

Luton Local Transport Plan 4

Summary of Strategic Environmental Assessment: Draft Environmental Report

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1. INTRODUCTION

Strategic Environmental Assessment

In July 2004 an assessment of the effects of certain plans and programmes on the environment, known as the Strategic Environmental Assessment (SEA), became a statutory requirement in accordance with European Directive 2001/42/EC. The Directive applies to "plans and programmes, and modifications to them, whose formal preparation begins after 21 July 2004" (ODPM, 2003).

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 SEA also works to inform the decision-making process through the identification and assessment of the cumulative significant effects a plan or programme will have on the environment at the strategic level. The SEA results in an Environmental Report, which accompanies the final plan.

SEA Scoping Consultation

In accordance with the SEA Directive, the Council carried out a scoping consultation on the Luton LTP4 SEA with statutory environmental bodies in summer 2018. Responses were received from both English Heritage and the Environment Agency which included several recommendations for the improvement of the SEA objectives, as well as specific data and indicators within the environmental baseline. Several additional plans and programmes were also recommended for inclusion and these have been incorporated.

2. THE SEA CONTEXT

SEA Objectives

The SEA Directive does not specifically require the use of objectives or indicators, but they are a recognised way in which environmental effects can be described, analysed and compared. The SEA objectives describe a statement of intention and the desired direction of environmental change, whilst indicators will be used to measure the LTP's performance against the objectives and also to predict its environmental effects.

To fulfil the requirements of the SEA Directive, objectives should cover biodiversity, population, human health, fauna, flora, soil, water, air, climatic factors, material assets, cultural heritage, landscape, and interrelationships between them.¹³ **Figure 1** lists draft SEA objectives for Luton's LTP4 SEA.

Figure 1: SEA objectives for the LTP

SEA Topic	SEA Objective
Climatic factors	SEA1: To reduce greenhouse gas emissions from transport
Air	SEA2: To improve air quality in line with the National Air Quality Strategy

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Population	SEA3: To minimise noise, vibration and visual intrusion from transport
	SEA4: To improve accessibility and reduce social exclusion
Biodiversity, flora and fauna	SEA5: To implement transport solutions that minimise impacts on Luton's biodiversity and geodiversity
Landscape	SEA6: To protect and enhance the quality and distinctiveness of the landscape
Water, Soil¹	SEA7: To protect and enhance water quality in Luton
Cultural Heritage	SEA8: To maintain and enhance the character of the townscape, heritage assets and their settings
Human Health	SEA9: To contribute to improved health and amenity of local communities in Luton
Material Assets	SEA10: To maintain the physical transport infrastructure of Luton to highest standard possible

In order to assess whether the SEA objectives will complement or contradict the LTP challenges, a compatibility exercise was undertaken the results of which are shown in **Figure 2**.

Figure 2: Compatibility Matrix

	SEA1	SEA2	SEA3	SEA4	SEA5	SEA6	SEA7	SEA8	SEA9	SEA10
LTP1	+	+	+	0	+	+	+	+	+	0
LTP2	+	0	0	+	0	0	0	0	0	0
LTP3	0	0	0	+	0	0	0	0	0	0
LTP4	+	+	+	0	+	+	0	+	+	+
LTP5	0	0	0	+	0	0	0	0	+	+
LTP6	0	0	0	+	0	0	0	0	0	0
Key: + = complementary 0 = neutral - = contradictory										

3. THE ENVIRONMENTAL BASELINE

The SEA Directive requires a significant level of understanding of the baseline environment, in order to help both inform the appraisal of the individual LTPs and future stages of the SEA. This is referred to in Annex 1 (b) and 1(c) of the Directive.

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Establishing the environmental baseline provides the basis for the following:

- understanding existing environmental problems in the study area
- feeding back into the SEA objectives to reduce these problems, and
- establishing the effects of the LTP4 on the baseline data.

The establishment of an environmental baseline was considered a necessary tool to develop to provide a basis for forecasting and monitoring the effects the LTP may have on the environment. It also helps to identify existing and potential future environmental problems and issues. In order to establish environmental baseline conditions for Luton, existing environmental and sustainability data were collected from a wide range of sources.

The indicators extracted from the above data and documents were used to describe the current state of the environment and the likely evolution of the environment without implementation of the LTP as required by the SEA Directive. More data on areas likely to be significantly affected by the LTP may be required as the LTP evolves.

The rest of this section summarises the relationship between the SEA topics, objectives, indicators, baseline, as well as the trends. This information was used to describe the baseline scenario against which the environmental effects of each of the LTP4 policies will be assessed.

Environmental Baseline Summary

SEA Topic	SEA Objective	Indicator	Luton Baseline
Climatic Factors	SEA1: To reduce greenhouse gas emissions from transport	CO ₂ emissions from road transport: ² <ul style="list-style-type: none">• Total tonnes• % of total CO₂ emissions• Tonnes per capita	<ul style="list-style-type: none">• 216,880• 32%• 1.0
Air	SEA2: To improve air quality in line with the National Air Quality Strategy	Number of AQMAs declared from traffic sources of air pollution	3

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SEA Topic	SEA Objective	Indicator	Luton Baseline
Population	SEA3: To minimise noise, vibration and visual intrusion from transport	Tranquillity: ³ <ul style="list-style-type: none"> Mean Tranquillity Score Rank 	<ul style="list-style-type: none"> -70.8 85 out of 87
	SEA4: To improve accessibility and reduce social exclusion	Index of Multiple Deprivation: ⁴ % of super output areas in worst 10% nationally	3.3% (4 out of 121)
		Barriers to Housing and Services Deprivation: ⁵ Number of super output areas in the worst 10% nationally	0% (0 out of 121)
Biodiversity, flora, fauna and soil	SEA5: To implement transport solutions that minimise impacts on Luton's biodiversity and geodiversity	Special Protection Areas ⁶	0
		Ramsar sites ⁷	0
		Special Areas of Conservation ⁸	0
		Sites of Special Scientific Interest: ⁹ <ul style="list-style-type: none"> Number Area (ha) % in favourable or recovering condition 	<ul style="list-style-type: none"> 0 0 NA
		National Nature Reserves ¹⁰	0
		County Wildlife Sites ¹¹	19
		Local Nature Reserves ¹²	0
Landscape	SEA6: To protect and enhance the quality and distinctiveness of the landscape	Area of ancient woodland cover (ha) and % ancient semi-natural woodland ¹³	26.37 ha (100%)
		Greenbelt: ¹⁴ <ul style="list-style-type: none"> Total Area (ha) % of land area 	<ul style="list-style-type: none"> 140 3.2%
Water	SEA7: To protect and enhance water quality in Luton	River Catchment Data: ¹⁵ <ul style="list-style-type: none"> Overall Water Body Chemical Biological Quality Elements Ecological 	<ul style="list-style-type: none"> Bad Good Bad Bad

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SEA Topic	SEA Objective	Indicator	Luton Baseline
Cultural Heritage	SEA8: To maintain and enhance the character of the townscape, heritage assets and their settings	Registered historic parks and gardens: ¹⁶ <ul style="list-style-type: none"> Total Number % at Risk 	<ul style="list-style-type: none"> 3 0%
		Listed buildings: ¹⁷ <ul style="list-style-type: none"> Total Number % at Risk 	<ul style="list-style-type: none"> 82 0%
		Scheduled Monuments: ¹⁸ <ul style="list-style-type: none"> Total Number % at Risk 	<ul style="list-style-type: none"> 3 0%
		Conservation Areas: ¹⁹ <ul style="list-style-type: none"> Total Number % at Risk 	<ul style="list-style-type: none"> 5 40%
Human Health	SEA9: To contribute to improved health and amenity of local communities in Luton	Living Environment Deprivation: ²⁰ % of super output areas in Luton in the worst 10% nationally	5.0% (6 out of 121)
		Crime and disorder deprivation: ²¹ % of super output areas in Luton in the worst 10% nationally	5.0% (6 out of 121)
		Health deprivation: ²² Number of super output areas in Luton in the worst 20% nationally	5.0% (6 out of 121)
		Number of people killed or seriously injured in road traffic accidents ²³	80
		Obesity: ²⁴ <ul style="list-style-type: none"> Adult (including overweight) Child Year R Child Year 6 	<ul style="list-style-type: none"> 67% 11.7% 25.9%
		Active Transport Modes to work: ²⁵ <ul style="list-style-type: none"> Walking Cycling 	<ul style="list-style-type: none"> 13.5% 1.3%
Material Ass	SEA10: To maintain the physical transport	WCBI 02 - % of public satisfied with the condition of pavements ²⁶	53%
		WCBI 10 - % of public satisfied with the condition of cycle routes	54%

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SEA Topic	SEA Objective	Indicator	Luton Baseline
	infrastructure of Luton to highest standard possible	HMBI 01 - % of public satisfied with the condition of road surfaces	45%
		HMBI 05 - % of public satisfied with the provision of street lighting	63%
		HMBI 09 - % of public satisfied with the Maintenance of highway verges/trees/shrub	51%
		HMBI 11 - % of public satisfied with the provision of Drains	53%
		HMBI 12 - % of public satisfied with the keeping drains clear and working	50%
		HMBI 13 - % of public satisfied with the deals with Potholes and damaged roads	41%

3.2 Evolution of the Environmental Baseline

The baseline was used to forecast to the end of the LTP4 period in order to compare the environmental effects of the LTP4 policy options against the evolution of the environment without the LTP. The baseline scenario not only provides a basis for the prediction of environmental effects but will also assist in the long-term monitoring of the environmental effects from the implementation of the LTP4.

Forecasting the evolution of the environment in the absence of the LTP4 also helps to understand how the LTP will contribute to changes to the environment in the future. This can be done by comparing the forecast evolution or the “without the plan” scenario against the predicted effects of the LTP in later stages of the SEA. This section, therefore, evaluates the likely changes to the environment assuming no LTP is implemented.

Whilst the future scenario forecasts the evolution of the environment in the absence of LTP, it does not, however, assume that previously adopted, draft and future plans and programmes will not continue to be implemented. The SEA must assume that other adopted plans and programmes will be delivered as planned.

The most significant changes to the environmental baseline will be borne from the planned growth arising from Luton’s Local Plan documents. These documents allocate land and plan for growth in the Borough. Central and local government policies require that significant weight is given to locating new development in a sustainable way. However, it is unlikely that such a substantial amount of growth will not lead to sizeable increases in traffic growth on the road network in the absence of an LTP to provide a framework through which to manage these effects. Irrespective of the LTP, transport schemes will most likely be required to accommodate accessibility to planned housing development, particularly on greenfield sites, and also to support additional traffic on the transport network by increasing capacity on the existing transport network arising from this planned growth.

Increases in traffic on the network may lead to increases in congestion, air pollution, and noise from traffic. However, on balance, there is scope for technological improvements in vehicles and the more widespread use of alternative fuels to reduce harmful emissions and noise from transport as newer, more efficient vehicles replace older vehicles in the fleet.

Figure 3 below summarises the assessment of the evolution of the environment over the LTP4 period against the SEA environmental topics, in the absence of the LTP.

From the analysis of the baseline and the likely evolution of the environment, the current strengths and weaknesses and the future threats and opportunities relevant to transport and able to be affected by the LTP were established. These are described in **Figure 4**.

Figure 3: Assessment of the evolution of the environment against the baseline

SEA Topic	SEA Objective	Evolution Assessment	Comments
Climatic factors	SEA1	Slight Beneficial	CO ₂ emissions from transport are likely to continue to decrease, albeit, at a slower pace on a per capita basis as fuel efficiency improves and alternative fuels become more mainstream.
Air	SEA2	Moderate Beneficial	Forecasts of NO ₂ emissions estimate indicate that Luton's AQMAs are likely to be below the threshold levels by 2030.
Population	SEA3	Slight Adverse	Growth allocated through the Local Plan, coupled with increases in traffic growth, are likely to further erode tranquillity in the area.
Population	SEA4	Moderate Adverse	The main function of an LTP is to improve accessibility via transport improvements across the Borough. Therefore, without an LTP for delivering accessibility improvements, access would be likely to remain unimproved for the majority of the existing population.
Biodiversity, flora and fauna	SEA5	Neutral	The lack of designated sites in Luton, coupled with the low quantum of growth indicate that adverse effects in the absence of the LTP are unlikely.
Landscape	SEA6	Slight Adverse	Housing and employment growth is likely to have the greatest impact on the landscape and the identified housing need in Luton and the surrounding area will likely have an adverse impact on the landscape to some extent.
Water, Soil	SEA7	Slight Beneficial	The <i>Water Framework Directive</i> aims to deliver long-term protection of the water environment by improving the quality of all waters and requires all coastal and inland waters to reach "good" status. Negative impacts to the water system under this directive must be identified and a programme of measures established to address all types of impacts. This should prevent further decline of water quality in the absence of the LTP.
Cultural Heritage	SEA8	Neutral	Given the statutory protection to most heritage assets and the strong protection given through the NPPF, Cultural heritage is likely to continue to be preserved in the absence of the LTP.
Human Health	SEA9	Slight/Moderate Beneficial	Other plans and programmes in place are likely to improve health in the absence of the LTP4, although the LTP4 has the potential to further increase or enhance these beneficial effects.

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SEA Topic	SEA Objective	Evolution Assessment	Comments
Material Assets	SEA10	Large Adverse	The LTP provides the mechanism through which funding for maintaining existing transport infrastructure in Luton. Without the LTP, the material transport assets considered in this SEA would degrade significantly, particularly from increases in traffic growth coupled with a lack of maintenance, and the effect would be adverse.

Figure 4: Transport Related Environmental Problems, Issues and Recommendations

SEA Topic	Problems	Issues	Recommendation
Climate	Reductions in CO ₂ emissions from road transport are slowing down	Ensuring that transport improvements reduce greenhouse gas emissions as much as possible	The LTP should look to include measures to reduce greenhouse gas emissions from transport, through modal shift measures, the encouragement of technological improvements, changes to infrastructure and traffic management.
Air	Three AQMAs related to transport are likely adversely affecting human health	Ensuring that no new Air Quality Management Areas are declared as a result of traffic and transport and, ideally, revoking existing AQMAs.	The LTP will need to ensure that air quality is improved, particularly within AQMAs, through transport improvements to traffic management and infrastructure design and an increase in sustainable transport use.
Biodiversity, Flora, and Fauna	Possible impacts on biodiversity surrounding the Borough, loss of/severance habitats from land take for transport schemes, such as those arising from growth	Protecting of habitats and species from transport's adverse impacts, such as habitat severance, air and water pollution	The LTP will need to ensure that transport measures and schemes do not adversely impact on biodiversity and where possible should work to enhance habitats, species and ecosystem services and facilitate biodiversity and environmental nett gain.
Landscape	Possible landscape impacts from land take for transport schemes, particularly those arising from growth	Protecting the integrity of the surrounding landscape whilst still providing transport access for growth.	The LTP will need to ensure that transport improvements respect the surrounding landscape and countryside character, where appropriate.

SEA Topic	Problems	Issues	Recommendation
Population	Low tranquillity score and rank	Ensuring that transport improvements do not adversely affect noise and lighting levels in local communities	Traffic noise triggers a complex chain of responses affecting human health and well-being. The LTP should look, wherever possible, to minimise noise emissions from transport through the use of low noise surfacing, noise/ visual barriers, reducing speed limits on roads, and looking at alternative measures for traffic calming. In terms of urban design, buildings should be designed so that habitable areas are located away from the noise source.. The use of street lighting should be minimised where it is safe to do so.
Water, Soil	Water quality is currently bad and surface water flood risk is widespread	Ensuring the transport improvements do not further exacerbate poor water quality and that drainage maintenance does not contribute to surface water flooding	The LTP will need to give consideration for ways that it can affect and improve the surface and groundwater quality in the area and reduced flood risk, for example by incorporating a widespread use of SUDS, and also to ensuring that highways drains and culverts are kept clear of debris to enable flow.
Cultural Heritage	40% of Conservation Areas are at risk	Protecting and enhancing Luton's heritage assets	The LTP will need to ensure that delivery of transport improvements does not adversely affect heritage assets, and where possible, enhances them, such as in Conservation Areas.
Human Health	High levels of crime deprivation, obesity and increasing number of people injured in road traffic accidents.	Ensuring transport helps to improve health and safety in the Borough.	The LTP should include improvements that increases physically active (walking and cycling) transport choices where possible, improving access to health services by public transport and include schemes to ensure that road traffic accidents and air pollution decrease in order to protect human health.
Material Assets	Pothole satisfaction is low and declining, as is satisfaction with the condition of the road surfaces.	Maintaining and improving transport assets in such a way that facilitates modal shift.	The LTP will need to ensure that transport improvements enhance the Borough's transport assets and increase public satisfaction with these assets.

4. ENVIRONMENTAL ASSESSMENT

SEA guidance on undertaking environmental assessment recommends the prediction and evaluation of the environmental effects of the plan are considered during its production. This involves identifying changes to the environmental baseline that the plan may have. In order to make the best use of the SEA objectives (**Section 1.1**) for assessment purposes, they have been framed as questions that are linked to relevant indicators presented in the environmental baseline. Taken together, these define the “Significance Criteria” against which the effects of the draft LTP4 strategy are predicted and evaluated. Thresholds and targets have been used to further evaluate significant effects. These Significance Criteria used in appraising the environmental effects of the draft LTP4 are set out in **Appendix C** of the Environmental Report.

The policies presented within the draft Luton LTP4 were evaluated in light of their potential effects on the SEA objectives. The assessment was informed by expert judgement, spatial analysis, national/regional/local trends, and forecasting reports/studies, where available. The worksheets for each Policy in the draft LTP4 can be found in **Appendix D**. A summary of the environmental effects of each policy can be seen in **Figure 5** below.

Figure 5: Draft LT4 Environmental Assessment Summary

	SEA1	SEA2	SEA3	SEA4	SEA5	SEA6	SEA7	SEA8	SEA9	SEA10
Policy 1	0/+	0/+	0	0	0	0	0	0	0	0
Policy 2	0/+	0/+	0/+	0	0/+ ^S	0/+ ^S	0/+ ^S	0/+ ^S	+	0
Policy 3	0	0	0	0	0/+ ^S	0/+ ^S	0	0	0/+	0/+
Policy 4	0/+	0/+	0	+	0	-	0	0/-	0	
Policy 5	+	+	+	+	0/+ ^S	0/+ ^S	0/+ ^S	0/+ ^S	+	0
Policy 6	+	+	0/+	0/+	0/+ ^S	0	0	0/+ ^S	0	0
Policy 7	+	+	0/+	0	0/+ ^S	0	0	0/+ ^S	0	0
Policy 8	0/+	0/+	0	0	0	0	0	0	0	0
Policy 9	+/-	+/-	0/-	0	+ ^S /-	+ ^S /--	0/-	0/-	0	0
Policy 10	0/+/-	0/+/-	0	0	0	0	0	0	0	0
Policy 11	+	+	+	0	0	0	0	0	0	0
Policy 12	0	+	0	0	0/+ ^S	0	0	0/+ ^S	0	0
Policy 13	0	0	+	0	0/+ ^S	0	0	0	+ ^S	0
Policy 14	0/+ ^S	0/+ ^S	0/+ ^S	0	0/+ ^T	0/+ ^T	0/+ ^T	0/+ ^T	+	0
Policy 15	0/-	0/-	0	0	0	0	0	0	+	0
Policy 16	0	0	0	0	0	0	0	0	++	0
Policy 17	0/+ ^S	0/+ ^S	0/+ ^S	0	0/+ ^T	0/+ ^T	0/+ ^T	0/+ ^T	+	+
Policy 18	0	0	0	0	0	0	0	0/+	0	0
Policy 19	0	0	0	0	0	0	0	0	0	+
Policy 20	0/-	0	0/-	0	0	0	0	0	0/+	0
Policy 21	0	0	0	+	0	0	0	0	0/+	0
Policy 22	0	0	0	0	0	0	0	0	0	+

Very Beneficial ++
Very Adverse --

Moderate Beneficial +
Moderate Adverse -

Slight Beneficial 0/+
Slight Adverse 0/-

Beneficial and Adverse Impact +/-
No significant impact 0

4.1 Secondary, Tertiary, Cumulative and Synergistic Effects

Many primary environmental effects can lead to secondary, tertiary, cumulative or synergistic effects in other areas. Before undertaking appraisal, an environmental impact matrix exercise was undertaken, focused on transport related environmental effects (**Figure 6**).

Figure 6: Environmental Effects Matrix

		Secondary Effects									
		Climate Change	Air Quality	Noise	Biodiversity	Water	Landscape	Human Health	Cultural Heritage	Population	Flooding
Primary Effects	Climate Change										
	Air Quality										
	Noise										
	Biodiversity										
	Water										
	Landscape										
	Human Health										
	Cultural Heritage										
	Population										
	Flooding										

The matrix allowed for the following general assumptions to be made about where secondary effects may occur and these were carried forward through the appraisal:

- Climate change effects are likely to impact on air quality, flooding, human health, water, population, biodiversity and landscape
- Air quality effects are likely to lead to secondary effects on human health and biodiversity
- Flooding effects are likely to lead to secondary effects on human health, population, biodiversity, landscape and soil and water quality
- Effects on the landscape are likely to lead to secondary effects on biodiversity
- Water and soil quality effects are likely to lead to secondary effects on human health, biodiversity and landscape.

4.2 Overall Environmental Effects: Draft LTP4 Strategy

The majority of the Luton LTP4 policies focus on encouraging a modal shift towards active, sustainable modes of transport, reducing greenhouse gas and air pollution emissions from transport, improving accessibility, particularly by sustainable modes of transport, and improving road safety.

In general, it was determined that any measure which encourages a modal shift in order to reduce congestion (such as walking, cycling and public transport measures and schemes, as well as all smarter choices) may lead to beneficial environmental effects by mitigating out the adverse effects that arise from motorised transport modes. This includes reducing greenhouse gas emissions, air pollution emissions, noise and vibration. The secondary effects of those benefits may lead to less stress on biodiversity, the landscape and water resources.

4.2.1 Climatic Factors (SEA1)

In general, many of the draft Luton LTP4 policies will work to reduce carbon dioxide (CO₂) emissions from transport, either directly or indirectly. In particular, measures that will encourage a modal shift will lead to reductions in road transport greenhouse gas emissions, including:

- Travel planning
- Walking and cycling network improvements
- Public transport improvements

The draft Luton LTP4 also includes two specific policies (**Policy 6** and **Policy 7**) to support the use of low emission vehicles, car clubs and more efficient driving practices, which will also work to reduce greenhouse gas emissions from transport.

However, the potential for capacity enhancements outlined within **Policy 9** may facilitate traffic growth, therefore leading to additional greenhouse gas emissions from road transport from the additional traffic on the network.

The proposed 20 mph zones within **Policy 15** may also have an uncertain effect on CO₂ emissions, as the average vehicle travelling at a constant 30 mph will emit less CO₂ than at a constant 20 mph. However, DfT has suggested that driving more slowly at a steady pace will save fuel and carbon dioxide emissions unless an unnecessarily low gear is used. 20 mph zones may also encourage a modal shift by providing a safer environment in which to walk and cycle, which may reduce CO₂ emissions.

4.2.2 Air Pollution (SEA2)

Air quality has been identified as a particular problem in several locations across Luton, predominantly as a result of traffic emissions. The draft Luton LTP4 includes a specific policy for managing air pollution, **Policy 12**, which focuses on ensuring that no new AQMAs are declared over the LTP4 period, particularly as a result of new development.

Overall, many of the Luton LTP4 policies will work to reduce air pollution emissions from transport, as well as minimise air pollution emissions that may arise from growth, either directly or indirectly. In particular, measures that will encourage a modal shift will lead to reductions in road transport air pollution emissions, including:

- Travel planning
- Walking and cycling network improvements
- Public transport improvements

Additionally, the Luton LTP4 policies for reducing CO₂ emissions from motorised transport in **Policy 6** and **Policy 7** are also likely to lead to reductions in air pollution emissions.

However, the potential for capacity enhancements outlined within **Policy 9** may facilitate traffic growth, therefore leading to additional air pollution emissions from road transport from the additional traffic on the network. Linking signal settings at adjacent junctions can further enhance Urban Traffic Management and Control systems so that groups of vehicles travel at optimal speeds, minimising heavy acceleration and braking which avoids 'wear and tear' on both vehicles and the road surface, which is one of the causes of 'particulate matter'.

The proposed 20 mph zones within **Policy 15** may also have an uncertain effect on air pollution emissions, as the average vehicle travelling at a constant 30 mph will emit less air pollution than at a constant 20 mph. However, DfT has suggested that driving more slowly at a steady pace will save fuel and carbon dioxide emissions unless an unnecessarily low gear is used and it is possible to assume that results for air pollution emissions may be similar.¹ 20 mph zones may also encourage a modal shift by providing a safer environment in which to walk and cycle, which may reduce air pollution emissions.

4.2.3 Population: Noise, Vibration and Visual Intrusion (SEA3)

In general, the plan includes policies through which noise and vibration from transport will be minimised and/or reduced, albeit indirectly. Strategy tools and measures proposed that will encourage a modal shift and therefore traffic reductions may lead to reductions in road noise and vibration from transport, including:

- Travel planning
- Walking and cycling network improvements
- Public transport improvements
- Measures to reduce congestion in general, such as network efficiency improvements
- 20 mph zones
- Traffic management /reductions in residential areas

Policy 6 seeks to encourage the use of electric vehicles, which would also lead to reductions in noise from vehicles.

Policy 13 specifically seeks to reduce noise, vibration and light pollution from traffic and transport schemes.

However, the potential for capacity enhancements outlined within **Policy 9** is likely to increase noise and vibration in line with increasing road capacity in those specific areas where capacity is to be increased. The increased street lighting proposed in **Policy 20** may increase visual intrusion from street lighting and adversely impact on tranquillity, which is already extremely low.

4.2.4 Population: Accessibility and Social Inclusion (SEA4)

Accessibility, in general, will be enhanced by the majority of the draft Luton LTP4 policies. Many of the transport improvements outlined within the draft Luton LTP4 policies are aimed at improving accessibility by public transport, walking and cycling. These should work to mitigate the potential for adverse environmental effects to be borne out of increases in road infrastructure for providing access to developments and services.

Policies 21 and 22 also offer specific improvements aimed at facilitating access for the disabled and/or those with special needs.

No measures were identified as having adverse effects on accessibility. Additionally, several of the options within the economy and environment chapter will also work to improve accessibility via sustainable modes of transport, particularly through workplace, residential, school and personal travel planning. The public transport improvements proposed are also likely to increase the proportion of the population within 20 minutes of employment by public transport.

¹ Department for Transport, *Call for comments on revision of DfT's speed limit circular*, December 2009.

4.2.5 Biodiversity, Geodiversity, Flora and Fauna (SEA5)

Overall, biodiversity is likely to benefit from secondary or tertiary effects from the LTP4 policies that reduce greenhouse gas and air pollution emissions.

However, the potential capacity enhancements outlined within **Policy 9** may have adverse impacts on biodiversity, particularly those designated sites within the vicinity of the planned capacity improvements. In particular, it is possible that some of the large-scale transport infrastructure schemes required to facilitate growth may adversely affect an SSSI. Adverse impacts on biodiversity may also arise from increases in air pollution, water pollution and noise in the vicinity of these capacity improvements.

All road building schemes that require more than 1hectare of land-take will be required to undergo Environmental Impact Assessment (EIA) screening. The EIA process should be used to identify specific opportunities available for mitigating adverse effects on biodiversity and to aid in the implementation of **Policy 4 and Policy 9**.

4.2.6 Landscape (SEA6)

Overall, none of the LTP4 policies will provide any directly beneficial effects on the Landscape. Cumulative and secondary impact assessment identified that climate change, water and soil pollution and flooding can lead to secondary impacts on the landscape (**Section 4.1**).

However, the potential for capacity enhancements outlined within **Policy 9** and the proposal for a Butterfield Park and Ride site within or near to the AONB may have adverse impacts on the local landscape, specifically the Chilterns Area of Outstanding Natural Beauty (AONB). In particular, it is likely that some of the large-scale transport infrastructure schemes required to facilitate growth may adversely affect the AONB. Adverse impacts on the enjoyment of this protected landscape may also arise from increases in air pollution and noise in the vicinity of these capacity improvements, further deteriorating tranquillity in and around the Luton area.

All road building schemes will be required to undergo Environmental Impact Assessment (EIA) screening. The EIA process should be used to identify specific opportunities available for mitigating adverse effects on the landscape and to aid in the implementation of **Policy 4 and Policy 9**.

4.2.7 Water and Soil (SEA7)

Water and soil resources are unlikely to be significantly affected by the LTP4 policies. It is worth noting that any new transport infrastructure is likely to provide pollution control measures in line with the Design Manual for Roads and Bridges (DMRB) guidance.

Other non-infrastructure based measures within the plan, such as those to encourage modal shift, may have secondary benefits on water and soil quality by reducing traffic overall, which can cause water and soil pollution from leaking fluids from motorised vehicles.

4.2.8 Cultural Heritage (SEA8)

The Luton townscape is likely to benefit overall from many of the LTP4 policies proposed, particularly from the encouragement of modal shift and traffic management measures in the urban area by reducing traffic in these areas, and therefore reducing the impacts that traffic would have on the townscape.

However, the potential for capacity enhancements outlined within **Policy 9** may have adverse impacts on local heritage assets, depending on detailed scheme locations. In particular, the proposed Butterfield Park and Ride site appears to be very near to Putteridge Bury Historic Park and Garden and may lead to impacts on this asset. Adverse impacts on the conservation and enjoyment of heritage assets may also arise from increases in air pollution and noise in the vicinity of these capacity improvements.

All road building schemes will be required to undergo Environmental Impact Assessment (EIA) screening. The EIA process should be used to identify specific opportunities available for mitigating adverse effects on the heritage assets and to aid in the implementation of **Policy 9**.

4.2.9 Human Health (SEA9)

Benefits to human health are predicted as a result of the draft Luton LTP4. In particular, nearly all of the Safer and Inclusive Communities policies in **Chapter 11** will work to reduce the number and severity of road traffic accidents in Luton and improve safety overall, which will positively affect human health. **Policy 20**, although not entirely transport related, may also work to reduce crime deprivation in the Luton area.

Additionally, the emphasis on modal shift to walking and cycling will bring about improvements in physical fitness and many of the policies for supporting the environment (**Chapter 10**) are designed to encourage a modal shift to more physically active modes of transport. In turn, the behavioural change from people switching from driving to walking, cycling or possibly even using public transport will work to improve human health by encouraging people to use “active” transport modes rather than sedentary modes.

However, the potential for capacity enhancements outlined within **Policy 9** will accommodate traffic growth in the area. Increases in traffic volumes from capacity enhancements may have primary and secondary effects on human health, from a larger number of road traffic accidents on those roads and possibly from increased air pollution emissions on a localised basis.

4.2.10 Material Assets (SEA10)

Policies 19 and 22 were identified as having beneficial effects on the maintenance and management of Luton’s transport assets. However, many of the Luton LTP4 policies will support the overall expansion of Luton’s transport assets. In particular, the footway and cycleway assets are likely to be extended, as well as street furniture (bus stops, cycle parking, signage etc.), signals and Rights of Way. Although these will increase the overall value of Luton’s transport assets, they are also likely to lead to increased maintenance implications in the longer term.

Additionally, those measures that encourage modal shift may lead to reductions in traffic, which may, in turn, have the secondary effect of reducing road maintenance requirements, as motorised vehicles cause the most damage to road assets. Measures to encourage freight modal shift within **Policy 11** may also positively impact on maintenance requirements, as heavy goods vehicles on the roads are likely to cause a disproportionate amount of road damage when compared with passenger cars.

5. MITIGATION RECOMMENDATIONS

In accordance with SEA guidance measures to prevent, reduce or offset significant adverse effects the draft LTP4 policies have been considered based on the outcomes of the environmental assessment and these are outlined in **Figure 7**. In general, the recommendations described here offer ways of enhancing the environmental effects of the plan during the subsequent stages of its development.

Figure 7: General Policy Mitigation Recommendations

Measure	Recommendation
Policy 4	<p>In order to combat street clutter, ensure that public transport street furniture (such as bus shelters and on-street ticket vending machines) are placed in such a way as to minimise the obstruction they cause and also are of a design that is in keeping with the character of the area.</p> <p>Consideration should also be given on ways to reduce any potential adverse effects of the Butterfield Park and Ride site near to the AONB and Putteridge Bury Historic Park and Garden. General Park and Ride mitigation could include:</p> <ul style="list-style-type: none">• Car park lighting switch-off outside hours of Park and Ride operation• Using hooded car park lighting that reduces upwards light spillage• Using LED bulbs or integrated solar panels for Park and Ride car park lighting to reduce energy consumption and CO₂ emissions• Providing noise barriers around the Park and Ride sites (such as large-scale planting schemes or noise buffering walls)• The use of low noise surfacing for paving car parks• Preferential parking for low emission vehicles and/or car sharers• Electric vehicle recharging points – supplied by a renewable energy source• Requiring low emission buses when contracting Park and Ride services• Requiring eco-driver training for bus driver when contracting new Park and Ride services• Requiring vehicle specifications to include air conditioning, white roofs, tinted windows and adequate ventilation to increase resilience and comfort during heat wave events when contracting new Park and Ride services

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Measure	Recommendation
Policy 9	<ul style="list-style-type: none">• Use of low noise surfacing in all capacity enhancement schemes will ensure that noise from increased traffic flows is minimised.• Where capacity enhancements are likely to affect designated sites of nature conservation importance, measures to prevent, reduce or compensate should be put in place to minimise the adverse impacts on biodiversity.• Since capacity enhancement schemes are likely to be large schemes, the use of Environmental Impact Assessment and the implementation of its recommendations should work to minimise the adverse impacts of these schemes as much as possible. Additionally, the use of alternative options testing through the New Approach to Appraisal (NATA) method should work to ensure that sustainable alternatives are given due consideration.
Policy 10	Whilst this may work to reduce commuting by car, it may also encourage more short trips, increasing greenhouse gas and air pollution emissions overall. The introduction of differential parking tariffs based on vehicle emissions, in combination with parking controls on long stay parking opportunities, could be considered.
Policy 15	In general, should ensure a constant speed in 20mph zones in areas currently declared as AQMAs, and also in areas within a 10% margin of “safe” pollution concentration levels, rather than stop/start and braking/accelerating traffic.

6. ENDNOTES – DATA SOURCES

¹ As an urban area, soil quality is less relevant to Luton than in more rural areas.

² DECC, Emissions of carbon dioxide for Local Authority Areas, 2018 (June 2020).

³ Campaign to Protect Rural England, 2006

⁴ MHCLG, Indices of Multiple Deprivation, 2019

⁵ MHCLG, Indices of Multiple Deprivation, 2019

⁶ Natural England, 2020

⁷ Natural England, 2020

⁸ Natural England 2020

⁹ Natural England 2020

¹⁰ Natural England 2020

¹¹ Luton Borough Council,
https://www.luton.gov.uk/environment/land_and_premises/conservation/pages/conservation1.aspx

¹² Natural England, 2020

¹³ Natural England, 2020

¹⁴ MHCLG, *Local Planning Authority Green Belt Statistics: England 2018/19*

¹⁵ Environment Agency, River Catchment Data, 2016

¹⁶ Historic England, *Heritage At Risk*

¹⁷ Historic England, *Heritage At Risk*

¹⁸ Historic England, *Heritage At Risk*

¹⁹ Historic England, *Heritage At Risk*

²⁰ MHCLG, *Indices of Multiple Deprivation*, 2019

²¹ MHCLG, *Indices of Multiple Deprivation*, 2019

²² MHCLG, *Indices of Multiple Deprivation*, 2019

²³ DfT, *Reported Road Casualties Great Britain Annual Report 2018*

²⁴ Luton Public Health Intelligence Team, *Diabetes Health Needs Assessment Luton Borough Council*, 2016.

²⁵ Census 2011

²⁶ Luton National Highways and Travel Survey, 2019.