet Usage)			LEZ Option 3 (CAZ)		
					LEZ Concentration	Impact	IAQM Impact Descriptor	LEZ Concentration	Impact	IAQM Impact Descriptor	LEZ Concentration	Impact	IAQM Impact Descriptor
47	Loose Road	18.0	13.8	11.2	13.8	0.0	Negligible	13.7	-0.1	Negligible	13.5	-0.3	Negligible
48	Loose Road	19.4	14.7	11.7	14.7	0.0	Negligible	14.6	-0.1	Negligible	14.4	-0.3	Negligible
49	Loose Road	27.2	19.8	15.0	19.8	0.0	Negligible	19.6	-0.2	Negligible	19.2	-0.6	Negligible
50	Loose Road	27.1	19.7	15.0	19.7	0.0	Negligible	19.5	-0.2	Negligible	19.1	-0.6	Negligible
51	Loose Road	26.9	19.7	14.9	19.6	-0.1	Negligible	19.4	-0.3	Negligible	19.0	-0.7	Negligible
52	Loose Road	26.8	19.6	14.9	19.6	0.0	Negligible	19.3	-0.3	Negligible	18.9	-0.7	Negligible
53	Loose Road	26.7	19.5	14.8	19.5	0.0	Negligible	19.2	-0.3	Negligible	18.8	-0.7	Negligible
54	Loose Road	26.5	19.4	14.7	19.4	0.0	Negligible	19.1	-0.3	Negligible	18.7	-0.7	Negligible
55	Loose Road	26.4	19.3	14.7	19.3	0.0	Negligible	19.0	-0.3	Negligible	18.7	-0.6	Negligible
56	Loose Road	26.3	19.2	14.6	19.2	0.0	Negligible	19.0	-0.2	Negligible	18.6	-0.6	Negligible
57	Loose Road	26.1	19.1	14.6	19.1	0.0	Negligible	18.9	-0.2	Negligible	18.5	-0.6	Negligible
58	Loose Road	26.0	19.0	14.5	19.0	0.0	Negligible	18.8	-0.2	Negligible	18.4	-0.6	Negligible
59	Loose Road	25.9	19.0	14.5	18.9	-0.1	Negligible	18.7	-0.3	Negligible	18.3	-0.7	Negligible
60	Loose Road	25.8	18.9	14.4	18.9	0.0	Negligible	18.7	-0.2	Negligible	18.3	-0.6	Negligible
61	Loose Road	25.6	18.8	14.4	18.7	-0.1	Negligible	18.5	-0.3	Negligible	18.2	-0.6	Negligible
62	Loose Road	25.4	18.6	14.3	18.6	0.0	Negligible	18.4	-0.2	Negligible	18.0	-0.6	Negligible

Receptor	Road Closest to Receptor	Base 2017 Concentration	DM 2022 Concentration	DM 2027 Concentration	LEZ Option 1 (Red Routing)			LEZ Option 2 (Cleaner and More Efficient Fleet Usage)			LEZ Option 3 (CAZ)		
					LEZ Concentration	Impact	IAQM Impact Descriptor	LEZ Concentration	Impact	IAQM Impact Descriptor	LEZ Concentration	Impact	IAQM Impact Descriptor
63	Loose Road	25.0	18.4	14.1	18.4	0.0	Negligible	18.2	-0.2	Negligible	17.8	-0.6	Negligible
64	Upper Stone Street	24.7	18.2	14.0	18.1	-0.1	Negligible	17.9	-0.3	Negligible	17.6	-0.6	Negligible
65	Upper Stone Street	24.2	17.9	13.8	17.8	-0.1	Negligible	17.7	-0.2	Negligible	17.3	-0.6	Negligible
66	Upper Stone Street	23.9	17.7	13.6	17.6	-0.1	Negligible	17.5	-0.2	Negligible	17.1	-0.6	Negligible
67	Upper Stone Street	24.2	17.9	13.8	17.7	-0.2	Negligible	17.7	-0.2	Negligible	17.3	-0.6	Negligible
68	Upper Stone Street	23.7	17.6	13.6	17.4	-0.2	Negligible	17.4	-0.2	Negligible	17.1	-0.5	Negligible
69	Upper Stone Street	23.9	17.7	13.6	17.5	-0.2	Negligible	17.5	-0.2	Negligible	17.1	-0.6	Negligible
70	Upper Stone Street	24.0	17.8	13.7	17.6	-0.2	Negligible	17.6	-0.2	Negligible	17.2	-0.6	Negligible
71	Upper Stone Street	24.3	18.0	13.8	17.7	-0.3	Negligible	17.8	-0.2	Negligible	17.4	-0.6	Negligible
72	Upper Stone Street	24.5	18.2	13.9	17.9	-0.3	Negligible	17.9	-0.3	Negligible	17.6	-0.6	Negligible
73	Upper Stone Street	24.8	18.4	14.1	18.1	-0.3	Negligible	18.1	-0.3	Negligible	17.7	-0.7	Negligible

Receptor	Road Closest to Receptor	Base 2017 Concentration	DM 2022 Concentration	DM 2027 Concentration	LEZ Option 1 (Red Routing)			LEZ Option 2 (Cleaner and More Efficient Fleet Usage)			LEZ Option 3 (CAZ)		
					LEZ Concentration	Impact	IAQM Impact Descriptor	LEZ Concentration	Impact	IAQM Impact Descriptor	LEZ Concentration	Impact	IAQM Impact Descriptor
74	Upper Stone Street	26.4	19.4	14.7	19.1	-0.3	Negligible	19.1	-0.3	Negligible	18.7	-0.7	Negligible
75	Upper Stone Street	18.8	14.4	11.5	14.2	-0.2	Negligible	14.2	-0.2	Negligible	14.0	-0.4	Negligible
76	Upper Stone Street	24.8	18.2	13.9	18.0	-0.2	Negligible	18.0	-0.2	Negligible	17.6	-0.6	Negligible
77	Upper Stone Street	50.1	35.5	25.2	34.6	-0.9	Slight Beneficial	34.8	-0.7	Slight Beneficial	33.7	-1.8	Slight Beneficial
78	Upper Stone Street	51.1	36.2	25.7	35.3	-0.9	Slight Beneficial	35.5	-0.7	Slight Beneficial	34.4	-1.8	Slight Beneficial
79	Upper Stone Street	73.7	53.1	37.7	51.7	-1.4	Substantial Beneficial	52.0	-1.1	Substantial Beneficial	50.4	-2.7	Substantial Beneficial
80	Upper Stone Street	73.4	52.8	37.5	51.4	-1.4	Substantial Beneficial	51.7	-1.1	Substantial Beneficial	50.2	-2.6	Substantial Beneficial
81	Upper Stone Street	73.2	52.7	37.4	51.3	-1.4	Substantial Beneficial	51.6	-1.1	Substantial Beneficial	50.0	-2.7	Substantial Beneficial
82	Upper Stone Street	72.8	52.4	37.2	51.0	-1.4	Substantial Beneficial	51.3	-1.1	Substantial Beneficial	49.7	-2.7	Substantial Beneficial
83	Upper Stone Street	72.5	52.2	37.0	50.8	-1.4	Substantial Beneficial	51.1	-1.1	Substantial Beneficial	49.5	-2.7	Substantial Beneficial
84	Upper Stone Street	74.2	53.7	38.4	52.3	-1.4	Substantial Beneficial	52.6	-1.1	Substantial Beneficial	51.1	-2.6	Substantial Beneficial

Receptor	Road Closest to Receptor	Base 2017 Concentration	DM 2022 Concentration	DM 2027 Concentration	LEZ Option 1 (Red Routing)			LEZ Option 2 (Cleaner and More Efficient Fleet Usage)			LEZ Option 3 (CAZ)		
					LEZ Concentration	Impact	IAQM Impact Descriptor	LEZ Concentration	Impact	IAQM Impact Descriptor	LEZ Concentration	Impact	IAQM Impact Descriptor
85	Upper Stone Street	74.8	54.1	38.7	52.7	-1.4	Substantial Beneficial	53.0	-1.1	Substantial Beneficial	51.4	-2.7	Substantial Beneficial
86	Upper Stone Street	75.0	54.2	38.8	52.8	-1.4	Substantial Beneficial	53.1	-1.1	Substantial Beneficial	51.6	-2.6	Substantial Beneficial
87	Upper Stone Street	75.9	54.9	39.2	53.5	-1.4	Substantial Beneficial	53.8	-1.1	Substantial Beneficial	52.2	-2.7	Substantial Beneficial
88	Upper Stone Street	76.7	55.5	39.7	54.0	-1.5	Substantial Beneficial	54.4	-1.1	Substantial Beneficial	52.8	-2.7	Substantial Beneficial
89	Upper Stone Street	36.9	27.0	20.1	26.5	-0.5	Negligible	26.5	-0.5	Negligible	25.9	-1.1	Negligible
90	Upper Stone Street	61.8	44.7	32.1	43.5	-1.2	Substantial Beneficial	43.8	-0.9	Substantial Beneficial	42.5	-2.2	Substantial Beneficial
91	Upper Stone Street	37.1	27.1	20.2	26.6	-0.5	Negligible	26.7	-0.4	Negligible	26.1	-1.0	Negligible
92	Upper Stone Street	37.2	27.2	20.3	26.7	-0.5	Negligible	26.8	-0.4	Negligible	26.1	-1.1	Negligible
93	Upper Stone Street	37.3	27.3	20.3	26.8	-0.5	Negligible	26.8	-0.5	Negligible	26.2	-1.1	Negligible
94	Upper Stone Street	37.3	27.3	20.4	26.8	-0.5	Negligible	26.9	-0.4	Negligible	26.3	-1.0	Negligible
95	Upper Stone Street	37.4	27.4	20.4	26.9	-0.5	Negligible	26.9	-0.5	Negligible	26.3	-1.1	Negligible

Receptor	Road Closest to Receptor	Base 2017 Concentration	DM 2022 Concentration	DM 2027 Concentration	LEZ Option 1 (Red Routing)			LEZ Option 2 (Cleaner and More Efficient Fleet Usage)			LEZ Option 3 (CAZ)		
					LEZ Concentration	Impact	IAQM Impact Descriptor	LEZ Concentration	Impact	IAQM Impact Descriptor	LEZ Concentration	Impact	IAQM Impact Descriptor
96	Upper Stone Street	37.9	27.7	20.6	27.2	-0.5	Negligible	27.3	-0.4	Negligible	26.7	-1.0	Negligible
97	Upper Stone Street	37.9	27.7	20.6	27.2	-0.5	Negligible	27.3	-0.4	Negligible	26.7	-1.0	Negligible
98	Upper Stone Street	79.3	57.4	41.0	56.0	-1.4	Substantial Beneficial	56.3	-1.1	Substantial Beneficial	54.6	-2.8	Substantial Beneficial
99	Upper Stone Street	79.8	57.7	41.3	56.3	-1.4	Substantial Beneficial	56.6	-1.1	Substantial Beneficial	54.9	-2.8	Substantial Beneficial
100	Upper Stone Street	38.0	27.8	20.7	27.3	-0.5	Negligible	27.4	-0.4	Negligible	26.8	-1.0	Negligible
101	Upper Stone Street	38.1	27.9	20.7	27.4	-0.5	Negligible	27.4	-0.5	Negligible	26.8	-1.1	Negligible
102	Upper Stone Street	38.1	27.9	20.8	27.4	-0.5	Negligible	27.5	-0.4	Negligible	26.8	-1.1	Negligible
103	Upper Stone Street	38.3	28.0	20.9	27.6	-0.4	Negligible	27.6	-0.4	Negligible	27.0	-1.0	Negligible
104	Upper Stone Street	38.4	28.1	20.9	27.6	-0.5	Negligible	27.7	-0.4	Negligible	27.0	-1.1	Negligible
105	Upper Stone Street	40.3	29.5	21.9	29.1	-0.4	Negligible	29.1	-0.4	Negligible	28.4	-1.1	Negligible
106	Upper Stone Street	15.5	12.3	10.2	12.2	-0.1	Negligible	12.2	-0.1	Negligible	12.1	-0.2	Negligible

Receptor	Road Closest to Receptor	Base 2017 Concentration	DM 2022 Concentration	DM 2027 Concentration	LEZ Option 1 (Red Routing)			LEZ Option 2 (Cleaner and More Efficient Fleet Usage)			LEZ Option 3 (CAZ)		
					LEZ Concentration	Impact	IAQM Impact Descriptor	LEZ Concentration	Impact	IAQM Impact Descriptor	LEZ Concentration	Impact	IAQM Impact Descriptor
107	Hayle Road	21.1	15.7	12.3	15.7	0.0	Negligible	15.5	-0.2	Negligible	15.1	-0.6	Negligible
108	Hayle Road	21.1	15.8	12.3	15.8	0.0	Negligible	15.5	-0.3	Negligible	15.2	-0.6	Negligible
109	Hayle Road	21.3	15.9	12.4	15.9	0.0	Negligible	15.6	-0.3	Negligible	15.3	-0.6	Negligible
110	Hayle Road	21.5	16.0	12.5	16.0	0.0	Negligible	15.8	-0.2	Negligible	15.4	-0.6	Negligible
111	Hayle Road	21.7	16.1	12.5	16.1	0.0	Negligible	15.9	-0.2	Negligible	15.5	-0.6	Negligible
112	Hayle Road	21.8	16.2	12.6	16.2	0.0	Negligible	16.0	-0.2	Negligible	15.6	-0.6	Negligible
113	Hayle Road	22.0	16.4	12.7	16.3	-0.1	Negligible	16.1	-0.3	Negligible	15.7	-0.7	Negligible
114	Hayle Road	22.2	16.5	12.7	16.4	-0.1	Negligible	16.2	-0.3	Negligible	15.8	-0.7	Negligible
115	Hayle Road	22.3	16.5	12.8	16.5	0.0	Negligible	16.3	-0.2	Negligible	15.9	-0.6	Negligible
116	Hayle Road	22.4	16.6	12.8	16.6	0.0	Negligible	16.3	-0.3	Negligible	15.9	-0.7	Negligible
117	Hayle Road	22.4	16.6	12.8	16.6	0.0	Negligible	16.3	-0.3	Negligible	15.9	-0.7	Negligible
118	Hayle Road	16.6	12.9	10.5	12.9	0.0	Negligible	12.7	-0.2	Negligible	12.6	-0.3	Negligible
119	Hayle Road	15.4	12.2	10.1	12.2	0.0	Negligible	12.1	-0.1	Negligible	11.9	-0.3	Negligible
120	Hayle Road	22.6	16.7	12.9	16.7	0.0	Negligible	16.4	-0.3	Negligible	16.0	-0.7	Negligible
121	Hayle Road	17.0	13.1	10.6	13.1	0.0	Negligible	13.0	-0.1	Negligible	12.8	-0.3	Negligible
122	Hayle Road	17.0	13.2	10.7	13.2	0.0	Negligible	13.0	-0.2	Negligible	12.8	-0.4	Negligible

Receptor	Road Closest to Receptor	Base 2017 Concentration	DM 2022 Concentration	DM 2027 Concentration	LEZ Option 1 (Red Routing)			LEZ Option 2 (Cleaner and More Efficient Fleet Usage)			LEZ Option 3 (CAZ)		
					LEZ Concentration	Impact	IAQM Impact Descriptor	LEZ Concentration	Impact	IAQM Impact Descriptor	LEZ Concentration	Impact	IAQM Impact Descriptor
123	Hayle Road	17.1	13.2	10.7	13.2	0.0	Negligible	13.1	-0.1	Negligible	12.9	-0.3	Negligible
124	Hayle Road	17.3	13.3	10.8	13.3	0.0	Negligible	13.2	-0.1	Negligible	13.0	-0.3	Negligible
125	Hayle Road	17.4	13.4	10.8	13.4	0.0	Negligible	13.3	-0.1	Negligible	13.1	-0.3	Negligible
126	Hayle Road	17.2	13.3	10.7	13.3	0.0	Negligible	13.1	-0.2	Negligible	12.9	-0.4	Negligible
127	Hayle Road	23.9	17.6	13.4	17.6	0.0	Negligible	17.2	-0.4	Negligible	16.8	-0.8	Negligible
128	Hayle Road	24.0	17.6	13.4	17.6	0.0	Negligible	17.3	-0.3	Negligible	16.8	-0.8	Negligible
129	Hayle Road	24.1	17.7	13.5	17.7	0.0	Negligible	17.3	-0.4	Negligible	16.9	-0.8	Negligible
130	Hayle Road	24.0	17.6	13.5	17.6	0.0	Negligible	17.3	-0.3	Negligible	16.8	-0.8	Negligible
131	Hayle Road	17.1	13.2	10.7	13.2	0.0	Negligible	13.0	-0.2	Negligible	12.8	-0.4	Negligible
132	Hayle Road	23.9	17.6	13.4	17.6	0.0	Negligible	17.2	-0.4	Negligible	16.8	-0.8	Negligible
133	Hayle Road	23.8	17.5	13.4	17.5	0.0	Negligible	17.2	-0.3	Negligible	16.7	-0.8	Negligible
134	Hayle Road	24.1	17.7	13.5	17.7	0.0	Negligible	17.4	-0.3	Negligible	16.9	-0.8	Negligible
135	Hayle Road	17.1	13.2	10.7	13.2	0.0	Negligible	13.0	-0.2	Negligible	12.8	-0.4	Negligible
136	Hayle Road	17.1	13.2	10.7	13.2	0.0	Negligible	13.1	-0.1	Negligible	12.9	-0.3	Negligible
137	Hayle Road	24.0	17.6	13.4	17.6	0.0	Negligible	17.3	-0.3	Negligible	16.8	-0.8	Negligible
138	Hayle Road	24.8	18.1	13.8	18.1	0.0	Negligible	17.8	-0.3	Negligible	17.3	-0.8	Negligible

Receptor	Road Closest to Receptor	Base 2017 Concentration	DM 2022 Concentration	DM 2027 Concentration	LEZ Option 1 (Red Routing)			LEZ Option 2 (Cleaner and More Efficient Fleet Usage)			LEZ Option 3 (CAZ)		
					LEZ Concentration	Impact	IAQM Impact Descriptor	LEZ Concentration	Impact	IAQM Impact Descriptor	LEZ Concentration	Impact	IAQM Impact Descriptor
139	Hayle Road	24.8	18.1	13.8	18.1	0.0	Negligible	17.8	-0.3	Negligible	17.3	-0.8	Negligible
140	Hayle Road	17.4	13.4	10.8	13.4	0.0	Negligible	13.3	-0.1	Negligible	13.1	-0.3	Negligible
141	Hayle Road	17.4	13.4	10.8	13.4	0.0	Negligible	13.3	-0.1	Negligible	13.1	-0.3	Negligible
142	Hayle Road	17.4	13.4	10.8	13.4	0.0	Negligible	13.3	-0.1	Negligible	13.1	-0.3	Negligible
143	Hayle Road	17.4	13.4	10.8	13.4	0.0	Negligible	13.2	-0.2	Negligible	13.0	-0.4	Negligible
144	Hayle Road	16.9	13.1	10.6	13.1	0.0	Negligible	12.9	-0.2	Negligible	12.7	-0.4	Negligible
145	Hayle Road	16.8	13.0	10.6	13.0	0.0	Negligible	12.9	-0.1	Negligible	12.7	-0.3	Negligible
146	Hayle Road	16.7	13.0	10.5	12.9	-0.1	Negligible	12.8	-0.2	Negligible	12.6	-0.4	Negligible
147	Hayle Road	16.8	13.0	10.6	13.0	0.0	Negligible	12.9	-0.1	Negligible	12.7	-0.3	Negligible
148	Hayle Road	23.8	17.5	13.4	17.5	0.0	Negligible	17.1	-0.4	Negligible	16.7	-0.8	Negligible
149	Hayle Road	23.9	17.5	13.4	17.5	0.0	Negligible	17.2	-0.3	Negligible	16.7	-0.8	Negligible
150	Hayle Road	24.0	17.6	13.4	17.6	0.0	Negligible	17.3	-0.3	Negligible	16.8	-0.8	Negligible
151	Hayle Road	24.0	17.6	13.5	17.6	0.0	Negligible	17.3	-0.3	Negligible	16.8	-0.8	Negligible
152	Hayle Road	24.1	17.7	13.5	17.7	0.0	Negligible	17.3	-0.4	Negligible	16.9	-0.8	Negligible
153	Hayle Road	24.2	17.7	13.5	17.7	0.0	Negligible	17.4	-0.3	Negligible	16.9	-0.8	Negligible
154	Hayle Road	24.5	18.0	13.7	18.0	0.0	Negligible	17.6	-0.4	Negligible	17.1	-0.9	Negligible

Receptor	Road Closest to Receptor	Base 2017 Concentration	DM 2022 Concentration	DM 2027 Concentration	LEZ Option 1 (Red Routing)			LEZ Option 2 (Cleaner and More Efficient Fleet Usage)			LEZ Option 3 (CAZ)		
					LEZ Concentration	Impact	IAQM Impact Descriptor	LEZ Concentration	Impact	IAQM Impact Descriptor	LEZ Concentration	Impact	IAQM Impact Descriptor
155	Hayle Road	27.4	20.3	15.6	20.3	0.0	Negligible	20.0	-0.3	Negligible	19.5	-0.8	Negligible
156	Hayle Road	19.5	15.3	12.5	15.3	0.0	Negligible	15.1	-0.2	Negligible	14.9	-0.4	Negligible
157	Hayle Road	26.8	19.9	15.4	19.9	0.0	Negligible	19.6	-0.3	Negligible	19.1	-0.8	Negligible
158	Hayle Road	27.0	20.1	15.5	20.1	0.0	Negligible	19.7	-0.4	Negligible	19.3	-0.8	Negligible
159	Hayle Road	27.5	20.3	15.7	20.3	0.0	Negligible	20.0	-0.3	Negligible	19.5	-0.8	Negligible
160	Hayle Road	27.4	20.3	15.6	20.3	0.0	Negligible	20.0	-0.3	Negligible	19.5	-0.8	Negligible
161	Hayle Road	19.8	15.4	12.6	15.4	0.0	Negligible	15.3	-0.1	Negligible	15.1	-0.3	Negligible
162	Hayle Road	18.9	14.9	12.3	14.9	0.0	Negligible	14.8	-0.1	Negligible	14.6	-0.3	Negligible
163	Hayle Road	19.8	15.4	12.6	15.4	0.0	Negligible	15.3	-0.1	Negligible	15.1	-0.3	Negligible
164	Hayle Road	18.9	14.9	12.3	14.9	0.0	Negligible	14.8	-0.1	Negligible	14.6	-0.3	Negligible
165	Hayle Road	19.6	15.3	12.5	15.3	0.0	Negligible	15.2	-0.1	Negligible	15.0	-0.3	Negligible
166	Hayle Road	22.9	17.4	13.8	17.4	0.0	Negligible	17.2	-0.2	Negligible	16.9	-0.5	Negligible
167	Hayle Road	23.5	17.8	14.0	17.8	0.0	Negligible	17.5	-0.3	Negligible	17.2	-0.6	Negligible
168	Hayle Road	26.2	19.5	15.1	19.5	0.0	Negligible	19.2	-0.3	Negligible	18.8	-0.7	Negligible
169	Hayle Road	26.3	19.6	15.2	19.6	0.0	Negligible	19.3	-0.3	Negligible	18.9	-0.7	Negligible
170	Hayle Road	19.6	15.3	12.5	15.3	0.0	Negligible	15.2	-0.1	Negligible	15.0	-0.3	Negligible

Receptor	Road Closest to Receptor	Base 2017 Concentration	DM 2022 Concentration	DM 2027 Concentration	LEZ Option 1 (Red Routing)			LEZ Option 2 (Cleaner and More Efficient Fleet Usage)			LEZ Option 3 (CAZ)		
					LEZ Concentration	Impact	IAQM Impact Descriptor	LEZ Concentration	Impact	IAQM Impact Descriptor	LEZ Concentration	Impact	IAQM Impact Descriptor
171	Hayle Road	18.7	14.8	12.2	14.8	0.0	Negligible	14.7	-0.1	Negligible	14.5	-0.3	Negligible
172	Hayle Road	27.1	20.1	15.5	20.1	0.0	Negligible	19.8	-0.3	Negligible	19.3	-0.8	Negligible
173	Hayle Road	27.3	20.3	15.6	20.3	0.0	Negligible	19.9	-0.4	Negligible	19.5	-0.8	Negligible
174	Hayle Road	20.1	15.7	12.7	15.6	-0.1	Negligible	15.5	-0.2	Negligible	15.3	-0.4	Negligible
175	Hayle Road	20.1	15.6	12.7	15.6	0.0	Negligible	15.5	-0.1	Negligible	15.3	-0.3	Negligible
176	Hayle Road	27.3	20.3	15.6	20.2	-0.1	Negligible	19.9	-0.4	Negligible	19.4	-0.9	Negligible
177	Hayle Road	27.3	20.2	15.6	20.2	0.0	Negligible	19.9	-0.3	Negligible	19.4	-0.8	Negligible
178	Hayle Road	27.1	20.1	15.5	20.1	0.0	Negligible	19.8	-0.3	Negligible	19.3	-0.8	Negligible
179	Hayle Road	26.9	20.0	15.5	20.0	0.0	Negligible	19.7	-0.3	Negligible	19.3	-0.7	Negligible
180	Hayle Road	27.1	20.2	15.6	20.2	0.0	Negligible	19.8	-0.4	Negligible	19.4	-0.8	Negligible
181	Hayle Road	27.2	20.2	15.6	20.2	0.0	Negligible	19.9	-0.3	Negligible	19.4	-0.8	Negligible
182	Hayle Road	27.3	20.3	15.6	20.3	0.0	Negligible	19.9	-0.4	Negligible	19.5	-0.8	Negligible
183	Hayle Road	27.2	20.2	15.6	20.2	0.0	Negligible	19.9	-0.3	Negligible	19.4	-0.8	Negligible
184	Hayle Road	19.0	15.0	12.3	15.0	0.0	Negligible	14.9	-0.1	Negligible	14.7	-0.3	Negligible
185	Hayle Road	19.0	15.0	12.3	15.0	0.0	Negligible	14.9	-0.1	Negligible	14.7	-0.3	Negligible
186	Hayle Road	19.0	15.0	12.4	15.0	0.0	Negligible	14.9	-0.1	Negligible	14.8	-0.2	Negligible

Receptor	Road Closest to Receptor	Base 2017 Concentration	DM 2022 Concentration	DM 2027 Concentration	LEZ Option 1 (Red Routing)			LEZ Option 2 (Cleaner and More Efficient Fleet Usage)			LEZ Option 3 (CAZ)		
					LEZ Concentration	Impact	IAQM Impact Descriptor	LEZ Concentration	Impact	IAQM Impact Descriptor	LEZ Concentration	Impact	IAQM Impact Descriptor
187	Hayle Road	19.1	15.1	12.4	15.1	0.0	Negligible	15.0	-0.1	Negligible	14.8	-0.3	Negligible
188	Hayle Road	19.2	15.1	12.4	15.1	0.0	Negligible	15.0	-0.1	Negligible	14.8	-0.3	Negligible
189	Hayle Road	19.2	15.1	12.4	15.1	0.0	Negligible	15.0	-0.1	Negligible	14.9	-0.2	Negligible
190	Hayle Road	30.6	22.4	17.0	22.4	0.0	Negligible	22.0	-0.4	Negligible	21.4	-1.0	Negligible
191	Knightrider Street	20.1	15.9	13.0	15.9	0.0	Negligible	15.8	-0.1	Negligible	15.6	-0.3	Negligible
192	Knightrider Street	24.5	19.0	15.0	19.0	0.0	Negligible	18.8	-0.2	Negligible	18.6	-0.4	Negligible
193	Knightrider Street	24.8	19.2	15.1	19.2	0.0	Negligible	19.0	-0.2	Negligible	18.8	-0.4	Negligible
194	Knightrider Street	21.1	16.6	13.4	16.5	-0.1	Negligible	16.4	-0.2	Negligible	16.3	-0.3	Negligible
195	Wat Tyler Way	25.4	19.4	15.2	19.2	-0.2	Negligible	19.2	-0.2	Negligible	18.9	-0.5	Negligible
196	Wat Tyler Way	25.1	19.2	15.1	19.0	-0.2	Negligible	19.0	-0.2	Negligible	18.7	-0.5	Negligible
197	Wat Tyler Way	24.7	18.9	14.9	18.8	-0.1	Negligible	18.7	-0.2	Negligible	18.5	-0.4	Negligible
198	Wat Tyler Way	24.5	18.8	14.8	18.7	-0.1	Negligible	18.6	-0.2	Negligible	18.4	-0.4	Negligible
199	Wat Tyler Way	24.5	18.8	14.8	18.7	-0.1	Negligible	18.7	-0.1	Negligible	18.4	-0.4	Negligible
200	Wat Tyler Way	24.6	18.9	14.9	18.8	-0.1	Negligible	18.7	-0.2	Negligible	18.5	-0.4	Negligible

Receptor	Road Closest to Receptor	Base 2017 Concentration	DM 2022 Concentration	DM 2027 Concentration	LEZ Option 1 (Red Routing)			LEZ Option 2 (Cleaner and More Efficient Fleet Usage)			LEZ Option 3 (CAZ)		
					LEZ Concentration	Impact	IAQM Impact Descriptor	LEZ Concentration	Impact	IAQM Impact Descriptor	LEZ Concentration	Impact	IAQM Impact Descriptor
201	Wat Tyler Way	24.7	19.0	14.9	18.9	-0.1	Negligible	18.8	-0.2	Negligible	18.6	-0.4	Negligible
202	Wat Tyler Way	24.8	19.1	15.0	19.0	-0.1	Negligible	18.9	-0.2	Negligible	18.7	-0.4	Negligible
203	Wat Tyler Way	25.2	19.3	15.2	19.2	-0.1	Negligible	19.1	-0.2	Negligible	18.9	-0.4	Negligible
204	Wat Tyler Way	25.4	19.5	15.3	19.4	-0.1	Negligible	19.3	-0.2	Negligible	19.1	-0.4	Negligible
205	Wat Tyler Way	24.9	19.1	15.1	19.1	0.0	Negligible	19.0	-0.1	Negligible	18.8	-0.3	Negligible
206	Wat Tyler Way	24.4	18.8	14.9	18.7	-0.1	Negligible	18.7	-0.1	Negligible	18.5	-0.3	Negligible
207	Wat Tyler Way	23.9	18.5	14.7	18.4	-0.1	Negligible	18.4	-0.1	Negligible	18.2	-0.3	Negligible
208	Wat Tyler Way	21.8	17.0	13.7	17.0	0.0	Negligible	16.9	-0.1	Negligible	16.8	-0.2	Negligible
209	Wat Tyler Way	21.3	16.7	13.5	16.6	-0.1	Negligible	16.6	-0.1	Negligible	16.4	-0.3	Negligible
210	Wat Tyler Way	20.8	16.4	13.3	16.3	-0.1	Negligible	16.3	-0.1	Negligible	16.2	-0.2	Negligible
211	Wat Tyler Way	20.4	16.1	13.1	16.1	0.0	Negligible	16.0	-0.1	Negligible	15.9	-0.2	Negligible
212	Wat Tyler Way	20.2	15.9	13.0	15.9	0.0	Negligible	15.8	-0.1	Negligible	15.7	-0.2	Negligible
213	Wat Tyler Way	19.9	15.7	12.9	15.7	0.0	Negligible	15.7	0.0	Negligible	15.5	-0.2	Negligible
214	Wat Tyler Way	19.6	15.6	12.8	15.5	-0.1	Negligible	15.5	-0.1	Negligible	15.4	-0.2	Negligible
215	Wat Tyler Way	22.0	17.2	13.8	17.2	0.0	Negligible	17.1	-0.1	Negligible	17.0	-0.2	Negligible
216	Wat Tyler Way	23.0	18.0	14.4	18.0	0.0	Negligible	17.9	-0.1	Negligible	17.7	-0.3	Negligible

Receptor	Road Closest to Receptor	Base 2017 Concentration	DM 2022 Concentration	DM 2027 Concentration	LEZ Option 1 (Red Routing)			LEZ Option 2 (Cleaner and More Efficient Fleet Usage)			LEZ Option 3 (CAZ)		
					LEZ Concentration	Impact	IAQM Impact Descriptor	LEZ Concentration	Impact	IAQM Impact Descriptor	LEZ Concentration	Impact	IAQM Impact Descriptor
217	Wat Tyler Way	18.6	14.9	12.4	14.9	0.0	Negligible	14.9	0.0	Negligible	14.8	-0.1	Negligible
218	Lower Stone Street	22.6	17.6	14.1	17.5	-0.1	Negligible	17.5	-0.1	Negligible	17.3	-0.3	Negligible
219	Lower Stone Street	22.5	17.5	14.0	17.4	-0.1	Negligible	17.4	-0.1	Negligible	17.2	-0.3	Negligible
220	Lower Stone Street	22.3	17.4	13.9	17.3	-0.1	Negligible	17.3	-0.1	Negligible	17.1	-0.3	Negligible
221	Lower Stone Street	22.1	17.3	13.9	17.2	-0.1	Negligible	17.2	-0.1	Negligible	17.0	-0.3	Negligible
222	Lower Stone Street	22.0	17.2	13.8	17.1	-0.1	Negligible	17.1	-0.1	Negligible	16.9	-0.3	Negligible
223	Lower Stone Street	21.9	17.1	13.8	17.0	-0.1	Negligible	17.0	-0.1	Negligible	16.8	-0.3	Negligible
224	Lower Stone Street	21.7	17.0	13.7	16.9	-0.1	Negligible	16.9	-0.1	Negligible	16.7	-0.3	Negligible
225	Lower Stone Street	21.6	16.9	13.6	16.8	-0.1	Negligible	16.8	-0.1	Negligible	16.6	-0.3	Negligible
226	Lower Stone Street	24.3	18.7	14.9	18.6	-0.1	Negligible	18.6	-0.1	Negligible	18.4	-0.3	Negligible
227	Lower Stone Street	21.5	16.8	13.6	16.7	-0.1	Negligible	16.7	-0.1	Negligible	16.5	-0.3	Negligible

Receptor	Road Closest to Receptor	Base 2017 Concentration	DM 2022 Concentration	DM 2027 Concentration	LEZ Option 1 (Red Routing)			LEZ Option 2 (Cleaner and More Efficient Fleet Usage)			LEZ Option 3 (CAZ)		
					LEZ Concentration	Impact	IAQM Impact Descriptor	LEZ Concentration	Impact	IAQM Impact Descriptor	LEZ Concentration	Impact	IAQM Impact Descriptor
228	Lower Stone Street	21.4	16.8	13.6	16.7	-0.1	Negligible	16.7	-0.1	Negligible	16.5	-0.3	Negligible
229	Lower Stone Street	21.4	16.8	13.5	16.6	-0.2	Negligible	16.7	-0.1	Negligible	16.5	-0.3	Negligible
230	Lower Stone Street	21.3	16.7	13.5	16.6	-0.1	Negligible	16.6	-0.1	Negligible	16.5	-0.2	Negligible
231	Lower Stone Street	21.3	16.7	13.5	16.6	-0.1	Negligible	16.6	-0.1	Negligible	16.5	-0.2	Negligible
232	Lower Stone Street	23.3	18.1	14.5	17.9	-0.2	Negligible	18.0	-0.1	Negligible	17.8	-0.3	Negligible
233	Upper Stone Street	35.4	26.1	19.5	25.7	-0.4	Negligible	25.7	-0.4	Negligible	25.2	-0.9	Negligible
234	Bishops Way	36.8	28.0	21.2	28.0	0.0	Negligible	27.8	-0.2	Negligible	27.7	-0.3	Negligible
235	Fairmeadow	27.2	20.9	16.3	20.9	0.0	Negligible	20.7	-0.2	Negligible	20.6	-0.3	Negligible
236	Fairmeadow	23.0	18.0	14.4	18.0	0.0	Negligible	17.9	-0.1	Negligible	17.8	-0.2	Negligible
237	Fairmeadow	23.6	18.4	14.7	18.4	0.0	Negligible	18.4	0.0	Negligible	18.3	-0.1	Negligible
238	Fairmeadow	16.0	13.2	11.2	13.2	0.0	Negligible	13.1	-0.1	Negligible	13.1	-0.1	Negligible
239	Loose Road	26.0	19.1	14.5	19.1	0.0	Negligible	18.8	-0.3	Negligible	18.4	-0.7	Negligible

7.4 Modelled Annual Mean PM_{10} Results (µg/m^3)

Receptor	Road Closest to Receptor	Base 2017 Concentration	DM 2022 Concentration	DM 2027 Concentration	LEZ Option 1 (Red Routing)			LEZ Option 2 (Cleaner and More Efficient Fleet Usage)			LEZ Option 3 (CAZ)		
					LEZ Concentration	Impact	IAQM Impact Descriptor	LEZ Concentration	Impact	IAQM Impact Descriptor	LEZ Concentration	Impact	IAQM Impact Descriptor
1	Loose Road	16.3	15.8	15.7	15.8	0.0	Negligible	15.8	0.0	Negligible	15.8	0.0	Negligible
2	Loose Road	17.2	16.7	16.5	16.7	0.0	Negligible	16.7	0.0	Negligible	16.7	0.0	Negligible
3	Loose Road	16.3	15.8	15.7	15.8	0.0	Negligible	15.8	0.0	Negligible	15.8	0.0	Negligible
4	Loose Road	17.3	16.7	16.6	16.7	0.0	Negligible	16.7	0.0	Negligible	16.7	0.0	Negligible
5	Loose Road	16.4	15.9	15.7	15.9	0.0	Negligible	15.9	0.0	Negligible	15.9	0.0	Negligible
6	Loose Road	16.4	15.9	15.8	15.9	0.0	Negligible	15.9	0.0	Negligible	15.9	0.0	Negligible
7	Loose Road	17.4	16.8	16.6	16.8	0.0	Negligible	16.8	0.0	Negligible	16.8	0.0	Negligible
8	Loose Road	16.4	15.9	15.7	15.9	0.0	Negligible	15.9	0.0	Negligible	15.9	0.0	Negligible
9	Loose Road	17.3	16.7	16.6	16.7	0.0	Negligible	16.7	0.0	Negligible	16.7	0.0	Negligible
10	Loose Road	16.4	15.9	15.7	15.9	0.0	Negligible	15.9	0.0	Negligible	15.9	0.0	Negligible
11	Loose Road	16.4	15.9	15.7	15.9	0.0	Negligible	15.9	0.0	Negligible	15.9	0.0	Negligible
12	Loose Road	16.4	15.9	15.8	15.9	0.0	Negligible	15.9	0.0	Negligible	15.9	0.0	Negligible
13	Loose Road	17.3	16.7	16.6	16.7	0.0	Negligible	16.7	0.0	Negligible	16.7	0.0	Negligible
14	Loose Road	16.4	15.9	15.8	15.9	0.0	Negligible	15.9	0.0	Negligible	15.9	0.0	Negligible
15	Loose Road	17.3	16.7	16.6	16.7	0.0	Negligible	16.7	0.0	Negligible	16.7	0.0	Negligible

Receptor	Road Closest to Receptor	Base 2017 Concentration	DM 2022 Concentration	DM 2027 Concentration	LEZ Option 1 (Red Routing)			LEZ Option 2 (Cleaner and More Efficient Fleet Usage)			LEZ Option 3 (CAZ)		
					LEZ Concentration	Impact	IAQM Impact Descriptor	LEZ Concentration	Impact	IAQM Impact Descriptor	LEZ Concentration	Impact	IAQM Impact Descriptor
16	Loose Road	16.4	15.9	15.8	15.9	0.0	Negligible	15.9	0.0	Negligible	15.9	0.0	Negligible
17	Loose Road	16.4	15.9	15.7	15.9	0.0	Negligible	15.9	0.0	Negligible	15.9	0.0	Negligible
18	Loose Road	16.4	15.9	15.7	15.9	0.0	Negligible	15.9	0.0	Negligible	15.9	0.0	Negligible
19	Loose Road	16.4	15.9	15.7	15.9	0.0	Negligible	15.9	0.0	Negligible	15.9	0.0	Negligible
20	Loose Road	16.4	16.0	15.8	16.0	0.0	Negligible	15.9	-0.1	Negligible	15.9	-0.1	Negligible
21	Loose Road	17.3	16.7	16.6	16.7	0.0	Negligible	16.7	0.0	Negligible	16.7	0.0	Negligible
22	Loose Road	16.3	15.9	15.7	15.9	0.0	Negligible	15.8	-0.1	Negligible	15.8	-0.1	Negligible
23	Loose Road	17.4	16.8	16.6	16.8	0.0	Negligible	16.8	0.0	Negligible	16.8	0.0	Negligible
24	Loose Road	16.3	15.9	15.7	15.9	0.0	Negligible	15.9	0.0	Negligible	15.9	0.0	Negligible
25	Loose Road	16.3	15.9	15.7	15.9	0.0	Negligible	15.9	0.0	Negligible	15.9	0.0	Negligible
26	Loose Road	16.4	15.9	15.7	15.9	0.0	Negligible	15.9	0.0	Negligible	15.9	0.0	Negligible
27	Loose Road	16.3	15.9	15.7	15.9	0.0	Negligible	15.9	0.0	Negligible	15.9	0.0	Negligible
28	Loose Road	16.3	15.9	15.7	15.9	0.0	Negligible	15.9	0.0	Negligible	15.9	0.0	Negligible
29	Loose Road	17.5	16.9	16.8	16.9	0.0	Negligible	16.9	0.0	Negligible	16.9	0.0	Negligible
30	Loose Road	17.4	16.8	16.6	16.8	0.0	Negligible	16.8	0.0	Negligible	16.8	0.0	Negligible
31	Loose Road	17.4	16.8	16.6	16.8	0.0	Negligible	16.8	0.0	Negligible	16.8	0.0	Negligible

Receptor	Road Closest to Receptor	Base 2017 Concentration	DM 2022 Concentration	DM 2027 Concentration	LEZ Option 1 (Red Routing)			LEZ Option 2 (Cleaner and More Efficient Fleet Usage)			LEZ Option 3 (CAZ)		
					LEZ Concentration	Impact	IAQM Impact Descriptor	LEZ Concentration	Impact	IAQM Impact Descriptor	LEZ Concentration	Impact	IAQM Impact Descriptor
32	Loose Road	16.4	15.9	15.7	15.9	0.0	Negligible	15.9	0.0	Negligible	15.9	0.0	Negligible
33	Loose Road	16.4	15.9	15.7	15.9	0.0	Negligible	15.9	0.0	Negligible	15.9	0.0	Negligible
34	Loose Road	16.4	15.9	15.7	15.9	0.0	Negligible	15.9	0.0	Negligible	15.9	0.0	Negligible
35	Loose Road	16.4	15.9	15.7	15.9	0.0	Negligible	15.9	0.0	Negligible	15.9	0.0	Negligible
36	Loose Road	16.4	15.9	15.7	15.9	0.0	Negligible	15.9	0.0	Negligible	15.9	0.0	Negligible
37	Loose Road	16.4	15.9	15.7	15.9	0.0	Negligible	15.9	0.0	Negligible	15.9	0.0	Negligible
38	Loose Road	17.4	16.8	16.7	16.8	0.0	Negligible	16.8	0.0	Negligible	16.8	0.0	Negligible
39	Loose Road	17.2	16.7	16.5	16.7	0.0	Negligible	16.7	0.0	Negligible	16.7	0.0	Negligible
40	Loose Road	17.3	16.8	16.6	16.8	0.0	Negligible	16.7	-0.1	Negligible	16.7	-0.1	Negligible
41	Loose Road	17.3	16.8	16.6	16.8	0.0	Negligible	16.8	0.0	Negligible	16.8	0.0	Negligible
42	Loose Road	16.1	15.6	15.5	15.6	0.0	Negligible	15.6	0.0	Negligible	15.6	0.0	Negligible
43	Loose Road	17.3	16.7	16.6	16.7	0.0	Negligible	16.7	0.0	Negligible	16.7	0.0	Negligible
44	Loose Road	17.0	16.5	16.3	16.5	0.0	Negligible	16.5	0.0	Negligible	16.5	0.0	Negligible
45	Loose Road	16.3	15.9	15.7	15.9	0.0	Negligible	15.9	0.0	Negligible	15.9	0.0	Negligible
46	Loose Road	16.4	15.9	15.8	15.9	0.0	Negligible	15.9	0.0	Negligible	15.9	0.0	Negligible
47	Loose Road	16.4	15.9	15.8	15.9	0.0	Negligible	15.9	0.0	Negligible	15.9	0.0	Negligible

Receptor	Road Closest to Receptor	Base 2017 Concentration	DM 2022 Concentration	DM 2027 Concentration	LEZ Option 1 (Red Routing)			LEZ Option 2 (Cleaner and More Efficient Fleet Usage)			LEZ Option 3 (CAZ)		
					LEZ Concentration	Impact	IAQM Impact Descriptor	LEZ Concentration	Impact	IAQM Impact Descriptor	LEZ Concentration	Impact	IAQM Impact Descriptor
48	Loose Road	16.6	16.1	15.9	16.1	0.0	Negligible	16.1	0.0	Negligible	16.1	0.0	Negligible
49	Loose Road	17.4	16.9	16.7	16.9	0.0	Negligible	16.9	0.0	Negligible	16.9	0.0	Negligible
50	Loose Road	17.4	16.9	16.7	16.9	0.0	Negligible	16.8	-0.1	Negligible	16.8	-0.1	Negligible
51	Loose Road	17.4	16.8	16.7	16.8	0.0	Negligible	16.8	0.0	Negligible	16.8	0.0	Negligible
52	Loose Road	17.4	16.8	16.7	16.8	0.0	Negligible	16.8	0.0	Negligible	16.8	0.0	Negligible
53	Loose Road	17.4	16.8	16.7	16.8	0.0	Negligible	16.8	0.0	Negligible	16.8	0.0	Negligible
54	Loose Road	17.4	16.8	16.6	16.8	0.0	Negligible	16.8	0.0	Negligible	16.8	0.0	Negligible
55	Loose Road	17.3	16.8	16.6	16.8	0.0	Negligible	16.8	0.0	Negligible	16.8	0.0	Negligible
56	Loose Road	17.3	16.8	16.6	16.8	0.0	Negligible	16.8	0.0	Negligible	16.8	0.0	Negligible
57	Loose Road	17.3	16.8	16.6	16.8	0.0	Negligible	16.7	-0.1	Negligible	16.7	-0.1	Negligible
58	Loose Road	17.3	16.7	16.6	16.7	0.0	Negligible	16.7	0.0	Negligible	16.7	0.0	Negligible
59	Loose Road	17.3	16.7	16.6	16.7	0.0	Negligible	16.7	0.0	Negligible	16.7	0.0	Negligible
60	Loose Road	17.3	16.7	16.6	16.7	0.0	Negligible	16.7	0.0	Negligible	16.7	0.0	Negligible
61	Loose Road	17.2	16.7	16.5	16.7	0.0	Negligible	16.7	0.0	Negligible	16.7	0.0	Negligible
62	Loose Road	17.2	16.7	16.5	16.7	0.0	Negligible	16.7	0.0	Negligible	16.7	0.0	Negligible
63	Loose Road	17.2	16.6	16.5	16.6	0.0	Negligible	16.6	0.0	Negligible	16.6	0.0	Negligible

Receptor	Road Closest to Receptor	Base 2017 Concentration	DM 2022 Concentration	DM 2027 Concentration	LEZ Option 1 (Red Routing)			LEZ Option 2 (Cleaner and More Efficient Fleet Usage)			LEZ Option 3 (CAZ)		
					LEZ Concentration	Impact	IAQM Impact Descriptor	LEZ Concentration	Impact	IAQM Impact Descriptor	LEZ Concentration	Impact	IAQM Impact Descriptor
64	Upper Stone Street	17.1	16.6	16.4	16.6	0.0	Negligible	16.6	0.0	Negligible	16.6	0.0	Negligible
65	Upper Stone Street	17.1	16.5	16.4	16.5	0.0	Negligible	16.5	0.0	Negligible	16.5	0.0	Negligible
66	Upper Stone Street	17.0	16.5	16.3	16.5	0.0	Negligible	16.5	0.0	Negligible	16.5	0.0	Negligible
67	Upper Stone Street	17.1	16.5	16.4	16.5	0.0	Negligible	16.5	0.0	Negligible	16.5	0.0	Negligible
68	Upper Stone Street	17.0	16.5	16.3	16.5	0.0	Negligible	16.5	0.0	Negligible	16.5	0.0	Negligible
69	Upper Stone Street	17.0	16.5	16.3	16.5	0.0	Negligible	16.5	0.0	Negligible	16.5	0.0	Negligible
70	Upper Stone Street	17.0	16.5	16.3	16.5	0.0	Negligible	16.5	0.0	Negligible	16.5	0.0	Negligible
71	Upper Stone Street	17.1	16.5	16.4	16.5	0.0	Negligible	16.5	0.0	Negligible	16.5	0.0	Negligible

Receptor	Road Closest to Receptor	Base 2017 Concentration	DM 2022 Concentration	DM 2027 Concentration	LEZ Option 1 (Red Routing)			LEZ Option 2 (Cleaner and More Efficient Fleet Usage)			LEZ Option 3 (CAZ)		
					LEZ Concentration	Impact	IAQM Impact Descriptor	LEZ Concentration	Impact	IAQM Impact Descriptor	LEZ Concentration	Impact	IAQM Impact Descriptor
72	Upper Stone Street	17.1	16.6	16.4	16.6	0.0	Negligible	16.5	-0.1	Negligible	16.5	-0.1	Negligible
73	Upper Stone Street	17.1	16.6	16.4	16.6	0.0	Negligible	16.6	0.0	Negligible	16.6	0.0	Negligible
74	Upper Stone Street	17.3	16.7	16.6	16.7	0.0	Negligible	16.7	0.0	Negligible	16.7	0.0	Negligible
75	Upper Stone Street	16.5	16.0	15.8	16.0	0.0	Negligible	16.0	0.0	Negligible	16.0	0.0	Negligible
76	Upper Stone Street	17.1	16.6	16.4	16.6	0.0	Negligible	16.6	0.0	Negligible	16.6	0.0	Negligible
77	Upper Stone Street	20.3	19.5	19.3	19.5	0.0	Negligible	19.4	-0.1	Negligible	19.4	-0.1	Negligible
78	Upper Stone Street	20.4	19.6	19.4	19.6	0.0	Negligible	19.6	0.0	Negligible	19.6	0.0	Negligible
79	Upper Stone Street	23.9	22.9	22.6	22.8	-0.1	Negligible	22.8	-0.1	Negligible	22.8	-0.1	Negligible

Receptor	Road Closest to Receptor	Base 2017 Concentration	DM 2022 Concentration	DM 2027 Concentration	LEZ Option 1 (Red Routing)			LEZ Option 2 (Cleaner and More Efficient Fleet Usage)			LEZ Option 3 (CAZ)		
					LEZ Concentration	Impact	IAQM Impact Descriptor	LEZ Concentration	Impact	IAQM Impact Descriptor	LEZ Concentration	Impact	IAQM Impact Descriptor
80	Upper Stone Street	23.9	22.8	22.6	22.8	0.0	Negligible	22.7	-0.1	Negligible	22.7	-0.1	Negligible
81	Upper Stone Street	23.9	22.8	22.6	22.8	0.0	Negligible	22.7	-0.1	Negligible	22.7	-0.1	Negligible
82	Upper Stone Street	23.8	22.7	22.5	22.7	0.0	Negligible	22.6	-0.1	Negligible	22.6	-0.1	Negligible
83	Upper Stone Street	23.7	22.7	22.5	22.7	0.0	Negligible	22.6	-0.1	Negligible	22.6	-0.1	Negligible
84	Upper Stone Street	24.9	23.7	23.5	23.7	0.0	Negligible	23.7	0.0	Negligible	23.7	0.0	Negligible
85	Upper Stone Street	25.0	23.8	23.6	23.8	0.0	Negligible	23.7	-0.1	Negligible	23.7	-0.1	Negligible
86	Upper Stone Street	25.0	23.9	23.6	23.8	-0.1	Negligible	23.8	-0.1	Negligible	23.8	-0.1	Negligible
87	Upper Stone Street	25.2	24.0	23.7	24.0	0.0	Negligible	23.9	-0.1	Negligible	23.9	-0.1	Negligible

Receptor	Road Closest to Receptor	Base 2017 Concentration	DM 2022 Concentration	DM 2027 Concentration	LEZ Option 1 (Red Routing)			LEZ Option 2 (Cleaner and More Efficient Fleet Usage)			LEZ Option 3 (CAZ)		
					LEZ Concentration	Impact	IAQM Impact Descriptor	LEZ Concentration	Impact	IAQM Impact Descriptor	LEZ Concentration	Impact	IAQM Impact Descriptor
88	Upper Stone Street	25.3	24.1	23.9	24.1	0.0	Negligible	24.0	-0.1	Negligible	24.0	-0.1	Negligible
89	Upper Stone Street	19.5	18.8	18.6	18.7	-0.1	Negligible	18.7	-0.1	Negligible	18.7	-0.1	Negligible
90	Upper Stone Street	22.9	21.9	21.7	21.9	0.0	Negligible	21.8	-0.1	Negligible	21.8	-0.1	Negligible
91	Upper Stone Street	19.5	18.8	18.6	18.8	0.0	Negligible	18.8	0.0	Negligible	18.8	0.0	Negligible
92	Upper Stone Street	19.5	18.8	18.6	18.8	0.0	Negligible	18.8	0.0	Negligible	18.8	0.0	Negligible
93	Upper Stone Street	19.5	18.8	18.6	18.8	0.0	Negligible	18.8	0.0	Negligible	18.8	0.0	Negligible
94	Upper Stone Street	19.5	18.8	18.6	18.8	0.0	Negligible	18.8	0.0	Negligible	18.8	0.0	Negligible
95	Upper Stone Street	19.5	18.8	18.6	18.8	0.0	Negligible	18.8	0.0	Negligible	18.8	0.0	Negligible

Receptor	Road Closest to Receptor	Base 2017 Concentration	DM 2022 Concentration	DM 2027 Concentration	LEZ Option 1 (Red Routing)			LEZ Option 2 (Cleaner and More Efficient Fleet Usage)			LEZ Option 3 (CAZ)		
					LEZ Concentration	Impact	IAQM Impact Descriptor	LEZ Concentration	Impact	IAQM Impact Descriptor	LEZ Concentration	Impact	IAQM Impact Descriptor
96	Upper Stone Street	19.6	18.9	18.7	18.9	0.0	Negligible	18.9	0.0	Negligible	18.9	0.0	Negligible
97	Upper Stone Street	19.6	18.9	18.7	18.9	0.0	Negligible	18.9	0.0	Negligible	18.9	0.0	Negligible
98	Upper Stone Street	25.8	24.6	24.3	24.5	-0.1	Negligible	24.5	-0.1	Negligible	24.5	-0.1	Negligible
99	Upper Stone Street	25.9	24.7	24.4	24.6	-0.1	Negligible	24.6	-0.1	Negligible	24.5	-0.2	Negligible
100	Upper Stone Street	19.6	18.9	18.7	18.9	0.0	Negligible	18.9	0.0	Negligible	18.9	0.0	Negligible
101	Upper Stone Street	19.6	18.9	18.7	18.9	0.0	Negligible	18.9	0.0	Negligible	18.9	0.0	Negligible
102	Upper Stone Street	19.6	18.9	18.7	18.9	0.0	Negligible	18.9	0.0	Negligible	18.9	0.0	Negligible
103	Upper Stone Street	19.7	19.0	18.8	18.9	-0.1	Negligible	18.9	-0.1	Negligible	18.9	-0.1	Negligible

Receptor	Road Closest to Receptor	Base 2017 Concentration	DM 2022 Concentration	DM 2027 Concentration	LEZ Option 1 (Red Routing)			LEZ Option 2 (Cleaner and More Efficient Fleet Usage)			LEZ Option 3 (CAZ)		
					LEZ Concentration	Impact	IAQM Impact Descriptor	LEZ Concentration	Impact	IAQM Impact Descriptor	LEZ Concentration	Impact	IAQM Impact Descriptor
104	Upper Stone Street	19.7	19.0	18.8	19.0	0.0	Negligible	18.9	-0.1	Negligible	18.9	-0.1	Negligible
105	Upper Stone Street	20.0	19.2	19.0	19.2	0.0	Negligible	19.2	0.0	Negligible	19.2	0.0	Negligible
106	Upper Stone Street	16.2	15.7	15.5	15.7	0.0	Negligible	15.7	0.0	Negligible	15.7	0.0	Negligible
107	Hayle Road	16.3	15.8	15.7	15.8	0.0	Negligible	15.8	0.0	Negligible	15.8	0.0	Negligible
108	Hayle Road	16.2	15.7	15.6	15.7	0.0	Negligible	15.7	0.0	Negligible	15.7	0.0	Negligible
109	Hayle Road	16.2	15.7	15.5	15.7	0.0	Negligible	15.7	0.0	Negligible	15.7	0.0	Negligible
110	Hayle Road	16.0	15.6	15.4	15.6	0.0	Negligible	15.6	0.0	Negligible	15.6	0.0	Negligible
111	Hayle Road	16.0	15.6	15.4	15.6	0.0	Negligible	15.6	0.0	Negligible	15.6	0.0	Negligible
112	Hayle Road	16.0	15.6	15.4	15.6	0.0	Negligible	15.5	-0.1	Negligible	15.5	-0.1	Negligible
113	Hayle Road	16.1	15.6	15.5	15.6	0.0	Negligible	15.6	0.0	Negligible	15.6	0.0	Negligible
114	Hayle Road	16.1	15.6	15.4	15.6	0.0	Negligible	15.6	0.0	Negligible	15.6	0.0	Negligible
115	Hayle Road	16.0	15.6	15.4	15.6	0.0	Negligible	15.6	0.0	Negligible	15.6	0.0	Negligible
116	Hayle Road	16.0	15.5	15.4	15.5	0.0	Negligible	15.5	0.0	Negligible	15.5	0.0	Negligible

Receptor	Road Closest to Receptor	Base 2017 Concentration	DM 2022 Concentration	DM 2027 Concentration	LEZ Option 1 (Red Routing)			LEZ Option 2 (Cleaner and More Efficient Fleet Usage)			LEZ Option 3 (CAZ)		
					LEZ Concentration	Impact	IAQM Impact Descriptor	LEZ Concentration	Impact	IAQM Impact Descriptor	LEZ Concentration	Impact	IAQM Impact Descriptor
117	Hayle Road	16.0	15.5	15.4	15.5	0.0	Negligible	15.5	0.0	Negligible	15.5	0.0	Negligible
118	Hayle Road	16.0	15.5	15.4	15.5	0.0	Negligible	15.5	0.0	Negligible	15.5	0.0	Negligible
119	Hayle Road	16.0	15.5	15.4	15.5	0.0	Negligible	15.5	0.0	Negligible	15.5	0.0	Negligible
120	Hayle Road	16.0	15.5	15.4	15.5	0.0	Negligible	15.5	0.0	Negligible	15.5	0.0	Negligible
121	Hayle Road	16.0	15.5	15.4	15.5	0.0	Negligible	15.5	0.0	Negligible	15.5	0.0	Negligible
122	Hayle Road	16.0	15.5	15.4	15.5	0.0	Negligible	15.5	0.0	Negligible	15.5	0.0	Negligible
123	Hayle Road	15.9	15.5	15.3	15.5	0.0	Negligible	15.5	0.0	Negligible	15.5	0.0	Negligible
124	Hayle Road	15.9	15.5	15.3	15.5	0.0	Negligible	15.5	0.0	Negligible	15.5	0.0	Negligible
125	Hayle Road	15.9	15.5	15.3	15.5	0.0	Negligible	15.5	0.0	Negligible	15.5	0.0	Negligible
126	Hayle Road	15.9	15.5	15.3	15.5	0.0	Negligible	15.5	0.0	Negligible	15.5	0.0	Negligible
127	Hayle Road	15.9	15.5	15.3	15.5	0.0	Negligible	15.5	0.0	Negligible	15.5	0.0	Negligible
128	Hayle Road	15.9	15.5	15.3	15.5	0.0	Negligible	15.5	0.0	Negligible	15.5	0.0	Negligible
129	Hayle Road	15.9	15.5	15.3	15.5	0.0	Negligible	15.5	0.0	Negligible	15.5	0.0	Negligible
130	Hayle Road	15.9	15.5	15.3	15.5	0.0	Negligible	15.5	0.0	Negligible	15.5	0.0	Negligible
131	Hayle Road	15.9	15.5	15.3	15.5	0.0	Negligible	15.5	0.0	Negligible	15.5	0.0	Negligible
132	Hayle Road	15.9	15.5	15.3	15.5	0.0	Negligible	15.5	0.0	Negligible	15.5	0.0	Negligible

Receptor	Road Closest to Receptor	Base 2017 Concentration	DM 2022 Concentration	DM 2027 Concentration	LEZ Option 1 (Red Routing)			LEZ Option 2 (Cleaner and More Efficient Fleet Usage)			LEZ Option 3 (CAZ)		
					LEZ Concentration	Impact	IAQM Impact Descriptor	LEZ Concentration	Impact	IAQM Impact Descriptor	LEZ Concentration	Impact	IAQM Impact Descriptor
133	Hayle Road	15.9	15.5	15.3	15.5	0.0	Negligible	15.5	0.0	Negligible	15.5	0.0	Negligible
134	Hayle Road	15.9	15.5	15.3	15.5	0.0	Negligible	15.5	0.0	Negligible	15.5	0.0	Negligible
135	Hayle Road	15.9	15.5	15.3	15.5	0.0	Negligible	15.5	0.0	Negligible	15.5	0.0	Negligible
136	Hayle Road	15.9	15.5	15.3	15.5	0.0	Negligible	15.5	0.0	Negligible	15.5	0.0	Negligible
137	Hayle Road	15.9	15.5	15.3	15.5	0.0	Negligible	15.5	0.0	Negligible	15.5	0.0	Negligible
138	Hayle Road	15.9	15.5	15.3	15.5	0.0	Negligible	15.5	0.0	Negligible	15.5	0.0	Negligible
139	Hayle Road	15.9	15.5	15.3	15.5	0.0	Negligible	15.5	0.0	Negligible	15.5	0.0	Negligible
140	Hayle Road	15.9	15.4	15.3	15.4	0.0	Negligible	15.4	0.0	Negligible	15.4	0.0	Negligible
141	Hayle Road	15.9	15.4	15.3	15.4	0.0	Negligible	15.4	0.0	Negligible	15.4	0.0	Negligible
142	Hayle Road	15.9	15.4	15.3	15.4	0.0	Negligible	15.4	0.0	Negligible	15.4	0.0	Negligible
143	Hayle Road	15.9	15.4	15.3	15.4	0.0	Negligible	15.4	0.0	Negligible	15.4	0.0	Negligible
144	Hayle Road	15.9	15.4	15.3	15.4	0.0	Negligible	15.4	0.0	Negligible	15.4	0.0	Negligible
145	Hayle Road	15.9	15.4	15.3	15.4	0.0	Negligible	15.4	0.0	Negligible	15.4	0.0	Negligible
146	Hayle Road	15.9	15.4	15.3	15.4	0.0	Negligible	15.4	0.0	Negligible	15.4	0.0	Negligible
147	Hayle Road	15.9	15.5	15.3	15.5	0.0	Negligible	15.5	0.0	Negligible	15.5	0.0	Negligible
148	Hayle Road	15.9	15.5	15.3	15.5	0.0	Negligible	15.5	0.0	Negligible	15.5	0.0	Negligible

Receptor	Road Closest to Receptor	Base 2017 Concentration	DM 2022 Concentration	DM 2027 Concentration	LEZ Option 1 (Red Routing)			LEZ Option 2 (Cleaner and More Efficient Fleet Usage)			LEZ Option 3 (CAZ)		
					LEZ Concentration	Impact	IAQM Impact Descriptor	LEZ Concentration	Impact	IAQM Impact Descriptor	LEZ Concentration	Impact	IAQM Impact Descriptor
149	Hayle Road	15.9	15.5	15.3	15.5	0.0	Negligible	15.5	0.0	Negligible	15.5	0.0	Negligible
150	Hayle Road	15.9	15.5	15.3	15.5	0.0	Negligible	15.5	0.0	Negligible	15.5	0.0	Negligible
151	Hayle Road	15.9	15.5	15.3	15.5	0.0	Negligible	15.5	0.0	Negligible	15.5	0.0	Negligible
152	Hayle Road	15.9	15.4	15.3	15.4	0.0	Negligible	15.4	0.0	Negligible	15.4	0.0	Negligible
153	Hayle Road	15.9	15.5	15.3	15.4	-0.1	Negligible	15.4	-0.1	Negligible	15.4	-0.1	Negligible
154	Hayle Road	15.9	15.4	15.3	15.4	0.0	Negligible	15.4	0.0	Negligible	15.4	0.0	Negligible
155	Hayle Road	15.9	15.4	15.3	15.4	0.0	Negligible	15.4	0.0	Negligible	15.4	0.0	Negligible
156	Hayle Road	15.9	15.4	15.3	15.4	0.0	Negligible	15.4	0.0	Negligible	15.4	0.0	Negligible
157	Hayle Road	15.9	15.4	15.3	15.4	0.0	Negligible	15.4	0.0	Negligible	15.4	0.0	Negligible
158	Hayle Road	15.9	15.4	15.3	15.4	0.0	Negligible	15.4	0.0	Negligible	15.4	0.0	Negligible
159	Hayle Road	15.9	15.4	15.3	15.4	0.0	Negligible	15.4	0.0	Negligible	15.4	0.0	Negligible
160	Hayle Road	15.9	15.4	15.3	15.4	0.0	Negligible	15.4	0.0	Negligible	15.4	0.0	Negligible
161	Hayle Road	15.9	15.4	15.3	15.4	0.0	Negligible	15.4	0.0	Negligible	15.4	0.0	Negligible
162	Hayle Road	15.9	15.4	15.3	15.4	0.0	Negligible	15.4	0.0	Negligible	15.4	0.0	Negligible
163	Hayle Road	15.9	15.4	15.3	15.4	0.0	Negligible	15.4	0.0	Negligible	15.4	0.0	Negligible
164	Hayle Road	15.9	15.4	15.3	15.4	0.0	Negligible	15.4	0.0	Negligible	15.4	0.0	Negligible

Receptor	Road Closest to Receptor	Base 2017 Concentration	DM 2022 Concentration	DM 2027 Concentration	LEZ Option 1 (Red Routing)			LEZ Option 2 (Cleaner and More Efficient Fleet Usage)			LEZ Option 3 (CAZ)		
					LEZ Concentration	Impact	IAQM Impact Descriptor	LEZ Concentration	Impact	IAQM Impact Descriptor	LEZ Concentration	Impact	IAQM Impact Descriptor
165	Hayle Road	15.9	15.4	15.3	15.4	0.0	Negligible	15.4	0.0	Negligible	15.4	0.0	Negligible
166	Hayle Road	15.9	15.4	15.3	15.4	0.0	Negligible	15.4	0.0	Negligible	15.4	0.0	Negligible
167	Hayle Road	15.9	15.4	15.3	15.4	0.0	Negligible	15.4	0.0	Negligible	15.4	0.0	Negligible
168	Hayle Road	15.9	15.4	15.3	15.4	0.0	Negligible	15.4	0.0	Negligible	15.4	0.0	Negligible
169	Hayle Road	15.9	15.4	15.3	15.4	0.0	Negligible	15.4	0.0	Negligible	15.4	0.0	Negligible
170	Hayle Road	15.9	15.4	15.3	15.4	0.0	Negligible	15.4	0.0	Negligible	15.4	0.0	Negligible
171	Hayle Road	15.9	15.4	15.3	15.4	0.0	Negligible	15.4	0.0	Negligible	15.4	0.0	Negligible
172	Hayle Road	15.9	15.4	15.3	15.4	0.0	Negligible	15.4	0.0	Negligible	15.4	0.0	Negligible
173	Hayle Road	15.9	15.4	15.3	15.4	0.0	Negligible	15.4	0.0	Negligible	15.4	0.0	Negligible
174	Hayle Road	15.9	15.4	15.3	15.4	0.0	Negligible	15.4	0.0	Negligible	15.4	0.0	Negligible
175	Hayle Road	15.9	15.4	15.3	15.4	0.0	Negligible	15.4	0.0	Negligible	15.4	0.0	Negligible
176	Hayle Road	15.9	15.5	15.3	15.5	0.0	Negligible	15.4	-0.1	Negligible	15.4	-0.1	Negligible
177	Hayle Road	15.9	15.5	15.3	15.5	0.0	Negligible	15.5	0.0	Negligible	15.5	0.0	Negligible
178	Hayle Road	15.9	15.5	15.3	15.5	0.0	Negligible	15.5	0.0	Negligible	15.5	0.0	Negligible
179	Hayle Road	15.9	15.5	15.3	15.5	0.0	Negligible	15.5	0.0	Negligible	15.5	0.0	Negligible
180	Hayle Road	15.9	15.5	15.3	15.5	0.0	Negligible	15.5	0.0	Negligible	15.5	0.0	Negligible

Receptor	Road Closest to Receptor	Base 2017 Concentration	DM 2022 Concentration	DM 2027 Concentration	LEZ Option 1 (Red Routing)			LEZ Option 2 (Cleaner and More Efficient Fleet Usage)			LEZ Option 3 (CAZ)		
					LEZ Concentration	Impact	IAQM Impact Descriptor	LEZ Concentration	Impact	IAQM Impact Descriptor	LEZ Concentration	Impact	IAQM Impact Descriptor
181	Hayle Road	15.9	15.5	15.3	15.5	0.0	Negligible	15.5	0.0	Negligible	15.5	0.0	Negligible
182	Hayle Road	16.0	15.5	15.4	15.5	0.0	Negligible	15.5	0.0	Negligible	15.5	0.0	Negligible
183	Hayle Road	16.0	15.5	15.4	15.5	0.0	Negligible	15.5	0.0	Negligible	15.5	0.0	Negligible
184	Hayle Road	16.0	15.5	15.4	15.5	0.0	Negligible	15.5	0.0	Negligible	15.5	0.0	Negligible
185	Hayle Road	16.0	15.6	15.4	15.6	0.0	Negligible	15.6	0.0	Negligible	15.6	0.0	Negligible
186	Hayle Road	16.7	16.2	16.0	16.2	0.0	Negligible	16.2	0.0	Negligible	16.2	0.0	Negligible
187	Hayle Road	16.7	16.2	16.0	16.2	0.0	Negligible	16.2	0.0	Negligible	16.2	0.0	Negligible
188	Hayle Road	16.7	16.2	16.0	16.2	0.0	Negligible	16.2	0.0	Negligible	16.2	0.0	Negligible
189	Hayle Road	16.7	16.2	16.0	16.2	0.0	Negligible	16.2	0.0	Negligible	16.2	0.0	Negligible
190	Hayle Road	16.7	16.2	16.1	16.2	0.0	Negligible	16.2	0.0	Negligible	16.2	0.0	Negligible
191	Knightrider Street	16.8	16.2	16.1	16.2	0.0	Negligible	16.2	0.0	Negligible	16.2	0.0	Negligible
192	Knightrider Street	16.8	16.3	16.1	16.3	0.0	Negligible	16.2	-0.1	Negligible	16.2	-0.1	Negligible
193	Knightrider Street	16.8	16.3	16.1	16.3	0.0	Negligible	16.3	0.0	Negligible	16.3	0.0	Negligible
194	Knightrider Street	16.8	16.3	16.1	16.3	0.0	Negligible	16.3	0.0	Negligible	16.3	0.0	Negligible

Receptor	Road Closest to Receptor	Base 2017 Concentration	DM 2022 Concentration	DM 2027 Concentration	LEZ Option 1 (Red Routing)			LEZ Option 2 (Cleaner and More Efficient Fleet Usage)			LEZ Option 3 (CAZ)		
					LEZ Concentration	Impact	IAQM Impact Descriptor	LEZ Concentration	Impact	IAQM Impact Descriptor	LEZ Concentration	Impact	IAQM Impact Descriptor
195	Wat Tyler Way	16.8	16.3	16.1	16.3	0.0	Negligible	16.3	0.0	Negligible	16.3	0.0	Negligible
196	Wat Tyler Way	16.8	16.3	16.1	16.3	0.0	Negligible	16.3	0.0	Negligible	16.3	0.0	Negligible
197	Wat Tyler Way	16.2	15.8	15.6	15.8	0.0	Negligible	15.8	0.0	Negligible	15.8	0.0	Negligible
198	Wat Tyler Way	16.1	15.7	15.5	15.7	0.0	Negligible	15.7	0.0	Negligible	15.7	0.0	Negligible
199	Wat Tyler Way	16.8	16.3	16.1	16.3	0.0	Negligible	16.3	0.0	Negligible	16.3	0.0	Negligible
200	Wat Tyler Way	16.3	15.8	15.6	15.8	0.0	Negligible	15.8	0.0	Negligible	15.8	0.0	Negligible
201	Wat Tyler Way	16.3	15.8	15.6	15.8	0.0	Negligible	15.8	0.0	Negligible	15.8	0.0	Negligible
202	Wat Tyler Way	16.3	15.8	15.7	15.8	0.0	Negligible	15.8	0.0	Negligible	15.8	0.0	Negligible
203	Wat Tyler Way	16.3	15.8	15.7	15.8	0.0	Negligible	15.8	0.0	Negligible	15.8	0.0	Negligible
204	Wat Tyler Way	16.3	15.8	15.7	15.8	0.0	Negligible	15.8	0.0	Negligible	15.8	0.0	Negligible
205	Wat Tyler Way	16.3	15.8	15.7	15.8	0.0	Negligible	15.8	0.0	Negligible	15.8	0.0	Negligible

Receptor	Road Closest to Receptor	Base 2017 Concentration	DM 2022 Concentration	DM 2027 Concentration	LEZ Option 1 (Red Routing)			LEZ Option 2 (Cleaner and More Efficient Fleet Usage)			LEZ Option 3 (CAZ)		
					LEZ Concentration	Impact	IAQM Impact Descriptor	LEZ Concentration	Impact	IAQM Impact Descriptor	LEZ Concentration	Impact	IAQM Impact Descriptor
206	Wat Tyler Way	17.0	16.4	16.3	16.4	0.0	Negligible	16.4	0.0	Negligible	16.4	0.0	Negligible
207	Wat Tyler Way	17.0	16.4	16.3	16.4	0.0	Negligible	16.4	0.0	Negligible	16.4	0.0	Negligible
208	Wat Tyler Way	17.0	16.5	16.3	16.5	0.0	Negligible	16.4	-0.1	Negligible	16.4	-0.1	Negligible
209	Wat Tyler Way	17.0	16.4	16.3	16.4	0.0	Negligible	16.4	0.0	Negligible	16.4	0.0	Negligible
210	Wat Tyler Way	16.3	15.8	15.6	15.8	0.0	Negligible	15.8	0.0	Negligible	15.8	0.0	Negligible
211	Wat Tyler Way	17.0	16.4	16.3	16.4	0.0	Negligible	16.4	0.0	Negligible	16.4	0.0	Negligible
212	Wat Tyler Way	17.0	16.4	16.3	16.4	0.0	Negligible	16.4	0.0	Negligible	16.4	0.0	Negligible
213	Wat Tyler Way	17.0	16.5	16.3	16.5	0.0	Negligible	16.4	-0.1	Negligible	16.4	-0.1	Negligible
214	Wat Tyler Way	16.3	15.8	15.6	15.8	0.0	Negligible	15.8	0.0	Negligible	15.8	0.0	Negligible
215	Wat Tyler Way	16.3	15.8	15.6	15.8	0.0	Negligible	15.8	0.0	Negligible	15.8	0.0	Negligible
216	Wat Tyler Way	17.0	16.4	16.3	16.4	0.0	Negligible	16.4	0.0	Negligible	16.4	0.0	Negligible

Receptor	Road Closest to Receptor	Base 2017 Concentration	DM 2022 Concentration	DM 2027 Concentration	LEZ Option 1 (Red Routing)			LEZ Option 2 (Cleaner and More Efficient Fleet Usage)			LEZ Option 3 (CAZ)		
					LEZ Concentration	Impact	IAQM Impact Descriptor	LEZ Concentration	Impact	IAQM Impact Descriptor	LEZ Concentration	Impact	IAQM Impact Descriptor
217	Wat Tyler Way	17.1	16.5	16.4	16.5	0.0	Negligible	16.5	0.0	Negligible	16.5	0.0	Negligible
218	Lower Stone Street	17.1	16.5	16.3	16.5	0.0	Negligible	16.5	0.0	Negligible	16.5	0.0	Negligible
219	Lower Stone Street	16.3	15.8	15.7	15.8	0.0	Negligible	15.8	0.0	Negligible	15.8	0.0	Negligible
220	Lower Stone Street	16.3	15.8	15.7	15.8	0.0	Negligible	15.8	0.0	Negligible	15.8	0.0	Negligible
221	Lower Stone Street	16.3	15.8	15.7	15.8	0.0	Negligible	15.8	0.0	Negligible	15.8	0.0	Negligible
222	Lower Stone Street	16.3	15.8	15.7	15.8	0.0	Negligible	15.8	0.0	Negligible	15.8	0.0	Negligible
223	Lower Stone Street	16.3	15.8	15.6	15.8	0.0	Negligible	15.8	0.0	Negligible	15.8	0.0	Negligible
224	Lower Stone Street	16.3	15.8	15.6	15.8	0.0	Negligible	15.8	0.0	Negligible	15.8	0.0	Negligible

Receptor	Road Closest to Receptor	Base 2017 Concentration	DM 2022 Concentration	DM 2027 Concentration	LEZ Option 1 (Red Routing)			LEZ Option 2 (Cleaner and More Efficient Fleet Usage)			LEZ Option 3 (CAZ)		
					LEZ Concentration	Impact	IAQM Impact Descriptor	LEZ Concentration	Impact	IAQM Impact Descriptor	LEZ Concentration	Impact	IAQM Impact Descriptor
225	Lower Stone Street	16.2	15.8	15.6	15.8	0.0	Negligible	15.8	0.0	Negligible	15.8	0.0	Negligible
226	Lower Stone Street	16.3	15.8	15.6	15.8	0.0	Negligible	15.8	0.0	Negligible	15.8	0.0	Negligible
227	Lower Stone Street	17.0	16.4	16.3	16.4	0.0	Negligible	16.4	0.0	Negligible	16.4	0.0	Negligible
228	Lower Stone Street	17.0	16.4	16.3	16.4	0.0	Negligible	16.4	0.0	Negligible	16.4	0.0	Negligible
229	Lower Stone Street	17.0	16.4	16.3	16.4	0.0	Negligible	16.4	0.0	Negligible	16.4	0.0	Negligible
230	Lower Stone Street	17.0	16.4	16.3	16.4	0.0	Negligible	16.4	0.0	Negligible	16.4	0.0	Negligible
231	Lower Stone Street	17.0	16.5	16.3	16.5	0.0	Negligible	16.4	-0.1	Negligible	16.4	-0.1	Negligible
232	Lower Stone Street	17.0	16.5	16.3	16.5	0.0	Negligible	16.4	-0.1	Negligible	16.4	-0.1	Negligible

Receptor	Road Closest to Receptor	Base 2017 Concentration	DM 2022 Concentration	DM 2027 Concentration	LEZ Option 1 (Red Routing)			LEZ Option 2 (Cleaner and More Efficient Fleet Usage)			LEZ Option 3 (CAZ)		
					LEZ Concentration	Impact	IAQM Impact Descriptor	LEZ Concentration	Impact	IAQM Impact Descriptor	LEZ Concentration	Impact	IAQM Impact Descriptor
233	Upper Stone Street	17.0	16.5	16.3	16.5	0.0	Negligible	16.5	0.0	Negligible	16.5	0.0	Negligible
234	Bishops Way	18.3	17.7	17.5	17.7	0.0	Negligible	17.6	-0.1	Negligible	17.6	-0.1	Negligible
235	Fairmeado w	17.5	16.9	16.7	16.9	0.0	Negligible	16.9	0.0	Negligible	16.9	0.0	Negligible
236	Fairmeado w	18.2	17.6	17.4	17.6	0.0	Negligible	17.6	0.0	Negligible	17.6	0.0	Negligible
237	Fairmeado w	18.2	17.6	17.4	17.6	0.0	Negligible	17.6	0.0	Negligible	17.6	0.0	Negligible
238	Fairmeado w	18.3	17.7	17.5	17.7	0.0	Negligible	17.6	-0.1	Negligible	17.6	-0.1	Negligible
239	Loose Road	18.3	17.7	17.5	17.7	0.0	Negligible	17.6	-0.1	Negligible	17.6	-0.1	Negligible

Appendix D

7.5 Receptor Background Pollutants

Table 7-30: Receptor Base Year (2017) and Future Year (2022, 2027) NO_2 and PM_{10} Background Concentrations (µg/m^3)

	Base 2017		Future Year 2022		Future Year 2027	
Receptor ID	NO_2	PM_{10}	NO_2	PM_{10}	NO_2	PM_{10}
1 to 83	11.7	15.8	9.9	15.3	8.7	15.2
84 to 105	14.4	17.0	12.1	16.5	10.6	16.3
106 to 154	11.7	15.8	9.9	15.3	8.7	15.2
155 to 233	14.4	17.0	12.1	16.5	10.6	16.3
234 to 236	13.5	16.7	11.5	16.3	10.1	16.1
237	13.7	16.1	11.6	15.6	10.2	15.5
238	13.5	16.7	11.5	16.3	10.1	16.1
239	11.7	15.8	9.9	15.3	8.7	15.2

Appendix E

7.6 Air Quality Figures

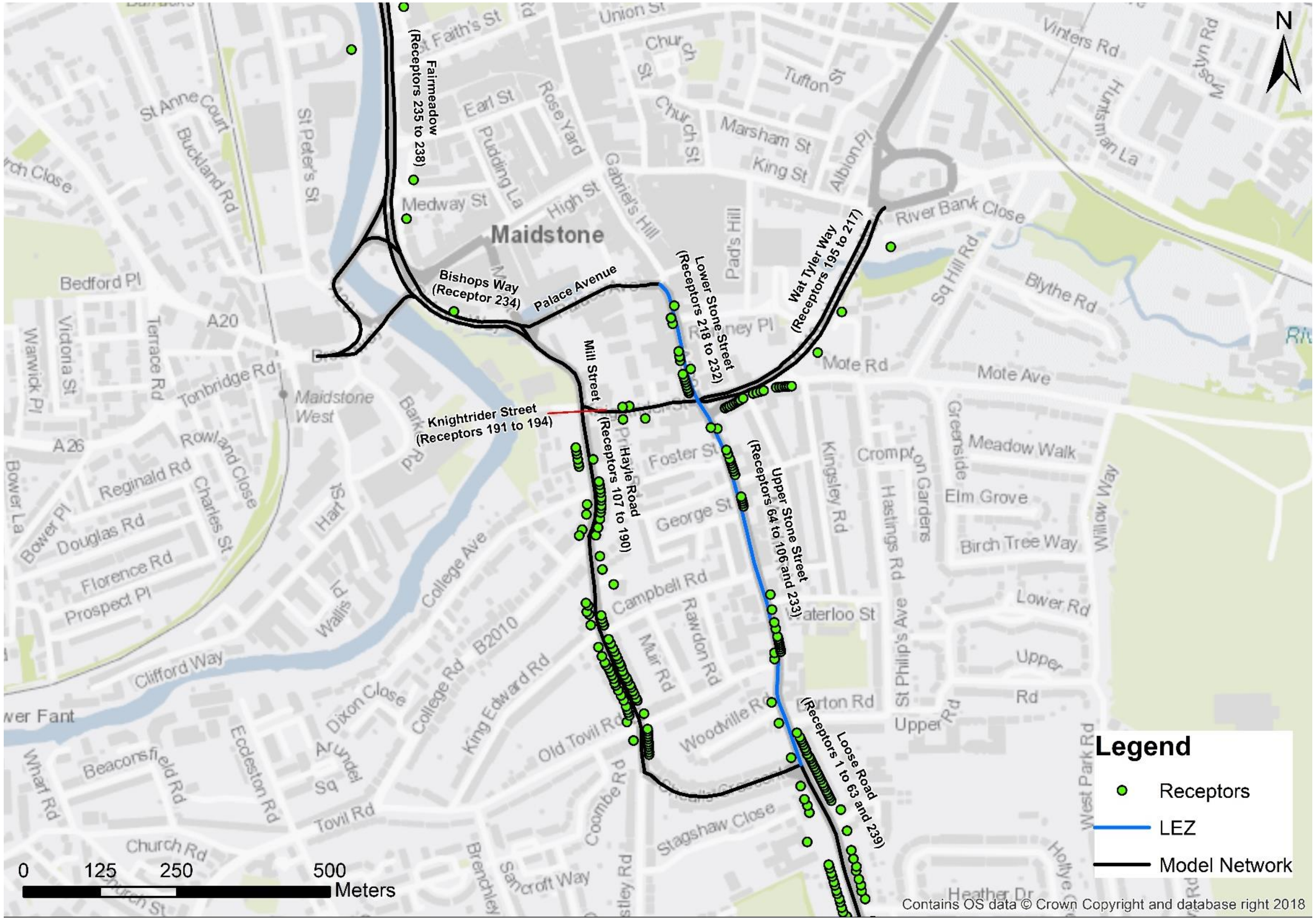

Figure 7-4: Full Receptor Locations and Number of Receptors on Modelled Roads

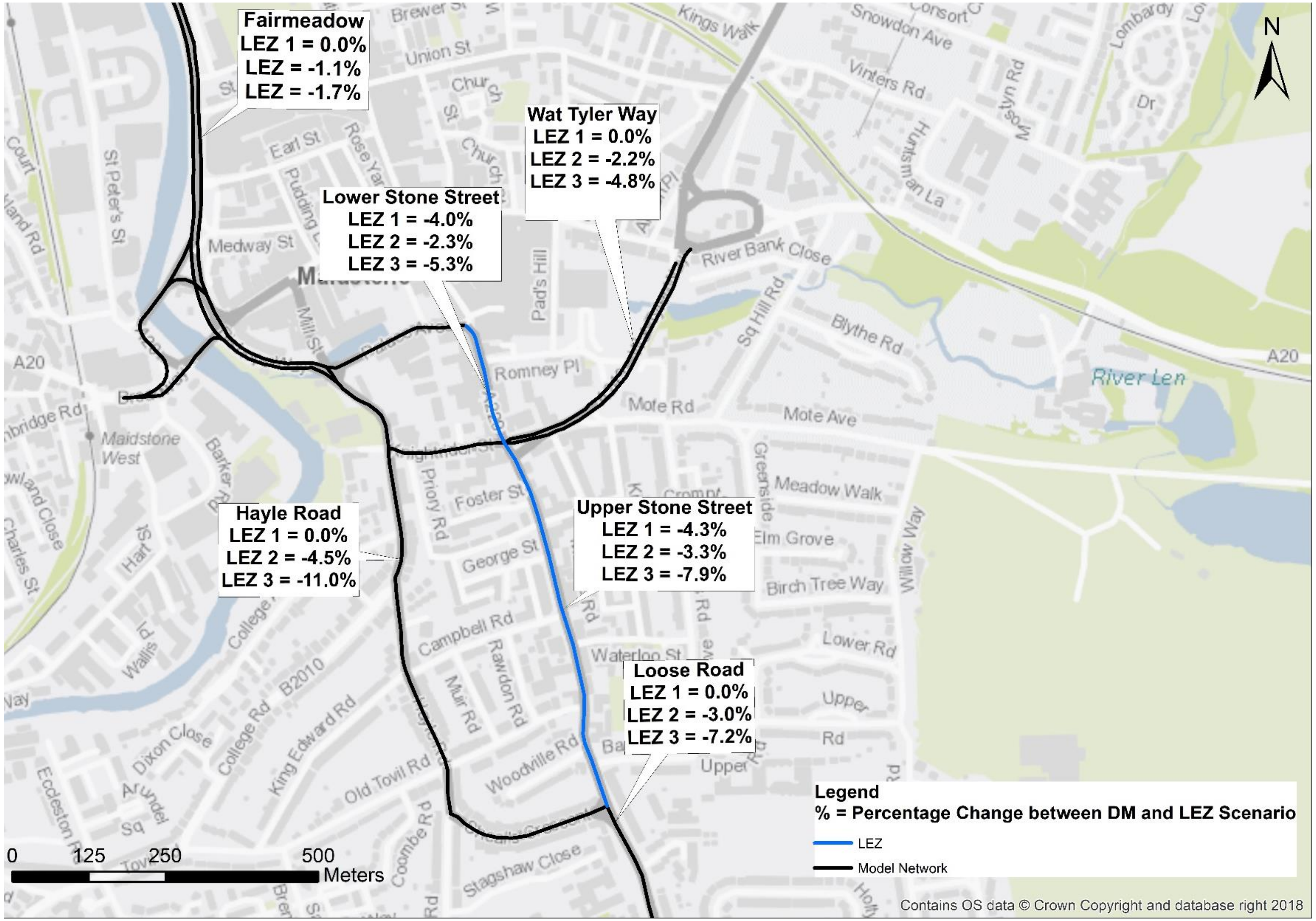

Figure 7-5: Change in Daily NO_x Emissions between Do Minimum 2022 and all LEZ Scenarios (LEZ 1: Red Routing, LEZ 2:Cleaner and more Efficient Fleet Usage, LEZ 3: CAZ)

Figure 7-6: Perceptible IAQM Receptor Impacts on Upper Stone Street for all LEZ Scenarios (between 2022 Do Minimum and LEZ)

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