London Borough of Richmond upon Thames

Third Local Implementation Plan (LIP3)

Strategic Environmental Assessment (SEA)

Environmental Report

December 2018

Contents

1. Non-technical summary

Introduction

This Environmental Report for the London Borough of Richmond upon Thames' Local Implementation Plan (LIP) has been prepared in line with regulations issued by the United Kington Government and the European Union. The main purpose of this report is to demonstrate how environmental considerations have been integrated into the LIP proposed programmes. Under the Environmental Assessment of plans and programmes regulations 2004, a 'Strategic Environmental Assessment' (SEA) of the third Richmond LIP is required.

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 the interrelationship between these factors.

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
- 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.

What is the Richmond Local Implementation Plan

A Local Implementation Plan is a statutory document which sets out how a London Borough proposed to implement that Mayor's Transport Strategy (MTS) at a local level. The Richmond LIP provides details of the Borough's transport programme and funding requirements. It covers the same period as the MTS (to 2041) and includes specific delivery proposals for the three-year period 2019/20 to 2021/22 and outlines the Council's framework for the delivery of transport projects, which accord with the nine outcomes set in the MTS. It also reflects the transport needs and aspirations of the people of Richmond.

What is the Strategic Environmental Assessment (SEA)

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 laws 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.

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

A key stage of the SEA process is the preparation of the Environmental Report (this report) in which the 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 Richmond Council with decision making on the LIP by highlighting the potential environmental effects of the plan

Coverage of the Environmental Report

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

- Background information on Richmond's LIP3 and its main objectives
- Relationship of the LIP to other plans and programmes
- The environmental baseline and key environmental problems
- 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
- Proposed mitigation and enhancement measures
- Monitoring measure

Environmental context and baseline

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. The Mayor also has numerous strategies covering a diverse range of topics, including economic development, the environment and health inequalities. At the local level, Richmond's Local Plan set a framework for the future development of the borough.

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

SEA framework

A SEA framework of objectives has been devised from the review of plans and programmes, analysis of baseline data, feedback on the scoping report and consideration of environmental issues within the borough. This framework, which includes a series of environmental objectives, is used to access the environmental effects of the third Richmond LIP. 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 following are the SEA objectives which are also the same set of objectives that Richmond has used in its other SEA work:

1. To promote sustainable waste management, including reducing waste and waste disposal, promoting recovery, reuse and recycling
2. To make the more efficient use of land and to reduce contamination and safeguard soil quantity and quality

3. Reduce air and noise pollution, including greenhouse gases, and ensure air quality improves
4. Reduce congestion and pollution by reducing the need to travel, encourage alternatives to the car and make best use of existing transport infrastructure
5. To maintain water quality and reduce the risk of flooding
6. To promote sustainable energy use through improved energy efficiency, reduce energy use and increased use of renewable energy
7. Conserve and enhance biodiversity avoiding irreversible losses, through responsible management of key wildlife sites
8. Promote high quality places, spaces and buildings and conserve and enhance the landscape and townscape character of the borough, including historical features for the benefit of both residents and visitors
9. Maximise opportunities to improve the historic environment through appropriate transport infrastructure and public realm upgrades, while also reducing the adverse impacts of traffic on the historic environment
10. To make best use of previously developed land and existing buildings, encouraging sustainable construction practices
11. To provide sufficient affordable housing that meets local needs
12. To create and maintain safer and more secure communities
13. To facilitate the improved health and well-being of the population, including enabling people to stay independent and ensuring access to those health, education, leisure and recreation facilities and services that are required
14. To increase the vitality and viability of existing town centres, local centres and parades
15. To promote and encourage a buoyant and diverse economy that will provide sustainable economic growth
16. Provide appropriate commercial development opportunities to meet the needs of the local and sub-regional economy

Considerations of alternatives for the LIP

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.

Mitigation

Where significant effects are predicted then the SEA makes recommendations on the measures to prevent, reduce or offset these impacts. Measures may include changes to the Richmond LIP, requirements for further studies, or recommendation for specific measures to schemes. Measures to enhance beneficial effects can also be included.

Monitoring

Monitoring helps to keep track of the actual environmental effects of implementing the Richmond LIP. The Richmond 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 ongoing consultation and will be defined in more detail in the run up to the publication of the SEA Statement following adoption of the final LIP which is anticipated in March 2019.

Commenting on the SEA Environmental Report

Public consultation is a key element of the SEA process. This must be undertaken with Natural England, Historic England and the Environment Agency. The SEA Environmental Report is published for consultation alongside the draft LIP. All comments on the SEA will be reviewed and considered prior to publication of the final Richmond LIP and the preparation of the final SEA Statement. Comments relating to the content of the Environmental Report should be sent to: transportation@richmond.gov.uk

2. Introduction

The London Borough of Richmond upon Thames (LBRuT), 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 (to 2041) and includes specific delivery proposals for the first three-year period of 2019/20 to 2021/22.

SEA and the Regulations

Under European Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment, all such authorities must carry out a SEA

of new plans in certain areas, including transport. This is implemented in England through the Environmental Assessment of Plans and Programmes Regulations 2004 (SI 2004 No. 1633). The SEA process for the LIPs is designed to integrate with the DfT's New Approach to Appraisal (NATA). Advice on the application of SEA to LIPs has been provided through the association of London Government by the Centre for Sustainability.

Article B of the Directive 2001/42/EC requires the Environmental Report and the results of consultation are considered in 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.

The purpose of the SEA

The SEA Directive for the assessment of the effects of certain plans and programmes was transposed into English law on the 20th July 2004 in the form of the Environmental Assessment of Plans and Programmes Regulations 2004 (referred to in this report as the 2004 Regulations), and means that the Directive will apply to plans and programmes, and modifications to them, prepared after this date. This resulted in a mandatory requirement to undertake SEA during the preparation of Richmond's LIP3.

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 with a view to promoting sustainable development.'

The vehicle for achieving this aim is by means of the assessment of certain plans and programmes which are likely to have significant effects on the environment, the results of which are presented in an Environmental Report.

In terms of identifying the types of plans and programmes that qualify in terms of the Directive, the Directive states that 'an environmental assessment shall be carried out for plans and programmes which are prepared for agriculture, forestry, fisheries, energy, industry, transport, water management, water management, telecommunications, tourism, town and county planning or land use which set the framework for future development consent of projects listed in Annexes I and II to Directive 85/337/EEC' (i.e. the EIA Regulations).

Given the long-term, strategic nature of the LIP3 and its link between current government policy and local transport issues, the LIP3 is recognised as being a type of plan or programme that may have significant effects on the environment. The

inclusion of an implementation programme of schemes derived from specific transport objectives also means that the LIP3 may have a direct impact on the framework for future development consent. As a result, it is recognised that LIPs qualify for assessment in terms of the SEA Directive.

The SEA Directive defines 'strategic environmental assessment' as a procedure comprising:

- Preparing an environmental report on the likely significant effects of the draft LIP3 on the environment
- Carrying out consultation on the draft LIP3 and the accompanying Environmental Report
- Considering the Environmental Report and the results of the consultation in decision making
- Provide information when the plan is adopted and showing how the results of the SEA have been considered

It is clear from the above steps that the programme for producing the LIP3 is inextricably linked with that of the SEA.

The Environmental Report is the key output of the SEA. It aims to fully document the details of the SEA process, ensure active and transparent consultation on the draft LIP3 and shows how the SEA regulations have been complied with.

Guidance prepared by the DfT on how to carry out a SEA for transport in England is reported in Transport Analysis Guidance (TAG) (Unit 2.11) Strategic Environmental Assessment for Transport Plans and Programmes, issued in December 2004. The SEA of Richmond's LIP3 is being carried out in accordance with this guidance.

The Directive's definition of 'environment' includes not only the natural environment and the historic environment, but also some human effects such as health and material assets. It also requires an analysis of a plan's secondary, cumulative and synergistic effects.

Consultation responses on the scope of the SEA

The Council consulted the Environment Agency, Historic England and Natural England on the proposed scope of the SEA. Given the similarities between the process for second and third LIPs, and short timescales to produce the draft LIP, a full new scoping report was not produced. The Council wrote to these three statutory bodies proposing that the SEA Environmental Report should cover the same general scope and methodology as that undertaken for the second LIP.

The table below provides a summary of the responses to this proposed approach, indicating how specific comments have been considered in the preparation of this Environmental Report.

Respondent	Summary of Comments Received	How comments have been considered
Environment Agency	No response received	N/A
Historic England	Did not considered this approach to represent an SEA scoping and requested that a new scoping exercise was undertaken. Also included some general advice and guidance to ensure that the historic environment was considered in the process, including a checklist of advice (Appendix 1 to this document).	Although no new scoping exercise was carried out, in line with the SEA directive Historic England was consulted on the proposed scope of the SEA. Baseline data has been updated and Historic England's feedback and advice has influenced the final scope of the SEA, including addition of additional objective, enabling the historic environment to be considered fully in this SEA Environmental Report.
Natural England	No response received	N/A

Consultation responses on the draft SEA Environmental Report

The table below provides a summary of the consultation responses received on the draft SEA Environmental Report for Richmond's LIP3, indicating how specific comments have been considered in the preparation of the final Environmental Report.

Respondent	Summary of Comments Received	How comments have been considered
Environment Agency	No response received	N/A
Historic England	Noted the changes had been made in relation to previous comments, with a small number of additional changes requested.	A small amount of text was adjusted based on the comments received
Natural England	No response received	N/A

The SEA Regulations require that consultation with stakeholders is an integral part of the SEA process, with feedback from these consultations being used to refine the plan and/ or programme. A key requirement is that consultation takes place with the three consultation bodies (Natural England, the Environment Agency and Historic England).

3. Richmond's LIP3

Richmond's LIP sets out the Council's aims and objectives for transport in the borough and how these relate to the MTS. In addition, the document identifies the transport programme and schemes for implementation in the years 2019/20, 2020/21 and 2021/22, including their funding requirements. Borough progress and their revisions to their TfL funding requirements are submitted to TfL annually.

The Richmond LIP initially outlines the socio-economic and demographic context, before examining the current transport network, provision of transport services and the key transport issues for the borough for the period of the plan.

Structure of the LIP3

The LIP is set out in three main sections:

- Introduction and background to development of the LIP
- Borough transport objectives
- Delivery plan

Section one introduces the LIP and what it aims to achieve. It details the results of consultation and the statutory approvals process.

Section two sets out an overview of transport in the borough and the challenges and opportunities in achieving each the nine MTS outcomes. It sets the objectives and targets for transport in the borough.

Section three sets out the proposed plan for delivery, including aspirations to 2041, a three-year programme to 2021/22 and a detailed one-year programme for 2019/20.

The LIP3 is subject to statutory and public consultation before being approved by the Mayor in 2019. Boroughs are required to report an annual spend to TfL. At the end of the initial three-year period in 2022, boroughs will be required to prepare and publish a three-year report setting out their expenditure, achievements of LIP programmes and targets and evidence that LIP3 has contributed to wider policy objectives for the borough.

TfL will review these reports and the results may influence the funding formula for future LIP funding.

Consideration of the borough's Sustainability Objectives has led to the adoption of the following LIP3 SEA objectives:

1. Reduce air and noise pollution, including greenhouse gases, and ensure air quality improves
2. Reduce congestion and pollution by reducing the need to travel, encourage alternatives to the car and make best use of existing transport infrastructure
3. Conserve and enhance biodiversity avoiding irreversible losses, through responsible management of key wildlife sites
4. Promote high quality places, spaces and buildings & conserve and enhance the landscape of townscape character of the borough, including historical features for the benefit of both residents and visitors
5. Maximise opportunities to improve the historic environment through appropriate transport infrastructure and public realm upgrades, while also reducing the adverse impacts of traffic on the historic environment
6. To create and maintain safer and more secure communities
7. To facilitate the improved health and well-being of the population, including enabling people to stay independent and ensuring access to those health, education, leisure and recreation facilities and services that are required
8. To increase the vitality and viability of existing town centres, local centres and parades
9. To promote and encourage a buoyant and diverse economy that will provide sustainable economic growth

This list has been derived from the longer list of SEA objectives used within the borough. The long list included several objectives that would not be affected by the LIP3 programmes and so have been excluded.

Relationship to other relevant plans and programmes

The SEA Directive indicates that the Environmental Report should provide information on the LIP3's relationship with other relevant plans and programmes as well as the environmental protection objectives established at international, European or National level. There is a comprehensive range of international, national, London-wide and local plans and programmes with the aim of environmental protection that the LIP must adhere to. The relationship between the LIP3 and other Mayoral strategies is discussed within the LIP document.

National, London-wide and local transport planning

The Richmond LIP has been development in compliance with national, London-wide and local transport planning. The primary guidance for the LIP is the MTS.

The MTS has the following 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
9. Transport investment will unlock the delivery of new homes and jobs

Other sector plans and programmes

In addition to environmental policies and transport policies, the LIP has been developed with reference to and in adherence with other planning documents on a London-wide and borough scale.

The Mayor's London Plan, for which a draft was published in 2018, is the Mayor's spatial plan. It provides a framework for land-use management, development and regeneration in London. The LIP makes due consideration of the Mayor's London Plan.

In addition, the LIP has been developed in adherence to the Richmond's Local Plan.

4. Richmond context and baseline

Context

Richmond upon Thames is in southwest London and is bordered by the London Borough of Hounslow to the north, the London Borough of Wandsworth to the east, the Royal Borough of Kingston upon Thames to the south, and Surrey to the west.

The borough covers an area of 5,095 hectares (14,591 acres) and is the only London borough spanning both sides of the Thames. The borough has a resident population of 197,300 and consists of some 85,100 households.

The corporate vision is for Richmond upon Thames to be the best borough in London; a borough identified by its green character, historic buildings, high quality appearance, vibrant high streets and outstanding schools and services; one where business and the voluntary sector can thrive; where citizens can help change neighbourhoods in which they live, and feel safe being part of one of London's safest boroughs. A borough where the most vulnerable of our residents are supported and where everyone can live as independently as possible with good health and a sense of wellbeing for the better.

Richmond's Spatial Strategy reinforces the borough's context as an outer London borough that is characterised by a high quality natural, built and historic environment with highly valued open landscape, parks, green spaces and opportunities for sport, recreation, culture and tourism. The overarching principles are to protect the unique local character, maintain and enhance open spaces as well as heritage, achieve high levels of sustainability and ensure all communities have access to housing, employment opportunities, services and facilities.

The borough is composed of 14 neighbourhoods, each with a distinct community, facilities and local character. The borough's neighbourhoods are attractive with many listed buildings and Conservation Areas. The local character of each is unique, recognisable and important to the community and to the character of the borough as a whole. The special quality and character of the borough and its neighbourhoods has led to the designation of 72 Conservation Areas and over 1,100 listed buildings.

The borough's main town centre is Richmond, and there are four district centres at Twickenham, Teddington, East Sheen and Whitton, as well as many smaller local centres. Richmond has a range of convenience and comparison shopping, is a major office location and has a well-developed entertainment sector, theatres and cinemas. The town has considerable historic interest; Richmond Green and the Thames side location making it an attractive destination for tourists.

Just over 50 per cent of the borough is greenspace, including historic landscapes such as Richmond and Bushy Parks and the Old Deer Park, the River Thames and the River Crane corridors and other tributaries.

In addition to the parks and open spaces, visitors come to major attractors within the borough such as Kew Botanical Gardens, Hampton Court Palace, the Wildfowl and Wetland Centre and the Rugby Football Union at Twickenham and other sporting venues. Approximately 4.5 million tourists visit the borough every year, generating an income of £200m.

Baseline

The borough's residents are among the most affluent in London. The median household income is £53,470, which is the highest of any outer London borough. There were approximately 95,900 employee jobs provided in the borough in 2008 and 14,185 active businesses.

Employment levels amongst residents are high, with a large proportion employed in highly skilled jobs. Education attainment levels are the highest amongst the outer London boroughs, as is gross weekly pay.

Deprivation levels are lower in Richmond than other London boroughs. Nearly 58% of households are not deprived in any dimension, compared to an Outer London average of 41%. While overall deprivation levels are low, there are still pockets of relative deprivation around Castelnau, Ham, Hampton Nursery Lands, Heathfield, Mortlake and Whitton.

Housing is mainly in owner-occupation (64% per the 2011 Census), and most people live in houses (nearly 60%). A key issue for the borough is the lack of affordable housing, with median house prices the highest of any borough in outer London (£535,176 in 2014). The lack of affordable housing makes it difficult for first time buyers and affordability can have an impact in terms of overcrowding and poor-quality housing.

There is less ethnic diversity in the borough than many other parts of London, with 71% of residents describing themselves as White British, and an additional 12% describing themselves as 'white other'. The largest minority groups are Asian/Asian British: Indian, at 2.8% of the population, and Asian/Asian British: Other, at 2.5%. English is spoken as the main language by 90% of residents, and 99% can speak English well.

The 2011 Census data suggests that 13.5% of the borough's population is aged 65 and over. This is similar to many other Outer London boroughs.

There are 52 schools in LBRuT plus several other academic and vocational courses are also provided through Richmond College, Richmond Adult College, St Mary's University and other providers including the provision of training for those in or seeking employment.

There are several sites of historic interest in the borough, including Grade I and II listed sites. These include major green spaces of Richmond Park, Kew Gardens, Bushy Park and Hampton Court, as well as a range of smaller sites such as Garrick Villa, Strawberry Hill, Ham House and Marble Hill.

Transport & the environment

Transport in the local area is both a means to an end and a popular leisure activity. The borough has the highest cycling levels in outer London and walking is a popular option for many local trips.

There is a total of 393 kilometres of public highway in the borough, including 13 kilometres of the Transport for London Road Network (TLRN). The Council is the highway authority for all but the TLRN and Crown Roads (those running through the Royal Parks). The A316 (Great Chertsey Road) and A205 (South Circular) are the two major trunk roads in the borough and are both part of the TLRN.

The River Thames is a major source of severance within the borough, as are the Royal Parks and some portions of the national rail network. There are ten bridges that cross the River Thames within the borough. Of these, seven are road bridges and three are foot bridges. The largest gap between road bridges is over 7km, between Richmond Bridge and Kingston Bridge.

Just over 75% of households in the borough have at least one car or van, with overall car ownership at 1.06 cars per household and a car trip rate of 1.17. Both car ownership and car use rates are comparable to other outer London boroughs. Car ownership levels are highest in the west of the borough, in Hampton Hill, west Twickenham and Whitton. Ownership levels are also high in the area bordering the north side of Richmond Park, where housing densities are very low.

Access to public transport varies across the borough, with Public Transport Accessibility Levels (PTALs) ranging from 6a (the second highest level) in Richmond and 5 in Twickenham, to PTAL 2 and below in most of the borough. There is some correlation between car ownership and PTALs, with lower car ownership levels in Richmond and Twickenham.

There are 14 rail stations across the borough. While most are radial routes offering services to Central London, the borough does feature one of the few orbital routes in London with the Kingston loop running between Richmond and Kingston via Twickenham, Strawberry Hill, Teddington and Hampton Wick.

Around 30 bus routes serve the borough. The major bus interchanges are located at Richmond, Twickenham and Teddington town centres. In addition, a bus garage is located at Fulwell. The garage is divided in two with one part operated by Abellio London and the other part by London United. Between the two operators, 17 bus routes operate from the garage.

Due to the large open spaces, much of the borough has low NOx and PM levels. The worst air quality levels are along the TLRN, particularly the A316 from East Twickenham to Richmond. NOx levels are also high on the South Circular through Sheen, along Castelnau through Barnes and in Richmond and Twickenham town centres.

The borough has strong base levels of walking and cycling (32.2% and 6.2%), with a high quality public realm in many of the town centres. Access to public transport is limited in many parts of the borough, including parts of Ham and Petersham and areas in the west of the borough. Car ownership levels are high and continue to increase, but vehicle mileage is decreasing.

5. The aim of the SEA

The aim 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… with a view to promoting sustainable development, by ensuring that, in accordance with this Directive, an environmental assessment is carried out of certain plans… which are likely to have significant effects on the environment.' (Article 1)

The aim of the SEA is to identify risks and make explicit the costs and benefits to the environment that might arise from the proposed strategy, in the interests of enabling the decisions made to take account of the implications for the environment.

Guidance on the application of the SEA on the LIP

Guidance prepared by the DfT on how to carry out a SEA for transport in England, is reported in Transport Analysis Guidance (TAG) (Unit 2.11) Strategic Environmental Assessment for Transport Plans and Programmes, issued in December 2004. The SEA of Richmond's LIP3 is being carried out in accordance with this guidance.

The SEA Directive defines 'strategic environmental assessment' as a procedure comprising:

- Preparing an environmental report on the likely significant effects of the draft LIP3 on the environment
- Carrying out consultation on the draft LIP3 and the accompanying Environmental Report
- Taking into account the Environmental Report and the results of the consultation in decision making

- Provide information when the plan is adopted and showing how the results of the SEA have been considered

The Directive's definition of 'environment' includes not only the natural environment and the historic environment, key aspects of the borough, but also some human effects such as health and material assets. It also requires an analysis of a plan's secondary, cumulative and synergistic effects.

Assessment methods

A criterion-based method of strategic environmental assessment was used to identify and examine the risks to and opportunities for the environment associated with the LIP. The criteria used for the assessment are generic in nature and relate to topics identified as important for environmental sustainability by policy at many levels and by European and UK law. The criteria provide an analytical framework that enables:

- Assessment of significant risks of adverse environmental impacts and opportunities for beneficial environmental effects. The identification and evaluation of the significant risks and opportunities to which the different elements of the plan might give rise
- Assessment of risks of or opportunities for cumulative environmental effects. The identification and evaluation of the risk of the plan giving rise to cumulative effects on the environment

The DfT's guidance describes a process which is essentially objectives-led and is based on combining and integrating the five stages of the Directive (see above) with the DfT's New Approach to Assessment (NATA) framework. NATA is essentially an approach for improving the consistency and transparency with which transport planning decisions are made. It has been developed to present the key economic, environmental and social impacts of decisions in a clear, consistent and balanced way using an Appraisal Summary Table and associated worksheets. NATA is the basis for appraising multi-modal studies, Highways England road schemes, Local Transport Plans, major road and public transport schemes, Strategic Rail Authority schemes, seaports and the Government's airport strategy. Further details of NATA are available in the Appraisal Process.

In line with this guidance, the SEA assessment framework comprises a set of objectives (benchmark intention), indicators (means of measuring progress) and targets (desirable state).

This SEA has been development alongside the development of the draft LIP3 and will continue throughout its development until it becomes the finished LIP3.

Where plans or programmes go through several successive consultation exercises, it is important to keep the implications for the Environmental Report under review to ensure that it remains consistent with the plan or programme on which opinions are being sought. If significant changes are made from the original proposals, the Responsible Authority will need to consider whether a revised Environmental Report is needed.

The Directive requires the information in the Environmental Report and the responses to consultation to be taken into account during the preparation of the plan or programme and before the final decision it taken to adopt it. Responsible Authorities must produce a summary of how they have taken these findings into account, and how environmental considerations have been integrated into the plan or programme, with enough information to make clear any changes made, or alternatives rejected.

Information must also be made available on how monitoring will be carried out during implementation. The Environmental Report will already have documented proposed monitoring measures, and they can now be confirmed or modified considering the consultation process.

The Directive requires the plan or programmes itself, when adopted, to be made available to the public and the consultation bodies, where these have been consulted. The guide assumes that all plans and programmes in the UK which are subject to the Directive are available under existing legal provisions or policies. It is for the Responsible Authority to ensure that arrangements are in place to inform the public and other consultees that the plan or programme has been adopted and give them access to it if they are not provided with copies.

Consideration of the Habitats Regulation Act (HRA)

The Habitats Regulations transpose Council directive 92/43/EEC into UK law. Subsequent amendments to the Regulations require an assessment of the effects of the plans and programmes on European Sites of Nature Conservation prior to being adopted.

The Integrated Impact Assessment prepared for the MTS concluded that the majority of projects set out in the MTS are either already approved, and had been previously subject to HRA, or more appropriately assessed at a lower spatial level. However, it was also noted that it was not possible to conclude that the MTS would have ‘no likely significant effects’ and recommended that such projects should be more appropriately assessed at a lower tier in the planning process (e.g. at a sub-regional or project level).

There are no proposals in the LIP to develop transport infrastructure in or close to any environmentally sensitive areas such as wetlands such as the Thames river side or protected open landscape, including areas such as Richmond and Bushy Parks. It is also unlikely that the implementation of the LIP would lead to significant increases in noise, visual impacts or air pollution from traffic that would affect any such sites. On this basis, a detailed appropriate assessment of the effects on these and other sensitive sites will not be undertaken as part of this SEA.

Richmond Park

Richmond Park is an internationally important area for wildlife conservation and London's biggest Site of Special Scientific Interest (SSSI). A new conservation plan by the Royal Parks and Natural England is set to improve the park's biodiversity even further and give a major boost to progress against London-wide environmental targets.

The park is famous for its ancient trees, herds of deer and colourful gardens. What is less well known is that it has the most extensive area of natural grassland in London, or that the type of grassland – 'acid grassland' – is a nationally rare habitat. The presence of grassland on acidic soils is one of the chief reasons for Richmond Park's designation as a SSSI.

The new 'Grassland Management Plan' aims to improve the park's acid grassland, which is home to many protected plant, invertebrate and bird species, and wildflowers such as tomentil, heath bedstraw and harebell. As a result of the plan, the percentage of London's SSSIs in 'favourable' or 'recovering' condition has jumped from 76% to 91% (by area), helping Natural England towards its goal of bringing 95% of England's SSSIs into target condition.

Consideration of the Equalities Impact Needs Assessment (EINA)

Regarding the race, disability and gender regulations, it is required that Richmond Council carries out an EINA when drafting new policies. As a result, an EINA is being completed for the LIP. The objective of the assessment will be to identify whether or not the LIP has a positive or negative impact on a particular equality target group, and to identify mitigation measures for impacts that will lead to any adverse effects.

The EINA for Richmond's new LIP concluded that no individual population group was adversely impacted by the proposals set out in the new strategy. The finished EINA is being consulted on alongside the draft strategy and this Environment Report. The results from this parallel assessment will be used to inform the SEA as appropriate.

6. Assessment of significant effects

SEA Directive requirements

The SEA Directive states that in the Environmental Report:

'The likely significant effects on the environment of implementing the plan or programme… and reasonable alternatives… are [to be] identified, described and evaluated… The Environmental Report should include information that may 'reasonably be required taking into account current knowledge and methods of assessment, the contents and level of detail in the plan or programme [and] its stage in the decision-making progress.'

In addition, the SEA Directive requires the Environmental report to outline measures to prevent, reduce and as fully as possible to offset any significant adverse effects on the environment of implementing the plan or programme.

Recent trends

The following paragraphs summarise the transport trends which have been identified as being of key importance to the borough and influence the environment of Richmond that the SEA seeks to address. These trends have helped inform what schemes and programmes that Richmond has prioritised.

Air quality

As with many boroughs, there is ongoing concern about the number of vehicles travelling on the main road network and the negative impact of these vehicles on local air quality, noise and potential safety issues. In addition to environmental concerns, congestion on the road network has an adverse impact on bus speeds and can make these a less attractive alternative to the private car.

Car ownership

High car ownership within the borough combined with high rates of through-traffic result in congestion on local roads. Just over 75% of households in the borough have at least one car or van, with a total of 79,553 cars owned by borough residents. This number has increased by over 6,000 vehicles since 2001. Overall, between 2001 and 2016, there has been a 12% reduction in the volume of traffic on roads within the borough.

Method

Existing SEA guidance recognises that the most familiar form of SEA prediction and evaluation is generally broad-brush and qualitative. It is also recognised that quantitative predictions are not always practicable and broad-based and it is recognised that qualitative predictions can be equally valid and appropriate. Examples of the prediction and evaluation techniques for assessing significance of effects are expert judgement, dialogue with stakeholders and public participation, geographical information systems (GIS), reference to legislation and regulations and environmental capacity.

The evaluation involved forming a judgement on whether or not the predicted effects will have a significant impact on the SEA objectives. The method that has been primarily used to assess the significance of effects in this assessment is a qualitative one based on expert judgement.

The appraisal carried out has indicated that the proposed programme will mainly deliver positive environmental benefits. The assessment has not indicated that any schemes should be removed from the programme on environmental grounds, but it has indicated that the delivery of the programme will require care to minimise or where possible, eliminate any adverse effects.

The assessment of significant effects was undertaken for the LIP3 proposals and also addressed the effects resulting in the accumulation of multiple small effects (cumulative effects) arising from the schemes and measures.

Impact on baseline issues

The impacts of the LIP3 on the baseline issues have been considered in more detail and the most relevant are set out below. The SEA assessment demonstrates that the LIP will have few adverse environmental effects. This is largely the continuation of the framework of policies, plans and programmes put in place in Richmond for the second LIP and this will generally bring about more environmental improvements than not.

Air quality

In air quality terms, the borough's south west London location means that the prevailing south westerly wind (roughly 75% of the year) brings in relatively fresh air to the borough, before it blows towards the centre of London. In practice, the wind blows from all points of the compass and includes receiving polluted air blowing out from the centre of London.

The main source of pollution is transport. As a result, Richmond Council is keen for air quality to be improved not just within the borough, but also across the whole of London.

The LIP will have a positive impact on air quality. The Delivery Plan includes a range of projects focused on encouraging higher rates of walking, cycling and public transport use and discouraging car use. Lower rates of car use will have a positive impact on air quality, as will the adoption of cleaner vehicles, which will be supported through the introduction of electric-vehicle charge points and car parking charges that will give priority to cleaner vehicles.

Noise

Noise impacts from transport are a problem principally in residential areas where there is a high traffic density, especially on routes where there is a high proportion of heavy goods traffic. As regards aircraft noise, broadly speaking, residents in the north of the borough (Barnes, Sheen, Mortlake, Kew and Richmond) hear the noise of aircraft as they land to the west of them. Residents in Twickenham, Teddington, Whitton and the Hamptons hear the noise of aircraft taking off.

Many residents of the borough are concerned with the current plans for Heathrow expansion, with the attendant air pollution and noise pollution.

The exact amount of noise results from transport improvements will vary considerably from scheme to scheme, but the overall impact will be positive. Higher uptake of walking and cycling should result in fewer vehicle trips and thereby reduce the overall noise levels. Roads benefiting from traffic access restrictions will experience reductions in noise, as traffic is restricted away from these areas. Actions focused on encouraging the uptake of electric vehicles are largely beneficial as electric vehicles are generally quieter than standard vehicles.

Climate change

The Council seeks to minimise climate change and reduce a number of harmful environmental impacts such as domestic energy use and car-borne emissions within the borough.

The proposed approach will encourage the uptake of electric vehicles as well as higher levels of walking, cycling and public transport use, all of which will help to reduce the impacts of climate change over the longer term.

Air Quality Action Plan

Richmond's Air Quality Action Plan (AQAP) has been produced as part of our duty to London Local Air Quality Management statutory process and in recognition of the legal requirement places upon the local authority to work towards air quality objectives under Part IV of the Environment Act 1995. It outlines the action the Council will take to improve air quality in Richmond between 2017 and 2022 and replaces the previous action plan which ran from 2002 to 2017.

The AQAP outlines the actions the Council will deliver for the period to reduce concentrations of, and exposure to, pollution thereby positively impacting on the health and quality of life of residents and visitors to the borough.

The borough is meeting the national AQS objectives for all pollutants other than for Nitrogen Dioxide (NO_2) and Particulate Matter (PM). Limiting monitoring data for Particulate Matter (PM_{10} and $PM_{2.5}$) indicates compliance with the objectives, however pollutant dispersion modelling indicates that levels of PM_{10} are likely to be exceeding the annual mean objective at specific locations. As both PM_{10} and $PM_{2.5}$ are potentially damaging to health at any level, this remains a pollutant of concern.

Biodiversity, flora, fauna and soil

Richmond has an enormous wealth of wildlife (biodiversity). Maintaining the borough's high-quality environment and unique areas of biodiversity can contribute to quality of life and protect the natural environment. The Richmond Biodiversity Partnership has been established and has developed a Local Biodiversity Action Plan (LBAP), designed to enable the borough to move forward with a clear set of targets and costed actions to conserve its priority habitats and species. Generic issues to be addressed as the LBAP evolves include accessibility, public consultation and problem species.

The key to the success of the LBAP is their implementation. We are fortunate in having the support of many local groups, individuals, statutory agencies and land managers who work together to play an important role in the protection and enhancement of the Borough's numerous species and habitats.

Impacts on soil include the loss of productive areas and erosion of soils due to construction activities and maintenance of the transportation infrastructure, as well as contamination from current use of de-icing and other chemical agents, and past contamination from lead in vehicles exhausts and other toxic land uses and processes. Richmond upon Thames's contaminated land strategy sets out our approach to implementing our duties under the Environment Act 1995.

The green open spaces (rural, local and urban), islands and rivers are of great importance as wildlife habitats and provide a range of both active and passive

recreational activities. They also contribute in a major way to the character of the borough, making it one of the most attractive in London.

Landscape

LBRuT is exceptionally lucky in supporting a wealth of different habitats and landscapes, several of which are important on an international scale. Public open space covers a third of the Borough and includes the following nature conservation sites:

- Richmond Park (NNR, Site of Special Scientific Interest)
- Other Sites of Nature Importance (OSNI)
- Five local Nature Reserves – Crane Park Avenue, Oak Avenue, Ham Lands, Lonsdale Road Reservoir and Barnes Common
- Tree Preservation Orders on many trees within the borough
- 70 Conservation Areas (wherein trees are protected)

Richmond Park is a site of both national and international importance for wildlife conservation. It is London's largest SSSI, a National Nature Reserve and a European candidate Special Area of Conservation. The Park is a foremost UK site for ancient trees, particularly oaks. The trees and associated decaying wood support nationally endangered species of fungi, as well as a remarkable range of nationally scarce invertebrates such as the cardinal click beetle and the stage beetle.

The borough is particularly fortunate in having such an extensive and attractive riverside. It is the only London borough with land on both sides of the River Thames and in order to strengthen its identity and not detract from its appeal, standard solutions to streetscene and public spaces may not be appropriate. Issues relating to the riverside have also included specifically items of street furniture and paving.

Most of the riverside is within Conservation Areas and many locations contain listed structures. Many key views in the borough are associated with the riverside. Conservation Area studies indicate detailed proposals and policies.

Townscape

The Council has a strong commitment to promote good quality new design and preserve the special interest, character and setting of the borough as a whole. The borough has nearly 1,200 nationally listed buildings and many 'Buildings of Townscape Merit' which all contribute to the much-loved heritage of the borough. A significant urban design work programme of Environmental Improvements to the Richmond and Twickenham town centres and along the River Thames, and areas in

Heathfield, Ham, Hampton Nurserylands, Castelnau and Mortlake are being taken forward.

Schemes associated with traffic calming and management can adversely affect the character and appearance of historic features and areas through the introduction of poorly designed and site infrastructure and signage, and the use of inappropriate materials. In the design and implementation of all transport schemes, the underlying aim should be to ensure that the proposed measures are integrated sensitively into the surrounding townscape so that the local character is reinforced, rather than eroded. However, such schemes will reduce the negative impacts of traffic and these need to be balanced against negative impacts on the borough's townscape and will be assessed on a case by case basis.

More generally, it is recommended that the LIP should incorporate overarching design principles. In many cases the cumulative impact of smaller scale projects on the character and appearance of an area can often be as damaging as larger single schemes. In order that all applications for new developments meet minimum design standards, Richmond has produced its Public Space Design Guide.

Historic and cultural heritage

Richmond has a rich historic environment which provides a range of cultural, social and economic benefits to the local community and makes a significant contribution to the borough's local distinctiveness. Transport related interventions and activity can have a range of impacts on the historic environment and where they are identified monitoring will be introduced.

At the level of the LIP programme, there are no systematic impacts on the borough's historic and cultural heritage. However, such impacts need to be considered during the development and appraisal of schemes in the programme. As part of the appraisal process all designated historic assets should be considered, including the site and setting of Scheduled Monuments and other important remains, listed buildings (grades I, II and II*), conservation areas and registered parks and gardens. It is also important that the historic environment is broadly defined, and potential impacts of non-designated features of local historic interest and value are fully considered since these can make an important contribution to creating a sense of place and local identity.

It is anticipated that the LIP programme will have a neutral or positive impact on the physical conditions of the borough's cultural heritage by reducing air pollution, traffic volumes and vehicle speeds so reducing the erosion of stone works and reducing the impact of traffic on the settings of historic land marks within the borough. Also,

improvements in accessibility will be achieved through measures contained within the LIP.

The use of traffic calming measures, street furniture and signage should also be carefully considered to avoid unnecessary impacts in sensitive historic and conservation areas.

Archaeology and geology

Archaeological remains are intrinsically finite and are non-renewable resources, which once destroyed cannot be recreated. At the level of the LIP programme, there are no systematic impacts on Richmond's historic and archaeological heritage. However, any such impacts need to be considered during the appraisal of individual schemes in the programme.

Water quality, resources, flood risk and surface water drainage

The River Thames flows through the borough past open stretches of woodland and parkland, Victorian industrial waterfront and urban frontages. There is public access to much of the riverbank in the borough either by towpath or riverside open space. Significant areas are already at risk of flooding from the River Thames and the Beverley Brook and this is likely to increase in the future.

Other main rivers within the borough include the River Crane, the Longford River and Beverley Brook.

Water quality in the River Thames is vital for the survival of fish, especially in summer months. Storm water can overwhelm the sewers leading to high levels of organic matter discharging into the rivers, oxidised by bacteria. If the river flow is low and the temperatures high, the oxygen content is rapidly depleted and fish die. The Rivers Crane and Duke of Northumberland are also of high wildlife value but there is room for improvements in those parts of the borough where the Crane has been channelled into a concrete-lined open conduit.

The Beverley Brook starts its life at the former Worcester Park Sewage Treatment Works (STW) and runs besides Wimbledon Common before entering the borough at Richmond Park and thence through Sheen and Barnes. It leaves much to be desired and is officially classified as 'poor' in terms of river water quality.

There is scientific evidence that run-off from road surfaces carries contamination of oil and other hydrocarbons and metals from tyre rubber, exhausts and catalysts. In some areas run-off from major roads does cause harm to adjacent watercourses. However, in Richmond upon Thames run-off from roads is taken into combined

sewers to sewage treatment works and then to the Thames. Resulting pollution from the Thames from road run-off would normally be minimal. During heavy rain episodes storm-water overflows do flow directly into the Thames and road run-off would make up part of the pollution burden.

Policies to reduce flood risk by locating new development in areas of lower risk, encourage sustainable drainage and maintaining flood defences all have a direct positive impact on water sustainability objectives, as do the policies to protect water resources and infrastructure and ensure water and sewage provision.

Environmental impacts of vehicles

Precious environmental resources can be wasted, and environmental damage caused, by the use of aging vehicles that operate inefficiently, and depending on how vehicles are disposed of at the end of their useful life. The 'End of life' vehicles directive lays down minimum standards for the disposal of vehicles. However, abandoned vehicles often get set alight or vandalised. Early collection of vehicles nearing the end of their lives can provide a number of benefits, such as:

- Removing older, noisier and more polluting vehicles from the roads
- An opportunity to recover materials from vehicles, which can be reused or recycled
- Helping reduce the number of vehicles abandoned, reducing the visual intrusion, danger and nuisance effects associated with this

While the option to introduce a vehicle scrappage scheme is outside the scope of the LIP, the Council does track and remove abandoned vehicles left on borough roads.

Maintenance and material assets

A well-maintained highway network with quality materials chosen to be in sympathy with their surroundings will have a positive impact on Richmond's streetscape and the setting of its important buildings and landscapes.

The SEA assessment of Richmond's LIP programme, and alternatives to the LIP, has examined potential adverse impacts of the scheme on Material Assets.

Human health

The environment that people experience plays a large part in their quality of life, with a poor environment being a significant factor in multiple deprivations. While it is not straightforward to quantify the quality of the environment, looking at factors such as air pollution can be used to help identify areas where populations are at greater risk

of social exclusion through poor health and environment. The human health component of the SEA looks at a wide range of conditions to measure and establish the baseline. This includes road traffic collisions, health deprivation and crime and disorder deprivation.

Positive effects

A significant majority of the impacts of the LIP are positive. The main areas which benefit from the policies and plans in the new LIP are those relating to air quality, townscape, conservation of historic resources, safety, access to the transport system and the support of other governmental policies. There are other less significant benefits also seen in connection with noise, local air quality, biodiversity, reduced visual impacts, physical fitness, security and reducing community severance.

Environmental considerations have informed the chosen option and become fully integrated into the LIP.

Negligible and negative effects

Any new transport infrastructure or development on flood plans should incorporate sustainable urban drainage systems (SUDS). Any future development in flood zones without SUDS will exacerbate the risk of flooding, water pollution and water resources issues, which will increase the risk to life and damage property.

Particular care should be taken on design of measures in Conservation Areas, including design and siting bus shelters and associated facilities as these could be detrimental to the setting of historic monuments. New walking and cycling facilities again may have a similar negative effect. New lighting on street and around new developments also may cause lighting pollution to rise in surrounding areas and must be balanced with the need for personal safety.

Schemes, particularly where those involve traffic calming or reductions in vehicle capacity, may make other, less suitable routes more attractive and so impose higher levels of traffic on previous tranquil and lightly trafficked areas.

7. Environmental topics and baseline

Environmental topics covered by the SEA

With regards to determining the plan's likely significant environmental effects the 2004 Regulations require that the following topics be addressed:

- Biodiversity, fauna and flora

- Population
- Human health
- Soil
- Water
- Air
- Climatic factors
- Material assets
- Cultural heritage
- Landscape

The Regulations also require that the inter-relationships between these topics are considered as well as any secondary, cumulative and synergistic effects, where appropriate.

It is important that the scope of the SEA for Richmond's LIP3 covers the topics required both by the 2004 Regulations and the NATA Environmental sub-objectives.

Approach to baseline data collection

The use of baseline environmental data provides the basis for prediction and monitoring of environmental effects and helps to identify problems and alternative ways of dealing with them.

The level of detail of the environmental baseline data collected for the SEA varies depending on the topic under consideration but has been pitched at a level considered appropriate for considering the strategic environmental effects of the LIP3 during the assessment process. In general, this has been pitched at a county level to facilitate the identification of wider environmental problems and opportunities facing the county that may be relevant to the LIP3, and in order to gain an understanding of any future trends.

Other than consulting existing databases within Richmond Council, the key sources of baseline data have been Transport for London and the 2011 National Census.

SEA framework

The SEA Directive does not specifically require the use of objectives of indicators in SEA, but objectives can usefully demonstrate how environmental effects can be described, analysed and compared. A plan's performance against objectives can be measured using indicators. The SEA objectives are meant to be separate from LIP objectives, through the two influence each other and may overlap.

For the most part, the application of the NATA sub-objectives and the 2004 Regulation topics to the LIP3 SEA is relatively straight forward. However, there is some interpretation required in terms of the technical scope for the material assets, population and human health topics.

The table below shows the topics to be addressed by the Richmond LIP3 SEA.

NATA objective	NATA sub-objective	2004 regulation topics
Environment	Noise	Population, human health
	Local air quality	Population, human health
	Greenhouse gases	Climatic factors, material assets
	Landscape/ townscape	Landscape
	Heritage	Cultural heritage
	Biodiversity	Biodiver
	Water environment	
	Physical fitness	Population, human health
Safety	Collisions	Population, human health
	Security	Population, human health
Accessibility	Community severance	Population
	Access to transport system	Population
Economy	Public accounts	Material assets
	Business users & providers	Material assets
	Consumer users	Material assets

There is much overlap between the NATA and 2004 Regulation topics with regards to population and human health, mainly relating to noise, air quality, physical fitness and safety. These objectives have therefore been considered together during collection of baseline data with air quality, including climatic factors and population and human health covering noise, physical fitness and safety.

Although NATA does not explicitly cover material assets, for the purpose of this SEA this has been interpreted as the potential effects on natural resources, property and businesses where an economic impact may be incurred. As a result, the technical scope of this topic includes energy, brownfield land, housing, businesses and employment.

To fulfil the requirements of the SEA directive, the objectives must cover the SEA topics outlined above. In developing the SEA objectives for the LIP, the NATA environmental objectives along with other environmental objectives and policies from various Richmond plans and strategies have been adopted.

8. Strategic alternatives

SEA directive requirements

The SEA directive (2001/42/EC) states that:

> *'an Environmental Report shall be prepared in which the likely significant effects on the environment of implementing the plan or programme, and reasonable alternatives taking into account the objectives and geographical scope of the plan or programme, are identified, described and evaluated'* (Article 5.1)

It also notes that one of the issues that must be covered in the Environmental Report is 'an outline of the reasons for selecting the alternatives dealt with'.

The SEA should consider alternative scenarios for the overall management of transport in Richmond to ensure that the range of likely significant environmental impacts of the LIP3 are addressed during the preparation of the plan. It also assists in explaining the decision makers and consultees why these measures, and no other, are being put forward. DfT guidelines also state that alternatives can be different ways of:

- Achieving the objective of the plan
- Achieving the aspirations of the local community
- Dealing with the environmental problems
- Dealing with transport problems

One situation which needs to be considered in all SEAs is the likely expected evolution of the environmental baseline conditions within the LIP.

The identification and comparison of alternative strategies is a key aspect of the SEA process. This is seen as being essential to ensure that the likely significant environmental effects are addressed during the preparation of the plan and also to explain why particular strategies and measures are included and why others are not.

Alternatives

Alternatives are the range of rational choices open to the plan and programme-makers for delivering plan objectives. The SEA regulations do not create a specific requirement to put forward alternatives, but it is common practice when developing a plan or programmes to propose different ways of fulfilling its objectives. Where this is the case, the SEA regulations do require that the environmental effects of such alternatives be considered. As part of the standard SEA process, the alternatives can be tested against the SEA objectives, to identify better or worse for the environment.

Better alternatives are those that have more positive and fewer negative environmental effects (particularly fewer long-term and/or irreversible negative effects). There should also be less uncertainty associated with their implementation.

Unlike many other statutory plans that must undergo SEA, in preparing the LIP, there are more restrictions in determining alternatives. Transport for London's LIP guidance specifies that the LIPs must follow the Mayor's Transport Strategy (MTS) and set its objectives and strategy closely in line with this. It is quite specific, aimed at achieving the Mayor's priorities for London.

If we have reasons to eliminate any alternatives, these should be documented (as required by article 9 (1(b)) of the SEA Directive). As the responsible authority, we should also document reasons for not considering seemingly attractive or practicable alternatives. Justification for these choices should be robust, as they may have to be defended in court.

With the plan

The transport needs of Richmond have been largely addressed with the proposed delivery plan. These are presented in the LIP3 and will be carried out within the borough subject to public support and funding.

The proposed works in LIP3 have been addressed in detail in this Environmental Report and are presented in the tables below. It concludes that the vast majority of the schemes will be either beneficial or have no impact on the environment. Where the effect is uncertain, this is due to the lack of detail and data available at this stage of the scheme's development. Where there may be increased numbers of buses, local residents may suffer higher noise levels, particularly early in the morning and later in the evenings.

Without the plan

'Without the plan' is the business-as-usual scenario. It excludes specific LIP transport projects but includes the other projects and developments which Richmond is implementing as part of its wider transport programme, and includes schemes not funded through the LIP. It is important to note that the development of the 'without the plan' scenario could lead to significant variations from a more simplistic analysis of national or local trends. Work to develop 'without the plan' will also provide useful context for identifying cumulative effects.

Predicting the effects of the draft plan

Predicting the effects of the LIP has involved examining each strategy and scheme of the LIP3 programme's measures set out in the appraisal tables. The process has included:

- Identifying the changes to conditions in the 'without the plan' scenario which are predicted to rise from the strategies and measures. These were compared with each other and against the 'without the plan' scenario in the relevant assessments
- Describing these changes can be in terms of their magnitude, their geographical scale, the time period over which they will occur, whether they are permanent or temporary, positive or negative, probable or improbable, frequent or rare, and whether they are secondary, cumulative and/or synergistic effects

This provides the basis for the evaluation of impact significance.

Predictions do not have to be expressed in quantitative terms, through it is often possible to give quantitative but imprecise answers. Testing the accuracy of predictions is particularly useful where the plan's effects are uncertain, close to a threshold, or cumulative. Where we have qualitative predictions, they should be, and we will strive to provide supporting evidence, such as reference to any research, discussions or consultation. Assumptions, for instance, about underlying trends or details of implementation should be stated. The Environmental Report documents any identified limitations found or experienced.

Where the LIP3 included individual measures that have been subjected to individual appraisal and accompanying project level environmental impact assessment (EIA), depending on their timing and scale, these will be included and where these are to be provided at a later date during the lifetime of the LIP3 they will be added when prepared as part of the monitoring regime. However, the availability of such information should not dominate the plan-level predictions – the SEA should focus on the plan as a whole, not on individual measures.

The SEA Directive requires an assessment of secondary, cumulative and synergistic effects. These are particularly important in transport planning: one transport measure often relies on other related measures to be effective, many impacts of transport are cumulative (e.g. greenhouse gas emissions), and transport measures can have indirect impacts (e.g. traffic generation by new roads). Where a measure or scheme is subject to significant cumulative effects it may be necessary to revisit the LIP3 to identify ways of reducing these effects.

It has been important to assess the distribution of effects: who wins and loses under each strategy. The environmental effects upon communities may be presented in terms of effects upon different groups which may be categorised by where they live, or by other attributes to do with age, car ownership and so on.

Cumulative effects

Many of the proposals in the LIP3 programme have several inter-related effects. An example of this is where we introduce traffic restrictions along a road or over a wider area, as part of school streets or general traffic calming, we may encourage traffic to use other routes, resulting in increased traffic levels and poorer air quality on these roads.

All schemes which improve road safety improve human health by reducing collision levels. At such locations, more people tend to walk and cycle, thereby also improving human health. As speeds slow down and drivers' journeys are smoother, fewer pollutants are emitted and noise and community severance is also reduced.

Slower traffic speeds across the network improve human health as collision numbers and their severity reduce. However, where congestion is associated with the slower traffic, air pollution can increase as can community severance. Areas with low volumes can also act as an inducement to increase traffic levels thereby increasing air pollution.

Making people more aware of the biodiversity, fauna and flora tends to increase how much they care about these issues. However large visitor numbers can also destroy such environments, and therefore increasing visitor numbers need to be managed carefully. In addition, when schemes are introduced in such locations, materials will be used which are sensitive to the environment and so will provide greater protection for some species. Where necessary, materials will be changed, and schemes revised to minimise the cumulative environmental impact.

All impacts of climate change are likely to be cumulative and permanent and are considerably impacted by traffic levels.

Mitigation and enhancement recommendations

The SEA guidance for LIPs recommends that the opportunities for mitigation should follow the 'mitigation hierarchy'. This begins with measures for avoidance/ prevention, to reduction, and finally measures aiming to offset impacts. Possible suggestions include:

- Changes to the programme, such as adding, deleting or refining projects

- Technical measures required for the implementation stage, e.g. buffer zones
- Application of design principles and/or requirement of sub-contractors to have an Environmental Management System (e.g. maintenance contractors)
- Establish a 'no net loss' principle to compensate/ offset construction over sensitive land
- Requirements for project environmental impact assessments for certain projects if appropriate

Specific measures that could be incorporated into the policies and proposals set out in Richmond's LIP3 are discussed in the following paragraphs.

9. Monitoring

The purpose of monitoring

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 severance or landscape quality.

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?

This process is beneficial to the LIP because it allows any significant environmental effects of the plan's implementation to be identified and dealt with early on 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.

Monitoring for the SEA

To develop a monitoring strategy, the guidance suggests we must address the following:

- 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
- Develop a management plan outlining responsibilities, timeframes and presentation

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 as a result of measures within Richmond's LIP3. Where adverse impacts have been found, mitigation measures were presented to minimise these impacts, so no change to the plan was advised in the Environmental Report. Given the lack of significant impact on the environment that the plan entails, no specific monitoring for the SEA is necessarily required.

When monitoring reveals that remedial action is required, the appropriate measures are enacted. Criteria or threshold 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.

10. Conclusion

The purpose of this report has been to document the strategic environmental assessment of the policies and strategies that have been prepared for the LIP3 and to document how the SEA process has been integrated into its development.

In doing so, the report has included the baseline planning and environmental context that has been used to identify the environmental problems and opportunities facing the borough. The SEA objectives that have been used to assess the potential effects of the plan are also provided, together with an assessment of the vision and objectives for the LIP3 and policies contained within it.

Overall, there are no adverse effects on the SEA objectives as a result of the implementation of the LIP3 predicted, although in some cases mitigation would be required on implementation of some measures to ensure that indirect residual beneficial effects result. The SEA does not recommend that there is a need for any schemes to be added or removed from the LIP3 programme. The recommendations for improved practice from the SEA are as follows:

- Measures should be kept to a minimum consistent with meeting transport objectives

- Ensure good design and planning for all schemes, with the aim of minimising street clutter
- Particular care should be taken on design of measures in Conservation Areas, including design and siting bus shelters and associated facilities
- Schemes should be designed in such a way that they do not make other, less suitable routes, more attractive
- The local community should be involved in decisions on the design schemes, where possible
- Lighting should be kept to a minimum, and the choice of location carefully considered

To minimise the negative impacts of the schemes and programmes, potential mitigation measures that could be considered have been identified and are set out in the following table. It is recommended that these mitigation measures should be added to requirements for each individual scheme. As part of scheme development, a requirement should be to identify whether the particular scheme will lead to diverse environmental impacts and, if so, what is the most appropriate mitigation measures to implement in tandem with the offset or minimise that impact. The cost of implementing these mitigation measures should be included within the cost of a scheme as a whole.

Impact	Mitigation
Potential increase in CO2	Greater promotion of walking and cycling Develop infrastructure to support the uptake of electric vehicles
Visual impact of signage and lines	Reduce to a minimum Use appropriate materials
Light pollution	Reduce lighting to a minimum needed for safety Use environmentally friendly lighting design that minimises light pollution or spillage
Rat running to avoid traffic calming/ congestion	Consider introducing filtered permeability Consider extending treatment to cover possible affected routes
Urban centre air quality problems from increased bus numbers	Offset any increase in buses with reduced general traffic levels Encourage use of cleaner buses
Increased local traffic levels associated with greater economic activity	Greater promotion of walking and cycling Consider extended traffic management to cover possible affected routes in appropriate cases

Visual intrusion of bus shelters and other public transport infrastructure	Careful location and sensitive design – involvement of local community
Increased road travel on better maintained roads	Greater promotion of walking, cycling and public transport
Streetscape impact of bus lanes and related infrastructure	Use of high quality materials Sensitive design following Healthy Streets Approach
Increased pollutant levels in areas subject to diverted traffic	Consider introducing filtered permeability Consider extending treatment to cover possible affected routes in appropriate cases

For the majority of the schemes in the programme it is not possible at this time to quantify the impacts. If the known impacts were set out this might lead to undue concentration on the impacts of these schemes, which tend to be those earlier in the programme. As a consequence of this, the whole assessment has been carried out on a qualitative basis. Where impacts are identified this may indicate that a quantitative assessment should be required as part of the scheme development process. In the table impacts set out in blue are those which might lead to meeting of the SEA objective, and impacts set out in red are those that run counter to the objective. Cells coloured white indicate where no significant impact is expected.

11. Next steps in the SEA process

Consultation on the draft LIP3 and SEA

The SEA Regulations set specific requirements for consultation with the Consultation Bodies, the public and other interested parties (these could include non-governmental organisations and community groups) and require that the Environmental Report (this document) is made available alongside the consultation draft LIP3. As such this Environmental Report will be made available on the Richmond Council consultation webpage under LIP3.

SEA Statement

When the final Richmond LIP3 is completed it will be accompanied by a SEA Statement, in the form of a cover letter and the SEA prepared for the LIP.

12. Appraisal tables

The appraisal tables have been grouped by programme and detail the positive and negative impacts each project will have on each of the objectives.

Programme: Support of Vision Zero (1 of 4)			
SEA Objective	White Hart Lane Footbridge	Introduction of borough-wide 20mph	A310 Kingston Road/ Strawberry Vale
Reduce air and noise pollution, including greenhouse gases, and ensure air quality improves	Will result in more walking trips	Will result in more walking and cycling trips Some traffic calming measures can result in increased rates of sudden braking/ accelerating	Will result in more walking and cycling trips, fewer short car trips
Reduce congestion and pollution by reducing the need to travel, encourage alternatives to the car and make best use of existing transport infrastructure	Will result in more walking trips	Will result in more walking and cycling trips	Will result in more walking and cycling trips
Conserve and enhance biodiversity avoiding irreversible losses, through responsible management of key wildlife sites	No impact	No impact	No impact
Promote high quality places, spaces and buildings and conserve and enhance the landscape and townscape character of the borough, including historical features for the benefit of both residents and visitors	Effect on landscape/ townscape of elevated structure	Effect on landscape/ townscape of additional signs and roadmarkings	Effect on landscape/ townscape, can be mitigated through design

Maximise opportunities to improve the historic environment through appropriate transport infrastructure and public realm upgrades, while also reducing the adverse impacts of traffic on the historic environment	Adjacent to conservation area. Will reduce severance in area.	Effect on landscape/ townscape of additional signs and roadmarkings	No impact on historic environment
To create and maintain safer and more secure communities	Will reduce potential conflict between different road users	Will reduce number and severity of collisions	Will reduce number of collisions
To facilitate the improved health and well-being of the population, including enabling people to stay independent and ensuring access to those health, education, leisure and recreation facilities and services that are required	Will improve attractiveness of walking in local area and reduce severance	Will reduce number and severity of collisions, encourage more people to walk and cycle	Will improve attractiveness of walking and cycling in local area
To increase the vitality and viability of existing town centres, local centres and parades	Will help attract more pedestrians to local shops, reduce severance	Lower vehicles speeds will improve the vitality of local town centres, local centres and parades by creating an environment friendlier to pedestrians	Will help attract more pedestrians and cyclists to local shops
To promote and encourage a buoyant and diverse economy that will provide sustainable economic growth	Will help attract more pedestrians to local shops	Lower vehicles speeds will improve the vitality of local town centres, local centres and parades by creating an environment friendlier to pedestrians	Will help attract more pedestrians and cyclists to local shops

Programme: Support of Vision Zero (2 of 4)			
SEA Objective	A305 Sheen Road Corridor	A305 Staines Road (Heath Road/ King Street to The Green)	A308 Upper Sunbury Road/ Hampton Court Road
Reduce air and noise pollution, including greenhouse gases, and ensure air quality improves	Will result in more walking and cycling trips	Will result in more walking and cycling trips	Will result in more walking and cycling trips
Reduce congestion and pollution by reducing the need to travel, encourage alternatives to the car and make best use of existing transport infrastructure	Will result in more walking and cycling trips	Will result in more walking and cycling trips	Will result in more walking and cycling trips
Conserve and enhance biodiversity avoiding irreversible losses, through responsible management of key wildlife sites	No impact	No impact	No impact
Promote high quality places, spaces and buildings and conserve and enhance the landscape and townscape character of the borough, including historical features for the benefit of both residents and visitors	Effect on landscape/ townscape, can be mitigated through design	Effect on landscape/ townscape, can be mitigated through design	Effect on landscape/ townscape, can be mitigated through design
Maximise opportunities to improve the historic environment through appropriate transport infrastructure and public realm	Conservation area. Will include improvements to public realm using Healthy Streets Approach.	Conservation area. Will include improvements to public realm using Healthy Streets Approach.	Conservation area. Will include improvements to public realm using Healthy Streets Approach.

upgrades, while also reducing the adverse impacts of traffic on the historic environment			
To create and maintain safer and more secure communities	Will reduce number of collisions	Will reduce number of collisions	Will reduce number of collisions
To facilitate the improved health and well-being of the population, including enabling people to stay independent and ensuring access to those health, education, leisure and recreation facilities and services that are required	Will improve attractiveness of walking and cycling in local area	Will improve attractiveness of walking and cycling in local area	Will improve attractiveness of walking and cycling in local area
To increase the vitality and viability of existing town centres, local centres and parades	Will help attract more pedestrians and cyclists to local shops	Will help attract more pedestrians and cyclists to local shops	Will help attract more pedestrians and cyclists to local shops
To promote and encourage a buoyant and diverse economy that will provide sustainable economic growth	Will help attract more pedestrians and cyclists to local shops	Will help attract more pedestrians and cyclists to local shops	Will help attract more pedestrians and cyclists to local shops

Programme: Support of Vision Zero (3 of 4)			
SEA Objective	A313 Uxbridge Road Corridor	A307 Kew Road Corridor	Rotation of speed indicator devices
Reduce air and noise pollution, including greenhouse gases, and ensure air quality improves	Will result in more walking and cycling trips	Will result in more walking and cycling trips	May result in higher rates of sudden braking/ accelerating
Reduce congestion and pollution by reducing the need to travel, encourage	Will result in more walking and cycling trips	Will result in more walking and cycling trips	No impact

alternatives to the car and make best use of existing transport infrastructure			
Conserve and enhance biodiversity avoiding irreversible losses, through responsible management of key wildlife sites	No impact	No impact	No impact
Promote high quality places, spaces and buildings and conserve and enhance the landscape and townscape character of the borough, including historical features for the benefit of both residents and visitors	Effect on landscape/ townscape, can be mitigated through design	Effect on landscape/ townscape, can be mitigated through design	No impact
Maximise opportunities to improve the historic environment through appropriate transport infrastructure and public realm upgrades, while also reducing the adverse impacts of traffic on the historic environment	Conservation area. Will include improvements to public realm using Healthy Streets Approach.	Conservation area. Will include improvements to public realm using Healthy Streets Approach.	No impact
To create and maintain safer and more secure communities	Will reduce number of collisions	Will reduce number of collisions	Will reduce number and severity of collisions
To facilitate the improved health and well-being of the population, including enabling people to stay independent and ensuring access to those health, education, leisure and	Will improve attractiveness of walking and cycling in local area	Will improve attractiveness of walking and cycling in local area	No impact

recreation facilities and services that are required			
To increase the vitality and viability of existing town centres, local centres and parades	Will help attract more pedestrians and cyclists to local shops	Will help attract more pedestrians and cyclists to local shops	No impact
To promote and encourage a buoyant and diverse economy that will provide sustainable economic growth	Will help attract more pedestrians and cyclists to local shops	Will help attract more pedestrians and cyclists to local shops	No impact

Programme: Support of Vision Zero (4 of 4)				
SEA Objective	Borough-wide collision investigation	Road safety awareness campaigns	Community safety initiatives	Future safety schemes
Reduce air and noise pollution, including greenhouse gases, and ensure air quality improves	May result in higher rates of sudden braking/ accelerating	No impact	No impact	Will result in more walking and cycling trips
Reduce congestion and pollution by reducing the need to travel, encourage alternatives to the car and make best use of existing transport infrastructure	No impact	No impact	No impact	Will result in more walking and cycling trips
Conserve and enhance biodiversity avoiding irreversible losses, through responsible management of key wildlife sites	No impact	No impact	No impact	No impact
Promote high quality places, spaces and	No impact	No impact	No impact	Effect on landscape/ townscape, can be

buildings and conserve and enhance the landscape and townscape character of the borough, including historical features for the benefit of both residents and visitors				mitigated through design
Maximise opportunities to improve the historic environment through appropriate transport infrastructure and public realm upgrades, while also reducing the adverse impacts of traffic on the historic environment	No impact	No impact	No impact	Consideration will be given to historic environment as part of the design process
To create and maintain safer and more secure communities	Will reduce number and severity of collisions	Will reduce number and severity of collisions	Will reduce number and severity of collisions	Will reduce number of collisions
To facilitate the improved health and well-being of the population, including enabling people to stay independent and ensuring access to those health, education, leisure and recreation facilities and services that are required	No impact	No impact	No impact	Will improve attractiveness of walking and cycling in local area
To increase the vitality and viability of existing town centres, local centres and parades	No impact	No impact	No impact	Will help attract more pedestrians and cyclists to local shops

To promote and encourage a buoyant and diverse economy that will provide sustainable economic growth	No impact	No impact	No impact	Will help attract more pedestrians and cyclists to local shops

Programme: Healthy Streets and active travel (1 of 3)			
SEA Objective	Cycle training	Cycle parking	Healthy Streets fund - cycle routes, pedestrian measures, bus stop improvements
Reduce air and noise pollution, including greenhouse gases, and ensure air quality improves	Facilitates higher levels of cycling	Facilitates higher levels of cycling	Will increase rates of walking, cycling and public transport use
Reduce congestion and pollution by reducing the need to travel, encourage alternatives to the car and make best use of existing transport infrastructure	Encourages higher levels of cycling	Encourages higher levels of cycling	Will encourage alternatives to the car – walking, cycling and public transport
Conserve and enhance biodiversity avoiding irreversible losses, through responsible management of key wildlife sites	No impact	No impact	Good design will ensure any impact is negligible
Promote high quality places, spaces and buildings and conserve and enhance the landscape and townscape character of the borough, including historical features for	No impact	No impact	Healthy Streets promotes creation of high quality public spaces

the benefit of both residents and visitors			
Maximise opportunities to improve the historic environment through appropriate transport infrastructure and public realm upgrades, while also reducing the adverse impacts of traffic on the historic environment	No impact	No impact	Will include public realm improvements in a variety of areas using Healthy Streets Approach.
To create and maintain safer and more secure communities	Provides cyclists with the skills they need for defensive cycling	No impact	Healthy Streets promotes creation of safe and secure public spaces
To facilitate the improved health and well-being of the population, including enabling people to stay independent and ensuring access to those health, education, leisure and recreation facilities and services that are required	Enables people to travel without the need for a car	Improves access to facilities and services by enabling people to travel by bicycle	Healthy Streets promotes creation of inviting public realm, thereby improving access to facilities and services
To increase the vitality and viability of existing town centres, local centres and parades	No impact	Improve access to town centres Can have negative visual impact on streetscape	Healthy Streets focuses on improvements to public realm
To promote and encourage a buoyant and diverse economy that will provide sustainable economic growth	Improves access to employment for those without access to a car	Improves access to employment for those without access to a car	Improves access to employment, leisure and services

Programme: Healthy Streets and active travel (2 of 3)			
SEA Objective	Hampton and Fulwell access to stations study	Whitton and West Twickenham access to stations study	Controlled parking zone development and implementation
Reduce air and noise pollution, including greenhouse gases, and ensure air quality improves	Will promote walking, cycling and public transport use	Will promote walking, cycling and public transport use	Pricing will promote purchase of cleaner vehicles Confidence in finding parking spaces may encourage use of car for short trips
Reduce congestion and pollution by reducing the need to travel, encourage alternatives to the car and make best use of existing transport infrastructure	Will encourage walking, cycling and public transport	Will encourage walking, cycling and public transport	No impact
Conserve and enhance biodiversity avoiding irreversible losses, through responsible management of key wildlife sites	Area is adjacent to Bushy Park but the study will have no impact on the park	No impact	No impact
Promote high quality places, spaces and buildings and conserve and enhance the landscape and townscape character of the borough, including historical features for the benefit of both residents and visitors	Good design will ensure any impact is negligible	Good design will ensure any impact is negligible	Can have negative visual impact with additional signs and street markings
Maximise opportunities to improve the historic environment through	Includes Hampton Village conservation area. Project will improve public realm and	Minimal or no impact on historic environment	Can have negative visual impact with additional signs and street markings

appropriate transport infrastructure and public realm upgrades, while also reducing the adverse impacts of traffic on the historic environment	encourage shift away from cars, thereby reducing traffic impact.		
To create and maintain safer and more secure communities	Healthy Streets Approach promotes creation of safe and secure public spaces	Healthy Streets Approach promotes creation of safe and secure public spaces	No impact
To facilitate the improved health and well-being of the population, including enabling people to stay independent and ensuring access to those health, education, leisure and recreation facilities and services that are required	Healthy Streets Approach promotes creation of inviting public realm, thereby improving access to facilities and services	Healthy Streets Approach promotes creation of inviting public realm, thereby improving access to facilities and services	No impact
To increase the vitality and viability of existing town centres, local centres and parades	Healthy Streets Approach focuses on improvements to public realm	Healthy Streets Approach focuses on improvements to public realm	Improves access by car by discouraging long-stay parking
To promote and encourage a buoyant and diverse economy that will provide sustainable economic growth	Improves access to employment, leisure and services	Improves access to employment, leisure and services	No impact

Programme: Healthy Streets and active travel (3 of 3)			
SEA Objective	Barnes High St/ Church Rd neighbourhood scheme	Richmond town centre neighbourhood scheme	Rocks Lane/ Mill Hill Road
Reduce air and noise pollution, including greenhouse gases,	Will reduce congestion in town centre	Will encourage more walking and cycling	Will encourage more walking

and ensure air quality improves			
Reduce congestion and pollution by reducing the need to travel, encourage alternatives to the car and make best use of existing transport infrastructure	Makes better use of existing space. Reduce congestion and encourage walking and cycling.	Makes better use of existing space. Reduce congestion and encourage walking and cycling.	Will encourage more walking Pedestrian phase may increase congestion/ cause additional delay to vehicles
Conserve and enhance biodiversity avoiding irreversible losses, through responsible management of key wildlife sites	No impact	No impact	Can be mitigated through design
Promote high quality places, spaces and buildings and conserve and enhance the landscape and townscape character of the borough, including historical features for the benefit of both residents and visitors	Good design will ensure any impact is negligible	Good design will ensure any impact is negligible	Good design will ensure any impact is negligible
Maximise opportunities to improve the historic environment through appropriate transport infrastructure and public realm upgrades, while also reducing the adverse impacts of traffic on the historic environment	Conservation area. Project includes public realm improvements and reducing traffic impact.	Conservation area. Project includes public realm improvements and reducing traffic impact.	Conservation area. Will improve access for pedestrians. Conservation area. Will increase street clutter.
To create and maintain safer and more secure communities	Healthy Streets Approach promotes creation of safe and secure public spaces	Healthy Streets Approach promotes creation of safe and secure public spaces	Improves pedestrian safety

To facilitate the improved health and well-being of the population, including enabling people to stay independent and ensuring access to those health, education, leisure and recreation facilities and services that are required	Healthy Streets Approach promotes creation of inviting public realm, thereby improving access to facilities and services	Healthy Streets Approach promotes creation of inviting public realm, thereby improving access to facilities and services	No impact
To increase the vitality and viability of existing town centres, local centres and parades	Healthy Streets Approach focuses on improvements to public realm	Healthy Streets Approach focuses on improvements to public realm	No impact
To promote and encourage a buoyant and diverse economy that will provide sustainable economic growth	Improves access to employment, leisure and services	Improves access to employment, leisure and services	No impact

Programme: Working with schools (1 of 2)				
SEA Objective	Healthy Routes to schools	School based programmes	Junior Road Safety Officers	Pedestrian training
Reduce air and noise pollution, including greenhouse gases, and ensure air quality improves	Encourages walking and cycling	Encourages walking and cycling	Encourages walking and cycling	Encourages walking
Reduce congestion and pollution by reducing the need to travel, encourage alternatives to the car and make	Encourages walking and cycling	Encourages walking and cycling	Encourages walking and cycling	Encourages walking

best use of existing transport infrastructure				
Conserve and enhance biodiversity avoiding irreversible losses, through responsible management of key wildlife sites	No impact	No impact	No impact	No impact
Promote high quality places, spaces and buildings and conserve and enhance the landscape and townscape character of the borough, including historical features for the benefit of both residents and visitors	No impact	No impact	No impact	No impact
Maximise opportunities to improve the historic environment through appropriate transport infrastructure and public realm upgrades, while also reducing the adverse impacts of traffic on the historic environment	Will improve transport infrastructure and public realm in some areas	No impact	No impact	No impact
To create and maintain safer and more secure communities	Improves road safety	Improves road safety	Improves road safety	Improves road safety

To facilitate the improved health and well-being of the population, including enabling people to stay independent and ensuring access to those health, education, leisure and recreation facilities and services that are required	Improves access to education	Improves access to education	Improves access to education	Improves access to education
To increase the vitality and viability of existing town centres, local centres and parades	No impact	No impact	No impact	No impact
To promote and encourage a buoyant and diverse economy that will provide sustainable economic growth	No impact	No impact	No impact	No impact

Programme: Working with schools (2 of 2)				
SEA Objective	Bike It schools	Safe Routes to Schools – St Stephen's Winchester Road	Safe Routes to Schools – St Margaret's Road/ Sandycoombe Road	Safe Routes to Schools – future schemes TBD
Reduce air and noise pollution, including greenhouse gases, and	Encourages cycling	Encourages walking and cycling, reduces pollution next to school	Encourages walking and cycling, reduces pollution next to school	Encourages walking and cycling, reduces pollution next to school

ensure air quality improves				
Reduce congestion and pollution by reducing the need to travel, encourage alternatives to the car and make best use of existing transport infrastructure	Encourages cycling	Encourages walking and cycling	Encourages walking and cycling	Encourages walking and cycling
Conserve and enhance biodiversity avoiding irreversible losses, through responsible management of key wildlife sites	No impact	No impact	No impact	No impact
Promote high quality places, spaces and buildings and conserve and enhance the landscape and townscape character of the borough, including historical features for the benefit of both residents and visitors	No impact	No impact	No impact	No impact
Maximise opportunities to improve the historic environment through appropriate transport infrastructure and public realm upgrades, while also reducing the	No impact	Will improve transport infrastructure for pedestrians/ cyclists and reduce adverse traffic impact in area surrounding school	Will improve transport infrastructure for pedestrians/ cyclists and reduce adverse traffic impact in area surrounding school	Will improve transport infrastructure for pedestrians/ cyclists and reduce adverse traffic impact in area surrounding school

adverse impacts of traffic on the historic environment		May increase traffic in surrounding areas	May increase traffic in surrounding areas	May increase traffic in surrounding areas
To create and maintain safer and more secure communities	Includes teaching safe cycling	Improves road safety around the school	Improves road safety around the school	Improves road safety around the school
To facilitate the improved health and well-being of the population, including enabling people to stay independent and ensuring access to those health, education, leisure and recreation facilities and services that are required	Improves health through encouraging and enabling cycling. Improves access to education by bike.	Encourages access to schools by walking and cycling. Restricts access to schools by car.	Encourages access to schools by walking and cycling. Restricts access to schools by car.	Encourages access to schools by walking and cycling. Restricts access to schools by car.
To increase the vitality and viability of existing town centres, local centres and parades	No impact	No impact	No impact	No impact
To promote and encourage a buoyant and diverse economy that will provide sustainable economic growth	No impact	No impact	No impact	No impact

Programme: Improving air quality (1 of 1)	
SEA Objective	Air quality initiatives across the borough

Reduce air and noise pollution, including greenhouse gases, and ensure air quality improves	Enabling and encouraging uptake of electric vehicles will have a positive impact on air quality
Reduce congestion and pollution by reducing the need to travel, encourage alternatives to the car and make best use of existing transport infrastructure	No impact
Conserve and enhance biodiversity avoiding irreversible losses, through responsible management of key wildlife sites	Cleaner vehicles and improved air quality will have positive impact on wildlife sites
Promote high quality places, spaces and buildings and conserve and enhance the landscape and townscape character of the borough, including historical features for the benefit of both residents and visitors	Electric vehicle chargers create street clutter
Maximise opportunities to improve the historic environment through appropriate transport infrastructure and public realm upgrades, while also reducing the adverse impacts of traffic on the historic environment	Increased use of electric vehicles will improve air quality and reduce adverse impact of poor air quality on historic environment Electric vehicle chargers create street clutter
To create and maintain safer and more secure communities	No impact
To facilitate the improved health and well-being of the population, including enabling people to stay independent and ensuring access to those health, education, leisure and recreation facilities and services that are required	No impact
To increase the vitality and viability of existing town centres, local centres and parades	Cleaner air will improve vitality of town centres, local centres and parades
To promote and encourage a buoyant and diverse economy that will provide sustainable economic growth	Enables businesses to use cleaner vehicles through provision of charging infrastructure

Appendix 1

Checklist of advice from Historic England

General comments on SEA process:

Key Plans and Programmes

When considering key plans and programmes, we recommend the inclusion and consideration of the following:

International/European

- UNESCO World Heritage Convention
- European Landscape Convention
- The Convention for the Protection of the Architectural Heritage of Europe
- The European Convention on the Protection of Archaeological Heritage

National

- Planning (Listed Buildings & Conservation Areas) Act 1990
- Ancient Monuments & Archaeological Areas Act 1979
- Government's statement on the Historic Environment
- National Planning Policy Framework
- National Planning Policy Guidance

Local

- Local Plans
- Historic Environment Record
- Heritage/Conservation Strategies
- Other Strategies (e.g. Thames Strategy)
- Conservation Area Character Appraisals and Management Plans
- Listed building Heritage Partnership Agreements

Key Sustainability Issues

We would suggest that the starting point for considering Key Sustainability Issues for the Historic Environment should include:

- Conserving and enhancing designated and non-designated heritage assets and the contribution made by their settings
- Heritage assets at risk from neglect, decay, or development pressures;
- Areas where there is likely to be further significant loss or erosion of townscape character or quality, or where development has had or is likely to have significant impact (direct and or indirect) upon the historic environment and/or people's enjoyment of it

- Traffic congestion, air quality, noise pollution and other problems affecting the historic environment

Transport issues such as congestion and high levels of air pollutants can be a considerable factor when experiencing the historic environment and individual heritage assets. The wider context within which the historic environment is experienced is an important aspect of its setting and therefore its significance. Setting goes beyond visual links to include atmospheric factors such as noise, dust, vibration and pollution which can detract from the accessibility to and enjoyment of the historic environment. Equally, the increase in environmental aggressors deriving from emissions that could accelerate the erosion and decline of historic fabric are also an issue. We would encourage you to ensure that these issues are considered within the context of the historic environment as part of the on-going SEA process. We have recently updated out advice note on the concept of setting which may be helpful, this is available here:

Historic Environment Good Practice Advice in Planning Note 3: The Setting of Heritage Assets (2nd Edition) https://historicengland.org.uk/images-books/publications/gpa3-setting-of-heritage-assets/

Transport infrastructure and strategies, both large scale and small, can have adverse visual impacts upon local areas through the siting of signage, road markings, pavement works, crossings etc. These impacts can affect the character and appearance of individual heritage assets such as conservation areas. Consideration of the current condition of heritage assets within the Borough and any related observable trends can help in drawing conclusions regarding the likely environmental trajectory without the Transport Strategy and Local Implementation Plan and how this might change should these be adopted. Key sustainability issues relating to the historic environment might then also include:

- Heritage at Risk, opportunities to improve, enhance or better reveal the significance of heritage assets and their settings;
- Areas where there is a threat or likelihood of further erosion of townscape character as a result of transport strategies or potentially the impact of people's enjoyment of the historic environment

SEA Objectives:

Ideally we would expect to see to see a standalone objective which considers cultural heritage with specific reference to both designated and non-designated heritage assets and their settings. It should also seek to monitor improvements relating to the ability of people to access and enjoy the historic environment. This can be achieved through targets that seek to:

- Reduce adverse traffic impacts on the historic environment

- Maximise opportunities to improve the historic environment through appropriate transport infrastructure and public realm upgrades
- Promote appropriate streetscape improvements, including reducing unnecessary street clutter
- Support upgrades to public transport infrastructure which widens access to the historic environment

Possible indicators that could be used in relation to this objective include:

- Number of assets removed from the 'At Risk' Register
- Number of locally listed buildings

The inclusion of a separate SEA Objective that seeks to 'Protect, conserve and enhance the existing and varied character and townscape of the borough' would also be helpful given the potential impacts that transport strategies and projects may have.

Further examples of potential SEA objectives are detailed within guidance Historic England Advice Note 8: *Sustainability Appraisal and Strategic Environmental Assessment.*

Evidence base

The baseline evidence should address the historic environment rather than being focused on transport data. It is understood that the Transport Strategy will necessarily be a high level document but there should still be a consideration of the historic environment within it. Baseline Information should describe the current and likely future condition of the historic environment in terms of its significance and capacity to accommodate change. This should also help to identify areas that will be of particular sensitivity to development; help identify sustainability issues; inform monitoring indicators; and identify alternative solutions. Sources of for assembling information and baseline data for the historic environment should include:

- The National Heritage List for England www.historicengland.org.uk/the-list/
- The Heritage Gateway www.heritagegateway.org.uk
- Local Historic Environment Records (HER)
- Conservation Area Appraisals and Management Plans , Urban Design Frameworks, Area Action Plans and SPDs
- National Heritage at Risk Register
- Non-designated or locally listed heritage assets (buildings, monuments, parks and gardens, areas)
- Historic characterisation assessments e.g. the Extensive Urban Surveys and Historic Landscape/Townscape Characterisation Programme or more local documents. www.archaeologydataservice.ac.uk/archives/view/EUS/

- Visual impact assessments.

Given the presence of Royal Botanic Gardens Kew, an internationally recognised World Heritage Site (WHS), we recommend that the Kew WHS Management Plan, and the UNESCO Statement of Outstanding Universal Value are also included as part of the baseline information.

We would suggest that the Borough's local conservation officers will be well placed to ensure appropriate consideration of historic building/archaeological issues and would request their involvement from this point in the process.

Referring to the HER demonstrates that you have considered sources of evidence which will give an accurate local cross-section of local level conditions with regards to the state of the historic environment. The HER is particularly useful in terms of archaeology as an understanding of potentially sensitive sites i.e. sites where finds have been found and recorded but which are not designated or if there is a locally known but undesignated site for example, can prevent problems arising further in the Transport Strategy and Local Implementation Plan process with regards to site conditions for specific projects.