



Local Implementation Plan 3

Strategic Environmental Assessment

Environmental Report

London Borough of Redbridge

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Quality

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By adopting our QMS on all aspects of the Company, Project Centre aims to achieve the following objectives:

- Ensure a clear understanding of customer requirements;
- Ensure projects are completed to programme and within budget;
- Improve productivity by having consistent procedures;
- Increase flexibility of staff and systems through the adoption of a common approach to staff appraisal and training;
- Continually improve the standard of service we provide internally and externally;
- Achieve continuous and appropriate improvement in all aspects of the company;

Our Quality Management Manual is supported by detailed operational documentation. These relate to codes of practice, technical specifications, work instructions, Key Performance Indicators, and other relevant documentation to form a working set of documents governing the required work practices throughout the Company.

All employees are trained to understand and discharge their individual responsibilities to ensure the effective operation of the Quality Management System.



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1. NON-TECHNICAL SUMMARY

1.1 Introduction

- 1.1.1 Under the Strategic Environmental Assessment (SEA) Directive 2001/42/EC, the London Borough of Redbridge is required to undertake a 'Strategic Environmental Assessment' (SEA) of the Borough's Third Local Implementation Plan (LIP) to determine the likely significant environmental effects of the proposed objectives and initiatives set out therein and to demonstrate how environmental considerations have been integrated into the Local Implementation Plan proposed programmes.
- 1.1.2 The Environmental Report builds on the SEA Scoping Report produced by Project Centre for Redbridge Council in March 2019.
- 1.1.3 The SEA Directive requires authorities to assess the likely significant effects of their plans and programmes on the environment, including on issues such as biodiversity, population, human health, flora and fauna, soil, water, air, climatic factors, material assets, cultural heritage including architectural heritage, landscape and townscape and the interrelationship between these factors.
- 1.1.4 The main requirements introduced by the SEA Regulations are that:
- the findings of the SEA are published in an Environmental Report, which sets out the significant effects of the draft plan, in this case LIP3;
 - consultation is undertaken on the plan and the Environmental Report;
 - the results of consultation are considered in decision-making relating to the adoption of the plan; and
 - information on how the results of the SEA have been considered is made available to the public. It is a systematic process that identifies and predicts the potential significant environmental effects of plans/programmes, informing the decision-making process by testing different alternatives or options against environmental sustainability objectives.

1.2 What is the Redbridge Third Local Implementation Plan?

- 1.2.1 A Local Implementation Plan is a statutory document, which sets out how a London Borough proposes to implement the London Mayor's Transport Strategy (MTS) at a local level. The Redbridge LIP provides details of the Borough's transport programme and funding requirements. It covers the same period as the third MTS and includes specific delivery proposals for the three-year period 2018/19-2022/23 and outlines the Council's framework for the delivery of transport projects, which accord with the nine outcomes set in the third Mayor's Transport Strategy.

1.2.2 It additionally reflects the transport needs and aspirations of the people of Redbridge.

1.3 What is a Strategic Environmental Assessment?

1.3.1 European Directive 2001/42/EC (known as the 'SEA Directive') on the assessment of the effects of certain plans and programmes on the environment was adopted into UK law in July 2004 through the SEA Regulations. SEA is a process which aims to integrate environmental and sustainability considerations into the preparation and adoption of plans and programmes to promote sustainable development.

1.3.2 SEA is a systematic way to examine the likely significant effects of implementing a plan or programme and its reasonable alternatives. It is an iterative process, informing each stage of the development of a plan and feeding back information on how the plan is likely to affect the environment. The stages of the SEA are outlined below:

- **Stage A** – Setting the context and objectives, establishing the baseline and deciding on the scope.
- **Stage B** – Developing and refining alternatives and assessing effects
- **Stage C** – Preparing the Environmental Report
- **Stage D** – Consulting on the draft plan and the Environmental Report
- **Stage E** – Monitoring the significant effects of implementing the plan or programme on the environment

1.3.3 A key stage of the SEA process is the preparation of the Environmental Report (this report) in which the likely significant environmental effects of the plan are described. The purpose of this report is to:

- Aide consultation on the LIP by providing consultees with information on the potential environmental effects.
- Assist Redbridge Council with decision making on the LIP by highlighting the potential environmental effects of the plan.

1.4 Coverage of the Environmental Report

1.4.1 The following items have been examined during the assessment and are presented in the Environmental Report:

- Scope of the SEA and the SEA methodology
- Background information on Redbridge's Third LIP and its main objectives;
- Relationship of the SEA and Third LIP;

- The environmental baseline
- The SEA Framework of objectives
- The compatibility of LIP objectives with SEA objectives
- Development of alternatives for the LIP
- Assessment of the environmental effect of the LIP and its alternatives
- Identification and analysis of environmental problems
- Proposed mitigation and enhancement measures
- Monitoring measures.
- Consultation on Draft LIP3 and SEA

1.5 Environmental Context and baseline

1.5.1 The LIP is influenced by other relevant plans, programmes and strategies at international, national, regional and local levels. At international level, international agreements and EU directives establish requirements and guidance on issues such as sustainable development, climate change, biodiversity, habitats, water and air quality. There are also specific national plans, guidance and strategies on aspects such as transport, planning, climate change, air quality, biodiversity, the historic environment and sustainable development. At the London-wide level, the London Plan and MTS are key policy documents which influence the direction of the LIP. At the local level, Redbridge's Local Development Framework sets a framework for the future development of the Borough.

1.5.2 Key environmental objectives of these various plans and programmes have been considered in the assessment of the Redbridge LIP. The SEA Regulations require that the current state of the environment and its likely evolution without the implementation of the LIP are described.

1.6 SEA Framework

1.6.1 A SEA framework of objectives has been devised from the review of plans and programmes, analysis of baseline data and consideration of environmental issues within the Borough. This framework, which includes a series of environmental objectives, is used to assess the environmental effects of the Third Redbridge LIP.

1.6.2 The SEA Directive does not specifically require the use of objectives or indicators in the SEA, but objectives can usefully demonstrate how environmental effects can be described, analysed and compared. The SEA objectives include:

- Reduce negative impact of the transport network on biodiversity, flora and fauna
- Increase the number of trees on the highway
- Create conditions to improve health and reduce health inequalities
- Reduce CO₂ emissions emanating from ground-based transport
- Minimise soil contamination through land-based transport
- Minimise ground water contamination through land-based transport
- Improve surface water drainage
- Protect and enhance the natural and historic environment and quality and character of Redbridge
- Reduce noise and vibrations from ground-based transport
- Ensure all residents have access to public transport
- Ensure footpaths are maintained and easy to navigate by all users
- Reduce levels of ground-based transport, mainly private cars, HGVs
- Improve road safety to reduce casualties of all road users in Redbridge

1.7 Consideration of Alternatives for the LIP

- 1.7.1 A key element of the SEA process is the proactive consideration of alternative ways of delivering the plan so that an assessment can be made of the best environmental options to take forward. In considering alternatives for the LIP, it is important to remember its role in implementing the MTS at a local level and the extent to which this sets a limit on the range of options that can be considered. Alternatives help inform the initial thinking on those transport initiatives that are prioritised within the LIP Delivery Programme. The aim of the exercise is to assess the variety of options available for implementing the draft LIP objectives and the priorities of the MTS. It also assisted decision making on the preferred options to prioritise, taking account of the potential environmental effects of the whole LIP.

1.8 Mitigation

- 1.8.1 Where significant effects are predicted then the SEA makes recommendation on the measure to prevent, reduce or offset these impacts. Measures may include changes to the Redbridge LIP, requirements for further studies, or recommendation for

specific measures to schemes. Measures to enhance beneficial effects can also be included.

1.9 Monitoring

- 1.9.1 Monitoring helps to keep track of the actual environmental effects of implementing the Redbridge LIP. The Redbridge LIP includes a programme to monitor delivery of the transport initiatives, including annual reports on the performance of the LIP against targets. SEA monitoring is also proposed within the Environmental Report based on the SEA framework. These measures are subject to on-going consultation and will be defined in more detail in the run up to publication of the SEA post adoption statement following adoption of the final LIP which is anticipated in 2019.

2. INTRODUCTION

2.1 Background

- 2.1.1 The geographical area that this SEA covers is the London Borough of Redbridge.
- 2.1.2 Redbridge, like all London local authorities, is required under the Greater London Authority Act 1999 to produce a Local Implementation Plan (LIP) showing how the authority intends to implement policies, strategies and programmes over the life of the plan to implement the Mayor's Third Transport Strategy (MTS3). The preparation of the LIP should also consider the objectives set out in other Mayoral Strategies. The LIP3 covers the same period as the MTS3 and includes specific delivery proposals for the first three-year period of 2018/19 – 2022/23.
- 2.1.3 Under the Strategic Environmental Assessment (SEA) Directive 2001/42/EC, the London Borough of Redbridge is required to undertake an assessment of the Borough's Third Local Implementation Plan (LIP) to determine the likely significant environmental effects of the proposed objectives and initiatives set out therein.

2.2 The SEA and the regulations

- 2.2.1 Under European legislation the Strategic Environmental Assessment (SEA) Directive (2001/42/EC) requires that responsible authorities ensure that due regard for environmental and sustainability impacts are comprehensively integrated when drawing up any plans.
- 2.2.2 The objective of the SEA directive is:
'to provide for a high level of protection of the environment and to contribute to the integration of environmental considerations into the preparation and adoption of plans and programmes with a view to promoting sustainable development'.
- 2.2.3 Thus, a SEA ensures that environmental and sustainability implications of the LIP are adequately identified, addressed, mitigated, communicated to decision makers and monitored. The process also provides adequate opportunities to engage stakeholders, thus reducing the potential harm done to the environment.
- 2.2.4 Article B of the Directive 2001/42/EC requires the Environmental Report and the results of consultation to be considered during the decision-making process. To be effective, an SEA should be undertaken as an iterative process and should be fully integrated into the plan-making process.

2.3 Scope of the SEA

2.3.1 The SEA Directive provides an indicative list of issues/topics that should be considered when looking at the environmental impacts of the LIP. These include:

- Biodiversity, flora and fauna
- Population and human health
- Air quality
- Soils and contaminated land
- Climate change
- Water
- Preparation for flooding
- Cultural heritage, landscape and townscape
- Noise
- Accessibility
- Congestion
- Road safety

2.3.2 The SEA Directive requires that efforts are focussed on significant environmental impacts of the LIP. The Environmental Report is not intended to cover all impact or environmental issues. The Environmental Report is not meant as a replacement for any Council reports that publish data, targets or monitoring information. In addition, the Environmental report is not designed to carry out an Environmental Impact Assessment of individual proposals, policies or programmes. It is a strategic assessment of potential significant impacts of the LIP.

2.3.3 The SEA Directive and Regulations stress the importance of a reasonable approach to the assessment and the need to conduct the assessment at the right level. A reasonable approach considers issues such as resources, time and information available.

2.3.4 The SEA is restricted to the geographical area of the LIP, being in this case, the London Borough of Redbridge. The SEA covers the same period as the LIP, which is from 2018/19 to 2022/23. Elements of the LIP such as targets and the Delivery Plan have a shorter timescale and will be updated during the life of the LIP.

2.4 Third Redbridge LIP

2.4.1 The Third LIP sets out Redbridge's long-term goals and transport objectives for the next 20 years, a three-year programme of investment starting in 2019/20, and includes delivery proposals for the period 2019/20 - 2021/22 and the targets and outcomes the

Borough are seeking to achieve. A more detailed delivery plan is provided for the financial year 2019/20.

2.4.2 This LIP identifies how the London Borough of Redbridge will work towards achieving the MTS goals of:

- Healthy Streets and healthy people
- A good public transport experience
- New homes and jobs

2.4.3 The Council notes that the overarching aim of the MTS is for 80% of all trips in London to be made on foot, by cycle or using public transport by 2041, compared to 63% today. There are different targets set for all London boroughs. The MTS target for Redbridge is 65% of all trips to be made on foot, by cycle or using public transport by 2041 in the Borough, compared to the 48% observed in 2016/17.

2.4.4 Redbridge's transport programmes as set out in the third LIP are:

- Introduction of Low Emission Neighbourhoods
- Complete local cycle network
- Workplace behavioural change initiatives
- Trial demand responsive transport

2.4.5 Redbridge's delivery plan for the period 2019/20 – 2021/22 is indicated in the table below:

London Borough of Redbridge TFL BOROUGH FUNDING 2019/20 to 2021/22	Programme budget		
	Allocated 2019/20	Allocated 2020/21	Allocated 2021/22
	£m	£m	£m
Local transport initiatives	2.076	2.076	2.076
Corridor, Neighbourhoods & Supporting Measures			
Local Transport Initiatives (External bid support)	0.100	0.100	0.100
School Clean Air Zones	0.035	0.200	0.200
Redbridge Low Emission Neighbourhoods	0.600	1.000	1.000
Vision Zero Interventions	0.165	0.165	0.165
Traffic Modelling	0.300	0.100	0
Workplace Travel Project	0.165	0	0
Healthy Streets (Street TAG)	0.050	0.050	0.050
Play Streets	0.045	0.045	0.045
On Street Cycle Parking	0.100	0	0
Cycle Network Development	0.310	0.210	0.310
Active and Sustainable Travel	0.306	0.306	0.306
Subtotal	2.176	2.176	2.176
DISCRETIONARY FUNDING			
Liveable Neighbourhoods	0.940	1.695	0.610
Major Schemes	0	0	0
Principal road renewal	0	0.574	0.574
Bridge strengthening	0	0.200	0.200
Traffic signal modernisation	0	0	0
Sub-total	0.940	2.469	1.384
STRATEGIC FUNDING			
Bus Priority	0.500	0.500	0.500
Borough cycling programme	1.000	1.000	1.000
London Cycle Grid	0	0	0

Crossrail complementary works	0.500	0	0
Mayor's Air Quality Fund	0.470	0.078	0.176
Low Emission Neighbourhoods	0.500	0.400	0
Sub-total	2.970	1.978	1.167
All TfL borough funding	5.986	6.523	5.126

Table 1: Redbridge's delivery plan for the period 2019/20 – 2021/22

2.4.6 The targets and outcomes the Borough is seeking to achieve are indicated below:

Outcomes	Observed	Year	Trajectory	Year	Trajectory	Year
Overall aim: 80% walking, cycling and public transport	48	2014/15 to 2016/17	50	2021	65	2041
Outcome 1a: Londoners to do at least the 20 minutes of active travel they need to stay healthy each day	20	2014/15 to 2016/17	30	2021	70	2041
Outcome 1b: Londoners have access to a safe and pleasant cycle network	0	2016	6	2021	47	2041
Outcome 2: Vision Zero – deaths and serious injuries from all road collisions to be eliminated from our streets	71	2016	56	2021	0	2041
Outcome 3a: Reduce the volume of traffic in London	1119	2016	1089	2021	1035	2041 (-10%)
Outcome 3c: Reduce car ownership in London	109,740	2016	104,200	2021	101,200	2041
Outcome 4a: Reduced CO2 emissions	246,400	2013	225,600	2021	73,300	2041
Outcome 4b: Reduced NOx emissions	800	2013	360	2021	50	2041

Outcome 4c: Reduced particulate emissions (PM10)	84	2013	72	2021	53	2041
Outcome 4d: Reduced particulate emissions (PM2.5)	48	2013	35	2021	25	2041
Outcome 5: Increase public transport use	131	2014/15 to 2016/17	153	2021	230	2041
Outcome 6: Everyone will be able to travel spontaneously and independently	Observed 2015 Average journey time using full network (minutes)	Observed 2015 Average journey time using step-free network (minutes)	Observed 2015 Time difference (minutes)	Trajectory 2041 Average journey time using full network (minutes)	Trajectory 2041 Average journey time using step-free network (minutes)	Trajectory 2041 Time difference (minutes)
	83	99	16	74	79	5
Outcome 7: Bus journeys will be quick and reliable, an attractive alternative to the car (15% change)	10.3	2015	10.4	2021	10.8	2041

Table 2: Redbridge’s borough targets and outcomes

3. SEA METHODOLOGY

3.1 SEA Process

3.1.1 The SEA directive identifies five stages to the SEA process as summarised below:

Stage	Tasks	Output
Stage A	Set context & objectives, establish baseline & scope	Scoping Report
Stage B	Develop and refine alternatives and assess impacts	Environmental Report
Stage C	Prepare the environmental report	Environmental Report
Stage D	Consultation on draft plan and environmental report	Supplementary or revised Environmental Report
Stage E	Monitoring implementation of the plan	SEA post-adoption statement

Table 3: Stages of the SEA process

3.1.2 The scoping report (stage A) was issued in March 2019 to the following organisations for consultation:

- English Heritage/Historic England
- Environment Agency
- Natural England

3.1.3 A general response was received, from Environment Agency, a checklist of likely effects on the environment sent in response to all LIP3 consultations. Natural England and English Heritage/Historic England did not respond. All responses are summarised in chapter 6, together with an indication of how they have been used in the development of this Environment Report.

3.1.4 The Environmental report is the main output of the SEA process. It builds on the content of the Scoping Report (see appendix A) and covers stages B to C. It therefore documents the process by which the objectives of the Local Implementation Plan for Redbridge have been developed, ensuring the integration of SEA aspects likely to be affected by the plan.

3.1.5 The Environmental Report is part of the LIP. The public and Environmental Bodies will be given the opportunity to comment on the draft LIP and Environmental Report (stage D). Following

consultation and revision, the Council will be asked to adopt the LIP.

3.2 SEA and LIP relationship

- 3.2.1 The SEA Directive requires that ‘an Environmental Report shall be prepared in which the likely significant effects on the environment of the plan or programme, and reasonable alternatives considering the objectives and geographical scope of the plan or programme, are identified, described and evaluated.’
- 3.2.2 This environmental report explains the likely significant environmental impacts of the LIP3 proposals, the alternatives considered, and the mitigation measures proposed. It demonstrates compliance with the SEA regulations and will accompany the draft LIP3 through the consultation process to encourage active and transparent consultation on the draft LIP3.
- 3.2.3 Table 4 indicates the main work component stages for the preparation of the Redbridge LIP3, the stages of the SEA process and the links between them.

LIP3 Stage	SEA Stage
Determining the scope of the LIP3; clarifying goals; specifying the problems or challenges	A: Setting the context & objectives, establishing baseline & scope (Scoping Report)
Generating options to resolve these challenges; appraising the options and predicting their effects	B: Developing, refining and appraising strategic options
Selecting preferred options for LIP3 and deciding priorities	B: Assessing the effects of the LIP3 preferred options and proposing mitigation measures
Production of the draft LIP3	C: Prepare Environmental Report
Consultation on draft LIP3	D: Consultation on the Environmental Report
Production of final LIP3	D: Prepare a supplementary or revised Environmental Report if necessary
Adoption of LIP3	E: SEA post-adoption statement

Table 4: LIP3 and SEA Process Stages and Links

4. REVIEW OF RELEVANT POLICIES

4.1 Mayor's Transport Strategy

4.1.1 The new MTS (2018) sets out the plans to transform London's streets, improve public transport, improve health and create opportunities for new homes and jobs. To achieve this, the Mayor wants to encourage more people to walk, cycle and use public transport.

4.1.2 The city's population is forecast to rise from 9 million people today to 10.8 million in 2041, which generates significant transport challenges. As such, new ways need to be found to plan and manage this expected growth.

4.1.3 The Mayor, through TfL and the Boroughs, and working with stakeholders, will reduce Londoners' dependency on cars in favour of active, efficient and sustainable modes of travel.

4.1.4 The key aims of the MTS are listed below:

- 80% of all trips in London to be made on foot, by cycle or using public transport by 2041
- By 2041, for all Londoners to do at least the 20 minutes of active travel they need to stay healthy each day
- No one to be killed in or by a London bus by 2030, and for deaths and serious injuries from all road collisions to be eliminated from the streets by 2041.
- To reduce freight traffic in the central London morning peak by 10% on current levels by 2026, and to reduce total London traffic by 10-15% by 2041,
- All taxis and PHVs would be zero emission capable by 2033 at the latest, all buses would be zero emission by 2037 and London's entire transport system would be zero emission by 2050.
- To open Crossrail 2 by the early 2030s
- To create a London suburban metro
- To improve the overall accessibility of the transport system including, by 2041, halving the average additional time taken to make a public transport journey on the step-free network compared to the full network.
- To ensure that regeneration and new development schemes incorporate the Mayor's principles of Good Growth,

4.1.5 The objectives of the MTS are:

- To reduce emissions and concentrations of harmful atmospheric pollutants, particularly in areas of poorest air quality and reduce exposure;

- To ensure London adapts and becomes more resilient to the impacts of climate change and extreme weather events, such as flood, drought and heat risks;
- To reduce the threat of climate change through reducing greenhouse gas emissions and moving towards a zero carbon London by 2050; and
- To improve the mental and physical health and wellbeing of Londoners and to reduce health inequalities across the city and between communities.

4.1.6 To implement the strategy's proposals successfully there is a requirement to:

- Develop and deliver strategies and plans to achieve the Mayor's priorities;
- Prepare for new technology and unpredictable changes to the way we live;
- Find a more efficient and fair way of paying for transport projects in London; and
- Work with partners across London and beyond, including the Government, London Boroughs, other transport operators, business and other stakeholders.

4.1.7 By 2041, the MTS is expected to have delivered the following nine outcomes:

	MTS Outcomes
1	London's streets will be healthy, and more Londoners will travel actively;
2	London's streets will be safe and secure;
3	London's streets will be used more efficiently and have less traffic on them;
4	London's streets will be clean and green;
5	The public transport network will meet the needs of a growing London;
6	Public transport will be safe, affordable and accessible to all;
7	Journeys by public transport will be pleasant, fast and reliable;
8	Active, efficient and sustainable travel will be the best option in new developments; and
9	Transport investment will unlock the delivery of new homes and jobs.

Table 5: MTS Outcomes

4.2 National, London and local policies

4.2.1 Both LIP3 and the SEA should be set in the context of international, national, regional and local objectives along with environmental, strategic planning, transport, health and social policies.

4.2.2 The following national documents have been considered in the preparation of the LIP3 and SEA.

- Air Transport White Paper (2010)
- Equality Act (2010)
- UK Post-2010 Biodiversity Framework (2012)
- National Planning Policy Framework (2012)
- The Climate Change Act (2008)
- Historic England Three Year Corporate Plan 2018 – 2021 (2018)
- UK Plan for Tackling Roadside Nitrogen Dioxide Concentrations (2017)

4.2.3 The following Greater London documents have been reviewed:

- Better Health, Better Environment- a GLA Guide for London Borough's (2013)
- London Environment Strategy (2018)
- Mayor of London's Draft Economic Development Strategy for London (2017)
- Mayor of London's Water Strategy (2011)
- Mayor of London's Vision for Cycling in London (2013)
- Mayor of London's Vision Zero Action Plan (2018)
- Mayor of London's Health Inequalities Strategy (2017)
- Mayor of London's Climate Change Mitigation and Energy Strategy (2015)
- The London Plan (2016)
- The London Plan Habitat Targets (2017)

4.2.4 Redbridge's policy and legislative context includes:

- Redbridge A Health & Wellbeing Strategy (2017-2021)
- Redbridge Air Quality (2012)
- Redbridge Biodiversity Action Plan
- Redbridge Corporate Strategy (2014-2018)
- Redbridge Environmental Action Plan 2010-2018 (2013)
- Redbridge Local Flood Risk Management Strategy (2015)

- Redbridge 2nd Local Implementation Plan
- Redbridge Local Plan 2015-2030 (2018)
- Redbridge Strategic Flood Risk Assessment (2016)
- Redbridge Sustainable Design and Construction SPD (2014)
- Redbridge Trees & Landscaping SPD (2006)

4.2.5 The above policies and plans support each other in protecting and enhancing the environment.

5. ENVIRONMENTAL BASELINE

5.1 Redbridge local context

- 5.1.1 The geographical area that this SEA covers is the London Borough of Redbridge. The Borough shares its borders with the London Boroughs of Havering, Barking & Dagenham, Newham and Waltham Forest to the east, southeast, south and west respectively, and with Epping Forest District Council to the north.
- 5.1.2 The London Borough of Redbridge is divided into a total of twenty-two wards, covering 56.41km² in northeast London, and is the ninth largest of the thirty-two Boroughs by area.
- 5.1.3 Redbridge is connected to the rest of London via road, London Underground and Overground services.
- 5.1.4 The A12, A406 and M11 are major transport routes within the Borough. The A12 provides a westbound route to Stratford and an eastbound route to Romford. The A406 provides a north-eastbound to Walthamstow and a southbound route to Barking.
- 5.1.5 The M11 motorway starts in South Woodford at Junction 4 with the North Circular (A406) heading in an north-eastbound direction where it meets the M25 motorway at Junction 6.
- 5.1.6 There are ten London Underground stations in the Borough that provide access to the Central Line.
- 5.1.7 There are four railway stations in the Borough (Newbury Park, Ilford Seven Kings and Chadwell Heath), all of which are served by TfL Rail, though, Seven Kings is also served by Greater Anglia Rail.

5.2 Biodiversity, flora and fauna

- 5.2.1 Redbridge has a rich and varied array of plants and animals (one third of the Borough lies within the Green Belt and there are over 646 hectares of managed parkland). There are many great examples of habitat types, particularly old woodlands and hedgerows. The open spaces of the Roding Valley, Fairlop Plain and Claybury Park also contain important habitats and species. Fairlop Plain is particularly notable for birds.
- 5.2.2 Claybury Woods was found, in a recent spider survey, to be one of the most important woodlands in London and Essex for a number of rare and interesting species.
- 5.2.3 The Borough supports a number of protected species including eight bat species, badger, great crested newt and reptiles like grass snake and common lizard. Several United Kingdom (UK) Biodiversity Action Plan (BAP) species are also found in the Borough, including the water vole, skylark and brown hare.

- 5.2.4 There are two Sites of Special Scientific Interest (SSSI) in the Borough – Hainault Forest and Epping Forest. There is also one Local Nature Reserve – Hainault Lodge Local Nature Reserve. Thirty-five sites have been designated as Sites of Importance for Nature Conservation (SINC), five of which are sites of Metropolitan Importance (Epping Forest, Epping Forest South, Hainault Forest, Claybury Wood and the River Roding north of Ilford).
- 5.2.5 Main rivers in Redbridge include the River Roding, which bisects the Borough and is an important ecological corridor and linear green space, its tributaries and the largely culverted Cran Brook and Seven Kings Water. There is also the River Ching that flows along the north-west borough boundary.
- 5.2.6 The Water Framework Directive (WFD) is a European directive that imposes legal requirements to protect and improve the water environment (including rivers, coasts, estuaries, lakes, ground waters and canals). Physical works can modify the size and shape of a watercourse, reduce or increase the flow of water, introduce artificial materials or remove sediment and/or vegetation.
- 5.2.7 For its Ecological status, the River Roding was given a ‘Poor’ classification in 2012. The Severn Kings Water received an Ecological classification ‘Moderate’¹.
- 5.2.8 It is not foreseen that the LIP in itself will have any significant impact on biodiversity, flora and fauna.

5.3 Population and human health

- 5.3.1 Population Census data obtained in 2011 identified that the total population within the London Borough of Redbridge was 278,970. Population projection figures produced by the Office for National Statistics (ONS) suggest that the estimated population in Redbridge in 2018 was 308,300, which is expected to rise to 329,500 by 2023.
- 5.3.2 Total population estimate comparisons across London for 2018 (2016-based projections) determined that the London Borough of Redbridge had a higher population than over half of all London Boroughs, however, it has only the 14th highest population despite being 9th largest in size.
- 5.3.3 At the time of the 2011 Census, Loxford was the most populated ward in the Borough.
- 5.3.4 Redbridge has a white population proportion of 42.6%, which is below the London average (59.8%).

¹ Environment Agency

- 5.3.5 The LIP provides Redbridge with the opportunity to encourage increased activity within the resident population and with those who visit or work in the Borough.
- 5.3.6 The LIP contains many proposals which are aimed at encouraging active travel, through improvements to the public realm, schemes that offer residents and visitors with opportunity to travel by means other than the car and providing healthier and cleaner streets. These proposals are in line with the aims of the MTS and will have a beneficial impact on human health and wellbeing.
- 5.3.7 The LIP includes proposals to improve personal safety and security, through reducing the fear of crime and antisocial behaviour. This in turn, will encourage residents to travel actively and have a beneficial impact on human health and wellbeing.
- 5.3.8 The LIP also contains proposals to improve accessibility for wheelchair users, older people and other user groups such as people with pushchairs, for example, improving bus stop accessibility for these user groups. Redbridge will ensure the needs of the less mobile are prioritised when delivering public realm improvements, allowing these user groups the freedom to choose how they travel in the Borough. These proposals are in line with the MTS and will have a positive impact on accessibility.

5.4 Air quality

- 5.4.1 Air pollution is associated with a number of adverse health impacts and is a contributing factor in the onset of heart disease and cancer.
- 5.4.2 Redbridge has a statutory duty to comply with the London Local Air Quality Management (LLAWM) Regime under the Environment Act 1995.
- 5.4.3 In 2003 the Borough was declared as an Air Quality Management Area (AQMA). This was because Redbridge was unable to achieve national air quality objectives for particulates (PM₁₀) and nitrogen dioxide (NO₂), mostly as a result of road traffic.
- 5.4.4 Nitric Oxide (Nitrogen Oxide or Nitrogen Monoxide) (NO) and Nitrogen Dioxide (NO₂) pollution arises primarily as emissions from combustion processes such as vehicle engines. PM₁₀ and PM_{2.5} are also pollutant particulates of concern. These are microscopic sized soot particles or liquid droplets suspended in the air. The smaller the particles, the deeper they can penetrate the respiratory system, making it more hazardous to breathe.
- 5.4.5 A requirement for declaring an AQMA under the Environmental Act 1995 is to produce an Air Quality Action Plan (AQAP). The AQAP (2018 – 2023) outlines the actions Redbridge Council will

take to improve local air quality and work towards complying with the governments air quality objectives. The priority is to reduce emissions from developments/new buildings, create awareness, including public health, managing freight, cleaner transport and fleet actions.

- 5.4.6 Major hotspots for poor quality have been identified on the TfL road network, which the Borough has limited direct control, which reduces the Borough's ability to improve air quality from vehicular traffic. This indicates that an effective air quality strategy requires a coordinated approach, involving not only Greenwich, but also regional bodies such as the Greater London Authority, Transport for London and Highways England.
- 5.4.7 The focus areas are associated with the major road network that uses the Borough. From an air quality perspective, this provides a focus for LIP measures that will alleviate congestion and encourage the smooth flow of traffic and provide alternative modes of sustainable travel.

5.5 Climate change

- 5.5.1 Road and rail traffic emit carbon dioxide, a greenhouse gas that contributes towards climate change. Infrastructure, buildings, businesses, and community cohesion are all likely to feel the impacts of more regular severe flooding, heatwaves, extreme weather events and reduced access to important resources like water. It is a key area for councils to engage in resilience thinking.
- 5.5.2 The LIP is expected to generate positive environmental improvements, though the effects on climate change will be difficult to monitor and quantify. The important contribution of sustainable transport policies to the climate change agenda is recognised, though the LIP is unlikely to have a significant impact.

5.6 Soils and contaminated land

- 5.6.1 The solid geology underlying Redbridge is variable, but consists largely of Thames Group – Clay, Silt, Sand and Gravel, and Bracklesham Group and Barton Group (undifferentiated) – Sand, Silt and Clay.
- 5.6.2 Superficial deposits across the borough consist of Alluvium – Clay, Silt and Sand, River Terrace Deposits (Undifferentiated)- Sand and Gravel, and Till – Diamicton.
- 5.6.3 All contaminated sites will be recorded in a Public 'Contaminated Land' Register. Currently, there are no sites recorded in the register for Redbridge.

- 5.6.4 It is not foreseen that the LIP will have any significant impact on soil quality, and as such this topic will not be discussed in depth in the Environmental Report.
- 5.6.5 It is not foreseen that the LIP will have any significant impact on soil quality.

5.7 Water

- 5.7.1 The Water Framework Directive (WFD) is a European directive that imposes legal requirements to protect and improve the water environment (including rivers, coasts, estuaries, lakes, ground waters and canals). Physical works can modify the size and shape of a watercourse, reduce or increase the flow of water, introduce artificial materials or remove sediment and/or vegetation.
- 5.7.2 Within the London Borough of Redbridge there are three main rivers. The River Roding is the most westerly river in the Borough and marks the southernmost part of the boundary between the London Borough of Newham and the London Borough of Barking and Dagenham. The Seven Kings Water and the largely culverted Cran Brook are located within the Borough as is the River Ching that flows along the north-west borough boundary.
- 5.7.3 The River Roding and Seven Kings Water are the only two designated water bodies within the Borough which are relevant to the Water Framework Directive. The ecological and chemical status of these rivers are classified, with the River Roding classed as 'Poor' ecologically, and 'Moderate' chemically. The Seven Kings Water was classed as 'Moderate' for both Ecological and Chemical status.
- 5.7.4 There are seven ground water source protection zones (GWSPZ) within the Borough, two in the south and southwest edges of the Borough (outer GWSPZ) and five wholly inside the Borough boundary (inner and outer GWSPZ) Three of the five inner zones are located along the Roding near South Woodford and Wanstead and two are near Little Heath, close to Seven Kings Water.

5.8 Preparation for Flooding

- 5.8.1 Under the Flood Risk Regulations 2009, Redbridge was required to carry out a Preliminary Flood Risk Assessment (PFRA). This is a high-level screening exercise to identify areas of significant flood risk within a given study area. The flooding could be caused by surface water, groundwater, ordinary water courses or canals.
- 5.8.2 The London Borough of Redbridge is potentially vulnerable to flooding from multiple sources including fluvial and tidal, surface

water and ordinary watercourses, sewer, groundwater and artificial sources.

- 5.8.3 The River Roding, the Cran Brook and the Seven Kings Water are the main sources of fluvial risk in the Borough. The River Roding is also affected by the tidal influence from the River Thames downstream from Ilford.
- 5.8.4 Redbridge has experienced limited flooding in recent years, with some significant events during the past couple of decades. There were fluvial and pluvial flooding combined in 2000 alongside parts of the River Roding. This occurred after prolonged rainfall events in the Upper Roding catchment and an intense period of rainfall in the Woodford catchment. The river rising resulted in water back flowing through the surface water sewer and highway gullies. Other events occurred in 2009, 2012 and 2014.
- 5.8.5 To provide guidance and information for residents, businesses and developers to help understand and better manage flood risk within the Borough, Redbridge has produced a Local Flood Risk Management Strategy (2015). The strategy sets out Redbridge's five overarching objectives to effectively manage flood risk:
- Objective 1. Increase the knowledge and understanding of flood risk in Redbridge;
 - Objective 2. Prevent any increase in flood risk from new developments and reduce flood risk at existing sites where possible;
 - Objective 3. Increase residents' and businesses awareness of flood risk and actions that should be taken;
 - Objective 4. Promote flood alleviation schemes where the potential benefits are significant;
 - Objective 5. Ensure flood alleviation schemes deliver environmental benefits where the opportunities exist.
- 5.8.6 It is not foreseen that the LIP will have any significant impact on flooding in the Borough.

5.9 Cultural heritage, landscape and townscape

- 5.9.1 The Borough of Redbridge spans 5,500 hectares and has a wide variety of both typology and scale of spaces. In addition, there are 170 hectares of further open spaces, many of which are classified as Metropolitan Open Land (MOL). Open spaces are characterised into Metropolitan Parks, District Parks, Local Parks and Small Local Parks. In total, approximately 40% of the Borough is open space, including publicly accessible spaces, private land, agricultural land, woodland, playing fields, numerous park typologies, play areas, allotments and cemeteries.

- 5.9.2 The land in the north of the Borough is typically country parks, woodlands and farmlands, whilst small urban parks and linear vegetated belts along infrastructure corridors and the River Roding are found in the south and east of the Borough. The townscape is predominantly urban, comprising of residential neighbourhoods, the character of which is low density 2-3 storey terraced housing, however, there are public parks and opens spaces interspersed throughout.
- 5.9.3 There are currently sixteen conservation areas (an area of special architectural or historic interest, the character or appearance of which it is desirable to preserve or enhance) in the Borough.
- 5.9.4 As of 2019. There are 110 buildings within the Borough that are statutory listed buildings (a building or structure "of special architectural or historic interest"). These include:
- A single Grade I building (Church of St Mary, Wanstead), which is considered to be a building that is of exceptional national interest;
 - Twelve Grade II* buildings of particularly important buildings of more than special interest. These include Christ Church, Valentines Mansion and Hurst House, The Naked Beauty.
 - Ninety-seven Grade II buildings of that are of special interest, warranting every effort to preserve them. These include Redbridge Underground Station, Church of the Holy Trinity and the Church of St Peter.
- 5.9.5 There are no Scheduled Ancient Monuments (SAM) within the Borough.
- 5.9.6 As of 2016, thirty-six Archaeological Priority Areas have been identified in the Borough. These include Elmhurst Gardens, Gayshams Hall, Little Beehive and Wanstead Flats.
- 5.9.7 Historic England publish an annual register of Heritage at Risk, a region by region list of all the Grade I and II* (and Grade II in London) listed buildings, scheduled monuments and registered parks and gardens, battlefields and protected wreck sites in England known to be 'at risk'. Since 2009, the register has also included conservation areas designated by local authorities that are considered to be in certain or potential risk. Three of the conservation areas (The Bungalow Estate, formerly Mayfield, Wanstead Park and Wanstead Bridge) are considered to be at risk, as classified by Historic England.
- 5.9.8 In addition to the three conservation areas, Redbridge has seven sites recorded on the Heritage at Risk register, these are;

- Church of St Mary, Overton Drive, Wanstead, E11 (Listed Building Grade I)
- Wanstead Park E12 (Registered Park and Garden Grade II*)
- Garden Temple in Garden of Temple House, 14 The Avenue, Wanstead, E11 (Listed Building Grade II*)
- 6 and 8 High Street, E11 (Listed Building Grade II)
- 831 High Road, Ilford (Listed Building Grade II)
- Dr Johnson public house, Longwood Gardens, Ilford (Listed Building Grade II)
- The Grotto, Wanstead Park, E11 (Listed Building Grade II)

5.9.9 There are five heritage land sites at Epping Forest, Hainault Forest, Wanstead Park, Wanstead Flats and Claybury Ridge. City of London Cemetery (Grade I). Wanstead Park (Grade II) * & Valentines Park (Grade II) are the only registered parks and gardens sites in Redbridge.

5.10 Noise

5.10.1 The main issues relating to noise are the current patterns of problems relating to road traffic on the primary road network across the Borough.

5.10.2 A strategic noise mapping exercise was undertaken by Defra in 2012 to meet the requirements of the Environmental Noise Directive (Directive 2002/49/EC) and the Environmental Noise (England) Regulations 2006 (as amended). Results for the $L_{Aeq,16h}$ indicator, which indicated the annual average noise level (in dB) for the 16-hour period between 0700-2300, showed values in of 75db and over on the primary road network and values of 55-65db on neighbouring local roads.

5.10.3 It is not foreseen that the LIP will have any significant impact on noise in the Borough.

5.11 Accessibility

5.11.1 Transport for London's Greater London PTAL (Public Transport Access Levels) mapping for 2016 indicated access to public transport within Redbridge is generally very low across the Borough (PTAL 1-3), though PTAL levels in the Borough are highest in Ilford Town (PTAL 6a).

5.11.2 PTALs quantify relative connectivity to the public transport network for any location in London. The term 'connectivity to the network' indicates that the PTAL measure focuses on the proximity to public transport services, and not on where these services actually take people to or indeed how accessible they are to all members of the population.

5.11.3 Local authorities are required to carry out accessibility planning to ensure older people have access to facilities such as hospitals and GP's surgeries through good and accessible public and private transport facilities. It is important for Redbridge to ensure all residents have public transport access to this important facility.

5.11.4 The LIP proposals will improve accessibility for wheelchair users, older people and other user groups such as people with pushchairs, for example, improving bus stop accessibility for these user groups. Implementation of the LIP should also have a significantly positive impact in areas where accessibility to employment opportunities are low, with a key objective to ensure sustainable access to Redbridge's employment areas.

5.12 Congestion

5.12.1 Traffic congestion in northeast London places a high economic, environmental and social cost on the area. Information sourced from the Department for Transport showed that the number of vehicles recorded travelling on Redbridge roads had increased from 2000, peaking in 2011.

5.12.2 There was an increase in the number of vehicles between 2004 and 2006, after which point the number of recorded vehicles fell till 2008. The number of cars on Redbridge's roads increased again until 2011, after which time there was no significant change in volume.

5.12.3 Redbridge is an Outer London Borough. Based on information provided by TfL, Redbridge experiences higher than average volumes of motor vehicles on its roads than the average volume of motor vehicles recorded in Outer, Inner, Central and Greater London and is slightly lower than the average volume of motor vehicles recorded in Great Britain.

5.12.4 A travel modal shift from the private car to sustainable travel modes can reduce traffic congestion and air pollution in urban areas. The TfL publication *Travel in London: Report Ten (2017)* indicates trip-based active, efficient and sustainable mode share by Borough of residence.

5.12.5 Outer London residents have lower overall active, efficient and sustainable mode shares than Inner London residents. From Figure 27, it can be seen that Redbridge has an active, efficient and sustainable mode share of approximately 48%, which is amongst the lowest of all London Borough's (only five Boroughs are lower).

5.12.6 Implementation of the LIP should have a significant positive impact on congestion in the London Borough of Redbridge.

5.13 Road safety

- 5.13.1 The Borough is committed to reducing the number of people killed or seriously injured (KSI) as a result of road traffic collisions, with a focus on areas in the vicinity of schools and KSI 'hotspots'. The most recent collision statistics collated for the TfL publication *Collision Levels in Greater London 2011-2013 (2015)*, depicting collision rates per kilometre by Borough and road class, show that Redbridge has the 15th lowest collision rates for 'all roads' in London. However, no number of KSI's should be considered acceptable, no matter how low that number is.
- 5.13.2 The Mayor of London has set out wide-ranging plans that will transform the capital's streets, public places and deliver future growth. Proposals in the strategy include delivering a 'Vision Zero' approach in London to make its streets safer for all, where Vision Zero aspires to a time where there will be no KSI's on London's roads.
- 5.13.3 Implementation of the LIP should have a significant positive impact on road safety in the Borough of Redbridge.

5.14 SEA Objectives

- 5.14.1 The state of the environment can be influenced through the implementation of the LIP. However, not all environmental areas or SEA factors will be influenced to the same degree.
- 5.14.2 The significance of environmental impacts (positive or negative) because of the LIP on SEA environmental topics is detailed in Table 7 in Chapter 7.
- 5.14.3 SEA objectives for Redbridge's transport strategy have been developed in tandem with the development of Redbridge's transport objectives and the baseline for SEA topics.
- 5.14.4 Table 6 outlines SEA objectives against SEA topics and key relevant LIP policies. SEA objectives have been set for all SEA topics to ensure a thorough scoping exercise. The Council will take a reasonable approach towards monitoring and prioritise those indicators/targets that are associated with those SEA topics that have been identified to have likely significant environmental effects due to the implementation of the LIP.

SEA Topic	SEA Objective	Key relevant LIP objectives [based on MTS outcomes]
Biodiversity, flora and fauna	Reduce negative impact of the transport network on biodiversity, flora and fauna Increase the number of trees on the highway	4
Population and human health	Create conditions to improve health and reduce health inequalities	1, 4
Air Quality	Reduce emissions emanating from ground-based transport	1, 3, 4, 9
Climate change	Reduce CO ₂ emissions emanating from ground-based transport	1, 3, 4, 9
Soils and contaminated land	Minimise soil contamination through land-based transport	3
Water	Minimise ground water contamination through land-based transport	3
Preparation for flooding	Improve surface water drainage	4
Cultural heritage, landscape and townscape	Protect and enhance the historic environment especially heritage assets at risk.	7

	Protect and enhance the quality and character of Redbridge	
Noise	Reduce noise and vibrations from ground-based transport	3
Accessibility	Ensure all residents have access to public transport Ensure footpaths are maintained and easy to navigate by all users	6, 8
Congestion	Reduce levels of ground-based transport, mainly private cars, HGVs	3, 9
Road safety	Improve road safety by reducing casualties of all road users in Redbridge	2

Table 6: SEA objectives, topics and relevant LIP objectives

6. CONSULTATION RESPONSE

6.1 Summary of comments from environmental bodies

6.1.1 Consultation is an integral part of both the LIP and SEA process. The SEA Directive and Regulations required the Responsible Authority to consult with Environmental Bodies on the scoping Report. Responses to the consultation have been used to refine the LIP and this Environmental Report. The Environmental Bodies consulted, and summaries of their responses, are noted below:

6.1.2 **Natural England:** No comments.

6.1.3 **Environment Agency:** The Environment Agency sent a generic checklist regarding the Scoping Report. As part of the Strategic Environmental Assessment (SEA), the Environment Agency would like the SEA to consider the likely effects on the environment including on:

- Climatic factors e.g. climate change
- Air quality and human health
- Water and soil
- Biodiversity, flora and fauna
- Material assets e.g. sustainable use of resources and waste

6.1.4 **English Heritage/Historic England:** No comments.

6.2 Response

6.2.1 Natural England – no response required

6.2.2 Environment Agency – Table 7 of this ER does consider the likely effects on the environmental factors [as set out in their list reproduced in 6.1.3]

6.2.3 Historic England – no response required

7. ENVIRONMENTAL EFFECTS ASSESSMENT

7.1 Identification and analysis of environmental problems

7.1.1 The SEA Directive requires that environmental problems are identified and analysed in the Environment Report. In this chapter both environmental problems and opportunities have been identified, considering the baseline exercise and the draft LIP. The table also identifies where the LIP is deemed to have significant effects (positive or negative) on the SEA topics.

SEA Topic	Problems	Opportunities – LIP improving or mitigating problem	Likely effects
Biodiversity, flora and fauna	Loss of trees	The LIP provides safety and environmental schemes providing opportunities for tree planting	Insignificant – positive
	Loss/degradation of railway line ecosystems	The LIP strongly supports rail travel as a sustainable form of public transport and the environmentally sensitive management of railway land	Insignificant – neutral or positive
	Transport related impacts on biodiversity	The LIP prioritises walking, cycling and public transport over motorised road traffic, setting targets to reduce road traffic and reduction in CO2 and AQ emissions from land-based transport	Insignificant – positive
Population and human health	Road safety: road traffic casualties	The LIP sets targets to reduce road traffic casualties. The LIP includes safety and environmental schemes aimed at improving road safety, in particular	Significant – positive

		for pedestrians and cyclists and those with mobility impairments.	
	Accessibility: exclusion of people with mobility impairment or those living in deprived areas	The LIP includes personal mobility schemes and safety and environmental schemes in areas of high deprivation	
	Community severance: high road traffic volume, HGV volume, transport related infrastructure	The LIP includes targets for reducing traffic volumes and car ownership.	Significant - positive
	Security: crime and fear of crime	The LIP will include safety and environmental enhancement schemes creating a more secure transport network and reducing the opportunity for crime	Significant - positive
	Unemployment: people not being able to access employment because of lack of access to transport	The LIP included policies and proposals to make travel in Greenwich fairer	Significant - positive
	Social exclusion: people or communities not being able to access services because of lack of access to transport	The LIP includes policies and proposals to make travel in Greenwich fairer and to reduce barriers to exclusion	Significant - positive
	Deprivation - people or communities not being able to access work or services because of a lack of access to transport	The LIP includes policies and proposals to make travel in Greenwich fairer and to reduce barriers to exclusion	Significant - positive

	<p>Noise and vibration: increasing traffic volume, increase in heavy goods vehicles. Poor condition of material assets such as road</p> <p>Physical fitness, mental health and quality of life: significant increase in obesity rates</p>	<p>The LIP includes approaches to reduce the impact of heavy goods vehicles and safety and environmental schemes</p> <p>The LIP prioritises walking and cycling including school and work travel planning, cycle training and has targets for reducing traffic and car ownership</p>	<p>Significant - positive</p> <p>Significant positive</p>
Air Quality	<p>Reduced air quality: increasing road traffic volume congestion, CO₂, NO₂ and particulates</p>	<p>The LIP prioritises sustainable modes of travel and has targets to reduce traffic and car ownership</p> <p>The LIP has targets to reduce CO₂ and other pollutants</p>	<p>Significant - positive</p>
Climate change	<p>Extreme weather conditions: increasing risk of flooding, disruption to the transport network, deterioration of road network</p>	<p>The LIP promotes the use of sustainable and environmentally friendly materials and construction techniques. The LIP monitors and improves principal road condition</p>	<p>Significant - positive</p>
Soils and contaminated land	<p>Contamination through land- based transport</p>	<p>The LIP promotes the use of sustainable and environmentally friendly materials and construction techniques.</p>	<p>Significant - positive</p>
Water	<p>Ground water contamination through land- based transport</p>	<p>The LIP promotes the use of sustainable and environmentally</p>	<p>Insignificant - positive</p>

		friendly materials and construction techniques.	
Preparation for flooding	Surface water flooding: insufficient drainage capacity for runoff from hard surfacing.	The LIP supports sustainable urban drainage techniques and build these into schemes where feasible	Insignificant – positive
Cultural heritage, landscape and townscape	Reduced air quality: pollution damage to buildings	The LIP includes safety and environmental schemes. Increasing walking and cycling contributes to creating more attractive streets and town centres	Insignificant – positive
	Visual pollution: impact of transport infrastructure	The LIP includes policies and targets aimed at improving the urban realm around key transport interchanges reducing their visual impact	
Noise	Noise and vibration: increase in traffic volume, increase in heavy goods vehicles. Poor condition of material assets such as road	The LIP has targets for reducing traffic and car ownership. The LIP monitors and improves principal road condition	Significant – positive
Accessibility	Access to public transport: lack of access to public transport leading to unemployment, social exclusion, deprivation	The LIP includes personal mobility schemes and safety and environmental schemes in areas of high deprivation	Significant – positive
	Condition of material assets: poor condition of footways, bus stops impacting accessibility of mobility impaired	The LIP monitors and improves principal road condition	

	groups, people with push chairs, etc.		
Congestion	Air pollution	The LIP has targets to reduce CO2 and other pollutants	Significant - positive
	Increase in noise and vibrations	The LIP has targets for reducing traffic and car ownership.	
Road safety	Road traffic casualties	The LIP sets targets to reduce road traffic casualties.	Significant - positive

Table 7: Problems, opportunities and likely effects of the LIP

7.2 Risk and uncertainty

7.2.1 Some of the topics are influence by problems and opportunities that originated from outside the Borough. This brings uncertainty, risk and difficulty in quantifying the effects the LIP has on the SEA factor. This Environmental Report will consider these issues in more detail where appropriate.

8. ASSESSMENT OF PROPOSED MEASURES

8.1 Assessment of environmental effects

- 8.1.1 The SEA Directive and Regulations require that the Council assesses the environmental effects of Redbridge's Third LIP. This section first assesses the relationship between Redbridge's LIP3 objectives and the SEA objectives. It then continues to assess Redbridge's transport interventions for delivering the objectives. Alternatives and the 'do nothing' option are also assessed.
- 8.1.2 Table 8 assesses the relationship between Redbridge's LIP3 objectives and the SEA objectives. 'X' indicates a positive relationship between SEA objective and LIP objective. A blank space indicates there is no clear relationship.

8.2 Identifying alternatives

- 8.2.1 A necessary part of the SEA scoping process is to look at alternative methods of achieving the objects of the LIP for Redbridge.
- 8.2.2 Table 9 sets out the type of interventions that will be contained in the plan and suggested alternatives. These are then scored (p = positive impact, pp= very positive, 0 = neutral impact, n = negative impact and nn = very negative). Some of the interventions may change later when the plan is finalised.

LIP SEA Objectives	Borough transport programmes				
		Introduction of Low Emission Neighbourhoods	Complete local cycle network	Workplace behavioural change initiatives	Trial demand responsive transport
	Reduce negative impact of the transport network on biodiversity, flora and fauna	X			
	Increase the number of trees on the highway	X			
	Create conditions to improve health and reduce health inequalities	X	X	x	X
	Reduce emissions emanating from ground-based transport	X	X	x	X
	Reduce CO ₂ emissions emanating from ground-based transport	X	X	x	X
	Minimise soil contamination through land-based transport	X			
	Improve surface water drainage	X			

Protect and enhance the historic environment especially heritage assets at risk	X			
Protect and enhance the quality and character of Redbridge				
Reduce noise and vibrations from ground-based transport	X	X	x	X
Ensure all residents have access to public transport				X
Ensure footpaths are maintained and easy to navigate by all users	X			
Reduce levels of ground-based transport, mainly private cars, HGVs	X	X	x	X
Improve road safety by reducing casualties of all road users	x			

Table 8: Relationship between Redbridge’s LIP3 objectives and the SEA objectives

	Environmental Factors												
	Biodiversity, flora and fauna	Population and human health	Air quality	Climate change	Soils and contaminated land	Water	Preparation for flooding	Cultural heritage, landscape and townscape	Noise	Accessibility	Congestion	Road safety	
MTS Outcome 1													
To adopt the Healthy Streets Approach and consider the Healthy Streets indicators in the planning and delivery of policy, strategy and infrastructure changes	p	p	p	0	0	0	0	p	p	p	0	P	
To implement the Redbridge Walking and Cycling Strategies, and review them regularly in line with the Healthy Streets approach	0	p	p	0	0	0	0	0	p	0	0	0	
To implement bus priority measures within the Borough, thereby enhancing bus reliability to improve air quality and increase the uptake of public transport	0	0	p	0	0	0	0	0	0	p	n	0	

To limit the speed (20mph) and volume of traffic on residential streets to make them more pleasant for walking and cycling	0	p	p	0	0	0	0	0	p	0	0	P
To develop healthy and accessible routes to key destinations – Crossrail and Underground stations, town centres, business parks, schools, health facilities – to enable people to walk or cycle more often	0	p	p	0	0	0	0	p	p	p	0	P
To develop and promote traffic-free routes including through open spaces as part of the transport network	0	p	p	0	0	0	0	p	p	0	n	P
Alternatives												
Traditional traffic calming	0	0	0	0	0	0	0	0	n	n	n	n
Do nothing	0	0	0	0	0	0	0	0	0	0	0	0
MTS Outcome 2												
Work in partnership with the Police, TfL and other agencies to support	0	p	p	0	0	0	0	0	p	0	0	P

the boroughwide 20mph limit, review its effectiveness and potentially expand to more roads including parts of the TLRN												
Focus on reducing vulnerable road user casualties, through street design	0	p	0	0	0	0	0	0	0	0	0	Pp
Regularly assess and address collision hotspots through infrastructure improvements, taking a road danger reduction approach to design	0	p	0	0	0	0	0	0	0	0	0	Pp
Reduce crime by inclusion of Crime Prevention Through Environmental Design (CPTED) principles when designing public space	0	p	0	0	0	0	0	0	0	0	0	P
Reduce fear of crime by adopting the Healthy Streets approach to design of public spaces	0	p	0	0	0	0	0	0	0	0	0	P
Focus on reducing vulnerable road user casualties, through reduction of	0	p	0	0	0	0	0	0	0	0	0	P

danger from vehicles, especially HGVs													
Include Vision Zero Safe Vehicles input into the LBR Fleet Replacement Programme	0	p	0	0	0	0	0	0	0	0	0	0	P
Empower staff, residents, students and local employees with the skills they need so they can make safe decisions while travelling, by offering and promoting suitable driving, cycle, pedestrian and motorcycle training	0	p	0	0	0	0	0	0	0	0	0	0	P
Alternatives													
Do not embrace vision zero	0	0	0	0	0	0	0	0	0	n	n	n	n
Do nothing	0	0	0	0	0	0	0	0	0	0	0	0	0
MTS Outcome 3													
Improve access to "Healthy High Streets" and other major trip attractors by non-car modes	0	p	p	0	0	0	0	p	p	p	0	0	

Reduce rat-running on residential streets, thereby improving conditions for walking and cycling	0	p	p	0	0	0	0	0	p	0	0	P
Produce a borough-wide traffic reduction strategy to cover the period of the MTS to facilitate mode shift	0	p	p	0	0	0	0	0	p	0	p	P
Produce a revised Borough Parking Strategy	0	0	p	0	0	0	0	0	0	p	p	0
Implement and expand CPZs in the borough where they are proposed and supported by local residents	0	0	p	0	0	0	0	0	0	p	p	0
Implement the Redbridge Staff Workplace Travel Project	0	p	p	0	0	0	0	0	p	p	p	P
Work with schools and employers to reduce travel by car, including through travel plans and the provision of facilities to support non-car travel	0	p	p	0	0	0	0	0	p	p	p	p

Promote and enable car-free or car-lite living through planning policies and the provision of car clubs	0	p	p	0	0	0	0	0	p	0	p	0
Investigate a Redbridge Workplace Parking Levy	0	p	p	0	0	0	0	0	p	0	p	0
Contribute towards investigating road pricing on a sub-regional or London-wide basis	0	p	p	0	0	0	0	0	p	0	p	0
Investigate use of technology to increase efficiency and reduce traffic and its impact	0	p	p	0	0	0	0	0	p	0	p	0
Work with freight and delivery firms to develop measures and practice that reduce the impact of freight activity along major roads and in town centres	0	p	p	0	0	0	0	0	pp	0	p	P
Promote and enable best practice for deliveries e.g. through local consolidation centres and last-mile bicycle/low emission delivery	0	p	p	0	0	0	0	0	p	0	p	p

Alternatives													
Increase road capacity	0	n	n	n	0	0	0	n	n	p	n	n	
Do nothing	0	0	0	0	0	0	0	0	0	0	0	0	0
MTS Outcome 4													
Promote the use of EVs including through best practice in greening the council fleet	0	p	p	0	0	0	0	0	p	0	0	0	
Expand electric vehicle charging infrastructure for both residential use and rapid charging to support ZEC taxis and commercial vehicles	0	p	p	0	0	0	0	n	0	0	0	0	
Implement the Air Quality Action Plan	0	p	pp	p	0	0	0	0	0	0	p	0	
Implement Clean air zones around schools, parks and leisure facilities	0	p	p	0	0	0	0	0	0	0	p	0	
Introduce measures to complement the expansion of the ULEZ to the A406 North Circular in 2021	0	p	p	0	0	0	0	0	0	0	p	0	

Implement a pro-active parking policy to encourage take-up of clean vehicles and discourage use of dirty vehicles.	0	p	p	p	0	0	0	0	0	0	0	0
Use trees and other green infrastructure such as green walls to improve biodiversity, the street environment and reduce levels of pollution	p	p	p	p	p	p	0	p	0	0	0	0
Alternatives												
Promote traditional forms of combustion engine-based transport solutions	0	0	n	n	0	0	0	0	n	0	0	0
Do nothing	0	0	0	0	0	0	0	0	0	0	0	0
MTS Outcome 5												
Support the introduction of the Elizabeth Line and work with TfL to maximise the benefits for Redbridge residents and business	0	p	0	0	0	0	0	n	n	p	p	p

Work with TfL to maximise the benefits for Redbridge residents and business of the Central Line Improvement and Deep Tube Upgrade Programmes	0	p	p	0	0	0	0	0	0	p	p	0
Work in partnership with TfL to regularly review bus operations, including demand responsive services, within the borough to ensure capacity meets potential demand and supports Redbridge Healthy High Streets	0	p	0	0	0	0	0	0	n	pp	0	0
Work in partnership with TfL to regularly review bus infrastructure requirements within the borough to ensure capacity meets potential demand and support Redbridge Healthy High Streets	0	p	0	0	0	0	0	p	0	p	0	0
Work in partnership with TfL and the taxi trade to improve on-street taxi infrastructure utilising an evidence-based approach	0	0	0	0	0	0	0	p	0	p	0	0

The Borough will support Mayoral and private sector urban / sub-urban cycle initiatives	0	p	p	0	0	0	0	0	0	0	p	0
The Borough will support the trial and implementation of future passenger transport technologies	0	p	p	0	0	0	0	0	0	p	p	P
Alternatives												
Do not link public transport investment to patterns of growth in the borough	0	n	n	n	0	0	0	0	0	n	n	0
Do nothing	0	0	0	0	0	0	0	0	0	0	0	0
MTS Outcome 6												
Work with TfL, train operators and Network Rail to introduce step-free access at stations, including from platform to train	0	p	0	0	0	0	0	0	0	pp	0	0
Develop healthy and accessible routes to stations	0	p	p	0	0	0	0	p	0	pp	0	0
Ensure that all new and relocated bus stops and taxi ranks are	0	p	0	0	0	0	0	p	0	pp	0	0

accessible, and keep other stops/ranks under review													
Alternatives													
Reduce investment in borough public transport projects	n	n	n	n	n	n	n	n	n	n	n	n	0
Do nothing	0	0	0	0	0	0	0	0	0	0	0	0	0
MTS Outcome 7													
Working with TfL improve bus speeds through traffic management (e.g. bus priority, parking/loading controls) at key locations (corridors/junctions) where buses are delayed the most	0	p	0	0	0	0	0	0	0	0	0	p	0
Review and improve interchange at key locations, including bus-bus interchange where routes intersect	0	p	0	0	0	0	0	0	0	0	p	0	0
Improve cycle parking at public transport hubs and interchanges	0	p	p	0	0	0	0	p	0	p	p	0	0

Work with public transport providers to improve the public transport waiting environment	0	p	0	0	0	0	0	p	0	p	0	0
Roll out Legible London signage across town centres in Redbridge	0	p	p	0	0	0	0	p	0	p	0	0
Utilise Redbridge resources e.g. libraries, website etc. to signpost sources of public transport information	0	p	p	0	0	0	0	0	0	p	0	0
Alternatives												
Do not work with service providers, TOCs and strategic transport authorities	n	n	n	n	n	n	n	n	n	n	n	n
Do nothing	0	0	0	0	0	0	0	0	0	0	0	0
MTS Outcome 8												
To support active, efficient and sustainable travel at new developments through planning policies in the Local Plan	0	p	p	0	0	0	0	0	0	0	p	0

To secure resource to review and manage Travel Plan and Delivery and Servicing Plans in Redbridge and to provide ongoing support to developers and landlords to ensure the delivery of active, efficient and sustainable travel at new and existing developments	0	p	p	0	0	0	0	0	p	0	p	p
Alternatives												
Allow unplanned growth	n	n	n	n	n	n	n	n	n	n	n	n
Do nothing	0	0	0	0	0	0	0	0	0	0	0	0
OMTS Outcome 9												
Use the Elizabeth Line, the enhanced Ilford Cross bus network and other new transport infrastructure and services as catalysts for development	0	p	p	0	0	0	0	p	0	p	p	0
Explore the introduction of a workplace parking levy in town centres	0	p	p	0	0	0	0	0	p	0	p	0

Alternatives														
Explore a clear air zone charging regime in the borough	p	p	p	p	p		p	p	p		p	p	p	P
Do nothing	0	0	0	0	0		0	0	0		0	0	0	0

Table 9: Consideration of LIP3 transport policies and alternatives

9. MONITORING

9.1 The Purpose of Monitoring

9.1.1 Under the SEA Directive there is a statutory requirement to monitor the environmental impacts of the implementation of the Plan. The LIP must therefore be monitored and reported to comply with the Directive as well as to continue to identify problems and issues that need resolving.

9.1.2 Monitoring is the systematic measurement of a parameter in terms of magnitude, time and space. Monitoring is not limited to quantitative or technological measurements and may include qualitative issues such as human health or landscape quality.

9.1.3 Monitoring can be used to answer questions such as:

- Is the plan contributing to the desired environmental objectives and targets?
- Is the plan performing as well as expected?
- Are (mitigating) measures performing as well as expected?
- Are there any undesirable environmental effects? Are these within acceptable limits, or is remedial action required?

9.1.4 This process is beneficial to the Local Implementation Plan because it allows any significant environmental effects of the plan's implementation to be identified and dealt with early in the planning process. It allows the actual effects of the plan to be tested against those predicted in the SEA and can provide baseline information for future plans.

9.2 Monitoring for the SEA

9.2.1 To develop a monitoring strategy, the guidance suggests addressing the following questions:

- Determine what needs to be monitored;
- Identify what sort of information is required;
- Identify existing sources of monitoring information;
- Identify and fill any gaps in existing information;
- Determine when remedial action would be required, and which actions could be taken; and
- Develop a management plan outlining responsibilities, timeframes and presentation.

9.2.2 Monitoring should focus on any significant environmental impacts that give rise to irreversible impacts upon environmental attributes in the area. This SEA found very little evidence of significant

environmental impacts because of measures within Redbridge's Third Local Implementation Plan. Where adverse impacts have been found, mitigation measures were presented to minimise these impacts, therefore no change to the plan was advised in the Environmental Report. Thus, given the lack of significant impact on the environment that the plan entails, no monitoring for the SEA is necessarily required.

- 9.2.3 When monitoring reveals that remedial action is required, the appropriate measures are enacted. Criteria or thresholds will therefore need to be established as part of the strategy, which can trigger action if they are exceeded. As and when gaps appear in data sets, new data will be collected. However, it should be noted that no primary data collection is necessarily appropriate for this level of monitoring and is not required for compliance with the Directive.

9.3 LIP Monitoring

- 9.3.1 The Boroughs annual reporting is an effective and efficient way to demonstrate the scale of delivery of key outputs through the LIP investment process. This section of the LIP sets out the indicators and targets to be used to assess progress against delivery of LIP objectives and MTS outcomes; it is this that will determine the success or otherwise of the LIP.

10. NEXT STEPS

10.1 Consultation on Draft LIP3 and SEA

10.1.1 The SEA Regulations set specific requirements for consultation with the statutory consultees, the public and other interested parties and require that the ER is made available for consultation alongside the Consultation Draft LIP.

10.1.2 This ER will be made available for wider public consultation during May 2019, alongside the Redbridge LIP. The ER [and LIP] will be available on the Council's website (www.redbridge.gov.uk).

10.1.3 If you would like any further information or if you have any comments on the SEA of the LIP3 we would be grateful to receive them. Comments should be made via e-mail.

10.1.4 Please send any feedback, comments or queries using the on line questionnaire.

10.2 SEA Statement

10.2.1 When the LIP3 is adopted it will be accompanied by an SEA post adoption statement. In line with the SEA Regulations, the SEA post adoption statement will provide the following information:

- How environmental considerations have been integrated into the plan;
- How the ER has been considered in the LIP3's development;
- How opinions expressed in relation to the consultations on the LIP and ER have been considered;
- The reasons for choosing the LIP3 as adopted, in the light of the other reasonable alternatives dealt with; and
- The measures to be taken to monitor any possible significant environmental effects of the implementation of the LIP3.

